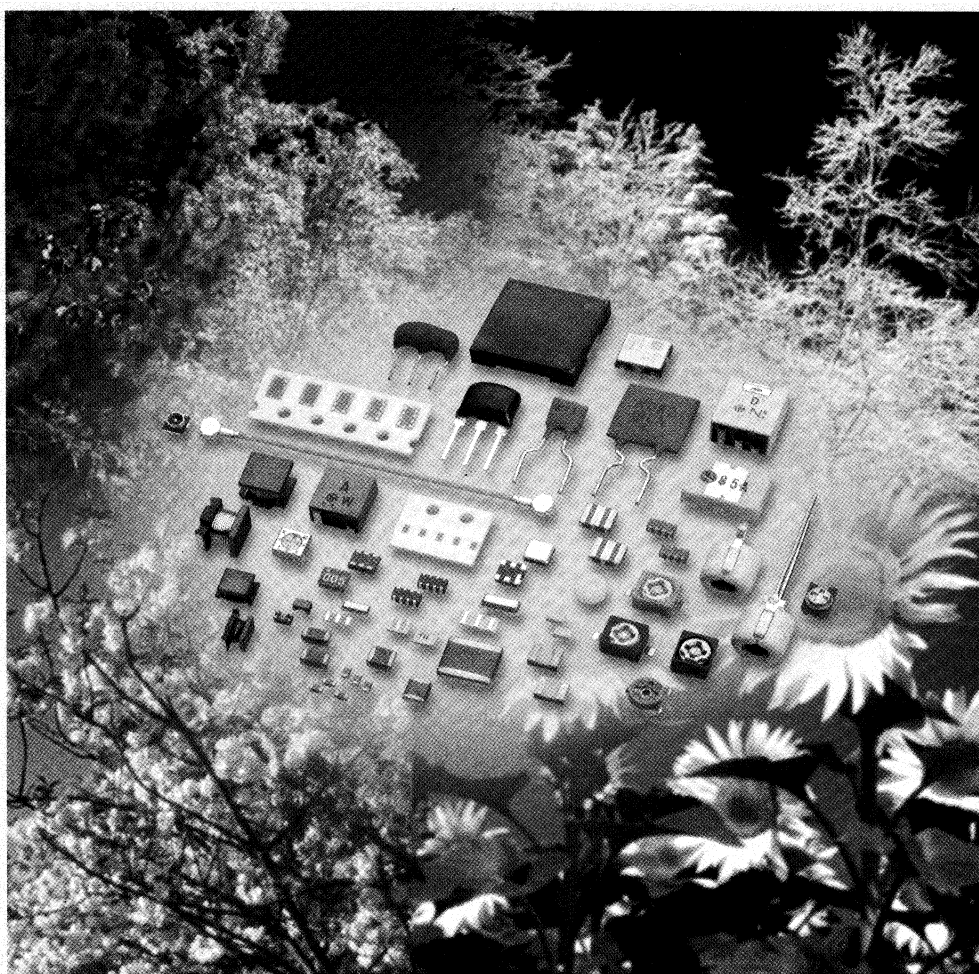


**2002
MURATA PRODUCTS**

Innovator in Electronics



**AVNET[®]
TIME**

Takkebijsters 2, P.O. Box 6824, NL-4802 HV Breda
T: +31 76 57 22 300 F: +31 76 57 22 303
www.avnettime.com

Explanation on Part Numbers Change

All the Part Numbers given in the text and specification tables of this catalog are "Global Part Numbers" that have been adopted since June 2001. When referring to the contents of this catalog, please check carefully.

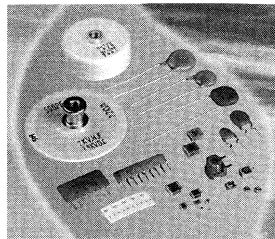
"Global Part Numbers Index" and "Previous Part Numbers Index" of this catalog allow you to find both the Previous and Global Part Numbers. For your reference, "Global Part Numbering" are described on the first page of each chapter.

Previous Part Numbers Index	365–369
Global Part Numbers Index	370–374
Part Numbering (on the first page of each chapter)	
1 Capacitors	16–25
2 Resistors/Thermistors	78–87
3 Coils/Delay Lines	116–117
4 Noise Suppression Products/EMI Suppression Filters (EMIFIL®)	146–158
5 Resonators	206–207
6 Piezoelectric Sound Components	216–217
7 Filters for Communication Equipment	224–226
8 Microwave Components	264–269
9 Microwave Modules	290
10 Filters for Audio Visual Equipment	296–301
11 Products for Video Equipment	
Focus Adjusting Resistors	330
14 Sensors	346–348

For details, please inquire at your usual Murata sales office or distributor.

CONTENTS

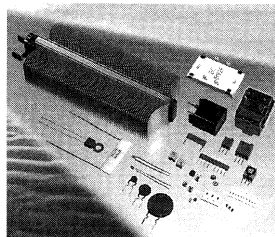
Minimum Quantity* Guide..... 4-14



Capacitors

Global Part Numbering	16-25
Monolithic Ceramic Capacitors Capacitance Range	26
Monolithic Ceramic Capacitors	27-46
Monolithic Ceramic Cap. (medium-voltage/Safety Std. Recognized) ..	47-50
Monolithic Ceramic Cap. (lead type) ..	51-54
Disc Ceramic Capacitors Capacitance Range ..	55

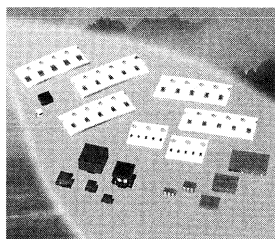
Ceramic Capacitors (12-500V)	56-57
High-Voltage Ceramic Cap. (250V-6.3kV) ..	58-60
Safety Standard Recognized Ceramic Cap. .	61-64
High-Voltage Ceramic Cap. (10-40kV) ..	64-66
High-Frequency Power Ceramic Capacitors .	67-68
Ceramic Trimmer Capacitors	69-72
C Networks	73-75



Resistors/Thermistors

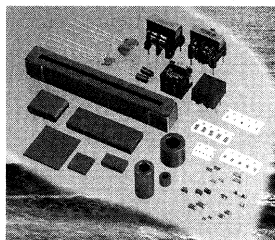
Global Part Numbering	78-87
PTC Thermistors for Heater	88
PTC for Circuit Protection	88-93
PTC for Overheat Sensing	93-94
PTC for Motor Starters	94-96
PTC for Degaussing Circuits	96-97
NTC for Temperature Compensation .	97-100

NTC for Temperature Sensor	100-101
NTC for Inrush Current Suppression .	101-102
High Voltage Resistors	102-103
R Networks	103-104
Trimmer Potentiometers	104-113



Coils/Delay Lines

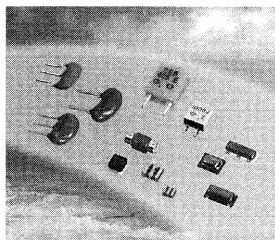
Global Part Numbering	116-117
Chip Coils Inductance Range	118-119
Chip Coils	119-142
Chip Multilayer Delay Lines	143-144



Noise Suppression Products/ EMI Suppression Filters (EMIFIL®)

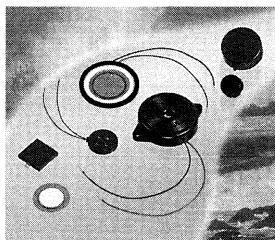
Global Part Numbering	146-158
Effective Frequency Range	159
EMIFIL® (SMD)	160-181
EMIFIL® (lead type)	181-191
Chip Varistors	191

EMIGUARD® (EMIFIL® with Varistor Function) .	192-193
AC Line Filters	193-197
RC/C Modules	198
Microwaves Absorbers	199
Ferrite Cores for EMI Suppression	199-204



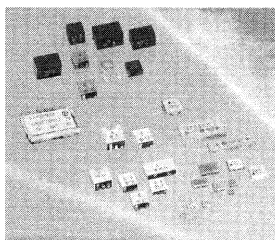
Resonators

Global Part Numbering	206-207
Ceramic Resonators (CERALOCK®)(MHz)	208-211
Ceramic Resonators (CERALOCK®)(kHz) .	211-212
SAW Resonators	213
BGS Resonators	214



Piezoelectric Sound Components

Global Part Numbering	216-217
Piezoelectric Speakers (CERAMITONE®) .	218
Piezoelectric Diaphragms	218-219
Piezoelectric Buzzers	219
Piezoelectric Sounders	220-221
Piezoelectric Ringers (PIEZORINGER®) .	221-222



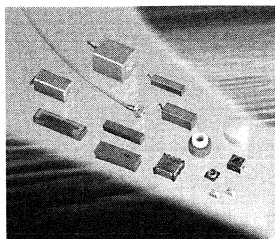
Filters for Communication Equipment

Global Part Numbering	224-226
Antennas/Duplexers	227-229
for RF/Local	229-243
for IF	244-261

* "Minimum Quantity" means the numbers of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity". (Please note that the actual delivery quantity in a package may change sometimes.)

Details of these products are available at "Search Engine" on the web. (Except for customized products) (<http://www.murata.co.jp/search/>)
 The CD-ROM of the same contents is also available. Please contact our sales offices.

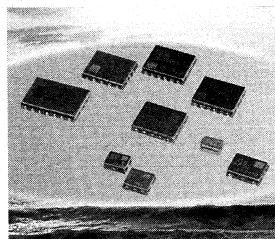
8



Microwave Components

Global Part Numbering	264-269	Dielectric Resonators (RESOMICS®) ..	277-278
Isolators	270	High-Frequency Monolithic	
Chip Multilayer Hybrid Couplers ..	271-273	Ceramic Capacitors	279-283
Chip Multilayer Hybrid Baluns ..	273-274	High-Frequency Microchip	
Field-Effect Transistors (MESFET)	275	Capacitors	283-286
Chip Multilayer Antennas	276	Coaxial Connectors	287
Chip Dielectric Antennas	276	Coaxial Connectors with Switches	288

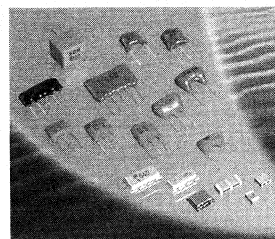
9



Microwave Modules

Global Part Numbering	290
RF Diode Switches	291-292
VCOs	292
PLL Modules	293

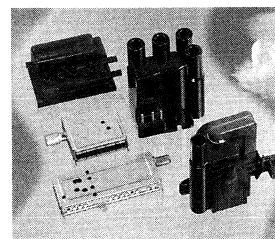
10



Filters for Audio Visual Equipment

Global Part Numbering	296-301	Discriminators for TV/VCR	314-315
CERAFIL® for AM	302-305	Traps for TV/VCR	316-319
CERAFIL® for Search-stop		SAW Filters for TV/VCR	319-324
Signal Detection	305	SAW Filters for Digital Broadcasting ..	325
CERAFIL® for FM	306-310	SAW Filters for TV/VCR Dual Type ..	325-326
Discriminators for FM	311	BGS Filters	326
CERAFIL® for TV/VCR	312-314		

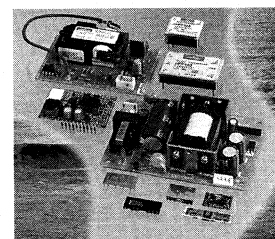
11



Products for Video Equipment

Tuners (for TV/VCR/CATV)	328
Flyback Transformers	329
Focus Adjusting Resistors	330-332
Global Part Numbering	330
High-Voltage CR Blocks	332

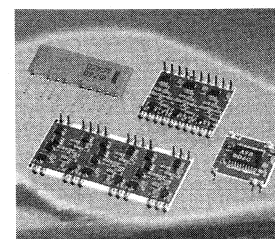
12



Power Supplies

Switching Power Supplies	334
Ultra-Low Profile Switching	
Power Supplies	335
High-Voltage Power Supplies ...	335-336
DC/DC Converters	337-338
Piezoelectric Inverters	339

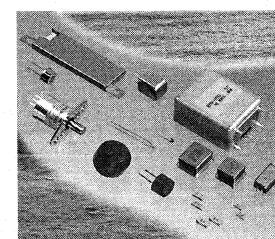
13



Functional Modules/Hybrid ICs

Modules for OA Equipment	342
Modules for Video Equipment	342
Modules for Communication Equipment ..	342-343

14



Sensors

Global Part Numbering	346-348	Shock Sensors	358-359
Sensor Applications	349	Built-in Circuit Acceleration Sensors ..	359
PTC Thermistors (for overheat sensing) ...	350-351	Piezoelectric Gyroscopes (GYROSTAR®) ..	359-360
NTC Thermistors (for temperature sensor) ..	351-352	Non-contact Potentiometers	360
Pyroelectric Infrared Sensors	352	Rotary Sensors	361
Pyroelectric Infrared Sensor Modules ..	353	Magnetic Pattern Recognition Sensors ..	361-362
Ultrasonic Sensors	354-358	Electric Potential Sensors	362

1
2
3
4
5
6
7
8
9
10
11
12
13
14

1 Capacitors

Products Name	Part Number	Dimensions (mm)			Minimum Quantity				
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Bulk Case	Ammo Pack
● Chip Monolithic Ceramic Capacitors									
Ultra - Small Type	GRP03	0.6	0.3	0.3	15000		1000		
for Flow / Reflow Soldering	GRP15	1.0	0.5	0.5	10000	50000	1000	50000	
	GRM18	1.6	0.8	0.8	4000	10000	1000	15000	
	GRM21	2.0	1.25	0.6	4000	10000	1000	10000	
		0.85		4000	10000	1000			
		1.25		3000	10000	1000	5000		
	GRM31	3.2	1.6	0.85	4000	10000	1000		
				1.15 ¹⁾	3000	10000	1000		
				1.6	2000	6000	1000		
	GRM32	3.2	2.5	1.15	3000	10000	1000		
				1.35	2000	8000	1000		
				1.8	1000	4000	1000		
				2.5	1000	4000	1000		
	GRM43	4.5	3.2	2.0	1000	4000 ²⁾	1000		
GRM55	5.7	5.0	2.0	1000	4000 ²⁾	1000			
Smoothing Type	GJ221	2.0	1.25	1.25	3000	10000			
	GJ231	3.2	1.6	1.15	3000	10000			
	GJ232	3.2	2.5	1.35	2000	8000			
				1.6	2000	6000			
				1.8	1000	4000			
	GJ243	4.5	3.2	2.0	1000	3000			
2.5				500	2000				
High - Power Type	GJ615	1.0	0.5	0.5	10000	50000	1000	50000	
High - Q & High Power Type	ERF1D	1.4	1.4	0.8	2000		1000		
	ERF22	2.8	2.8	2.0	1000		1000		
for High - Frequency	ERA11	1.25	1.0	1.2			1000		
	ERA21	2.0	1.25	1.45	3000		1000		
	ERA32	3.2	2.5	1.9	2000		1000		
High - Frequency for Flow / Reflow Soldering	GQM18	1.6	0.8	0.8	4000	10000	1000		
	GQM21	2.0	1.25	0.85	4000	10000	1000		
for Ultrasonic Sensors	GRM21	2.0	1.25	0.85	4000	10000	1000		
Monolithic Microchip	GMA05	0.5	0.5	0.35			400 ³⁾		
	GMA08	0.8	0.8	0.5			400 ³⁾		
Capacitor Array	GNM31	3.2	1.6	0.8	4000	10000	1000		
				1.0	3000	10000	1000		
Low - ESL Capacitors Wide - Width Type	LLL18	0.8	1.6	0.6	4000	10000	1000		
	LLL21	1.25	2.0	0.6	4000	10000	1000		
				0.85	3000	10000	1000		
	LLL31	1.6	3.2	0.7	4000	10000	1000		
1.15				3000	10000	1000			

1) 1.30mm of GRM31X is also available.

2) 5,000pcs. for T1.15mm

3) Tray

Continued on the following page.

"Minimum Quantity" means the numbers of units of each delivery or order. The quantity should be an integral multiple of the "Minimum Quantity". (Please note that the actual delivery quantity in a package may change sometimes.)
Please contact nearest sales office for details of products not listed above.

Minimum Quantity Guide

Continued from the preceding page.

Products Name	Part Number	Dimensions (mm)			Minimum Quantity					
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Bulk Case	Ammo Pack	
Medium - Voltage Chip Monolithic Ceramic Capacitors	GRM21	2.0	1.25	1.0	4000					
				1.25	3000					
	GRM31	3.2	1.6	1.0	4000					
				1.25	3000					
				1.6	2000					
	GRM32	3.2	2.5	1.5	2000					
				2.0	1000					
	GRM42	4.5	2.0	2.0	2000					
	GRM43	4.5	3.2	1.5	1000					
				2.0	1000					
				2.5	500					
	GRM55	5.7	5.0	2.0	1000					
				2.7	500					
	Products which are Based on the Electrical Appliance and Material Safety Low of Japan Safety Standard Recognized	GA252	5.7	2.8	2.0	1000				
GA255		5.7	5.0	2.0	1000					
GA342		4.5	2.0	2.0	2000					
GA343		4.5	3.2	2.0	1000					
GA352		5.7	2.8	2.0	1000					
GA355		5.7	5.0	2.0	1000					
				2.7	500					
● Monolithic Ceramic Capacitors Lead Type Radial Lead Type	RPE_1	3.5	3.0	2.5			500		1500	
	RPE_2	5.0	3.5	2.5			500		2000	
				3.15			500		2000	
	RPE_3	5.0	4.5	3.15			500		2000	
	RPE_4	7.5	5.0	2.5			500		2000	
				3.15			500		2000	
	RPE_5	7.5	7.5	4.0			500		2000	
RPE_6	10.0	8.5	4.0			500		1500		
RPE_7	12.5	12.5	5.0			100				
High - Q & High Power Type	ERH1X	1.6	1.4	1.6			50			
	ERH3X	3.2	2.8	3.0			50			
High - Frequency Type	ERD32	4.0	3.0	2.3			100			
● Ceramic Capacitors (12V - 500V)	DD						1000		2000	
● High-Voltage Ceramic Capacitors 125 deg. / Low - Loss / DC250V - 3kV	DEH (other than below)						1000			
	DEH_N2A								1500	
	DEH_N3A/DEH_P3A								900 ¹⁾	
	DEH_N7A								500	
125 deg. / Class 1 / DC1kV - 3kV	DEA (other than below)						1000			
	DEA_N2A/DEA_P2A								1500	
	DEA_N3A/DEA_P3A								900 ¹⁾	
	DEA_N7A								500	
Class 2 / DC1kV - 3kV	DEB (other than below)						1000			
	DEB_N2A/DEB_P2A								1500	
	DEB_N3A/DEB_P3A								900 ¹⁾	
	DEB_N7A								500	
Class 1, 2 / DC6kV	DEC						1000			
● Safety Standard Recognized Ceramic Capacitors Type KY (UL, IEC60384-14 Class X1/Y2)	DE2 (other than below)						1000			
	DE2_N2A								1000	
	Type KH (UL, CSA, IEC60384-14 Class X1 / Y2)	DE2 (other than below)						1000		
		DE2_N3A								900
	DE2_N7A								400	

1) 1,000pcs. for 1kV.

Continued on the following page.

Minimum Quantity Guide

Continued from the preceding page.

Products Name	Part Number	Dimensions (mm)			Minimum Quantity				
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Bulk Case	Ammo Pack
Type KX (UL, CSA, IEC60384-14 Class X1 / Y1)	DE1 (other than below)						1000		
	DE1_N5A								500
	Products which are Bsaed on the Electrical Appliance and Material Safety Low of Japan	DEJ (other than below)					1000		
	DEJ_N2A								1500
	DEJ_N3A/DEJ_P3A								1000
● High-Voltage Ceramic Capacitors (10kV - 40kV)	DHR						100		
● Ceramic Trimmer Capacitors									
Chip Type	TZR1	1.7	1.5	0.85	3000	10000	500		
	TZS2	2.7	2.2	1.0	3000	10000	500		
	TZY2	3.2	2.5	1.25	2000	10000	500		
	TZV2	3.2	2.3	1.45	2000	8000	500		
	TZC3	4.5	3.2	1.6	1000	4000	500		
	TZB4	4.5	4.0	3.0	500	2500	500		
Lead Type	TZB4				500	2500	500		
	TZ03						1000 ¹⁾		1000
● C Networks	CGSD								1000
	B□□C						750 ²⁾		

1) 500pcs. for side adjustment type.

2) Box


2 Resistors / Thermistors

Products Name	Part Number	Dimensions (mm)			Minimum Quantity				
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Bulk Case	Ammo Pack
● POSISTOR® for Degaussing Circuits									
Case Type	PTDAA/PTDCA						250 ¹⁾		
Lead Type	PTDL7P						150		
● POSISTOR® for Motor Starters									
Console Type	PTHGA						150 ¹⁾		
Plug On Type	PTH7M/8M						50 ¹⁾		
● POSISTOR® for Circuit Protection									
SMD Type	PDG					1000			
Chip Type	PRG18	1.6	0.8	0.8	4000				
Lead Type	PTGL						100		2)
● POSISTOR® for Overheat Sensing									
Chip Type	PRF18	1.6	0.8	0.8	4000				
Lead Type	PTFL/PTFM						100		
● NTC Thermistors for Temperature Compensation									
	NCP03	0.6	0.3	0.3	15000				
	NCP15	1.0	0.5	0.5	10000				
	NCP18	1.6	0.8	0.8	4000				
	NCP21	2.0	1.25	0.85	4000				
● NTC Thermistors for Temperature Sensor	NTSA0						100		3000
● NTC Thermistors for Inrush Current Suppression	NTPD						100		750 ³⁾
● High Voltage Resistors	MHR_PA/MHR_SA						1000		
● R Networks	RGLD/RGLE/RGSD						1000		1000
● Trimmer Potentiometers									
Chip Open Type 2mm Size	PVZ2A	2.7	2.1	0.9	3000		1000		
	PVZ2K	5.4	2.1	0.9	3000		1000		
Chip Open Type 3mm Size	PVZ3A	3.6	3.1	1.85	2000		1000		
	PVZ3K	5.4	3.1	2.1	1500		1000		
	PVA3	3.5	3.0	1.85	2000		1000		
	PVS3	3.9	3.0	1.5	2500		1000		

1) Box

2) 750 to 2,000pcs. are available. Please contact us for details.

3) 400pcs. for Ø13mm and Ø11mm of 5ohm.

Continued on the following page. 

Minimum Quantity Guide

Continued from the preceding page.


Products Name	Part Number	Dimensions (mm)			Minimum Quantity				
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Bulk Case	Ammo Pack
Chip Open Type 12mm Size (Rotary Position Sensor)	PVS1	12.0	11.0	2.1		1000	50		
Chip Closed Type 2mm Size	PVF2	2.15	2.0	2.3	500		100		
Chip Closed Type 3mm Size	PVG3A/PVG3G	3.6	3.4	2.0	1000		500		
Chip Closed Type 4mm Size	PVM4	4.7	4.0	2.0	500		500		
Chip Closed Type Multi - Turns	PVG5A	5.0	4.8	3.9	250		50		
	PVG5H	4.9	4.8	3.7	500		50		
	PV01W	6.7	6.4	4.0					70
	PV01P/X	6.7	6.4	4.0					60
Lead Closed Type Single - Turn	PVC6						50	1000	50
	PV34						100		
Lead Closed Type	PV23/12						50		
	PV22						30		
	PV36/37						50	1000	

3 Coils/Delay Lines

Products Name	Part Number	Dimensions (mm)			Minimum Quantity		
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)
● Chip Coils							
for High - Frequency Horizontal Winding	LQW15A	1.0	0.5/0.6	0.5	10000		500
	LQW18A	1.6	0.8	0.8	4000	10000	500
for High - Frequency Vertical Winding	LQW31H	3.2	1.6	1.8	2000	7500	
	LQW2BH	2.0	1.5	1.78	2000	7500	
for High - Frequency Vertical Winding Ferrite Type	LQH31H	3.2	1.6	1.8	2000	7500	
for High - Frequency Monolithic Type	LQG15H	1.0	0.5	0.5	10000	50000	1000
	LQG18H	1.6	0.8	0.8	4000	10000	1000
for High - Frequency Film Type	LQP03T	0.6	0.3	0.3	10000		
	LQP15M	1.0	0.5	0.35	10000		500
for General Use Winding Type	LQH31M	3.2	1.6	1.8	2000	7500	
	LQH32M	3.2	2.5	2.0	2000	7500	
	LQH43M	4.5	3.2	2.6	500	2500	
for General Use Magnetic Shielded Type	LQH3ER	3.5	3.2	1.8	1000		
for General Use Monolithic Type	LQM18N	1.6	0.8	0.8	4000	10000	1000
	LQM21N	2.0	1.25	0.85/1.25	4000 ¹⁾	10000	1000
for Choke Winding Type	LQH31C	3.2	1.6	1.8	2000	7500	
	LQH32C	3.2	2.5	2.0/1.55	2000	7500	
	LQH43C	4.5	3.2	2.6	500		
for Choke Magnetic Shielded Type	LQH3KS	3.3	3.3	2.1	1000		
for Choke Monolithic Type	LQM21D/F	2.0	1.25	0.85/1.25	4000 ¹⁾	10000	1000
	LQM31F	3.2	1.6	1.0	3000	10000	1000
for Choke Large Current Type	LQH55D	5.7	5.0	4.7	350	1500	
	LQH66S	6.3	6.3	4.7	350		
● Chip Multilayer Delay Lines	LDH21	2.0	1.25	0.95	4000		
	LDH31	3.2	1.6	1.1	3000		
	LDH32	3.2	2.5	1.5	2000		
	LDH54	5.0	4.0	1.1-3.1	1000 ²⁾		
	LDH65	6.3	5.0	2.5	500		
	LDHA2	10.0	6.3	3.7		500	

1) Depending on inductance, some products are supplied on the 3,000pcs./reel basis.

2) 500pcs. for LDH542N0 and LDH542N5.

Continued on the following page. 

Minimum Quantity Guide

Continued from the preceding page.

4 Noise Suppression Products / (EMIFIL®)


Products Name	Part Number	Dimensions (mm)			Minimum Quantity			
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Ammo Pack
● EMIFIL® (SMD) Inductor Type								
Chip Ferrite Beads	BLM15	1.0	0.5	0.5	10000	50000	1000	
	BLM18	1.6	0.8	0.8	4000	10000	1000	
	BLM21 (BLM21BD222SN1/BD272SN1)	2.0	1.25	0.85 (1.25)	4000 (3000)	10000	1000	
	BLM31 (BLM31AF700SN1)	3.2	1.6	1.1 (1.6)	3000 (2500)	10000 (8000)	1000	
	BLM41	4.5	1.6	1.6	2500	8000	1000	
for GHz Noise Chip Ferrite	BLM18HG/BLM18HK/BLM18HD	1.6	0.8	0.8	4000	10000	1000	
Chip Ferrite Beads Arrays	BLA31	3.2	1.6	0.8	4000	10000	1000	
● EMIFIL® (SMD) Capacitor Type								
Chip EMIFIL®	NFM21C	2.0	1.25	0.85	4000		500	
	NFM3DC	3.2	1.25	0.7	4000		500	
	NFM41C	4.5	1.6	1.0	4000		500	
Chip EMIFIL® for Large Current	NFM21P	2.0	1.25	0.85	4000		500	
	NFM3DP	3.2	1.25	0.7	4000		500	
	NFM41P	4.5	1.6	1.0	4000		500	
	NFM55P	5.7	5.0	2.2	500		100	
Chip EMIFIL® Arrays	NFA31C	3.2	1.6	0.8	4000		100	
	NFA6CC	6.3	3.2	1.0	1000		100	
	NFAC1C	12.5	4.5	1.2	1000	5000	100	
● EMIFIL® (SMD) LC Combined Type								
T Type EMIFIL®	NFE31P	3.2	1.6	1.6	2000		500	
	NFE61P/NFE61H	6.8	1.6	1.6	2500	8000	500	
Winding Type	NFW31S	3.2	1.6	1.8	2000			
Monolithic Type	NFL21S	2.0	1.25	0.85	4000		1000	
● Chip EMIFIL® RC Combined Type								
Chip EMIFIL®	NFR21G	2.0	1.25	0.5	4000		500	
Chip EMIFIL® Arrays	NFA31G	3.2	1.6	0.8	4000		100	
● Chip Common Mode Choke Coils								
Film Type	DLP31S	3.2	1.6	1.15	3000		500	
Film Type Array	DLP31D	3.2	1.6	1.15	3000		500	
Monolithic Type	DLM31K	3.2	1.6	1.15	3000		500	
	DLM2HG	2.5	2.0	1.2	3000		500	
Winding Type	DLW21S	2.0	1.2	1.2	2000		500	
	DLW31S	3.2	1.6	1.9	2000		500	
Winding Type for Large Current	DLW5AH	5.0	3.6	4.3	400	1500	100	
	DLW5BS	5.0	5.0	4.5	400	1500	100	
● Lead EMIFIL® Capacitor Type								
for General small Type	DSN6/DSS6						250	2000
Broad Band Type	DSN9						250	2000
	DSS9						250	800 ¹⁾
	DST9						200	1000
Heavy - Duty Type	DSN9H						250	2000
	DST9H						200	1000
● Lead EMIFIL® Inductor Type								
	BL03						1000	2000
	BL02						500	1500
	BL01						500	1000 ²⁾
● Lead EMIFIL® LC Combined Type	BNP/BNX						100 ³⁾	
● Lead Common Mode Choke Coils	PLT08C/PLT09H						100 ⁴⁾	
● Chip Varistors								
	VCM18R	1.6	0.8	0.8	4000		500	
	VCM21R	2.0	1.25	1.25	3000		500	

1) DSS9 series are supplied on Ø320mm reel.

2) BL01RN1A1D2B is also available for Ø320mm reel (2,000pcs.).

3) 100pcs. on Box is also available.

4) Box

Continued on the following page. 

Minimum Quantity Guide

Continued from the preceding page.

Products Name	Part Number	Dimensions (mm)			Minimum Quantity			
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Ammo Pack
● EMIGUARD® (EMIFIL® with Varistor Function) Chip EMIGUARD® Lead Type EMIGUARD®	VFM41R	4.5	1.6	1.25	2500		500	
	VFR3V/VFS6V						250	2000
	VFS9V						200	800 ¹⁾
● AC Line Filters Common Mode Choke Coils Hybrid Choke Coils	PLA10/PLH10						210 ²⁾	
	FKOB						100 ³⁾	
	PLY10						200 ⁴⁾	
● RC/C Modules							1000	

- 1) Ø320mm Reel
- 2) Box. 30pcs. of magazine is also available.
- 3) Box
- 4) Box. 200pcs. of magazine is also available.


5 Resonators

Products Name	Part Number	Dimensions (mm)			Minimum Quantity			
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Ammo Pack
● CERALOCK® (MHz) Chip Type Three - Terminals Chip Type Two - Terminals Lead Type Three - Terminals Lead Type Two - Terminals	CSTCE	3.2	1.3	0.9	3000	9000	500	
	CSTCG	2.0	1.3	0.85	3000	9000	500	
	CSTCW	2.5	2.0	1.2	3000	9000	500	
	CSTCV	3.7	3.1	1.2/1.3	2000	6000	500	
	CSTCR	4.5	2.0	1.15	3000	9000	500	
	CSTCC	7.2	3.0	1.75/1.55	2000	6000	500	
	CSACW	2.5	2.0	1.2	3000	9000	500	
	CSACV	3.7	3.1	1.2/1.3	2000	6000	500	
	CSTLS_G(2.00-3.39MHz)						500	1500
	CSTLS_G(3.40-10.0MHz)						500	2000
	CSTLA_T/CSTLA_X						500	1000
CSTLS_X						500	2000	
CSALS_X						500	2000	
CSALA_X						500	1500	
CSALA_T						500	1500	
● CERALOCK® (kHz) Chip Type Lead Type	CSBFB_J(700-1250kHz)	6.0	5.0	2.3		3000	1000	
	CSBFB_J(430-519kHz)	8.5	7.5	3.3		1500	500	
	CSBLA_J						1000	100 ¹⁾
CSBLA_E						500	50 ¹⁾	
● SAW Resonators	SAR	5.0	4.0	1.7	1000	4000		
● BGS Resonators Chip Type Lead Type	MKRKA(MC44)(10-32.2MHz)	5.2	4.5	1.75	1000			
	MKRKA(MC44)(32.3-100MHz)	3.8	3.8	1.75	1000			
	MKRGA						500	1500

1) Magazine

6 Piezoelectric Sound Components

Products Name	Part Number	Minimum Quantity			
		Ø330mm Reel	Bulk (Box)	Ammo Pack	Magazine
● Piezoelectric Diaphragms External - Drives Type	7BB-12-9		5120		
	7BB-15-6		8000		


Continued on the following page. 

Minimum Quantity Guide

Continued from the preceding page.

Products Name	Part Number	Minimum Quantity				
		Ø330mm Reel	Bulk (Box)	Ammo Pack	Magazine	
	7BB-20-3		3000			
	7BB-20-4		2400			
	7BB-20-6		1800			
	7BB-20-6A0		600			
	7BB-27-4		1500			
	7BB-27-4A0		600			
	7BB-35-3		800			
	7BB-35-3A0		400			
	7BB-41-2		400			
	7BB-41-2A0		250			
	7BB-50M-1		600			
	7SB-20-7		1800			
	Self - Drives Type	7BB-20-6C		1800		
		7BB-20-6CA0		600		
7BB-27-3C			2400			
7BB-27-4C			1500			
7BB-27-4CA0			600			
7BB-35-3C			800			
7BB-35-3CA0			400			
7BB-41-2C			600			
7BB-41-2CA0			250			
7NB-27-2C			3000			
7NB-27-3C			3000			
7NB-27-4C			3000			
7SB-34R7-3C			1600			
● Piezoelectric Sounders						
External - Drives Type	PKM13EPY-4000-A0			500		
	PKM13EPY-4002-B0		330			
	PKM17EPP-2002-B0		200			
	PKM17EPP-4001-B0		200			
	PKM17EPT-4001-B0		180		70 ¹⁾	
	PKM17EW-2001		250			
	PKM22EP-2001		360			
	PKM22EPP-2001-B0		750			
	PKM22EPP-4001-B0		900			
	PKM22EPP-4005-B0		750			
	PKM22EPP-4007-B0		750			
	PKM22EPT-2001-B0		300		75 ¹⁾	
	PKM22EPT-4001-B0		300			
	PKM17EW-4000		500			
PKLCS1212E4001-R1	1000					
Self - Drives Type	PKM24SP-3805		360			
	PKM30SPT-2001-B0		70			
	PKM30SPT-2501-B0		70			
● Piezoelectric Buzzers						
	PKB24SPC-3601-B0		650			
	PKB24SW-3301		200			
	PKB30SPC-2001-B0		80			
	PKB30SPC-3001-B0		80			
● Piezoelectric Ringers (PIEZORINGER®)						
	PKM33EP-1201C		300			
	PKM34EW-1101C		25			
	PKM34EW-1201C		25			
	PKM44EP-0901		160			
● Piezoelectric Speakers (CERAMITONE®)	VSB35EW-0701B		160			
	VSB50EW-0301B		80			

1) The last two digits are changed to M0.

Continued on the following page. 

Minimum Quantity Guide

Continued from the preceding page.

7 Filters for Communication Equipment

Products Name	Part Number	Dimensions (mm)			Minimum Quantity		
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)
● Antennas / Duplexers Antennas / Duplexers Dielectric Duplexers	DFY	Depends on each part number. Please contact us for details.					
● for RF/Local Dielectric Filters (GIGAFIL®)	DFCB						
	DFCH						
SAW Filters	SAFSF/SAFSG/SAWSG/ SAFSE/SAFSD(SS22)	2.5	2.0	1.0	2000	5000	
	SAWSL(SS32) /SAWSN	3.0	2.5	1.0	2000	5000	
	SAFCC/SAWCD(SC33)	3.0	3.0	1.15	2000	5000	
	SAFCE(SC33)	3.0	3.0	1.4	2000	5000	
	SAFCG(SC44)	3.8	3.8	1.15	1000	5000	
	SAFCH(SC44)	3.8	3.8	1.5	1000	4000	
Chip Multilayer LC Filters (BPF)	LFB31_SN/SG/SP/SL	3.2	1.6	1.1-1.3	3000		
	LFB32_SB/SJ/SK/SN/SC/SQ	3.2	2.5	1.5	2000		
	LFB32_SA	3.2	2.5	1.75	2000		
Chip Multilayer LC Filters (LPF)	LFL18_TC	1.6	0.8	0.6	4000		
	LFL21_TC	2.0	1.25	0.95	4000		
	LFL31_TB	3.2	1.6	1.75	3000		
	LFL32_TB	3.2	2.5	1.75	2000		
	LFL43_AK	4.5	3.2	2.3	1000		
Chip Multilayer LC Filters (HPF)	LFH32_RA	3.2	2.5	1.5	2000		
Chip Multilayer Diplexers	LFD21_DP	2.0	1.25	0.95	4000		
	LFD31_DP	3.2	1.6	1.1	3000		
	LFD32_DP	3.2	2.5	1.1	3000		
Chip Multilayer LC Filters (Trap)	LFE21_HA	2.0	1.25	0.35	4000		
● for IF Ceramic Filter CERAFIL®	CFXCD	5.2	3.8	1.4		2500	
	CFXCA	6.5	6.5	1.9		2500	
	CFUCG/CFUCF	7.5	6.0	4.0	450		
	SFPCA455K	8.4	7.0	5.0		1000	
	CFWCA	11.5	7.5	3.0	350		
	CFULB						250 ¹⁾
	CFULA						200 ²⁾
	CFWLB						150 ²⁾
	CFWLA						150 ²⁾
	SFECS	3.45	3.1	1.4	2000		
	SFSCA	8.5	3.8	1.8		3000	
	SFJCA	8.5	5.9	1.7		3000	
Ceramic Discriminators	CDBCB	6.6	6.0	3.1	500		
	CDBLA/CDBLB						500
Chip LC Filter (Balance - Balance Type)	LFB32_SH	3.2	2.5	1.5	2000		
Chip LC Filter (Balance - Unbalance Type)	LFB32_SQ	3.2	2.5	1.5	2000		
SAW Filter	SAFCQ(SC36)	6.0	3.5	1.65	1000	4000	
	SAFCJ(SC44)	3.8	3.8	1.5	1000	4000	
	SAFCG(SC44)	3.8	3.8	1.15	1000	5000	
	SAFCT(SC57)	7.0	5.0	1.8	1000	4000	
	SAFCU(SC59)	9.1	4.8	1.8	1000	4000	
	SAFJA	9.6	5.1	2.0	500	3000 ³⁾	
	SAFCV(SC511)	11.4	5.0	1.9	1000	2000	
	SAFUW(SU511)	11.4	5.0	2.0	1000	2000	
	MKFKB(MC45)	5.2	4.5	1.75	1000		

- 1) 80pcs. of magazine is also available.
 2) 50pcs. of magazine is also available.
 3) Only SAFJA43M0WC0Z0R03.

Continued on the following page. ↗


Minimum Quantity Guide

Continued from the preceding page.

8 Microwave Components

Products Name	Part Number	Dimensions (mm)			Minimum Quantity			
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	
● Isolators	CE040	4.0	4.0	1.9	500	2000		
	CE052	5.0	5.0	1.9	250	1000		
	CE053	5.0	5.0	1.9	250	1000		
	CE073	7.0	7.0	2.3	250	1000		
● Chip Multilayer Hybrid Couplers	Hybrid Dividers	LDD21	2.0	1.25	0.95	4000		
	Couplers with Integrated LPF	LDC21	2.0	1.25	0.95	4000		
	Directional Coupler	LDC18	1.6	0.8	0.6	4000		
		LDC21	2.0	1.25	0.95	4000		
	3dB Hybrid	LDC31	3.2	1.6	0.9	3000		
		LDC32	3.2	2.5	0.9	3000		
		LDC43	4.5	3.2	1.2	1000		
		LDC55	5.7	5.0	2.2	1000		
● Chip Multilayer Hybrid Baluns	LDB21	2.0	1.25	0.95	4000			
	LDB31	3.2	1.6	1.2	3000			
● Dielectric Resonators (RESOMICS®) TEM Mode (Coaxial Resonator)	DRR020					2500		
	DRR030					2000		
	DRR040					1500		
● Chip Multilayer Antennas	LDA92_20	9.5	2.0	1.9	1000			
● Chip Dielectric Antennas	ANCG22	15.0	7.0	5.8		500		
	ANCG11	15.0	7.0	4.0		1000		
	ANCM18	9.0	4.5	4.0		1000		
	ANCM12	9.0	2.0	3.0		3000		
● Coaxial Connectors	MM9329-2700				1000	5000		
	MM7329-2702				500	2000		
	MM7329-2700				1000	4000		
● Coaxial Connectors with Switches	MM8430-2600				1000	3000		
	MM6430-2600				500	2000		
● High - Frequency Microchip Capacitors	CLB0A	0.25	0.25	0.35			100 ¹⁾	
	CLB0B	0.30	0.25	0.35			100 ¹⁾	
	CLB0C	0.35	0.25	0.35			100 ¹⁾	
	CLB0D	0.38	0.38	0.35			100 ¹⁾	
	CLB0E	0.55	0.38	0.35			100 ¹⁾	
	CLB0H	0.71	0.38	0.35			100 ¹⁾	
	CLB05	0.50	0.50	0.35			100 ¹⁾	
	CLB0G	0.70	0.50	0.35			100 ¹⁾	
	CLB0K	0.90	0.50	0.35			100 ¹⁾	
	CLB0F	0.64	0.64	0.35			100 ¹⁾	
	CLB1A	1.00	0.64	0.35			100 ¹⁾	
	CLB0J	0.76	0.76	0.35			100 ¹⁾	
	CLB1B	1.09	0.76	0.35			100 ¹⁾	
	CLB09	0.90	0.90	0.35			100 ¹⁾	
	CLB1E	1.49	0.90	0.35			100 ¹⁾	
	CLB1C	1.27	1.27	0.35			50 ¹⁾	
	CLB1G	1.73	1.27	0.35			50 ¹⁾	
	CLB2C	2.19	1.27	0.35			50 ¹⁾	
	CLB1H	1.78	1.78	0.45			50 ¹⁾	
	CLB2L	2.95	1.78	0.45			50 ¹⁾	
CLB2E	2.29	2.29	0.45			50 ¹⁾		
CLB3G	3.71	2.29	0.45			50 ¹⁾		

1) Tray

Continued on the following page. 

Minimum Quantity Guide

Continued from the preceding page.

9 Microwave Modules

Products Name	Part Number	Dimensions (mm)			Minimum Quantity		
		L	W	T	Ø180mm Reel	Ø330mm Reel	
● RF Diode Switches	RF Diode Switches	LMSW43	4.9	3.2	1.8	1000	
	SWITCHPLEXER®						
● VCOs		MQL	5.0	4.0	1.6		3000
		MQK	5.5	4.8	1.6		3000
		MQE95	7.6	5.8	1.6		3000
		MQW1	9.6	7.0	1.6		2500
● PLL Modules		HFQC80	9.8	8.0	1.8		1000
		HFQD80	9.8	8.0	1.6		1000
		HFQS80	9.8	8.0	1.8		1000
		HFQD08	12.6	8.6	1.8		1000

10 Filters for Audio Visual Equipment

Products Name	Part Number	Dimensions (mm)			Minimum Quantity				
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Ammo Pack	
● CERAFIL® for AM	Chip Type	PFWCC	5.7	5.0	1.5	1000		500	
		SFPCA	8.4	7.0	5.0		1000		
	Lead Type	PFSLA						500	1500
		PFWLA						500	1500
		SFULA						500 ¹⁾	
		SFZLA/SFPLA/CFULA						200 ¹⁾	
	CFWLA						100 ¹⁾		
● CERAFIL® for Search-stop Signal Detection	BFULA						500		
● CERAFIL® for FM	Chip Type	SFECS	3.45	3.1	1.4	2000			
		SFECV	6.9	2.9	1.5	2000			
	Lead Type	SFELA/SFELB						500	1500
		SFVLA						500	1000
		SFKLA						500	1500
	SFTLA						500		
● Discriminators for FM	Chip Type	CDACV	3.4	2.6	1.5	2000			
		CDSCA	4.5	2.0	1.2	2000			
	Lead Type	CDALA						500	1500
● CERAFIL® for TV/VCR	Chip Type	SFSKA	8.5	3.8	1.8		3000		
	Lead Type	SFSRL						500	
		SFSRA						500	2000
		SFTRD						500	
● Discriminators for TV/VCR		CDSRL					500		
		CDSRH					500	1500	
● Traps for TV/VCR	Ceramic Traps	TPSKA	8.5	3.8	1.8		3000		
		TPWKA	8.5	5.0	1.5		3000	500	
		TPWRD						500	1500
		TPSRL						500	
		TPTRD						500	1500
		TPSRA						500	2000
	BGS Traps	MKTGA						500	1500

1) 50pcs. of magazine is also available.

Continued on the following page. 

Minimum Quantity Guide

Continued from the preceding page.

Products Name	Part Number	Dimensions (mm)			Minimum Quantity			
		L	W	T	Ø180mm Reel	Ø330mm Reel	Bulk (Bag)	Ammo Pack
● SAW Filters for TV/VCR	SAFG						300	500
	SAFJA	9.6	5.1	2.0		3000		
● SAW Filters for Digital Broadcasting	SAFG						300	500
	SAFCZ	19.0	6.5	2.0		1000		
	SAFJB	11.3	5.1	2.0	500			
● SAW Filters for TV/VCR Dual Type	SAWKE	10.3	8.1	2.0		2000		
	SAWGS						300	450

14 Sensors

Products Name	Part Number	Dimensions (mm)			Minimum Quantity
		L	W	T	Ø180mm Reel
● Shock Sensors	PKGS-00ME/25ME/45ME	4.8	2.3	1.05	3000
	PKGS-00LB/25LB/45LB	6.4	2.8	1.2	2000
	PKGS-00LC/90LC	6.4	2.8	2.1	1500
	PKGS-00MF/25MF/45MF	4.8	2.3	1.05	3000
	PKGS-00NB/25NB/45NB	3.8	2.0	1.05	3000

1

Capacitors

Monolithic Ceramic Capacitors

**Monolithic Ceramic Capacitors (medium-voltage/
Safety Standard Recognized)**

Monolithic Ceramic Capacitors (lead type)

Ceramic Capacitors (12-500V)

High-Voltage Ceramic Capacitors (250V-6.3kV)

Safety Standard Recognized Ceramic Capacitors

High-Voltage Ceramic Capacitors (10-40kV)

High-frequency Power Ceramic Capacitors

Ceramic Trimmer Capacitors

C Networks

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
 (If you have any questions about details, inquire at your usual Murata sales office or distributor.)

Chip Monolithic Ceramic Capacitors

(Global Part Number) **GR M 18 8 B1 1H 102 K A01 K**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Product ID

② Series

Product ID	Code	Series
GR	M	Tin Plated layer
	P	Soldering Electrode
ER	F	High-frequency and high-power Type
	H	High-frequency and high-power Type (Ribbon Terminal)
	A	High-frequency Type
	D	High-frequency Type (Ribbon Terminal)
GQ	M	High-frequency for Flow/Reflow Soldering
GM	A	Monolithic Microchip
GN	M	Capacitor Array
LL	L	Low ESL Wide-width Type
GJ	6	Low Dissipation
	2	Smoothing Type
GA	2	for AC250V (r.m.s.)
	3	Safety Standard Recognized Type

④ Dimension (T)

Code	Dimension (T)
3	0.3 mm
4	4-elements (Array Type)
5	0.5 mm
6	0.6 mm
7	0.7 mm
8	0.8 mm
9	0.85 mm
A	1.0 mm
B	1.25 mm
C	1.6 mm
D	2.0 mm
E	2.5 mm
M	1.15 mm
N	1.35 mm
R	1.8 mm
Q	1.5 mm
X	Depends on individual standards.


With the array type GNM series, "Dimension(T)" indicates the number of elements.

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
03	0.6×0.3 mm	0201
05	0.5×0.5 mm	0202
08	0.8×0.8 mm	0303
11	1.25×1.0 mm	0504
15	1.0×0.5 mm	0402
18	1.6×0.8 mm	0603
1X	Depends on individual standards.	
21	2.0×1.25 mm	0805
22	2.8×2.8 mm	1111
31	3.2×1.6 mm	1206
32	3.2×2.5 mm	1210
3X	Depends on individual standards.	
42	4.5×2.0 mm	1808
43	4.5×3.2 mm	1812
52	5.7×2.8 mm	2211
55	5.7×5.0 mm	2220

⑤ Temperature Characteristics

Code	Temperature Characteristics	Temperature Range	Cap. Change or Temp. Coeff.
1X	SL	-55 to 125°C	+350 to -1000ppm/°C
5C	C0G	-55 to 125°C	0±30ppm/°C
6C	C0H	-55 to 125°C	0±60ppm/°C
6P	P2H	-55 to 85°C	-150±60ppm/°C
6R	R2H	-55 to 85°C	-220±60ppm/°C
6T	T2H	-55 to 85°C	-470±60ppm/°C
7U	U2J	-55 to 85°C	-750±120ppm/°C
B3	B	-25 to 85°C	±10%
E4	Z5U	10 to 85°C	+22, -82%
F5	Y5V	-30 to 85°C	+22, -82%
R3	R	-55 to 125°C	±15%
R6	X5R	-55 to 85°C	±15%
R7	X7R	-55 to 125°C	±15%

Continued on the following page. 

Continued from the preceding page.

(Global Part Number) **GR M 18 8 B1 1H 102 K A01 K**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

⑥ Rated Voltage

Code	Rated Voltage
0J	DC6.3V
1A	DC10V
1C	DC16V
1E	DC25V
1H	DC50V
2A	DC100V
2D	DC200V
2E	DC250V
YD	DC300V
2H	DC500V
2J	DC630V
3A	DC1kV
3D	DC2kV
3F	DC3.15kV
E2	AC250V
GB	X2; AC250V (Safety Standard Recognized Type GB)
GC	X1, Y2; AC250V (Safety Standard Recognized Type GC)
GD	Y3; AC250V (Safety Standard Recognized Type GD)
GF	Y2; AC250V (Safety Standard Recognized Type GF)

⑦ Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Capacitance
R50	0.5pF
1R0	1.0pF
100	10pF
103	10000pF

⑧ Capacitance Tolerance

Code	Capacitance Tolerance	TC	Series	Capacitance Step	
B	±0.1pF	CØ	GJ6	≤5pF	E24 Series, 1pF
C	±0.25pF	CØ-SL	GRP/GRM/ERF/ERH/ERA/ERD/GQM	≤5pF	* 1pF
		CØ	GJ6	<10pF	E24 Series, 1pF
D	±0.5pF	CØ-SL	GRP/GRM	6.0 to 9.0pF	* 1pF
		CØ	ERF/ERH/ERA/ERD/GQM/GJ6	5.1 to 9.1pF	E24 Series
G	±2%	CØ	GJ6	≥10pF	E12 Series
		CØ	GQM	≥10pF	E24 Series
J	±5%	CØ-SL	GRP/GRM	≥10pF	E12 Series
		CØ	ERF/ERH/ERA/ERD/GQM/GJ6	≥10pF	E24 Series
K	±10%	B,R,X7R,X5R,ZLM	GRP/GRM/GA3	E6 Series	
		Z5U	GRM	E3 Series	
M	±20%	B,R,X7R	GMA, LLL	E6 Series	
		B	GA2	E3 Series	
Z	+80%, -20%	F,Y5V	GRP/GRM/GJ2	E3 Series	
R	Depends on individual standards.				

* E24 series is also available.

⑨ Individual Specification Code

Code	Individual Specification
A**/B**/C**/W**	Base Metal Inner Electrode
Other than above	Precious Metal Inner Electrode

* indicates an alphabet or figure.

⑩ Packaging

Code	Packaging
E	ø178mm 2mm Pitch Paper Taping
F	ø330mm 2mm Pitch Paper Taping
L	ø178mm 4mm Pitch Plastic Taping
D	ø178mm 4mm Pitch Paper Taping
K	ø330mm 4mm Pitch Plastic Taping
J	ø330mm 4mm Pitch Paper Taping
B	Bulk
C	Bulk Case
T	Bulk Tray

● Part Numbering

Monolithic Ceramic Capacitors (lead type)

(Global Part Number)

RP	E	R1	1H	104	K	2	M1	A01	A
1	2	3	4	5	6	7	8	9	10

① Product ID

② Series/Terminal

Product ID	Series/Terminal	
RP	E	Monolithic Ceramic Capacitors Lead Type

③ Temperature Characteristics

Code	Temperature Characteristics	Temperature Range	Cap. Change or Temp. Coeff.
5C	C0G	-55 to 125°C	0±30ppm/°C
6R	R2H	-55 to 85°C	-220±60ppm/°C
7U	U2J	-55 to 85°C	-750±120ppm/°C
E4	Z5U	10 to 85°C	+22, -82%
F5	Y5V	-30 to 85°C	+22, -82%
R7	X7R	-55 to 125°C	±15%

④ Rated Voltage

Code	Rated Voltage
1E	DC25V
1H	DC50V
2A	DC100V
2D	DC200V

⑤ Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑥ Capacitance Tolerance

Code	Capacitance Tolerance	Temperature Characteristics	Capacitance Step
C	±0.25pF	C0G, R2H, U2J	≤5pF : 1pF Step
D	±0.5pF		6 to 9pF : 1pF Step
J	±5%		≥10 : E12 Series
K	±10%	X7R	E6 Series
M	±20%	Z5U	E3 Series
Z	+80%, -20%	Y5V	E3 Series

⑦ Size

Code	Size
1	3.5×3.0 mm
2	5.0×3.5 mm
3	5.0×4.5 mm
4	7.5×5.0 mm
5	7.5×7.5 mm
6	10.0×10.0 mm
7	12.5×12.5 mm

⑧ Lead Type

Code	Lead Type	Lead Space
A*	Straight Long Bulk	F=2.5mm
B*	Straight Long Bulk	F=5.0mm
C*	Straight Long Bulk	other than above
E*	Straight Taping	F=5.0mm
K*	Incrimp Bulk	F=5.0mm
M*	Incrimp Taping	F=5.0mm
P*	Outcrimp Bulk	F=2.5mm
S*	Outcrimp Taping	F=2.5mm

Lead style depends on individual standards. * indicates a figure.

⑨ Individual Specification Code

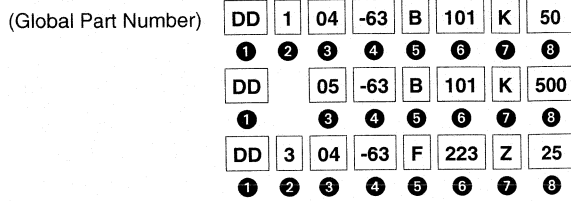
Code	Individual Specification
A**/C**/E**	Base Metal Inner Electrode
Other than above	Precious Metal Inner Electrode

* indicates an alphabet or figure.

⑩ Packaging

Code	Packaging
A	Ammo Pack
B	Bulk

Ceramic Capacitors (12V-500V)



① Product ID

Product ID	
DD	Ceramic Capacitors (12V-500V)

② Series Category

Code	Series (Type)
None	DD10 Series (500V)
1	DD100 Series (50V)
3	DD300 Series (Surface Layer Type BC Capacitors)
4	DD400 Series (Boundary Layer Type BC Capacitors)

③ Body Diameter

Code	Body Diameter	
	DD100/10 Series	DD300/400 Series
04	4mm	4mm
05	5mm	5mm
06	6mm	6.3mm
07	7.5mm	7mm
08	8mm	8mm
09	9.5mm	—
10	10.5mm	10mm
11	11mm	—
12	12.5mm	12.5mm
14	14.5mm	—
16	16.5mm	—
18	18.5mm	—

④ Lead Style

Code	Lead Style
-63	Inside Crimp
-64	
-989	Inside Crimp Taping
-999	
-959	

⑤ Temperature Characteristics

Code	Cap. Change or Temp. Coeff.	Temperature Range
CK	0±250ppm/°C	-25 to +85°C
CJ	0±120ppm/°C	
CH	0±60ppm/°C	
SL	+350 to -1000ppm/°C	+20 to +85°C
B	±10%	-25 to +85°C
E	+20%, -55%	
F	+30%, -80%	
SR	±15%	

⑥ Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑦ Capacitance Tolerance

Code	Capacitance Tolerance
C	±0.25pF
D	±0.5pF
J	±5%
K	±10%
M	±20%
P	+100%, -0%
Z	+80%, -20%

⑧ Rated Voltage

Code	DC Rated Voltage
12	12V
16	16V
25	25V
50	50V
500	500V

High Voltage Ceramic Capacitors (250V-6.3kV)

(Global Part Number) **DE** **B** **B3** **3A** **102** **K** **N2** **A**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
DE	High-voltage (250V - 6.3kV) / Safety Standard Recognized Ceramic Capacitors

② Series Category

Code	Outline	Contents
A	High-Voltage	Class1 (char. SL) DC1-3.15kV Rated
B		Class2 DC1-3.15kV Rated
C		Class 1,2 DC6.3kV Rated
H		High Temperature Guaranteed, Low-dissipation Factor (char. R, C)

First three digit (①Product ID and ②Series Category) express "Series Name".

③ Temperature Characteristics

Code	Temperature Characteristics	Cap.Change or Temp. Coeff.	Temperature Range
B3	B	±10%	-25 to +85°C
E3	E	+20%, -55%	
F3	F	+30%, -80%	
C3	C	±20%	-25 to +85°C
		+15%, -30%	+85 to +125°C
R3	R	±15%	-25 to +85°C
		+15%, -30%	+85 to +125°C
1X	SL	+350 to -1000ppm/°C	+20 to +85°C

④ Rated Voltage

Code	Rated Voltage
2E	DC250V
2H	DC500V
3A	DC1kV
3D	DC2kV
3F	DC3.15kV
3J	DC6.3kV

⑤ Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑥ Capacitance Tolerance

Code	Capacitance Tolerance
J	±5%
K	±10%
Z	+80%, -20%

⑦ Lead Style

Code	Lead Style	Dimensions(mm)		
		Lead Spacing	Lead Diameter	Pitch of Components
A2	Vertical Crimp Long	5	ø0.6±0.05	-
A3		7.5		
A4		10		
B2	Vertical Crimp Short	5	ø0.6±0.05	-
B3		7.5		
B4		10		
C1	Straight Long	5	ø0.5±0.05	-
C3		7.5	ø0.6±0.05	
C4		10	ø0.6±0.05	
CD	Straight Short	7.5	ø0.5±0.05	-
D1		5	ø0.5±0.05	
D3		7.5	ø0.6±0.05	
DD	Vertical Crimp Taping	7.5	ø0.5±0.05	-
N2		5	ø0.6±0.05	
N3		7.5	ø0.6±0.05	
N7	Straight Taping	7.5	ø0.6±0.05	30
P2		5		12.7
P3		7.5		15

⑧ Packaging

Code	Packaging
A	Ammo Pack
B	Bulk

Safety Standard Recognized Ceramic Capacitors

(Global Part Number) **DE** **2** **E3** **KH** **102** **M** **N3** **A**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
DE	High-voltage (250V - 6.3kV) / Safety Standard Recognized Ceramic Capacitors

② Series Category

Code	Outline	Contents
1	Safety Standard Recognized	IEC60384-14 Class X1, Y1
2		IEC60384-14 Class X1, Y2
J	AC250V (r.m.s.)	"Products which are based on the Electrical Appliance and Material Control Law of Japan"

In case of Electrical Appliance and Material Control Law of Japan, first three digit (①Product ID and ②Series Category) express "Series Name".

In case of Safety Recognized Capacitors, first three digit express product code. The following fourth figure expresses recognized type shown in ④Safety Standard Recognized type column.

③ Temperature Characteristics

Code	Temperature Characteristics	Cap.Change or Temp. Coeff.	Temperature Range
B3	B	±10%	-25 to +85°C
E3	E	+20%, -55%	
F3	F	+30%, -80%	
1X	SL	+350 to -1000ppm/°C	+20 to +85°C

④ Rated Voltage/Safety Standard Recognized Type

Code	Rated Voltage
E2	AC250V
KH	X1, Y2; AC250V, (Safety Standard Recognized Type KH)
KY	X1, Y2; AC250V, (Safety Standard Recognized Type KY)
KX	X1, Y1; AC250V, (Safety Standard Recognized Type KX)

⑤ Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑥ Capacitance Tolerance

Code	Capacitance Tolerance
K	±10%
M	±20%
Z	+80%, -20%

⑦ Lead Style

Code	Lead Style	Dimensions(mm)		
		Lead Spacing	Lead Diameter	Pitch of Components
A2	Vertical Crimp Long	5	ø0.6±0.05	-
A3		7.5		
A5		10	ø0.6+0.1, -0.05	
B2	Vertical Crimp Short	5	ø0.6±0.05	-
B3		7.5		
B5		10	ø0.6+0.1, -0.05	
C3	Straight Long	7.5	ø0.6±0.05	-
D3	Straight Short	7.5	ø0.6±0.05	-
N2	Vertical Crimp Taping	5	ø0.6±0.05	12.7
N3		7.5		15
N5		10	ø0.6+0.1, -0.05	25.4
N7		7.5	ø0.6±0.05	30
P3	Straight Taping	7.5	ø0.6±0.05	15

⑧ Packaging

Code	Packaging
A	Ammo Pack
B	Bulk

⑨ Individual Specification

In case part number cannot be identified without "Individual Specification", it is added at the end of part number.

Code	Individual Specification	Application
A01	Small size	Type KX
M01	New marking, Dielectric strength : AC2000V	Type KY

High-voltage Ceramic Capacitors (over 10kV)

(Global Part Number) **DH R B3 4A 101 M 2B B**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
DH	High-voltage Ceramic Capacitors (over 10kV)

② Series Category

Code	Contents
R	Radial Type
S	Mold Type

First three digit of part number (① Product ID and ② Series Category) express "Series Name".

③ Temperature Characteristics

Code	Temp. Char.	Cap. Change or Temp. Coeff.	Temp. Range
B3	B	±10%	-25 to +85°C
F4	Z5V	+22%, -82%	+10 to +85°C
4E	ZM	-4700±1000ppm/°C	+20 to +85°C
	N4700		

④ Rated Voltage

Code	Rated Voltage
4A	DC10kV
4B	DC12kV
4C	DC15kV
4D	DC20kV
4F	DC30kV
4G	DC40kV

⑤ Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑥ Capacitance Tolerance

Code	Capacitance Tolerance
K	±10%
M	±20%
Z	+80%, -20%

⑦ Lead Type (DHR Series)

Code	Lead Type	Lead Spacing	Lead Diameter
2B	Straight Long	9.5mm	ø0.65mm
2F		12.7mm	ø0.8mm

⑦ Body Diameter and Terminal Type (DHS Series)

Code	Body Diameter	Terminal Type
CX	20mm	No.8-32 Tapped Holes
DX	24mm	
HX	30mm	
LX	38mm	
NX	43mm	
RX	52mm	
TX	60mm	

⑧ Packaging

Code	Packaging
B	Bulk

High-frequency Power Ceramic Capacitors

(Global Part Number)

DC	T	3U	AF	501	K	B4	B
1	2	3	4	5	6	7	8

① Product ID

Product ID	
DC	High-frequency Power Ceramic Capacitors

② Series Category

Code	Contents
A	Disc Type
T	Flange Type
W	Water-cooling Type
5	Small Type
6	Small Size Feed-thru Type

First three digit of part number (① Product ID and ② Series Category) express "Series Name".

③ Temperature Characteristics

Code	Temp. Char.	Cap. Change or Temp. Coeff.	Temp. Range
F3	F	+30%, -80%	-25 to +85°C
2A	AH	+100±60ppm/°C	
2C	CH	0±60ppm/°C	
3U	UJ	-750±120ppm/°C	

④ Rated Voltage

Code	Rated Voltage
D3	HF2kV
AT	HF9kV
B4	HF12kV
AF	HF14kV
C4	HF15kV
AX	HF16kV
D4	HF20kV
E4	HF25kV
F4	HF30kV
AZ	HF31.5kV
3D	DC2kV
3G	DC4kV
3H	DC5kV
AD	DC7.5kV
4C	DC15kV

⑤ Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑥ Capacitance Tolerance

Code	Capacitance Tolerance
D	±0.5pF
K	±10%
M	±20%
P	+100%, -0%

⑦ Shape

Code	Shape	Application
A2	Dia. 40mm	DCA Series
B3	Dia. 60mm	DCT Series
B4	Dia. 80mm	
B5	Dia. 110mm	
B6	Dia. 140mm	
B8	Dia. 200mm	DC5 Series
C1	Dia. 12mm	
C3	Dia. 6.3mm	
C4	Dia. 30mm	
C6	Dia. 20mm	DC6 Series
C8	Dia. 20mm	
E1	Dia. 40mm	DCW Series
E2	Dia. 60mm	
F1	Dia. 100mm	
F2	Dia. 125mm	
F3	Dia. 135mm	

⑧ Packaging

Code	Packaging
B	Bulk

Ceramic Trimmer Capacitors

(Global Part Number) **TZ** **Y2** **R** **200** **A** **001** **R00**
① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
TZ	Trimmer Capacitors

② Series/Terminal

Code	Series/Terminal
03	6mm Size Lead Type
B4	4mm Size Chip/Lead Type
C3	3mm Size Chip Type
S2	2mm Size Chip Type (Height 1.0mm)
Y2	2mm Size Chip Type (Height 1.25mm)
V2	2mm Size Chip Type (Height 1.45mm)
R1	1mm Size Chip Type (Height 0.90mm)

③ Temperature Characteristics

Code	Temperature Characteristics
Z	NPO ppm/°C
S	N150ppm/°C
N	N200ppm/°C
T	N450ppm/°C
R	N750ppm/°C
K	N1000ppm/°C
P	N1200ppm/°C

Please refer to ratings for tolerance of temperature characteristics.

④ Maximum Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑤ Terminal Shape

Code	Terminal Shape
A	Top Adjustment; TZR1, TZS2, TZY2, TZV2, TZC3, TzB4 (Chip Type)
B	Top Adjustment; TzB4 (Chip Type), Rear Adjustment; Tz03 (Lead Type)
C	Top Adjustment; TzB4 (Lead Type)
D	Rear Adjustment; TzB4 (Lead Type)
E	Top Adjustment; Tz03 (Lead Type), Rear Adjustment; TzB4 (Chip Type)
F	Top Adjustment; Tz03 (Lead Type)
N	Rear Adjustment; Tz03 (Lead Type)
T	Top Adjustment; Tz03 (Taping Type)
Y	Side Adjustment; Tz03 (Lead Type)

Please refer to dimensions for terminals in detail.

⑥ Individual Specification

Code	Individual Specifications
001	TZR1, TZS2, TZY2 Standard Type
110	TZV2, TZC3 (Minus Slot) Standard Type
169	TZ03 Standard Type
310	TZC3 (Plus Slot) Standard Type
A10	TzB4 No-cover Film Standard Type
B10	TzB4 with Cover Film Standard Type

⑦ Packaging

Code	Packaging
A00	Ammo Pack (Radial Taping)
B00	Bulk
M00	Magazine
R00	Reel (Taping ø180mm)
R01	Reel (Taping ø330mm)

C Networks (Bulk)

(Global Part Number) **B** **5** **RC** **0127** **-33N**
① ② ③ ④ ⑤

① Product ID

Product ID	
B	C Network Bulk

② Number of Terminals

Code	Number of Terminals
5	5 Terminals (4 Elements)
7	7 Terminals (6 Elements)
8	8 Terminals (7 Elements)
9	9 Terminals (8 Elements)

③ Appearance/Structure

Code	Appearance/Structure
RC	Unit Size; 15.3X9.5mm
ZC	Unit Size; 19.8X9.5mm
XC	Unit Size; 21.0X8.0mm
HC	Unit Size; 24.0X9.5mm

C Networks (Small Taping Type)

(Global Part Number) **CG** **SD** **8** **X** **102** **M** **-T21**
① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
CG	C Network Low-Profile

② Structure

Code	Structure
SD	Terminal Pitch:2.54mm, Height:6.5mm max.

③ Number of Elements

Code	Number of Elements
4	4 Elements
6	6 Elements
8	8 Elements

④ Circuit

Code	Circuit
X	Pull up, Pull down Circuit

④ Serial Number

⑤ Terminal Structure

Code	Terminal Structure
-33N	2.5mm Pitch, Straight

⑤ Capacitance

Expressed by three figures. The unit is pico-farad(pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers.

Ex.)

Code	Capacitance
101	100pF
103	10000pF

⑥ Capacitance Tolerance

Code	Capacitance Tolerance
M	±20%
N	±30%

⑦ Packaging

Code	Packaging
-T21	Three-pins, Taping

Monolithic Ceramic Capacitors

for Flow/Reflow Soldering GRP15/GRM18/21/31 Series

● Temperature Compensating Type GRP15 Series (1.0x0.5mm)

Part Number	GRP15								
L x W [EIA]	1.00x0.50 [0402]								
TC	C0G (5C)	C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)		T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)
Capacitance and T Dimension									
0.5pF(R50)	0.50(5)								
0.75pF(R75)	0.50(5)								
1.0pF(1R0)	0.50(5)								
2.0pF(2R0)	0.50(5)								
3.0pF(3R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
4.0pF(4R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
5.0pF(5R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
6.0pF(6R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
7.0pF(7R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
8.0pF(8R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
9.0pF(9R0)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
10.0pF(100)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
12.0pF(120)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
15.0pF(150)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
18.0pF(180)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
22.0pF(220)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
27.0pF(270)	0.50(5)		0.50(5)	0.50(5)	0.50(5)			0.50(5)	0.50(5)
33.0pF(330)	0.50(5)			0.50(5)	0.50(5)			0.50(5)	0.50(5)
39.0pF(390)	0.50(5)				0.50(5)			0.50(5)	0.50(5)
47pF(470)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
56pF(560)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
68pF(680)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
82pF(820)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
100pF(101)	0.50(5)						0.50(5)	0.50(5)	0.50(5)
120pF(121)	0.50(5)						0.50(5)		0.50(5)
150pF(151)	0.50(5)						0.50(5)		0.50(5)
180pF(181)		0.50(5)					0.50(5)		0.50(5)
220pF(221)		0.50(5)					0.50(5)		
270pF(271)		0.50(5)					0.50(5)		
330pF(331)							0.50(5)		
390pF(391)							0.50(5)		

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

● Temperature Compensating Type GRM18 Series (1.60x0.80mm)

Part Number	GRM18												
L x W [EIA]	1.60x0.80 [0603]												
TC	C0G (5C)			C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	50 (1H)
Capacitance and T Dimension													
0.5pF(R50)	0.80(8)		0.80(8)										
0.75pF(R75)	0.80(8)		0.80(8)										
1.0pF(1R0)	0.80(8)		0.80(8)										

Continued on the following page.

Capacitors

Continued from the preceding page.

Part Number	GRM18												
L x W [EIA]	1.60x0.80 [0603]												
TC	C0G (5C)			C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	50 (1H)
Capacitance and T Dimension													
2.0pF(2R0)	0.80(8)		0.80(8)										
3.0pF(3R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
4.0pF(4R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
5.0pF(5R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
6.0pF(6R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
7.0pF(7R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
8.0pF(8R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
9.0pF(9R0)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
10.0pF(100)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)					0.80(8)	0.80(8)
12pF(120)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
15pF(150)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
18pF(180)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
22pF(220)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
27pF(270)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
33pF(330)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
39pF(390)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
47pF(470)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
56pF(560)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)				0.80(8)	0.80(8)	0.80(8)
68pF(680)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)
82pF(820)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)
100pF(101)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)		0.80(8)		0.80(8)	0.80(8)	0.80(8)
120pF(121)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)		0.80(8)	0.80(8)		0.80(8)	0.80(8)
150pF(151)	0.80(8)	0.80(8)			0.80(8)	0.80(8)	0.80(8)		0.80(8)	0.80(8)		0.80(8)	0.80(8)
180pF(181)	0.80(8)					0.80(8)	0.80(8)		0.80(8)	0.80(8)		0.80(8)	0.80(8)
220pF(221)	0.80(8)						0.80(8)		0.80(8)	0.80(8)		0.80(8)	0.80(8)
270pF(271)	0.80(8)								0.80(8)	0.80(8)		0.80(8)	0.80(8)
330pF(331)	0.80(8)								0.80(8)	0.80(8)		0.80(8)	0.80(8)
390pF(391)	0.80(8)								0.80(8)	0.80(8)		0.80(8)	0.80(8)
470pF(471)	0.80(8)								0.80(8)				0.80(8)
560pF(561)	0.80(8)			0.80(8)					0.80(8)				0.80(8)
680pF(681)	0.80(8)								0.80(8)				0.80(8)
820pF(821)	0.80(8)							0.80(8)					
1000pF(102)	0.80(8)							0.80(8)					
1200pF(122)								0.80(8)					
1500pF(152)								0.80(8)					

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

● Temperature Compensating Type GRM21 Series (2.00x1.25mm)

Part Number	GRM21												
L x W [EIA]	2.00x1.25 [0805]												
TC	C0G (5C)			C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	50 (1H)
Capacitance and T Dimension													
12pF(120)			0.85(9)										
15pF(150)			0.85(9)										
18pF(180)			0.85(9)										

Continued on the following page.

Capacitors

Continued from the preceding page.

Part Number	GRM21												
L x W [EIA]	2.00x1.25 [0805]												
TC	C0G (5C)			C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)				T2H (6T)	U2J (7U)
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	50 (1H)
Capacitance and T Dimension													
22pF(220)			0.85(9)										
27pF(270)			0.85(9)										
33pF(330)			0.85(9)										
39pF(390)			0.85(9)										
47pF(470)			0.85(9)										
56pF(560)			0.85(9)										
68pF(680)		0.85(9)	1.25(B)										
82pF(820)		0.85(9)	1.25(B)										
100pF(101)		0.85(9)	1.25(B)										
120pF(121)		0.85(9)	1.25(B)									0.85(9)	
150pF(151)		0.85(9)	1.25(B)									1.25(B)	
180pF(181)		0.85(9)	1.25(B)		0.85(9)							1.25(B)	
220pF(221)		0.85(9)	1.25(B)		0.85(9)	0.85(9)						1.25(B)	
270pF(271)		0.85(9)			0.85(9)	0.85(9)	0.85(9)					1.25(B)	
330pF(331)		0.85(9)			0.85(9)	0.85(9)	0.85(9)					1.25(B)	
390pF(391)		1.25(B)			1.25(B)	0.85(9)	0.85(9)					1.25(B)	
470pF(471)		1.25(B)			1.25(B)	0.85(9)	0.85(9)				0.85(9)	1.25(B)	
560pF(561)	0.60(6)	1.25(B)			1.25(B)	1.25(B)	1.25(B)				0.85(9)		1.25(B)
680pF(681)	0.85(9)	1.25(B)				1.25(B)	1.25(B)				0.85(9)		1.25(B)
820pF(821)	0.85(9)	1.25(B)					1.25(B)		0.60(6)	1.25(B)		1.25(B)	0.60(6)
1000pF(102)	0.85(9)	1.25(B)							0.60(6)	1.25(B)		1.25(B)	0.60(6)
1200pF(122)	0.85(9)								0.60(6)	1.25(B)		1.25(B)	0.60(6)
1500pF(152)	0.85(9)								0.85(9)	1.25(B)		1.25(B)	0.85(9)
1800pF(182)	1.25(B)								0.85(9)	1.25(B)		1.25(B)	0.85(9)
2200pF(222)	1.25(B)								0.85(9)				0.85(9)
2700pF(272)					1.25(B)					1.25(B)			1.25(B)
3300pF(332)					1.25(B)					1.25(B)			1.25(B)
3900pF(392)					1.25(B)				0.85(9)				
4700pF(472)									0.85(9)				
5600pF(562)									1.25(B)				
6800pF(682)									1.25(B)				

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

● Temperature Compensating Type GRM31 Series (3.20x1.60mm)

Part Number	GRM31														
L x W [EIA]	3.20x1.60 [1206]														
TC	C0G (5C)				C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)					T2H (6T)	U2J (7U)
Rated Volt.	25 (1E)	50 (1H)	200 (2D)	500 (2H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	500 (2H)	50 (1H)	50 (1H)
Capacitance and T Dimension															
1.0pF(1R0)				1.15(M)											
2.0pF(2R0)				1.15(M)											
3.0pF(3R0)				1.15(M)											
4.0pF(4R0)				1.15(M)											
5.0pF(5R0)				1.15(M)											
6.0pF(6R0)				1.15(M)											
7.0pF(7R0)				1.15(M)											

Continued on the following page. ↗

Capacitors

Continued from the preceding page.

1
Capacitors

Part Number	GRM31														
L x W [EIA]	3.20x1.60 [1206]														
TC	C0G (5C)				C0H (6C)	P2H (6P)	R2H (6R)	S2H (6S)	SL (1X)					T2H (6T)	U2J (7U)
Rated Volt.	25 (1E)	50 (1H)	200 (2D)	500 (2H)	25 (1E)	50 (1H)	50 (1H)	50 (1H)	25 (1E)	50 (1H)	100 (2A)	200 (2D)	500 (2H)	50 (1H)	50 (1H)
Capacitance and T Dimension															
8.0pF(8R0)				1.15(M)											
9.0pF(9R0)				1.15(M)											
10.0pF(100)				1.15(M)											
12pF(120)				1.15(M)											
15pF(150)				1.15(M)											
18pF(180)				1.15(M)											
22pF(220)				1.15(M)											
27pF(270)				1.15(M)											
33pF(330)				1.15(M)											
39pF(390)				1.15(M)											
47pF(470)				1.15(M)											
56pF(560)				1.15(M)											
68pF(680)				1.15(M)											
82pF(820)				1.15(M)											
100pF(101)				1.15(M)											
120pF(121)				1.15(M)											
150pF(151)														1.15(M)	
180pF(181)														1.15(M)	
220pF(221)														1.15(M)	
270pF(271)			1.15(M)											1.15(M)	
330pF(331)			1.15(M)												
390pF(391)			1.15(M)												
470pF(471)			1.15(M)												
560pF(561)												1.15(M)			
680pF(681)						0.85(9)						1.15(M)			
820pF(821)						0.85(9)	0.85(9)					1.15(M)			
1000pF(102)						1.15(M)	1.15(M)	0.85(9)				1.15(M)			
1200pF(122)						1.15(M)	1.15(M)	1.15(M)				1.15(M)			
1500pF(152)						1.15(M)	1.15(M)	1.15(M)							
1800pF(182)								1.15(M)							
2200pF(222)											1.15(M)			1.15(M)	
2700pF(272)		0.85(9)									1.15(M)			1.15(M)	
3300pF(332)		0.85(9)									1.15(M)			1.15(M)	
3900pF(392)		1.15(M)								0.85(9)	1.15(M)			1.15(M)	0.85(9)
4700pF(472)		0.85(9)								0.85(9)	1.15(M)				0.85(9)
5600pF(562)		1.15(M)								0.85(9)					0.85(9)
6800pF(682)					0.85(9)					1.15(M)					1.15(M)
8200pF(822)					1.15(M)					1.15(M)					1.15(M)
10000pF(103)	0.85(9)									1.15(M)					
12000pF(123)										1.15(M)					
15000pF(153)										1.15(M)					

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

● High Dielectric Constant Type X5R (R6) Characteristics

TC	X5R (R6)							
Part Number	GRP15		GRM18		GRM21		GRM31	
L x W [EIA]	1.00x0.50 [0402]		1.60x0.80 [0603]		2.00x1.25 [0805]		3.20x1.60 [1206]	
Rated Volt.	10 (1A)	6.3 (0J)	10 (1A)	6.3 (0J)	10 (1A)	6.3 (0J)	10 (1A)	
Capacitance and T Dimension								
68000pF(683)	0.50(5)							
0.1µF(104)	0.50(5)							
0.33µF(334)		0.80(8)						
0.47µF(474)		0.80(8)						
0.68µF(684)		0.80(8)						
1.0µF(105)		0.80(8)	0.80(8)			0.85(9)		
1.5µF(155)					0.85(9)			
2.2µF(225)					1.25(B)			0.85(9)
3.3µF(335)					1.25(B)			1.30(X)
4.7µF(475)					1.25(B)		1.15(M)	1.60(C)
10µF(106)							1.60(C)	

The part numbering code is shown in each ().

3.3µF and 4.7µF for 6.3V is replaced with GRM21B series of L:2±0.15, W:1.25±0.15, T:1.25±0.15.

T:1.25±0.1mm is also available for GRM21 10V 1.0µF type.

3.3µF for 10V rated is replaced with GRM31X series of L:3.2±0.2, W:1.6±0.2, T:1.2±0.1mm.

T:1.15±0.1 is also available for GRM31, 16V, 1.0µF type.

Dimensions are shown in mm and Rated Voltage in Vdc.

● High Dielectric Constant Type X7R (R7) Characteristics

TC	X7R (R7)																
Part Number	GRP15				GRM18				GRM21				GRM31				
L x W [EIA]	1.00x0.50 [0402]				1.60x0.80 [0603]				2.00x1.25 [0805]				3.20x1.60 [1206]				
Rated Volt.	10 (1A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	10 (1A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension																	
220pF (221)				0.50 (5)				0.80 (8)									
330pF (331)				0.50 (5)				0.80 (8)									
470pF (471)				0.50 (5)				0.80 (8)									
680pF (681)				0.50 (5)				0.80 (8)									
1000pF (102)				0.50 (5)				0.80 (8)									
1500pF (152)				0.50 (5)				0.80 (8)									
2200pF (222)				0.50 (5)				0.80 (8)	0.80 (8)								
3300pF (332)				0.50 (5)				0.80 (8)	0.80 (8)								
4700pF (472)				0.50 (5)				0.80 (8)					0.85 (9)				
6800pF (682)			0.50 (5)					0.80 (8)					0.85 (9)				
10000pF (103)			0.50 (5)					0.80 (8)					1.25 (B)				

Continued on the following page. ↗

Capacitors

Continued from the preceding page.

1
Capacitors

TC	X7R (R7)																	
Part Number	GRP15				GRM18					GRM21				GRM31				
L x W [EIA]	1.00x0.50 [0402]				1.60x0.80 [0603]					2.00x1.25 [0805]				3.20x1.60 [1206]				
Rated Volt.	10 (1A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	
Capacitance and T Dimension																		
15000pF (153)		0.50 (5)						0.80 (8)										
22000pF (223)		0.50 (5)						0.80 (8)										
33000pF (333)	0.50 (5)						0.80 (8)					0.85 (9)						
47000pF (473)	0.50 (5)						0.80 (8)					1.25 (B)						
68000pF (683)							0.80 (8)					1.25 (B)						
0.10μF (104)						0.80 (8)	0.80 (8)					1.25 (B)	1.25 (B)					
0.15μF (154)					0.80 (8)							1.25 (B)	1.25 (B)					
0.22μF (224)					0.80 (8)							0.85 (B)	1.25 (B)					
0.33μF (334)												1.25 (B)						0.85 (9)
0.47μF (474)											0.85 (9)	1.25 (B)						1.15 (M)
0.68μF (684)											0.85 (9)						0.85 (9)	
1.00μF (105)											1.25 (B)			0.85 (9)	0.85 (9)	1.15 (M)		
1.5μF (155)															1.15 (M)			
2.2μF (225)														1.15 (M)	1.15 (M)			

The part numbering code is shown in each ().

0.10μF, 50V rated are GRM21 series of L:2±0.15, W:1.25±0.15, T:1.25±0.15.


T:1.25±0.1mm is also available for GRM31 1.0μF for 16V.

The tolerance will be changed to L:3.2±0.2, W:1.6±0.2 for GRM31 16V 1.0μF type. Also L:3.2±0.2, W:1.6±0.2, T:1.15±0.15 for GRM31 16V 1.5μF and 2.2μF type.

Dimensions are shown in mm and Rated Voltage in Vdc.

● High Dielectric Constant Type Y5V(F5) Characteristics

TC	Y5V (F5)																		
Part Number	GRP15					GRM18					GRM21				GRM31				
L x W [EIA]	1.00x0.50 [0402]					1.60x0.80 [0603]					2.00x1.25 [0805]				3.20x1.60 [1206]				
Rated Volt.	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension																			
2200pF (222)					0.50 (5)														
4700pF (472)					0.50 (5)					0.80 (8)									
10000pF (103)					0.50 (5)					0.80 (8)									
22000pF (223)				0.50 (5)						0.80 (8)									

Continued on the following page. 

Capacitors

Continued from the preceding page.

TC	Y5V (F5)																			
Part Number	GRP15					GRM18					GRM21					GRM31				
L x W [EIA]	1.00x0.50 [0402]					1.60x0.80 [0603]					2.00x1.25 [0805]					3.20x1.60 [1206]				
Rated Volt.	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	50 (1H)	
Capacitance and T Dimension																				
47000pF (473)			0.50 (5)							0.80 (8)										
0.10μF (104)			0.50 (5)					0.80 (8)						0.85 (9)						
0.22μF (224)		0.50 (5)					0.80 (8)						0.85 (9)	1.25 (B)						
0.47μF (474)		0.50 (5)				0.80 (8)	0.80 (8)							1.25 (B)						1.15 (M)
1.0μF (105)	0.50 (5)					0.80 (8)					0.85 (9)	0.85 (9)	0.85 (9)				0.85 (9)	1.15 (M)		
2.2μF (225)											1.25 (B)	1.25 (B)	1.25 (B)			0.85 (9)	1.15 (M)			
4.7μF (475)											1.25 (B)					1.15 (M)	1.15 (M)			
10.0μF (106)															1.15 (M)	1.15 (M)				

The part numbering code is shown in each ().

T:1.25±0.1mm is also available for GRM21 25V or 16V 1.0μF type.

Dimensions are shown in mm and Rated Voltage in Vdc.

● High Dielectric Constant Type Z5U(E4) Characteristics

TC	Z5U (E4)					
Part Number	GRM18		GRM21		GRM31	
L x W [EIA]	1.60x0.80 [0603]		2.00x1.25 [0805]		3.20x1.60 [1206]	
Rated Volt.	50 (1H)		50 (1H)		50 (1H)	
Capacitance and T Dimension						
10000pF(103)	0.80(8)					
22000pF(223)	0.80(8)					
47000pF(473)			0.60(6)			
0.10μF(104)			0.85(9)			
0.22μF(224)					0.85(9)	

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

Monolithic Ceramic Capacitors

for Reflow Soldering GRM32/43/55 Series

● Temperature Compensating Type GRM32 Series (3.20x2.50mm)

Part Number	GRM32					
L x W [EIA]	3.20x2.50 [1210]					
TC	COG (5C)			SL (1X)		
Rated Volt.	200 (2D)	500 (2H)	50 (1H)	100 (2A)	200 (2D)	500 (2H)
Capacitance and T Dimension						
150pF(151)		1.35(N)				
180pF(181)		1.35(N)				
330pF(331)						1.15(M)
390pF(391)						1.15(M)
470pF(471)						1.35(N)
560pF(561)	1.35(N)					
680pF(681)	1.35(N)					
820pF(821)	1.35(N)					
1000pF(102)	1.35(N)					
1500pF(152)					1.35(N)	
5600pF(562)				1.35(N)		
6800pF(682)				1.35(N)		
10000pF(103)			1.35(N)			
12000pF(123)			1.35(N)			

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

● Temperature Compensating Type GRM43 Series (4.50x3.20mm)

Part Number	GRM43					
L x W [EIA]	4.50x3.20 [1812]					
TC	COG (5C)			SL (1X)		
Rated Volt.	200 (2D)	500 (2H)	50 (1H)	100 (2A)	200 (2D)	500 (2H)
Capacitance and T Dimension						
220pF(221)		1.80(R)				
270pF(271)		1.80(R)				
330pF(331)		1.80(R)				
390pF(391)		1.80(R)				
470pF(471)		1.80(R)				
560pF(561)						1.15(M)
680pF(681)						1.15(M)
820pF(821)						1.35(N)
1000pF(102)						1.80(R)
1200pF(122)	1.80(R)					1.80(R)
1500pF(152)	1.80(R)					
1800pF(182)	1.80(R)				1.35(N)	
2200pF(222)	1.80(R)					
2700pF(272)	1.80(R)				1.80(R)	
3300pF(332)					1.80(R)	
3900pF(392)					1.80(R)	
8200pF(822)				1.35(N)		
10000pF(103)				1.80(R)		
12000pF(123)				1.80(R)		
15000pF(153)			1.80(R)	1.80(R)		

The part numbering code is shown in (). Dimensions are shown in mm and Rated Voltage in Vdc.

Capacitors

● Temperature Compensating Type GRM55 Series (5.70x5.00mm)

Part Number	GRM55				
L x W [EIA]	5.70x5.00 [2220]				
TC	C0G (5C)			SL (1X)	
Rated Volt.	200 (2D)	500 (2H)	50 (1H)	100 (2A)	200 (2D)
Capacitance and T Dimension					
560pF(561)		1.80(R)			
680pF(681)		1.80(R)			
820pF(821)		1.80(R)			
1000pF(102)		1.80(R)			
3300pF(332)	1.35(N)				
3900pF(392)	1.80(R)				
4700pF(472)	1.80(R)				1.35(N)
5600pF(562)	1.80(R)				1.80(R)
6800pF(682)					1.80(R)
8200pF(822)					1.80(R)
18000pF(183)			1.15(M)	1.15(M)	
22000pF(223)			1.35(N)	1.35(N)	
27000pF(273)			1.80(R)	1.80(R)	
33000pF(333)			1.80(R)	1.80(R)	
39000pF(393)			1.80(R)	1.80(R)	

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

● High Dielectric Constant Type GRM32 Series (3.20x2.50mm)

Part Number	GRM32							
L x W [EIA]	3.20x2.50 [1210]							
TC	X5R (R6)		X7R (R7)			Y5V (F5)		
Rated Volt.	10 (1A)	16 (1C)	25 (1E)	50 (1H)	100 (2A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension								
68000pF(683)					1.35(N)			
0.10μF(104)					1.35(N)			
0.68μF(684)				1.35(N)				
1.0μF(105)				1.80(R)				1.8(R)
2.2μF(225)		1.15(M)	1.80(R)					
3.3μF(335)		1.35(N)						
4.7μF(475)		1.80(R)					0.85(9)	
10μF(106)	2.50(E)					1.35(N)	1.35(N)	

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

Capacitors

● High Dielectric Constant Type GRM43 Series (4.50x3.20mm)

Part Number	GRM43	
L x W [EIA]	4.50x3.20 [1812]	
TC	X7R (R7)	
Rated Volt.	100 (2A)	
Capacitance and T Dimension		
0.15 μ F(154)	1.80(R)	
0.22 μ F(224)	1.80(R)	

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

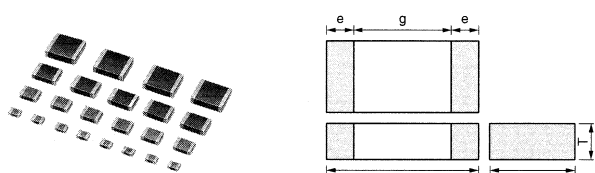
● High Dielectric Constant Type GRM55 Series (5.70x5.00mm)

Part Number	GRM55	
L x W [EIA]	5.70x5.00 [2220]	
TC	X7R (R7)	
Rated Volt.	50 (1H)	100 (2A)
Capacitance and T Dimension		
0.33 μ F(334)	1.80(R)	
0.47 μ F(474)	1.80(R)	
1.0 μ F(105)	1.80(R)	
1.5 μ F(155)	1.80(R)	

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

Monolithic Ceramic Capacitors

Smoothing Type



Part Number	Dimensions (mm)				
	L	W	T	e min.	g min.
GJ221B	2.0 ±0.1	1.25 ±0.1	1.25 ±0.1	0.2 to 0.7	0.7
GJ231M	3.2 ±0.15	1.6 ±0.15	1.15 ±0.1	0.3 to 0.8	1.5
GJ232N	3.2 ±0.3	2.5 ±0.2	1.35 ±0.15	0.3	1.0
GJ232C			1.6 ±0.15		
GJ232R			1.8 ±0.2		
GJ243R	4.5 ±0.4	3.2 ±0.3	1.8 ±0.2	0.3	2.0
GJ243X			2.2 ±0.3		

Part Number	TC	Rated Voltage (Vdc)	Capacitance (μ F)	Length L (mm)	Width W (mm)	Thickness T (mm)	EIA
GJ221BF50J106ZD01	Y5V	6.3	10 +80.-20%	2.00	1.25	1.25	0805
GJ231MF50J226ZD01	Y5V	6.3	22 +80.-20%	3.20	1.60	1.15	1206
GJ232CF50J476ZD01	Y5V	6.3	47 +80.-20%	3.20	2.50	1.60	1210
GJ243RF50J107ZD11	Y5V	6.3	100 +80.-20%	4.50	3.20	1.80	1812
GJ232NF51A4226ZD01	Y5V	10	22 +80.-20%	3.20	2.50	1.35	1210
GJ243RF51A107ZD11	Y5V	10	100 +80.-20%	4.50	3.20	1.80	1812
GJ232RF51H475ZD01	Y5V	50	4.7 +80.-20%	3.20	2.50	1.80	1210
GJ243XF51H106ZD12	Y5V	50	10 +80.-20%	4.50	3.20	2.20	1812

Continued on the following page.

Capacitors

Continued from the preceding page.

Part Number	TC	Rated Voltage (Vdc)	Capacitance (μF)	Length L (mm)	Width W (mm)	Thickness T (mm)	EIA
GJ232RF52A105ZD01	Y5V	100	1 +80.-20%	3.20	2.50	1.8	1210

Monolithic Ceramic Capacitors

Ultra-small GRP03 Series

Part Number	GRP03			
L x W	0.6x0.3			
TC	C0G (5C)	X7R (R7)		Y5V (F5)
Rated Volt.	25 (1E)	6.3 (0J)	16 (1C)	10 (1A)
Capacitance and T Dimension				
0.5pF(R50)	0.3(3)			
1pF(1R0)	0.3(3)			
2pF(2R0)	0.3(3)			
3pF(3R0)	0.3(3)			
4pF(4R0)	0.3(3)			
5pF(5R0)	0.3(3)			
6pF(6R0)	0.3(3)			
7pF(7R0)	0.3(3)			
8pF(8R0)	0.3(3)			
9pF(9R0)	0.3(3)			
10pF(100)	0.3(3)			
12pF(120)	0.3(3)			
15pF(150)	0.3(3)			
18pF(180)	0.3(3)			
22pF(220)	0.3(3)			
27pF(270)	0.3(3)			
33pF(330)	0.3(3)			
39pF(390)	0.3(3)			
47pF(470)	0.3(3)			
56pF(560)	0.3(3)			
68pF(680)	0.3(3)			
82pF(820)	0.3(3)			
100pF(101)	0.3(3)		0.3(3)	
150pF(151)			0.3(3)	
220pF(221)			0.3(3)	
330pF(331)			0.3(3)	
470pF(471)			0.3(3)	
680pF(681)			0.3(3)	
1000pF(102)			0.3(3)	
1500pF(152)		0.3(3)		
2200pF(222)		0.3(3)		0.3(3)
3300pF(332)		0.3(3)		
4700pF(472)		0.3(3)		0.3(3)
6800pF(682)		0.3(3)		
10000pF(103)		0.3(3)		0.3(3)

The part numbering code is shown in ().

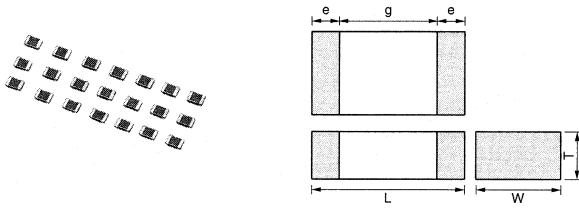
Dimensions are shown in mm and Rated Voltage in Vdc.

Monolithic Ceramic Capacitors

Thin Type(Flow/Reflow)

1

Capacitors

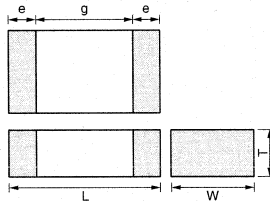


Part Number	Dimensions (mm)				
	L	W	T	e	g min.
GRP15X	1.0 ±0.05	0.5 ±0.05	0.25 ±0.05	0.15 to 0.3	0.4

Part Number	TC	Rated Voltage (Vdc)	Capacitance (pF)	Length L (mm)	Width W (mm)	Thickness T (mm)
GRP15X5C1E121JD11	C0G	25	120 ±5%	1.00	0.50	0.25
GRP15X5C1E151JD11	C0G	25	150 ±5%	1.00	0.50	0.25
GRP15X5C1E181JD11	C0G	25	180 ±5%	1.00	0.50	0.25
GRP15X5C1E221JD11	C0G	25	220 ±5%	1.00	0.50	0.25
GRP15X5C1H1R0CD11	C0G	50	1 ±0.25pF	1.00	0.50	0.25
GRP15X5C1H2R0CD11	C0G	50	2 ±0.25pF	1.00	0.50	0.25
GRP15X5C1H3R0CD11	C0G	50	3 ±0.25pF	1.00	0.50	0.25
GRP15X5C1H4R0CD11	C0G	50	4 ±0.25pF	1.00	0.50	0.25
GRP15X5C1H5R0CD11	C0G	50	5 ±0.25pF	1.00	0.50	0.25
GRP15X5C1H6R0DD11	C0G	50	6 ±0.5pF	1.00	0.50	0.25
GRP15X5C1H7R0DD11	C0G	50	7 ±0.5pF	1.00	0.50	0.25
GRP15X5C1H8R0DD11	C0G	50	8 ±0.5pF	1.00	0.50	0.25
GRP15X5C1H9R0DD11	C0G	50	9 ±0.5pF	1.00	0.50	0.25
GRP15X5C1H100JD11	C0G	50	10 ±0.5pF	1.00	0.50	0.25
GRP15X5C1H120JD11	C0G	50	12 ±5%	1.00	0.50	0.25
GRP15X5C1H150JD11	C0G	50	15 ±5%	1.00	0.50	0.25
GRP15X5C1H180JD11	C0G	50	18 ±5%	1.00	0.50	0.25
GRP15X5C1H220JD11	C0G	50	22 ±5%	1.00	0.50	0.25
GRP15X5C1H270JD11	C0G	50	27 ±5%	1.00	0.50	0.25
GRP15X5C1H330JD11	C0G	50	33 ±5%	1.00	0.50	0.25
GRP15X5C1H390JD11	C0G	50	39 ±5%	1.00	0.50	0.25
GRP15X5C1H470JD11	C0G	50	47 ±5%	1.00	0.50	0.25
GRP15X5C1H560JD11	C0G	50	56 ±5%	1.00	0.50	0.25
GRP15X5C1H680JD11	C0G	50	68 ±5%	1.00	0.50	0.25
GRP15X5C1H820JD11	C0G	50	82 ±5%	1.00	0.50	0.25
GRP15X5C1H101JD11	C0G	50	100 ±5%	1.00	0.50	0.25

Monolithic Ceramic Capacitors

High-power Type



Part Number	Dimensions (mm)				
	L	W	T	e	g min.
GJ6155	1.0 ±0.05	0.5 ±0.05	0.5 ±0.05	0.15 to 0.3	0.4

Part Number	TC	Rated Voltage (Vdc)	Capacitance (pF)	Length L (mm)	Width W (mm)	Thickness T (mm)	EIA
GJ61555C1HR50BB01	C0G	50	0.5 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1HR50CB01	C0G	50	0.50 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1HR75BB01	C0G	50	0.75 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1HR75CB01	C0G	50	0.75 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H1R0BB01	C0G	50	1.0 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H1R0CB01	C0G	50	1.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H1R1BB01	C0G	50	1.1 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H1R2BB01	C0G	50	1.2 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H1R3BB01	C0G	50	1.3 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H1R5BB01	C0G	50	1.5 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H1R5CB01	C0G	50	1.5 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H1R6BB01	C0G	50	1.6 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H1R8BB01	C0G	50	1.8 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H2R0BB01	C0G	50	2.0 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H2R0CB01	C0G	50	2.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H2R2BB01	C0G	50	2.2 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H2R4BB01	C0G	50	2.4 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H2R7BB01	C0G	50	2.7 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H3R0BB01	C0G	50	3.0 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H3R0CB01	C0G	50	3.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H3R3BB01	C0G	50	3.3 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H3R6BB01	C0G	50	3.6 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H3R9BB01	C0G	50	3.9 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H4R0BB01	C0G	50	4.0 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H4R0CB01	C0G	50	4.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H4R3BB01	C0G	50	4.3 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H4R7BB01	C0G	50	4.7 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H5R0BB01	C0G	50	5.0 ±0.1pF	1.00	0.50	0.50	0402
GJ61555C1H5R0CB01	C0G	50	5.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H5R1CB01	C0G	50	5.1 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H5R6CB01	C0G	50	5.6 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H6R0CB01	C0G	50	6.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H6R0DB01	C0G	50	6.0 ±0.5pF	1.00	0.50	0.50	0402
GJ61555C1H6R2CB01	C0G	50	6.2 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H6R8CB01	C0G	50	6.8 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H7R0CB01	C0G	50	7.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H7R0DB01	C0G	50	7.0 ±0.5pF	1.00	0.50	0.50	0402
GJ61555C1H7R5CB01	C0G	50	7.5 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H8R0CB01	C0G	50	8.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H8R0DB01	C0G	50	8.0 ±0.5pF	1.00	0.50	0.50	0402
GJ61555C1H8R2CB01	C0G	50	8.2 ±0.25pF	1.00	0.50	0.50	0402

Continued on the following page.

Capacitors

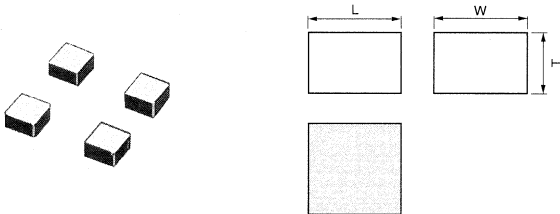
Continued from the preceding page.

1
Capacitors

Part Number	TC	Rated Voltage (Vdc)	Capacitance (pF)	Length L (mm)	Width W (mm)	Thickness T (mm)	EIA
GJ61555C1H9R0CB01	C0G	50	9.0 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H9R0DB01	C0G	50	9.0 ±0.5pF	1.00	0.50	0.50	0402
GJ61555C1H9R1CB01	C0G	50	9.1 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H100JB01	C0G	50	10.0 ±0.5pF	1.00	0.50	0.50	0402
GJ61555C1H100RB01	C0G	50	10 ±0.25pF	1.00	0.50	0.50	0402
GJ61555C1H120GB01	C0G	50	12 ±2%	1.00	0.50	0.50	0402
GJ61555C1H120JB01	C0G	50	12 ±5%	1.00	0.50	0.50	0402
GJ61555C1H150GB01	C0G	50	15 ±2%	1.00	0.50	0.50	0402
GJ61555C1H150JB01	C0G	50	15 ±5%	1.00	0.50	0.50	0402
GJ61555C1H180GB01	C0G	50	18 ±2%	1.00	0.50	0.50	0402
GJ61555C1H180JB01	C0G	50	18 ±5%	1.00	0.50	0.50	0402
GJ61555C1H200GB01	C0G	50	20 ±2%	1.00	0.50	0.50	0402

Monolithic Ceramic Capacitors

Monolithic Microchip



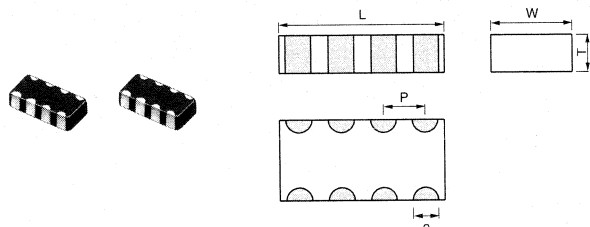
Part Number	Dimensions (mm)		
	L	W	T
GMA05X	0.5 ±0.05	0.5 ±0.05	0.35 ±0.05
GMA085	0.8 ±0.05	0.8 ±0.05	0.5 ±0.1

Part Number	TC	Rated Voltage (Vdc)	Capacitance	Length L (mm)	Width W (mm)	Thickness T (mm)
GMA05XF51A153ZD01	Y5V	10	15000pF +80/-20%	0.5	0.5	0.35
GMA085F51A104ZD01	Y5V	10	0.1µF +80/-20%	0.8	0.8	0.5
GMA05XR71C102MD01	X7R	16	1000pF ±20%	0.5	0.5	0.35
GMA05XR71C152MD01	X7R	16	1500pF ±20%	0.5	0.5	0.35
GMA05XR71C222MD01	X7R	16	2200pF ±20%	0.5	0.5	0.35
GMA085R71C103MD01	X7R	16	10000pF ±20%	0.8	0.8	0.5
GMA05XF51C472ZD01	Y5V	16	4700pF +80/-20%	0.5	0.5	0.35
GMA05XF51C682ZD01	Y5V	16	6800pF +80/-20%	0.5	0.5	0.35
GMA085F51C473ZD01	Y5V	16	47000pF +80/-20%	0.8	0.8	0.5
GMA05XR71H471MD01	X7R	50	470pF ±20%	0.5	0.5	0.35

Monolithic Ceramic Capacitors

Capacitor Array

● Temperature Compensating Type



Part Number	Dimensions (mm)				
	L	W	T	P	e
GNM314	3.2 ±0.15	1.6 ±0.15	0.8 ±0.1	0.8 ±0.1	0.4 ±0.15
			1.0 ±0.1		

Part Number	GNM31	
L x W	3.2x1.6	
TC	COG (5C)	
Rated Volt.	50 (1H)	100 (2A)
Capacitance and T Dimension		
10pF(100)	0.8(4)	0.8(4)
11pF(110)	0.8(4)	0.8(4)
12pF(120)	0.8(4)	0.8(4)
13pF(130)	0.8(4)	0.8(4)
15pF(150)	0.8(4)	0.8(4)
16pF(160)	0.8(4)	0.8(4)
18pF(180)	0.8(4)	0.8(4)
20pF(200)	0.8(4)	0.8(4)
22pF(220)	0.8(4)	0.8(4)
24pF(240)	0.8(4)	0.8(4)
27pF(270)	0.8(4)	0.8(4)
30pF(300)	0.8(4)	0.8(4)
33pF(330)	0.8(4)	0.8(4)
36pF(360)	0.8(4)	0.8(4)
39pF(390)	0.8(4)	0.8(4)
43pF(430)	0.8(4)	0.8(4)
47pF(470)	0.8(4)	0.8(4)
51pF(510)	0.8(4)	0.8(4)
56pF(560)	0.8(4)	0.8(4)
62pF(620)	0.8(4)	0.8(4)
68pF(680)	0.8(4)	0.8(4)
75pF(750)	0.8(4)	0.8(4)
82pF(820)	0.8(4)	0.8(4)
91pF(910)	0.8(4)	0.8(4)
100pF(101)	0.8(4)	0.8(4)
110pF(111)	0.8(4)	0.8(4)
120pF(121)	0.8(4)	0.8(4)
130pF(131)	0.8(4)	0.8(4)
150pF(151)	0.8(4)	0.8(4)
160pF(161)	0.8(4)	
180pF(181)	0.8(4)	
200pF(201)	0.8(4)	
220pF(221)	0.8(4)	
240pF(241)	0.8(4)	
270pF(271)	0.8(4)	

Continued on the following page.

Capacitors

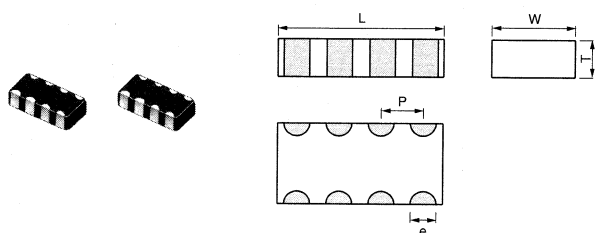
Continued from the preceding page.

1
Capacitors

Part Number	GNM31		
L x W	3.2x1.6		
TC	C0G (5C)		
Rated Volt.	50 (1H)	100 (2A)	
Capacitance and T Dimension			
300pF(301)	0.8(4)		
330pF(331)	0.8(4)		
360pF(361)	0.8(4)		

The part numbering code is shown in each (). The (4) code in T(mm) means number of elements (four).
Dimensions are shown in mm and Rated Voltage in Vdc.

● High Dielectric Constant Type



Part Number	Dimensions (mm)				
	L	W	T	P	e
GNM314	3.2 ±0.15	1.6 ±0.15	0.8 ±0.1	0.8 ±0.1	0.4 ±0.15
			1.0 ±0.1		

Part Number	GNM31						
L x W	3.2x1.6						
TC	X7R (R7)				Y5V (F5)		
Rated Volt.	16 (1C)	25 (1E)	50 (1H)	100 (2A)	16 (1C)	50 (1H)	100 (2A)
Capacitance and T Dimension							
220pF(221)				0.8(4)			
270pF(271)				0.8(4)			
330pF(331)				0.8(4)			
390pF(391)			0.8(4)	0.8(4)			
470pF(471)			0.8(4)	0.8(4)			
560pF(561)			0.8(4)	0.8(4)			
680pF(681)			0.8(4)	0.8(4)			
820pF(821)			0.8(4)	0.8(4)			
1000pF(102)			0.8(4)	0.8(4)			
1200pF(122)			0.8(4)	0.8(4)			
1500pF(152)			0.8(4)	0.8(4)			
1800pF(182)			0.8(4)	0.8(4)			
2200pF(222)			0.8(4)	0.8(4)			0.8(4)
2700pF(272)			0.8(4)	0.8(4)			
3300pF(332)			0.8(4)	0.8(4)			0.8(4)
3900pF(392)			0.8(4)	0.8(4)			
4700pF(472)			0.8(4)	0.8(4)			0.8(4)
5600pF(562)			0.8(4)				
6800pF(682)			0.8(4)				
8200pF(822)			0.8(4)				
10000pF(103)			0.8(4)				
12000pF(123)			0.8(4)				
15000pF(153)			0.8(4)				

Continued on the following page.

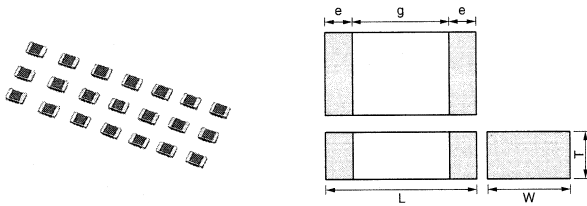
Continued from the preceding page.

Part Number	GNM31						
L x W	3.2x1.6						
TC	X7R (R7)				Y5V (F5)		
Rated Volt.	16 (1C)	25 (1E)	50 (1H)	100 (2A)	16 (1C)	50 (1H)	100 (2A)
Capacitance and T Dimension							
18000pF(183)		0.8(4)					
22000pF(223)	0.8(4)					0.8(4)	
27000pF(273)	0.8(4)						
33000pF(333)	0.8(4)					0.8(4)	
39000pF(393)	0.8(4)						
47000pF(473)	1.0(4)					0.8(4)	
68000pF(683)	1.0(4)				0.8(4)		
0.10μF(104)	1.0(4)				0.8(4)		
0.15μF(154)					0.8(4)		

The part numbering code is shown in each (). The (4) code in T(mm) means number of elements (four).
Dimensions are shown in mm and Rated Voltage in Vdc.

Monolithic Ceramic Capacitors

for Ultrasonic Sensors



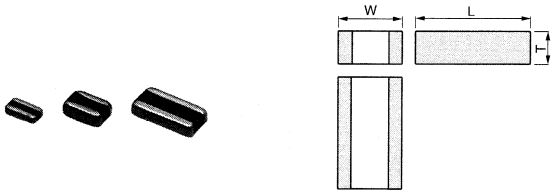
Part Number	Dimensions (mm)				
	L	W	T	e	g min.
GRM219	2.0 ±0.1	1.25 ±0.1	0.85 ±0.1	0.2 to 0.7	0.7

Part Number	TC	Rated Voltage (Vdc)	Capacitance (pF)	Length L (mm)	Width W (mm)	Thickness T (mm)
GRM2199E2A102KD01	ZLM	100	1000 ±10%	2.0	1.25	0.85
GRM2199E2A152KD01	ZLM	100	1500 ±10%	2.0	1.25	0.85

Monolithic Ceramic Capacitors

Low ESL

● LLL18 Series (0603)

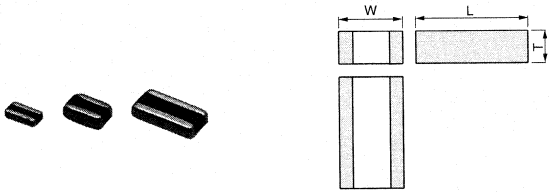


Part Number	Dimensions (mm)		
	L	W	T
LLL185	1.6 ±0.1	0.8 ±0.1	0.6 max.
LLL216	2.0 ±0.1	1.25 ±0.1	0.6 ±0.1
LLL219			0.85 ±0.1
LLL317	3.2 ±0.15	1.6 ±0.15	0.7 ±0.1
LLL31M			1.15 ±0.1

Part Number	LLL18			
L x W	1.6x0.8			
TC	X7R (R7)			
Rated Volt.	10 (1A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension				
2200pF(222)				0.6(5)
2700pF(272)				0.6(5)
3300pF(332)				0.6(5)
3900pF(392)				0.6(5)
4700pF(472)				0.6(5)
5600pF(562)				0.6(5)
6800pF(682)			0.6(5)	
8200pF(822)			0.6(5)	
10000pF(103)			0.6(5)	
12000pF(123)			0.6(5)	
15000pF(153)			0.6(5)	
18000pF(183)			0.6(5)	
22000pF(223)			0.6(5)	
27000pF(273)		0.6(5)		
33000pF(333)		0.6(5)		
39000pF(393)		0.6(5)		
47000pF(473)		0.6(5)		
56000pF(563)		0.6(5)		
68000pF(683)		0.6(5)		
82000pF(823)	0.6(5)			
0.1μF(104)	0.6(5)			
0.12μF(124)	0.6(5)			

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

● LLL21 Series (0805)

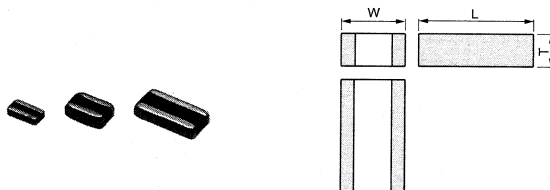


Part Number	Dimensions (mm)		
	L	W	T
LLL185	1.6 ±0.1	0.8 ±0.1	0.6 max.
LLL216	2.0 ±0.1	1.25 ±0.1	0.6 ±0.1
LLL219			0.85 ±0.1
LLL317	3.2 ±0.15	1.6 ±0.15	0.7 ±0.1
LLL31M			1.15 ±0.1

Part Number	LLL21			
L x W	2.0x1.25			
TC	X7R (R7)			
Rated Volt.	10 (1A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension				
0.22pF(224)	0.6(6)			
4700pF(472)				0.6(6)
5600pF(562)				0.6(6)
6800pF(682)				0.6(6)
8200pF(822)				0.6(6)
10000pF(103)				0.6(6)
12000pF(123)				0.6(6)
15000pF(153)				0.6(6)
18000pF(183)				0.6(6)
22000pF(223)				0.6(6)
27000pF(273)			0.6(6)	0.85(9)
33000pF(333)		0.6(6)	0.6(6)	0.85(9)
39000pF(393)		0.6(6)	0.6(6)	0.85(9)
47000pF(473)		0.6(6)	0.6(6)	
56000pF(563)		0.6(6)	0.6(6)	
68000pF(683)		0.6(6)	0.6(6)	
82000pF(823)		0.6(6)	0.6(6)	
0.1µF(104)		0.6(6)	0.6(6)	
0.12µF(124)		0.6(6)	0.85(9)	
0.15µF(154)		0.6(6)	0.85(9)	
0.18µF(184)		0.6(6)		
0.22µF(224)		0.85(9)		
0.27µF(274)	0.6(6)			
0.33µF(334)	0.6(6)			
0.39µF(394)	0.85(9)			
0.47µF(474)	0.85(9)			
0.56µF(564)	0.85(9)			

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

● LLL31 Series (1206)



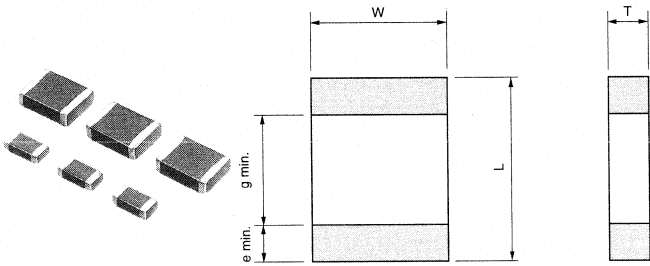
Part Number	Dimensions (mm)		
	L	W	T
LLL185	1.6 ±0.1	0.8 ±0.1	0.6 max.
LLL216	2.0 ±0.1	1.25 ±0.1	0.6 ±0.1
LLL219			0.85 ±0.1
LLL317	3.2 ±0.15	1.6 ±0.15	0.7 ±0.1
LLL31M			1.15 ±0.1

Part Number	LLL31			
L x W	3.2x1.6			
TC	X7R (R7)			
Rated Volt.	10 (1A)	16 (1C)	25 (1E)	50 (1H)
Capacitance and T Dimension				
10000pF(103)				0.7(7)
12000pF(123)				0.7(7)
15000pF(153)				0.7(7)
18000pF(183)				0.7(7)
22000pF(223)				0.7(7)
27000pF(273)				0.7(7)
33000pF(333)				0.7(7)
39000pF(393)				0.7(7)
47000pF(473)				0.7(7)
56000pF(563)				0.7(7)
68000pF(683)				0.7(7)
82000pF(823)			0.7(7)	1.15(M)
0.1μF(104)		0.7(7)	0.7(7)	1.15(M)
0.12μF(124)		0.7(7)	0.7(7)	1.15(M)
0.15μF(154)		0.7(7)	0.7(7)	
0.18μF(184)		0.7(7)	0.7(7)	
0.22μF(224)		0.7(7)	1.15(M)	
0.27μF(274)		0.7(7)	1.15(M)	
0.33μF(334)		0.7(7)	1.15(M)	
0.39μF(394)		0.7(7)		
0.47μF(474)		0.7(7)	1.15(M)	
0.56μF(564)	0.7(7)	1.15(M)		
0.68μF(684)	0.7(7)	1.15(M)		
0.82μF(824)	0.7(7)	1.15(M)		
1.0μF(105)	0.7(7)	1.15(M)		
1.2μF(125)	1.15(M)			
1.5μF(155)	1.15(M)			
1.8μF(185)	1.15(M)			
2.2μF(225)	1.15(M)			

The part numbering code is shown in ().
Dimensions are shown in mm and Rated Voltage in Vdc.

Monolithic (Medium-voltage/Safety Standard Recognized)

Low Dissipation Factor

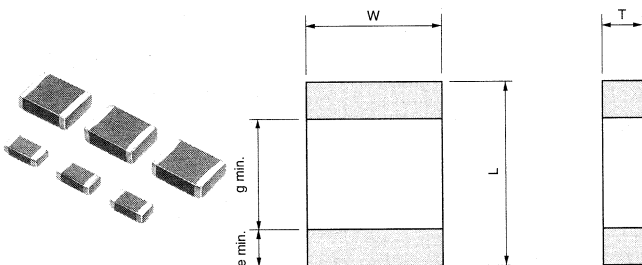


Part Number	Rated Voltage (V)	TC	Capacitance	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode g (mm)	Electrode e (mm)
GRM31A	DC630	R	100pF +10,-10%	3.2	1.6	1.0	1.5 min.	0.3 min.
GRM31A	DC630	C0G	150pF +5,-5%	3.2	1.6	1.0	1.5 min.	0.3 min.
GRM31A	DC630	R	150pF to 330pF +10,-10%	3.2	1.6	1.0	1.5 min.	0.3 min.
GRM31A	DC630	C0G	470pF +5,-5%	3.2	1.6	1.0	1.5 min.	0.3 min.
GRM31B	DC630	R	470pF to 680pF +10,-10%	3.2	1.6	1.25	1.5 min.	0.3 min.
GRM31B	DC630	C0G	1000pF +5,-5%	3.2	1.6	1.25	1.5 min.	0.3 min.
GRM31B	DC630	R	1000pF +10,-10%	3.2	1.6	1.25	1.5 min.	0.3 min.
GRM31A	DC1000	R	47pF to 330pF +10,-10%	3.2	1.6	1.0	1.5 min.	0.3 min.
GRM31B	DC1000	R	470pF +10,-10%	3.2	1.6	1.25	1.5 min.	0.3 min.
GRM31B	DC2000	SL	10pF to 22pF +5,-5%	3.2	1.6	1.25	1.8 min.	0.3 min.
GRM32Q	DC2000	SL	27pF to 82pF +5,-5%	3.2	2.5	1.5	1.8 min.	0.3 min.
GRM43D	DC2000	SL	120pF to 220pF +5,-5%	4.5	3.2	2.0	2.9 min.	0.3 min.
GRM42D	DC3150	SL	10pF to 82pF +5,-5%	4.5	2.0	2.0	2.9 min.	0.3 min.
GRM43E	DC3150	SL	100pF +5,-5%	4.5	3.2	2.5	2.9 min.	0.3 min.

Operating Temperature Range : -55 to +125deg.
 Capacitance step is E12 for SL characteristics and E6 for C0G and R.
 Only tape packaging is available.

Monolithic (Medium-voltage/Safety Standard Recognized)

High-capacitance for General-use



Part Number	Rated Voltage (V)	TC	Capacitance	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode g (mm)	Electrode e (mm)
GRM21A	DC250	X7R	1000pF to 6800pF +10,-10%	2.0	1.25	1.0	0.7 min.	0.3 min.
GRM21B	DC250	X7R	10000pF +10,-10%	2.0	1.25	1.25	0.7 min.	0.3 min.
GRM31B	DC250	X7R	15000pF to 22000pF +10,-10%	3.2	1.6	1.25	1.2 min.	0.3 min.

Continued on the following page.

Capacitors

Continued from the preceding page.

1
Capacitors

Part Number	Rated Voltage (V)	TC	Capacitance	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode g (mm)	Electrode e (mm)
GRM31C	DC250	X7R	33000pF to 47000pF +10,-10%	3.2	1.6	1.6	1.2 min.	0.3 min.
GRM32Q	DC250	X7R	68000pF +10,-10%	3.2	2.5	1.5	1.2 min.	0.3 min.
GRM32D	DC250	X7R	0.1μF +10,-10%	3.2	2.5	2.0	1.2 min.	0.3 min.
GRM43Q	DC250	X7R	0.15μF +10,-10%	4.5	3.2	1.5	2.2 min.	0.3 min.
GRM43D	DC250	X7R	0.22μF +10,-10%	4.5	3.2	2.0	2.2 min.	0.3 min.
GRM55D	DC250	X7R	0.33μF to 0.47μF +10,-10%	5.7	5.0	2.0	3.2 min.	0.3 min.
GRM31B	DC630	X7R	1000pF to 10000pF +10,-10%	3.2	1.6	1.25	1.2 min.	0.3 min.
GRM31C	DC630	X7R	15000pF +10,-10%	3.2	1.6	1.6	1.2 min.	0.3 min.
GRM32Q	DC630	X7R	22000pF +10,-10%	3.2	2.5	1.5	1.2 min.	0.3 min.
GRM32D	DC630	X7R	33000pF to 47000pF +10,-10%	3.2	2.5	2.0	1.2 min.	0.3 min.
GRM43Q	DC630	X7R	68000pF +10,-10%	4.5	3.2	1.5	2.2 min.	0.3 min.
GRM43D	DC630	X7R	0.1μF +10,-10%	4.5	3.2	2.0	2.2 min.	0.3 min.
GRM55D	DC630	X7R	0.15μF +10,-10%	5.7	5.0	2.0	3.2 min.	0.3 min.
GRM55X	DC630	B	0.22μF +10,-10%	5.7	5.0	2.7	3.5 min.	0.3 min.

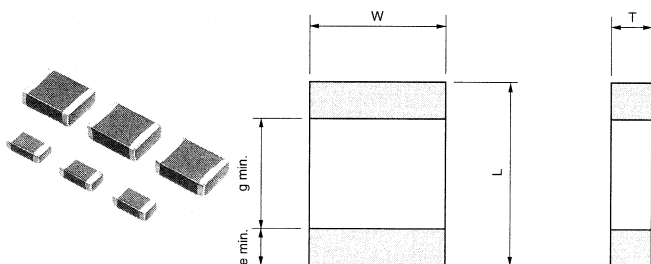
Operating Temperature Range : -55 to +125deg.

Capacitance step is E6.

Only tape packaging is available.

Monolithic (Medium-voltage/Safety Standard Recognized)

AC250V Type (Which Meet Japanese Low)



Part Number	Rated Voltage (V)	TC	Capacitance	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode g (mm)	Electrode e (mm)
GA252D	AC250 (r.m.s.)	B	470pF to 47000pF +20,-20%	5.7	2.8	2.0	3.5 min.	0.3 min.
GA255D	AC250 (r.m.s.)	B	0.1μF +20,-20%	5.7	5.0	2.0	3.5 min.	0.3 min.

Operating Temperature Range : -25 to +85deg.

Dielectric Strength: Nominal Capacitance C>=10,000pF AC575V(r.m.s.), 60±1s. Nominal Capacitance C<10,000pF AC1500V(r.m.s.) 60±1s.

Capacitance step is E3

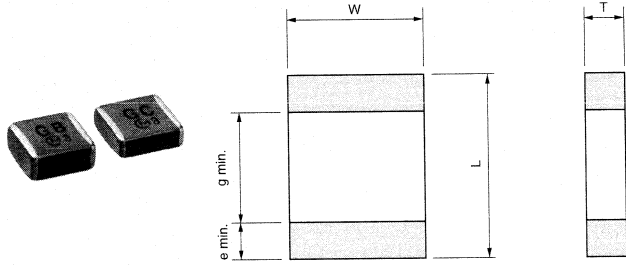
Only tape packaging is available.

Monolithic (Medium-voltage/Safety Standard Recognized)

Safety Standard Recognized

● Type GC

Standard Recognition



	Standard No.	Status of Recognition		Rated Voltage
		Type GB	Type GC	
UL	UL1414	—	⊙*	AC250V (r.m.s.)
BSI	EN132400	—	⊙	
VDE		⊙	⊙	
SEV		⊙	⊙	
SEMKO		⊙	⊙	
EN132400 Class		X2	X1, Y2	

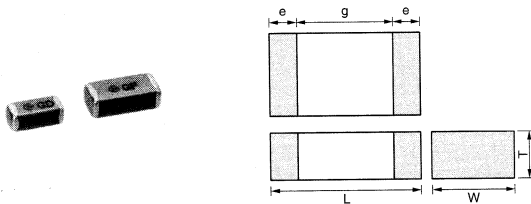
* : Line By Pass only

Part Number	Rated Voltage (V)	TC	Capacitance (pF)	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode g (mm)	Electrode e (mm)
GA355D	AC250 (r.m.s.)	X7R	100 to 4700 +10,-10%	5.7	5.0	2.0	4.0 min.	0.3 min.

Operating Temperature Range : -55 to +125deg.
 Dielectric Strength: AC1500V(r.m.s.), 60±1s.
 Capacitance step is E6.
 Only tape packaging is available.

● Type GD

Standard Recognition



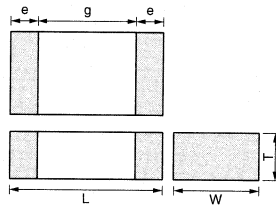
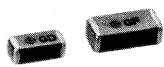
	Standard No.	Status of Recognition		Rated Voltage
		Type GD	Type GF	
SEMKO	EN132400	⊙	⊙	AC250V (r.m.s.)
EN132400 Class		Y3	Y2	

Part Number	Dimensions (mm)				
	L	W	T	e min.	g min.
GA342D	4.5 ±0.3	2.0 ±0.2	2.0 ±0.3	0.3	Type GD : 2.5 Type GF : 3.5
GA343D	4.5 ±0.4	3.2 ±0.3	2.0 ± $\frac{0}{0.3}$		
GA352D	5.7 ±0.4	2.8 ±0.3	2.0 ± $\frac{0}{0.3}$		
GA355D	5.7 ±0.4	5.0 ±0.4	2.0 ± $\frac{0}{0.3}$		

Part Number	Rated Voltage (V)	TC	Capacitance (pF)	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode g (mm)	Electrode e (mm)
GA342D	AC250 (r.m.s.)	X7R	150 to 1000 +10,-10%	4.5	2.0	2.0	2.5 min.	0.3 min.
GA343D	AC250 (r.m.s.)	X7R	2200 +10,-10%	4.5	3.2	2.0	2.5 min.	0.3 min.

Operating Temperature Range : -55 to +125deg.
 Dielectric Strength: AC1500V(r.m.s.), 60±1s.
 Capacitance step is E6.
 Only tape packaging is available.

● Type GF



Standard Recognition

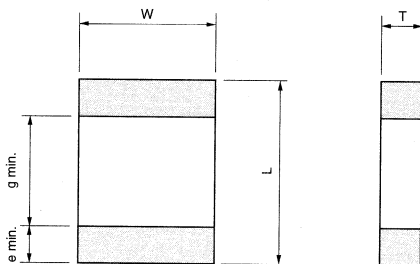
	Standard No.	Status of Recognition		Rated Voltage
		Type GD	Type GF	
SEMKO	EN132400	◎	◎	AC250V (r.m.s.)
EN132400 Class		Y3	Y2	

Part Number	Dimensions (mm)				
	L	W	T	e min.	g min.
GA342D	4.5 ±0.3	2.0 ±0.2	2.0 ±0.3	0.3	Type GD : 2.5 Type GF : 3.5
GA343D	4.5 ±0.4	3.2 ±0.3	2.0 ±0.3		
GA352D	5.7 ±0.4	2.8 ±0.3	2.0 ±0.3		
GA355D	5.7 ±0.4	5.0 ±0.4	2.0 ±0.3		

Part Number	Rated Voltage (V)	TC	Capacitance	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode g (mm)	Electrode e (mm)
GA352D	AC250 (r.m.s.)	X7R	1000pF +10,-10%	5.7	2.8	2.0	3.5 min.	0.3 min.
GA355D	AC250 (r.m.s.)	X7R	2200pF +10,-10%	5.7	5.0	2.0	3.5 min.	0.3 min.

Operating Temperature Range : -55 to +125deg.
Dielectric Strength: AC1500V(r.m.s.), 60±1s.
Only tape packaging is available.

● Type GB



Standard Recognition

	Standard No.	Status of Recognition		Rated Voltage
		Type GB	Type GC	
UL	UL1414	—	◎*	AC250V (r.m.s.)
BSI	EN132400	—	◎	
VDE		◎	◎	
SEV		◎	◎	
SEMKO		◎	◎	
EN132400 Class		X2	X1, Y2	

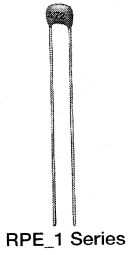
* : Line By Pass only

Part Number	Rated Voltage (V)	TC	Capacitance (pF)	Length L (mm)	Width W (mm)	Thickness T (mm)	Electrode g (mm)	Electrode e (mm)
GA355D	AC250 (r.m.s.)	X7R	10000 to 22000 +10,-10%	5.7	5.0	2.0	4.0 min.	0.3 min.
GA355X	AC250 (r.m.s.)	X7R	33000 +10,-10%	5.7	5.0	2.7	4.0 min.	0.3 min.

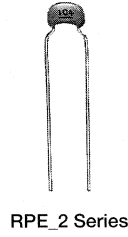
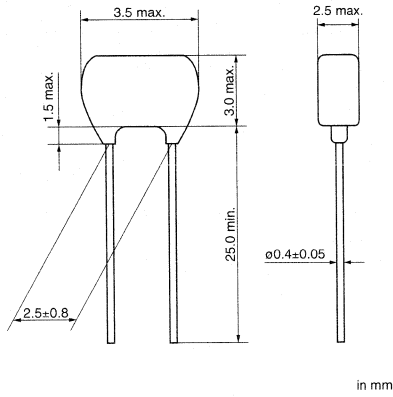
Operating Temperature Range : -55 to +125deg.
Dielectric Strength: DC1075V, 60±1s.
Capacitance step is E6.
Only tape packaging is available.

Monolithic Ceramic Capacitors (lead type)

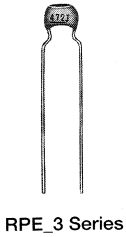
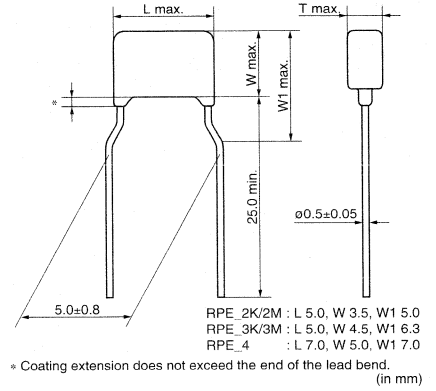
● Temperature Compensating Type



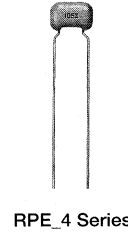
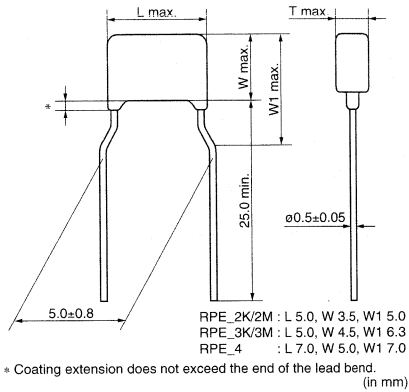
RPE_1 Series



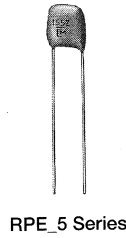
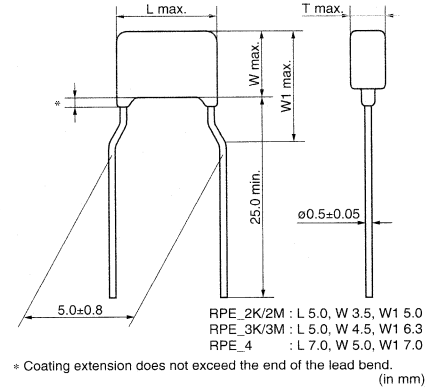
RPE_2 Series



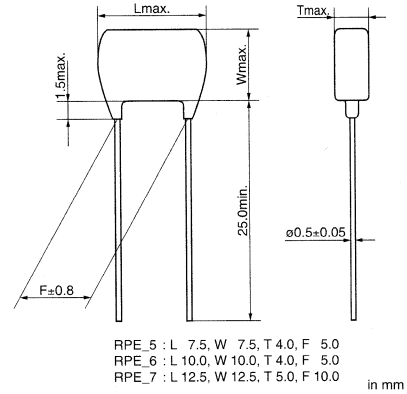
RPE_3 Series



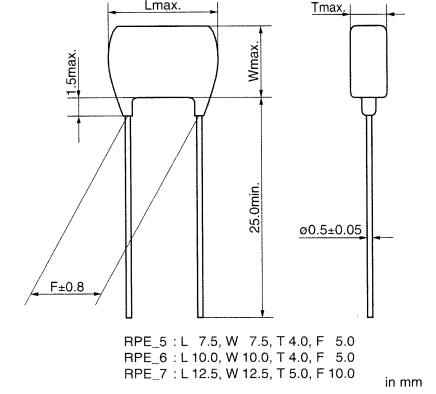
RPE_4 Series



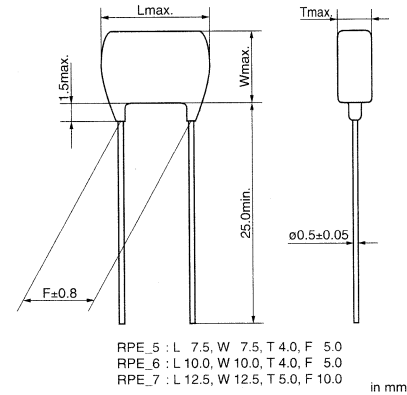
RPE_5 Series



RPE_6 Series

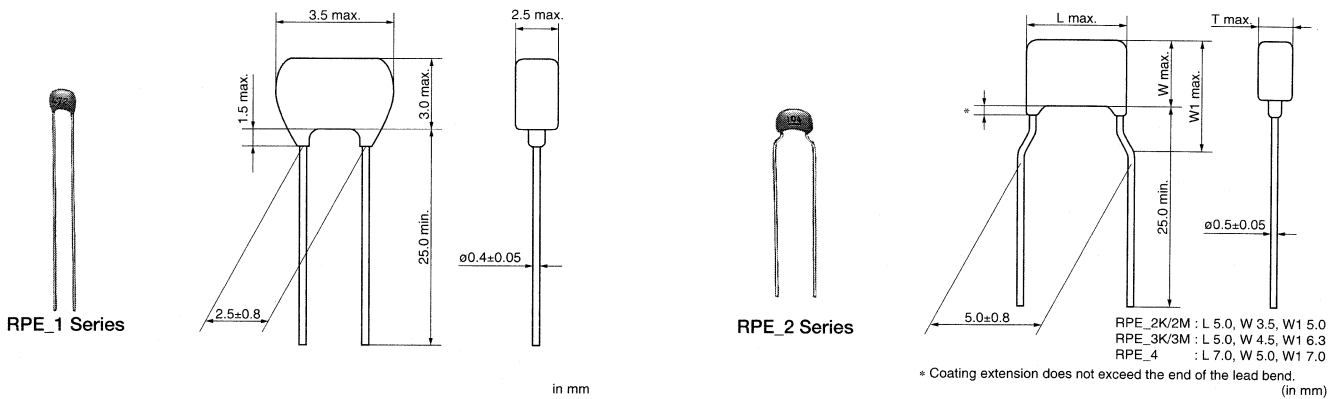


RPE_7 Series



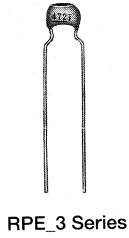
Part Number	Rated Voltage (Vdc)	TC	Capacitance (pF)	Length L (mm)	Width W (mm)	Thickness T (mm)	Lead Space F (mm)
RPE_1	50	C0G	0.5 to 2200	3.5 max.	3.0 max.	2.5 max.	2.5
	100	C0G	1.0 to 1000	3.5 max.	3.0 max.	2.5 max.	2.5
	200	C0G	1.0 to 120	3.5 max.	3.0 max.	2.5 max.	2.5
	50	R2H	3.0 to 560	3.5 max.	3.0 max.	2.5 max.	2.5
	100	R2H	3.0 to 560	3.5 max.	3.0 max.	2.5 max.	2.5
	200	R2H	3.0 to 100	3.5 max.	3.0 max.	2.5 max.	2.5
	50	U2J	3.0 to 1800	3.5 max.	3.0 max.	2.5 max.	2.5
	100	U2J	3.0 to 820	3.5 max.	3.0 max.	2.5 max.	2.5
RPE_2	50	C0G	1.0 to 1000	5.0 max.	3.5 max.	2.5 max.	5.0
	50	C0G	1200 to 5600	5.0 max.	3.5 max.	3.2 max.	5.0
	100	C0G	1 to 680	5.0 max.	3.5 max.	2.5 max.	5.0
	100	C0G	820 to 2200	5.0 max.	3.5 max.	3.2 max.	5.0
	200	C0G	1.0 to 150	5.0 max.	3.5 max.	2.5 max.	5.0
	200	C0G	180 to 390	5.0 max.	3.5 max.	3.2 max.	5.0
RPE_3	100	C0G	2700 to 3900	5.0 max.	4.5 max.	3.2 max.	5.0
	200	C0G	470 to 1000	5.0 max.	4.5 max.	3.2 max.	5.0
RPE_4	50	C0G	6800 to 15000	7.5 max.	5.0 max.	3.2 max.	5.0
	100	C0G	4700	7.5 max.	5.0 max.	2.5 max.	5.0
	100	C0G	5600 to 6800	7.5 max.	5.0 max.	3.2 max.	5.0
	200	C0G	1200 to 1500	7.5 max.	5.0 max.	3.2 max.	5.0
RPE_5	50	C0G	18000	7.5 max.	7.5 max.	4.0 max.	5.0
	100	C0G	8200 to 12000	7.5 max.	7.5 max.	4.0 max.	5.0
	200	C0G	1800 to 3900	7.5 max.	7.5 max.	4.0 max.	5.0
RPE_6	50	C0G	22000 to 39000	10.0 max.	10.0 max.	4.0 max.	5.0
	100	C0G	15000 to 33000	10.0 max.	10.0 max.	4.0 max.	5.0
	200	C0G	4700 to 10000	10.0 max.	10.0 max.	4.0 max.	5.0
RPE_7	50	C0G	47000 to 68000	12.5 max.	12.5 max.	5.0 max.	10.0
	100	C0G	39000 to 56000	12.5 max.	12.5 max.	5.0 max.	10.0
	200	C0G	12000 to 27000	12.5 max.	12.5 max.	5.0 max.	10.0

● High Dielectric Constant Type

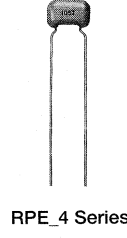
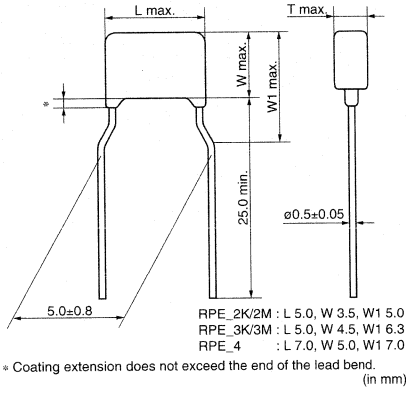


Continued on the following page.

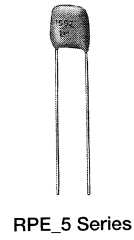
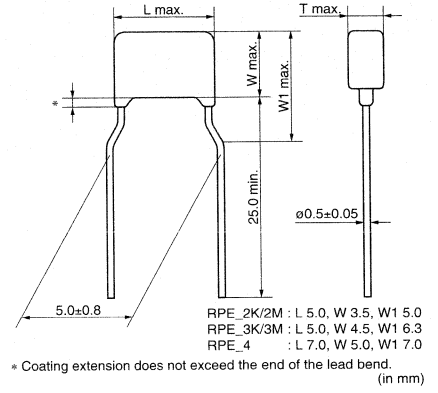
Continued from the preceding page.



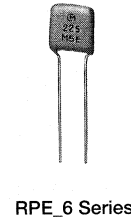
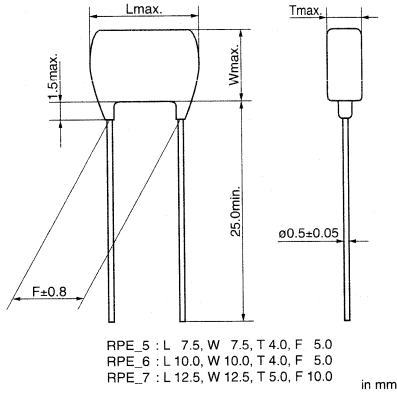
RPE_3 Series



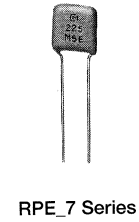
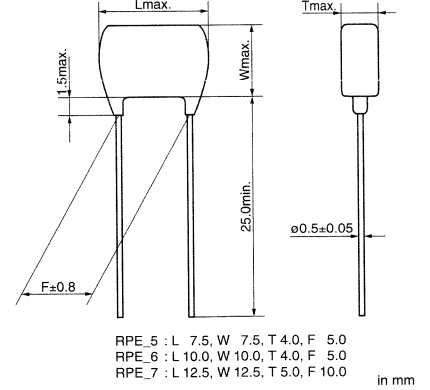
RPE_4 Series



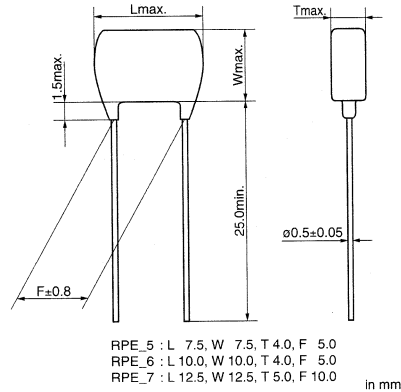
RPE_5 Series



RPE_6 Series



RPE_7 Series



Part Number	Rated Voltage (Vdc)	TC	Capacitance	Length L (mm)	Width W (mm)	Thickness T (mm)	Lead Space F (mm)
RPE_1	50	X7R	220pF to 0.1µF	3.5 max.	3.0 max.	2.5 max.	2.5
	100	X7R	220pF to 10000pF	3.5 max.	3.0 max.	2.5 max.	2.5
	200	X7R	220pF to 4700pF	3.5 max.	3.0 max.	2.5 max.	2.5
	50	Y5V	1000pF to 0.22µF	3.5 max.	3.0 max.	2.5 max.	2.5
	100	Y5V	1000pF to 10000pF	3.5 max.	3.0 max.	2.5 max.	2.5
	50	Z5U	1000pF to 0.10µF	3.5 max.	3.0 max.	2.5 max.	2.5
	100	Z5U	1000pF to 10000pF	3.5 max.	3.0 max.	2.5 max.	2.5
	200	Z5U	1000pF to 2200pF	3.5 max.	3.0 max.	2.5 max.	2.5
RPE_2	50	X7R	220pF to 22000pF	5.0 max.	3.5 max.	2.5 max.	5.0
	50	X7R	33000pF to 0.22µF	5.0 max.	3.5 max.	3.2 max.	5.0
	100	X7R	220pF to 15000pF	5.0 max.	3.5 max.	2.5 max.	5.0
	100	X7R	22000pF to 33000pF	5.0 max.	3.5 max.	3.2 max.	5.0
	200	X7R	220pF to 2200pF	5.0 max.	3.5 max.	2.5 max.	5.0
	200	X7R	3300pF to 10000pF	5.0 max.	3.5 max.	3.2 max.	5.0
	50	Y5V	1000pF to 0.10µF	5.0 max.	3.5 max.	2.5 max.	5.0
	50	Y5V	0.22µF	5.0 max.	3.5 max.	3.2 max.	5.0

Continued on the following page.

Capacitors

Continued from the preceding page.

1
Capacitors

Part Number	Rated Voltage (Vdc)	TC	Capacitance	Length L (mm)	Width W (mm)	Thickness T (mm)	Lead Space F (mm)
RPE_2	100	Y5V	1000pF to 22000pF	5.0 max.	3.5 max.	2.5 max.	5.0
	50	Z5U	1000pF to 0.10 μ F	5.0 max.	3.5 max.	2.5 max.	5.0
	100	Z5U	1000pF to 22000pF	5.0 max.	3.5 max.	2.5 max.	5.0
	200	Z5U	1000pF	5.0 max.	3.5 max.	2.5 max.	2.5
	200	Z5U	1000pF	5.0 max.	3.5 max.	3.2 max.	5.0
	200	Z5U	2200pF	5.0 max.	3.5 max.	2.5 max.	2.5
	200	Z5U	2200pF to 4700pF	5.0 max.	3.5 max.	3.2 max.	5.0
RPE_3	50	X7R	0.22 μ F to 1.0 μ F	5.0 max.	4.5 max.	3.2 max.	5.0
	100	X7R	47000pF to 0.10 μ F	5.0 max.	4.5 max.	3.2 max.	5.0
	200	X7R	15000pF to 47000pF	5.0 max.	4.5 max.	3.2 max.	5.0
	25	Y5V	1.0 μ F	5.0 max.	4.5 max.	3.2 max.	5.0
	50	Y5V	0.47 μ F	5.0 max.	4.5 max.	3.2 max.	5.0
	100	Y5V	47000pF	5.0 max.	4.5 max.	2.5 max.	5.0
	25	Z5U	1.0 μ F	5.0 max.	4.5 max.	2.5 max.	5.0
	50	Z5U	0.22 μ F	5.0 max.	4.5 max.	2.5 max.	5.0
	50	Z5U	0.47 μ F	5.0 max.	4.5 max.	3.2 max.	5.0
	100	Z5U	47000pF	5.0 max.	4.5 max.	2.5 max.	5.0
	100	Z5U	0.10 μ F	5.0 max.	4.5 max.	3.2 max.	5.0
	200	Z5U	10000pF	5.0 max.	4.5 max.	2.5 max.	5.0
	200	Z5U	22000pF to 47000pF	5.0 max.	4.5 max.	3.2 max.	5.0
	RPE_4	100	X7R	0.15 μ F	7.5 max.	5.0 max.	3.2 max.
200		X7R	68000pF	7.5 max.	5.0 max.	3.2 max.	5.0
50		Y5V	1.0 μ F	7.5 max.	5.0 max.	2.5 max.	5.0
100		Y5V	0.10 μ F	7.5 max.	5.0 max.	2.5 max.	5.0
50		Z5U	1.0 μ F	7.5 max.	5.0 max.	3.2 max.	5.0
RPE_5	100	X7R	0.22 μ F to 0.47 μ F	7.5 max.	7.5 max.	4.0 max.	5.0
	200	X7R	0.10 μ F to 0.15 μ F	7.5 max.	7.5 max.	4.0 max.	5.0
	100	Y5V	0.22 μ F to 0.47 μ F	7.5 max.	7.5 max.	4.0 max.	5.0
	100	Z5U	0.22 μ F to 0.47 μ F	7.5 max.	7.5 max.	4.0 max.	5.0
	200	Z5U	0.10 μ F	7.5 max.	7.5 max.	4.0 max.	5.0
RPE_6	50	X7R	1.5 μ F to 2.2 μ F	10.0 max.	10.0 max.	4.0 max.	5.0
	100	X7R	0.68 μ F to 1.0 μ F	10.0 max.	10.0 max.	4.0 max.	5.0
	200	X7R	0.22 μ F to 0.47 μ F	10.0 max.	10.0 max.	4.0 max.	5.0
	50	Y5V	2.2 μ F	10.0 max.	10.0 max.	4.0 max.	5.0
	100	Y5V	1.0 μ F	10.0 max.	10.0 max.	4.0 max.	5.0
	50	Z5U	2.2 μ F	10.0 max.	10.0 max.	4.0 max.	5.0
	100	Z5U	1.0 μ F	10.0 max.	10.0 max.	4.0 max.	5.0
	200	Z5U	0.22 μ F	10.0 max.	10.0 max.	4.0 max.	5.0
RPE_7	50	X7R	3.3 μ F	12.5 max.	12.5 max.	5.0 max.	10.0
	100	X7R	1.5 μ F to 2.2 μ F	12.5 max.	12.5 max.	5.0 max.	10.0
	200	X7R	0.68 μ F to 1.5 μ F	12.5 max.	12.5 max.	5.0 max.	10.0
	100	Y5V	2.2 μ F	12.5 max.	12.5 max.	5.0 max.	10.0
	50	Z5U	4.7 μ F	12.5 max.	12.5 max.	5.0 max.	10.0
	100	Z5U	2.2 μ F	12.5 max.	12.5 max.	5.0 max.	10.0
	200	Z5U	0.47 μ F	12.5 max.	12.5 max.	5.0 max.	10.0

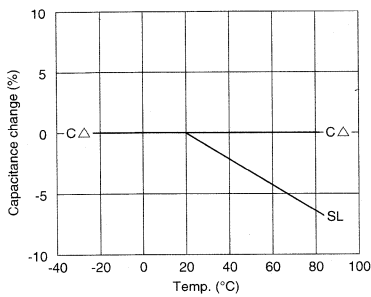
Disc Ceramic Capacitors

● Disc Ceramic Capacitors

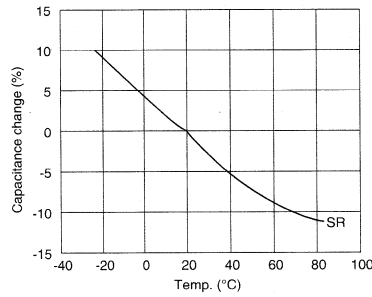
Description	Series	Rated Voltage	Temp. Char.	Capacitance Range (pF)															
				1	3	5	10	30	50	100	300	500	1000	3000	5000	10000	30000	50000	100000
Ceramic Capacitors	DD100	DC50V	C△	1 to 270															
			SL	1 to 1000															
			B	100 to 10000															
			F	2200 to 47000															
	DD10	DC500V	C△	1 to 270															
			SL	1 to 560															
			B	100 to 10000															
			E	1000 to 10000															
BC Capacitors	DD300	DC12V to 50V	F	22000 to 470000															
	DD400	DC16V to 25V	SR	1000 to 100000															
High-Voltage Ceramic Capacitors	DEB DEC DEA DEH	DC250V to 6.3kV	SL	10 to 560															
			B	100 to 6800															
			R	150 to 10000															
			C	330 to 4700															
			E	1000 to 10000															
			F	1000 to 10000															
Safety Standard Recognized Ceramic Capacitors	KY KH KX DEJ	AC250V(r.m.s.)	SL	10 to 68															
			B	100 to 680															
			E	1000 to 4700															
			F	4700 to 10000															

● Typical Examples of Temperature Characteristics

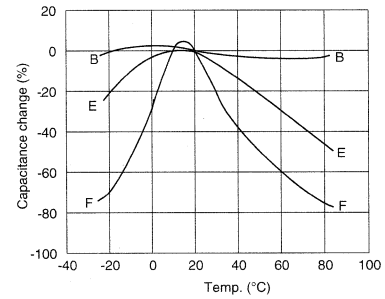
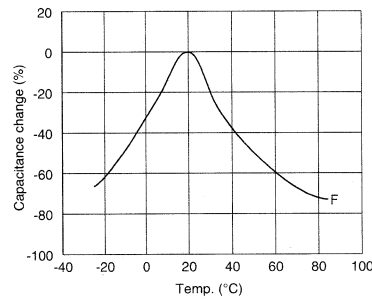
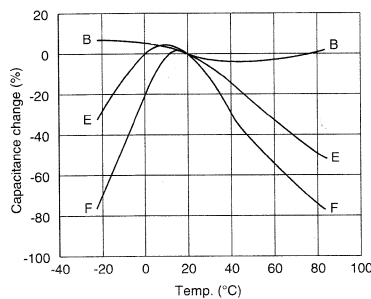
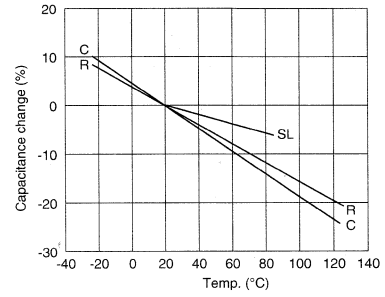
● DD100/DD10 Series



● DD300/DD400 Series



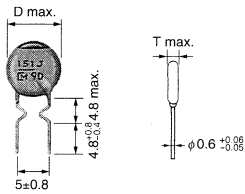
● High-Voltage Ceramic Capacitors/
Safety Standard Recognized Ceramic Capacitors



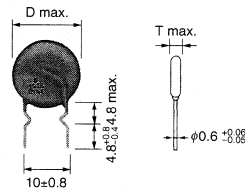
Ceramic Capacitors (12-500V)

50V DD100 Series/500V DD10 Series

Inside Crimp
(Lead Code:-63)



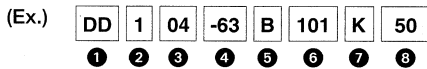
(Lead Code:-64)



Operating Temp. Range -25 to +85°C

in mm

● Part number configuration (Please see page 19 for details)



● 50V DD100 Series

Type	⑧ DC Rated Volt.(V)	④ Lead Code		⑤ Temp. Char./⑥ Capacitance Range (pF)				Dimensions (mm)			
		Bulk	Taping	CΔ ¹⁾	SL	B	F	D	T		
DD104	50	-63	-989	1, 1.5, 2 to 47 ³⁾	1, 1.5, 2 to 120 ³⁾	100 to 1500	2200, 4700	4	3.5 ²⁾		
DD105				56	150	1800	6800	5			
DD106				68, 82	180, 220	2200, 2700	10000	6			
DD107			-959	100, 120	270 to 390	3300 to 4700	—	7.5			
DD108				150	470	5600	22000	8			
DD109				180, 220	560	6800	—	9.5			
DD110				270	680, 820	8200	47000	10.5			
DD111				—	—	10000	—	11			
DD112				—	—	1000	—	12.5			
⑦ Capacitance Tolerance				5pF max. : C, 6 to 10pF : D, 12pF min. : J	K	Z	—				
Capacitance Step				E12	E12	E12	E3, 682	—			

The above Temp. Char. C Δ is approved by IECQ.

1) Temp. Char. tolerance code (Δ) is as follows: 2pF max.: K, 3pF: J, 4pF min.: H.

2) T=4mm in the case of temperature compensating type of 22pF and under, and high dielectric constant type of 470pF and under.

3) Capacitance values 2-10pF are treated as belonging to 1pF step.

● 500V DD10 Series

Type	⑧ DC Rated Volt.(V)	④ Lead Code		⑤ Temp. Char./⑥ Capacitance Range (pF)				Dimensions (mm)	
		Bulk	Taping	CΔ ¹⁾	SL	B	E	D	T
DD05	500	-63	-989	1, 1.5, 2 to 22 ²⁾	1, 1.5, 2 to 68 ²⁾	100 to 560	—	5	4
DD06				27	82, 100	680, 820	1000	6	
DD07				33 to 47	12, 150	1000, 1200	1500	7.5	
DD08			-959	56	180	1500, 1800	2200	8	
DD09				68, 82	220, 270	2200	3300	9.5	
DD10				100, 120	330, 390	2700	4700	10.5	
DD11				150	470	3300, 3900	—	11	
DD12				180	560	4700	6800	12.5	
DD14				220, 270	—	5600, 6800	10000	14.5	
DD16			-64	—	—	8200	—	16.5	
DD18				—	—	10000	—	18.5	
⑦ Capacitance Tolerance				5pF max. : C, 6 to 10pF : D, 12pF min. : J	K	P	—		
Capacitance Step				E12	E12	E12	E6	—	

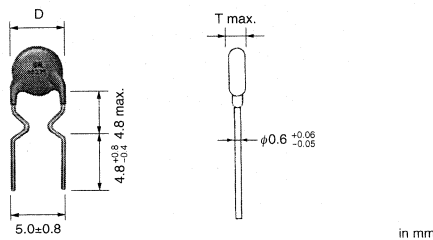
1) Temp. Char. tolerance code (Δ) is as follows: 2pF max.: K, 3pF: J, 4pF min.: H.

2) Capacitance values 2 to 10pF are treated as belonging to 1pF step.

Ceramic Capacitors (12-500V)

BC Capacitors DD300/DD400 Series

Inside Crimp (Lead Code:-63)



in mm

Operating Temp. Range -25 to +85 °C

● Part number configuration (Please see page 19 for details)

(Ex.)

DD	3	04	-63	F	223	Z	25
①	②	③	④	⑤	⑥	⑦	⑧

Type ¹⁾	④ Lead Code		⑤ Temp. Char./⑥ Capacitance Range (pF)/⑧ DC Rated Volt.(V)				Dimensions (mm)	
			F				D	T
	Bulk	Taping	50	25	16	12		
DD304	-63	-989	22000	22000, 33000, 47000	—	—	4±1	3
DD305		-999	33000	—	—	100000	5±1	
DD306		-959	47000	100000	—	—	6.3±1	
DD308			100000	—	—	220000	8±1	
DD310			—	—	220000	330000	10±1	
DD312		—	—	—	—	470000	12.5±1.3	
⑦ Capacitance Tolerance		Z				—		

Type ¹⁾	④ Lead Code		⑤ Temp. Char./⑥ Capacitance Range (pF)/⑧ DC Rated Volt.(V)		Dimensions (mm)	
			SR		D	T
	Bulk	Taping	25	16		
DD404	-63	-989	1000 to 15000	1000 to 22000	4±1	3
DD405		-999	18000, 22000	27000 to 47000	5±1	
DD406		-959	27000, 33000	56000, 68000	6.3±1	
DD407			39000, 47000	82000, 100000	7±1	
DD408			56000, 68000	—	8±1	
DD410		82000, 100000	—	10±1		
⑦ Capacitance Tolerance		M ²⁾		—		
Capacitance Step		E12		—		

1) DD3XX: Surface Layer, DD4XX: Boundary Layer.
2) K tol. available on request.

High-Voltage Ceramic Capacitors (250V-6.3kV)

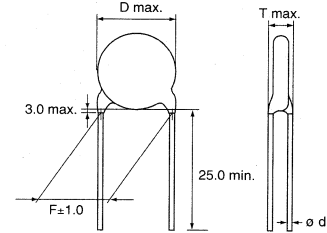
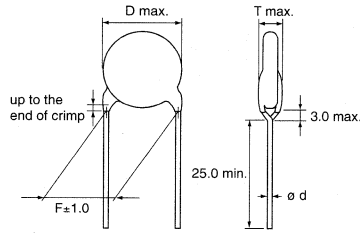
DEB/DEC Series

1

Capacitors

Vertical Crimp Long type
(Lead Code: A*)

Straight Long type
(Lead Code: C*)



in mm

Operating Temp. Range -25 to +85°C

●Part number configuration (Please see page 20 for details)

(Ex.)

DE	B	B3	3A	102	K	N2	A
1	2	3	4	5	6	7	8

●DEB Series

Part Number	DC Rated Volt. (V)	⑦Lead Code and ⑧Packaging Code		Temp. Char. / ⑤Capacitance Range (pF)			Dimensions (mm)			
		Bulk	Taping	B	E	F	D	F	T	φd
Char. B: DEBB33A□□□K□□□ ⑤ ⑦ ⑧ Char. E: DEBE33A□□□Z□□□ ⑤ ⑦ ⑧ Char. F: DEBF33A□□□Z□□□ ⑤ ⑦ ⑧	1k	C1B	P2A	100 to 330	—	—	4.5	5	4	0.6±0.05
				470	1000	—	5			
		A2B	N2A	680, 1000	—	2200	6			
				—	2200	4700	7			
				1500	—	—	8			
				2200	4700	—	9			
		A3B	N3A	3300	—	10000	10			
				4700	—	—	12			
			N7A	6800	—	—	13			
				—	10000	—	15			
Char. B: DEBB33D□□□K□□□ ⑤ ⑦ ⑧ Char. E: DEBE33D□□□Z□□□ ⑤ ⑦ ⑧ Char. F: DEBF33D□□□Z□□□ ⑤ ⑦ ⑧	2k	C1B	P2A	100 to 220	—	—	4.5	5	5	0.6±0.05
				330	—	1000	5			
		A2B	N2A	470	1000	—	6			
				680	—	2200	7			
				1000	2200	—	8			
				1500	—	4700	9			
		A3B	N3A	2200	—	—	10			
				—	4700	—	11			
			N7A	3300	—	10000	12			
				4700	—	—	15			
—	10000	—	16							
Char. B: DEBB33F□□□K□□□ ⑤ ⑦ ⑧ Char. E: DEBE33F□□□Z□□□ ⑤ ⑦ ⑧	3.15k	CDB	P3A	100 to 220	—	—	5	7.5	6	0.6±0.05
		C3B		330	—	—	6			
		A3B	N3A	470	1000	—	7			
				680	—	—	8			
				1000	—	—	9			
				—	2200	—	10			
				1500	—	—	11			
				2200	4700	—	13			
		N7A	3300	—	—	15				
		Capacitance Tolerance				K	Z			
Capacitance Step				E6	E3	E3	—			

1)0.6±0.05mm for Lead Code P2 and P3.

Capacitors

●DEC Series

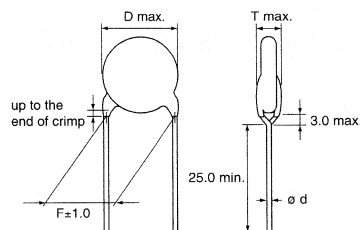
Part Number	DC Rated Volt. (V)	⑦Lead Code and ⑧Packaging Code		Temp. Char. / ⑤Capacitance Range (pF)			Dimensions (mm)			
		Bulk	Taping	SL	B	E	D	F	T	φd
Char. SL : DEC1X3J□□□J□□□ ⑤ ⑦ ⑧ Char. B : DECB33J□□□K□□□ ⑤ ⑦ ⑧ Char. E : DECE33J□□□Z□□□ ⑤ ⑦ ⑧	6.3k	C4B	—	22 to 47	100 to 330	—	9	10	7	0.6±0.05
				56	470	—	10			
				—	680	1000	11			
				68, 82	—	—	12			
				100	1000	—	13			
				120	—	—	14			
Capacitance Tolerance				J	K	Z	—			
Capacitance Step				E12	E6	E3	—			

Please see below for SL Characteristics. (1 to 3.15kV)

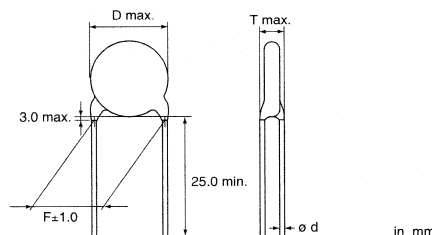
High-Voltage Ceramic Capacitors (250V-6.3kV)

DEA/DEH Series

Vertical Crimp Long type
(Lead Code: A*)



Straight Long type
(Lead Code: C*)



Operating Temp. Range -25 to +125°C

●Part number configuration (Please see page 20 for details)

(Ex.)

DE	H	R3	3A	102	K	N2	A
①	②	③	④	⑤	⑥	⑦	⑧

Part Number	DC Rated Volt. (V)	⑦Lead Code and ⑧Packaging Code		Temp. Char. / ⑤Capacitance Range (pF)			Dimensions (mm)			
		Bulk	Taping	SL (DEA Series)	R (DEH Series)	C (DEH Series)	D	F	T	φd
Char. R : DEHR32E□□□K□□□ ⑤ ⑦ ⑧	250	A2B	N2A	—	220 to 1000	—	6	5	4	0.6±0.05
				—	1500	—	7			
				—	2200	—	8			
				—	3300	—	9			
				—	4700	—	10			
				—	6800, 10000	—	12			
Char. C : DEHC32H□□□K□□□ ⑤ ⑦ ⑧	500	A2B	N2A	—	—	330, 470	6	5	4	0.6±0.05
				—	—	680	7			
				—	—	1000	8			
				—	—	1500	9			
				—	—	2200	10			
				—	—	3300	12			
		A4B	—	—	4700	14	10			
Char. SL : DEA1X3A□□□J□□□ ⑤ ⑦ ⑧ Char. R : DEHR33A□□□K□□□ ⑤ ⑦ ⑧	1k	C1B	P2A	10 to 47	—	—	4.5	5	4	0.5±0.05 ¹⁾
				56, 68	—	—	5			
		A2B	N2A	82 to 120	—	—	6		4.5 ²⁾	0.6±0.05
				150, 180	220 to 470	—	7			
				220	680	—	8			
				270	1000	—	9			
				330, 390	—	—	10			
				470	1500	—	11			

Continued on the following page.

Capacitors

Continued from the preceding page.

1
Capacitors

Part Number	DC Rated Volt. (V)	⑦ Lead Code and ⑧ Packaging Code		Temp. Char./⑤ Capacitance Range (pF)			Dimensions (mm)				
		Bulk	Taping	SL	R	C	D	F	T	φd	
				(DEA Series)	(DEH Series)	(DEH Series)					
Char. SL : DEA1X3A□□□J□□□ ⑤ ⑦ ⑧ Char. R : DEHR33A□□□K□□□ ⑤ ⑦ ⑧	1k	A3B	N3A	560	—	—	12	7.5	4.5 ²⁾	0.6±0.05	
				—	2200	—	13				
			N7A	—	3300	—	15				
				—	4700	—	17				
Char. SL : DEA1X3D□□□J□□□ ⑤ ⑦ ⑧ Char. R : DEHR33D□□□K□□□ ⑤ ⑦ ⑧	2k	C1B	P2A	10 to 33	—	—	4.5	5	0.5±0.05 ¹⁾		
				39	—	—	5				
		A2B	N2A	47 to 68	—	—	6				
				82, 100	—	—	7				
				120, 150	—	—	8				
				180	—	—	9				
				220	—	—	10				
				270	—	—	11				
		C3B	P3A	—	220, 270	—	7			7.5	5
				—	330, 390	—	8				
		A3B	N3A	—	470, 560	—	9				
				—	680	—	10				
				—	820	—	11				
				330	1000 to 1500	—	12				
				390	—	—	13				
				470	1800	—	14				
				560	2200	—	15				
				—	2700	—	17				
				—	3300	—	19				
		A4B	—	—	3900	—	20	10	0.6±0.05		
				—	4700	—	21				
Char. SL : DEA1X3F□□□J□□□ ⑤ ⑦ ⑧ Char. R : DEHR33F□□□K□□□ ⑤ ⑦ ⑧	3.15k	CDB	P3A	10 to 22	—	—	5	7.5	6	0.5±0.05 ¹⁾	
				27 to 39	—	—	6				
		A3B	N3A	47, 56	150 to 270	—	7				
				68, 82	330	—	8				
				100	390	—	9				
				120	470, 560	—	10				
				150, 180	680	—	11				
				220	820	—	12				
				—	1000	—	13				
				N7A	270	1200	—				14
					330	1500	—				15
		390	1800		—	16					
		A4B	—	—	2200	—	17	10	0.6±0.05		
				—	2700	—	19				
		Capacitance Tolerance				J	K	K	—		
Capacitance Step				E12	E6 (250V to 1kV) E12 (2kV, 3.15kV)			—			

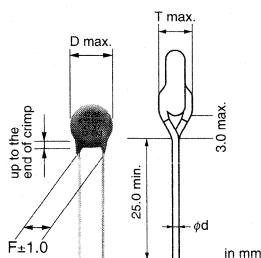
1) 0.6±0.05 mm for Lead Code P2 and P3.
2) 4mm for Characteristics SL.

Safety Standard Recognized Ceramic Capacitors

Type KY (Basic insulation) —IEC60384-14 Class X1, Y2—

Vertical Crimp Long type

(Lead code: A2)



Operating Temp. Range -25 to +125°C (Except standard of UL)
-25 to +85°C (Standard of UL)

	Standard No.	Rated Voltage
UL	UL1414	AC250V(r.m.s.)
BSI	EN60065 (clause 8.8/14.2) EN132400	
SEMKO	EN132400	
SEV		
VDE		
FIMKO		
NEMKO		
DEMKO		
NSW	IEC60384-14 (2nd Edition)	

Part number configuration (Please see page 21 for details)

(Ex.)

DE	2	E3	KY	102	M	N2	A	M01
1	2	3	4	5	6	7	8	9

Part Number	Lead Code and Packaging Code		Temp. Char.	Cap. (pF)	Cap. Tol. (%)	Dimensions (mm)				
	Bulk	Taping				D	F	T	φ d	
DE21XKY100K□□□M01	A2B	N2A	SL	10	±10	8	5	5	0.6±0.05	
DE21XKY150K□□□M01				15						
DE21XKY220K□□□M01				22						
DE21XKY330K□□□M01				33						
DE21XKY470K□□□M01				47						
DE21XKY680K□□□M01				68						
DE2B3KY101K□□□M01			B	100		±20				7
DE2B3KY151K□□□M01				150						
DE2B3KY221K□□□M01				220						
DE2B3KY331K□□□M01				330						
DE2B3KY471K□□□M01				470						
DE2B3KY681K□□□M01				680						
DE2E3KY102M□□□M01			E	1000		±20				8
DE2E3KY152M□□□M01				1500						
DE2E3KY222M□□□M01				2200						
DE2E3KY332M□□□M01				3300						
DE2E3KY472M□□□M01				4700						

Dielectric Strength : AC2000V (r.m.s.), 60 s

Three blank columns are filled with Lead Code and Packaging Code.

Individual specification code "M01" expresses simplicity marking for product body marking.

Murata part numbers might be changed depending on lead code or any other changes.

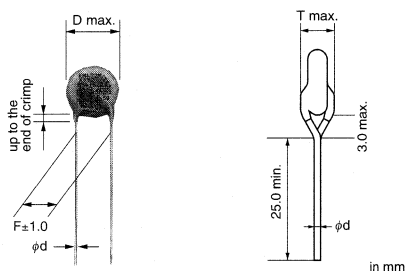
Therefore, please specify only the type name(KY) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

Safety Standard Recognized Ceramic Capacitors

Type KH (Basic insulation) —IEC60384-14 Class X1, Y2—

1
Capacitors

Vertical Crimp Long type
(Lead code: A3)



Operating Temp. Range -25 to +125°C (Except standard of UL, CSA)
-25 to +85°C (Standard of UL, CSA)

	Standard No.	Rated Voltage
UL	UL1414	AC250V(r.m.s.)
CSA	C22.2 No.1	
BSI	EN60065 (clause 8.8/14.2) EN132400	
SEMKO	EN132400	
SEV		
VDE		
FIMKO		
NEMKO		
DEMKO		
NSW	IEC60384-14 (2nd Edition)	

*CCEE (Chinese Safety Standard) Safety Standard is also available as special specification.
Please contact us for details.

●Part number configuration (Please see page 21 for details)

(Ex.)

DE	2	E3	KH	102	M	N3	A
1	2	3	4	5	6	7	8

Part Number	Lead Code and Packaging Code		Temp. Char.	Cap. (pF)	Cap. Tol. (%)	Dimensions (mm)					
	Bulk	Taping				D	F	T	φd		
DE2B3KH101K□□□	A3B	N3A	B	100	±10	8	7.5	7	0.6±0.05		
DE2B3KH151K□□□				150							
DE2B3KH221K□□□				220							
DE2B3KH331K□□□				330							
DE2B3KH471K□□□				470							
DE2B3KH681K□□□				680							
DE2E3KH102M□□□			E	1000	±20	9					
DE2E3KH152M□□□				1500		8					
DE2E3KH222M□□□				2200		9					
DE2E3KH332M□□□				3300		10					
DE2E3KH472M□□□				4700		12					
DE2F3KH103M□□□				N7A		F	10000	13			
							16				

Dielectric Strength : AC2600V (r.m.s.), 60 s

Three blank columns are filled with Lead Code and Packaging Code.

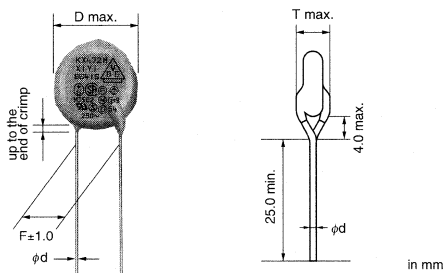
Murata part numbers might be changed depending on lead code or any other changes.

Therefore, please specify only the type name(KH) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

Safety Standard Recognized Ceramic Capacitors

Type KX (Reinforced insulation) —IEC60384-14 Class X1, Y1—

Vertical Crimp Long type
(Lead code: A5)



Operating Temp. Range -25 to +125°C (Except standard of UL, CSA)
-25 to +85°C (Standard of UL, CSA)

	Standard No.	Rated Voltage
UL	UL1414	AC250V (r.m.s.)
CSA	C22.2 No.1	
BSI	EN60065 (clause 8.8/14.2) EN132400	
SEMKO	EN132400	
SEV		
VDE		
FIMKO		
NEMKO		
DEMKO		
IMQ		

*Capacitance values less than 100pF are also recognized.
Please contact us for details.

*CCEE (Chinese Safety Standard) Safety Standard is also available as special specification.
Please contact us for details.

●Part number configuration (Please see page 21 for details)

(Ex.)

DE	1	E3	KX	102	M	N5	A	
①	②	③	④	⑤	⑥	⑦	⑧	⑨

Part Number	Lead Code and Packaging Code		Temp. Char.	Cap. (pF)	Cap. Tol. (%)	Dimensions (mm)					
	Bulk	Taping				D	F	T	φ d		
DE1B3KX101K□□□	A5B	N5A	B	100	±10	9	10	8	0.6 ^{+0.1} _{-0.05}		
DE1B3KX151K□□□				150							
DE1B3KX221K□□□				220							
DE1B3KX331K□□□				330							
DE1B3KX471K□□□				470							
DE1B3KX681K□□□				680							
DE1E3KX102M□□□A01			E	N5A	E	1000	±20	8		10	8
DE1E3KX152M□□□A01						1500					
DE1E3KX222M□□□A01						2200					
DE1E3KX332M□□□A01						3300					
DE1E3KX392M□□□A01						3900					
DE1E3KX472M□□□A01						4700					
DE1E3KX102M□□□A01						1000					
DE1E3KX152M□□□A01						1500					

Dielectric Strength : AC4000V(r.m.s.), 60 s

Three blank columns are filled with Lead Code and Packaging Code.

Individual specification code "A01" expresses small size.

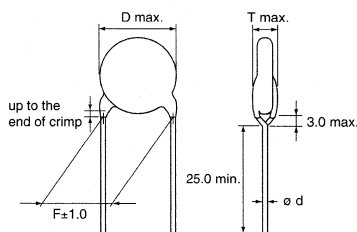
Murata part numbers might be changed depending on lead code or any other changes.

Therefore, please specify only the type name(KX) and capacitance of products in the parts list when it is required for applying safety standard of electric equipment.

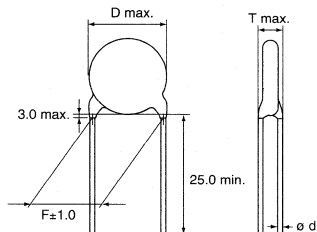
Safety Standard Recognized Ceramic Capacitors

DEJ Series—Products which are Based on the Electrical Appliance and Material Safety Law of Japan—

Vertical Crimp Long type
(Lead Code: A*)



Straight Long type
(Lead Code: C*)



in mm

Operating Temp. Range -25 to +85°C

●Part number configuration (Please see page 21 for details)

(Ex.)

DE	J	E3	E2	102	Z	N2	A
①	②	③	④	⑤	⑥	⑦	⑧

Part Number	Lead Code and Packaging Code			Temp. Char.	Cap. (pF)	Cap. Tol. (%)	Dimensions (mm)				
	Bulk	Taping					D	F	T	φ d	
DEJE3E2102Z□□□	C3B	N2A	P3A	E	1000	+80 -20	7	7.5 ¹⁾	4	0.6±0.05	
DEJE3E222Z□□□			2200		8						
DEJE3E233Z□□□	A3B	N3A	N3A		3300		9				
DEJE3E247Z□□□					4700		11				
DEJF3E247Z□□□					F		4700				8
DEJF3E2103Z□□□							10000				11

Dielectric Strength : AC1500V(r.m.s.), 60 s

1) 5mm for Lead Code N2

Three blank columns are filled with Lead Code and Packaging Code.

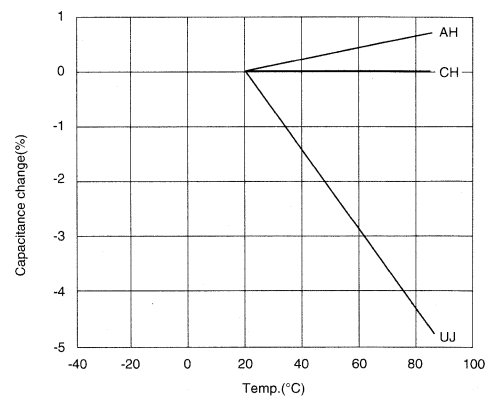
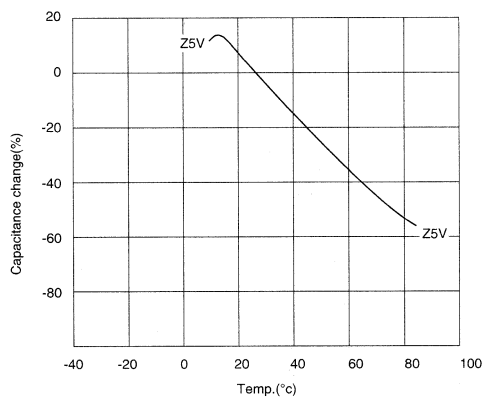
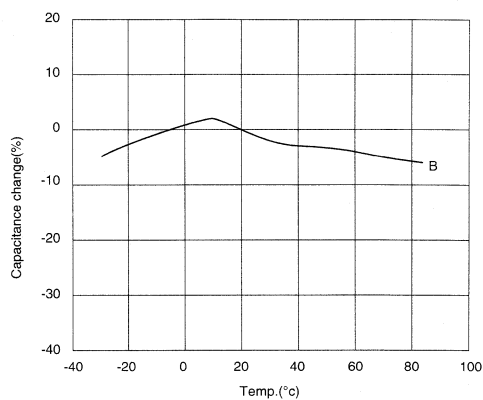
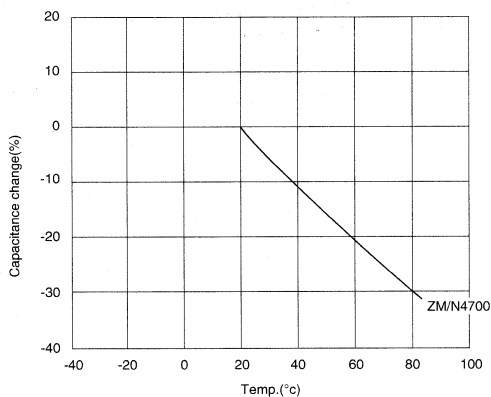
● Minimum Quantity (order in sets only)/Minimum Order Quantity

		Minimum Quantity	Minimum Order Quantity	
Ceramic Capacitors (50V, 500V)/ BC Capacitors	Bulk	1,000	10,000	
	Taping	2,000		
High-Voltage Ceramic Capacitors/ Safety Standard Recognized Ceramic Capacitors	Bulk	1,000	3,000	
	Lead Code	P2, N2	1,500 ¹⁾	3,000
		P3, N3	1,000 ²⁾	3,000 ³⁾
		N7	500 ⁴⁾	2,000
		N5	500	2,000

- 1) 1,000 pcs. for Type KY.
- 2) 900 pcs. for 2kV and 3.15kV rated voltages and Type KH/KY.
- 3) 2,700 pcs. for 2kV and 3.15kV rated voltages and Type KH/KY.
- 4) 400 pcs. for Type KH.

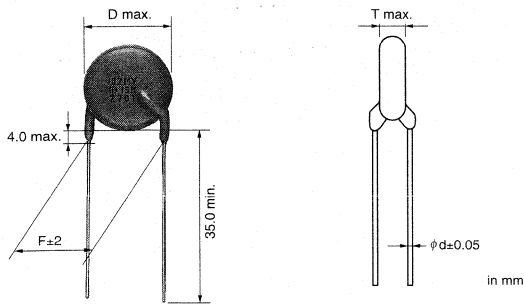
High-voltage Ceramic Capacitors (10-40kV)

● Typical Example of Temperature Characteristics



High-voltage Ceramic Capacitors (10-40kV)

Radial Type DHR Series



Operating Temp. Range -25 to +100°C

● Part number configuration (Please see page 22 for details)

(Ex.)

DH	R	B3	4A	102	M	2B	B
①	②	③	④	⑤	⑥	⑦	⑧

Part Number	⑦ Lead Code	DC Rated Volt. (kV)	Temp. Char./		Dimensions (mm)					
			⑤ Capacitance (pF)		D	T		F	d	
			B	ZM		B	ZM			
Char. B : DHRB34A□□□M□□B ⑤ ⑦ Char. ZM : DHR4E4A□□□K□□B ⑤ ⑦	2B	10	100		8	7.0	7.3		9.5	0.65
			150				7.0			
			220		9		7.0			
			330		10		7.0			
			470		12		7.0			
			1000		15		7.0			
Char. B : DHRB34B□□□M□□B ⑤ ⑦ Char. ZM : DHR4E4B□□□K□□B ⑤ ⑦	12	100		8	7.5	7.7		9.5	0.65	
		150, 220				7.3				
		330		9		7.3				
		470		11		7.3				
		680		12		7.3				
		1000		14		7.3				
Char. B : DHRB34C□□□M□□B ⑤ ⑦ Char. ZM : DHR4E4C□□□K□□B ⑤ ⑦	15	100		8	8.2	8.5		12.7	0.8	
		150				8.2				
		220		9		8.2				
		330		10		8.2				
		470		12		8.2				
		680		13		8.2				
1000		15	8.2							
1000		18	8.2		8.2		12.7		0.8	
Capacitance Tolerance			Char. B : ±20% , Char. ZM : ±10%							

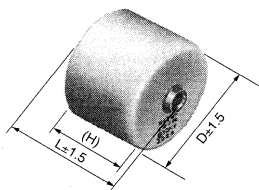
● Applications

1. Tuning capacitor in focus circuit for display
2. High-voltage DC power supplies (PPCs. X-ray apparatus, air cleaner, lasers, etc.)
3. Color TV doublers and triplers

● Minimum Quantity (order in sets only) : 100 pcs.
 Minimum Order Quantity : 500 pcs.

High-Voltage Ceramic Capacitors (10-40kV)

DHS Series



in mm

Operating Temp. Range -20 to +85°C

● Part number configuration (Please see page 22 for details)

(Ex.)

DH	S	4E	4D	142	K	LX	B
1	2	3	4	5	6	7	8

Part Number	7 Terminal Type Code	Temp. Char./5 Cap. (pF) ¹⁾		DC Rated Voltage (kV)	Dimensions (mm)			
		ZM (N4700)	Z5V		D	L	H	
Char. ZM : DHS4E4D□□□M□□B 5 7	CX	280	—	20	20	24 (26) ²⁾	20 (24) ²⁾	
	DX	—	600		24			
	HX	880	1000		30			
	LX	1400	—		38			
	Char. Z5V : DHSF44D□□□Z□□B 5 7	NX	—		2400			43
		RX	2500		3300			52
		TX	4000		4800			60
Char. ZM : DHS4E4F□□□M□□B 5 7	CX	190	—	30	20	28 (34) ²⁾	24 (32) ²⁾	
	DX	—	460		24			
	HX	590	780		30			
	LX	940	—		38			
	Char. Z5V : DHSF44F□□□Z□□B 5 7	NX	—		1800			43
		RX	1700		2500			52
		TX	2700		3600			60
Char. ZM : DHS4E4G□□□M□□B 5 7	CX	140	—	40	20	36 (41) ²⁾	32 (39) ²⁾	
	DX	—	340		24			
	HX	440	570		30			
	LX	700	—		38			
	Char. Z5V : DHSF44G□□□Z□□B 5 7	NX	—		1300			43
		RX	1300		1900			52
		TX	2000		2700			60

1) Cap. tolerance codes are M for ZM and Z for Z5V.

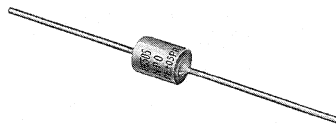
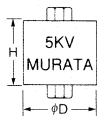
2) ():Z5V Char.

● Applications

1. Lasers
2. High-voltage DC power supplies

High-frequency Power Ceramic Capacitors

For Transmitters DC5 Series

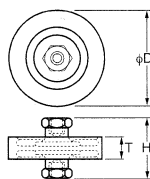
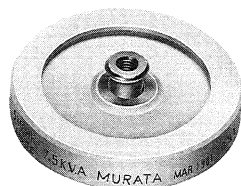


Operating Temp. Range -10 to +75°C

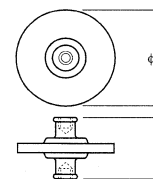
Part Number	Nom. Cap. (pF)	Cap. Tol.	Temp. Coeff.	DC Rated Volt. (kV)	DC Test Volt. (kV)	Max. Current 1MHz [A(r.m.s.)]	Rated Power 1MHz (kVA)	Dimensions (mm)	
								φ D	H
DC52C3H030DC3B	3	±0.5pF	CH (NP0)	5.0	7.5	0.07	0.23	6.3±0.8	8.5±0.8
DC53U3H400KC1B	40	±10%	UJ (N750)	5.0	7.5	0.89	3.1	12.0±0.8	11.0±0.8
DC52CAD500KC6B	50	±10%	CH (NP0)	7.5	11.25	1.7	8.9	20.0±0.8	15.5±0.8
DC53U3H101KC6B	100	±10%	UJ (N750)	5.0	7.5	3.4	19.0	20.0±0.8	15.5±0.8
DC5F33H102MC8B	1000	±20%	F (-)	5.0	7.5	1.4	0.3	20.0±0.8	15.5±0.8
DC52C4C500KC4B	50	±10%	CH (NP0)	15.0	22.5	3.3	35.0	30.0±2.0	33.0±1.0
DC53UAD201KC4B	200	±10%	UJ (N750)	7.5	11.25	5.1	23.0	30.0±2.0	33.0±1.0

High-frequency Power Ceramic Capacitors

For RF Heaters DCT/DCA Series



DCT Series



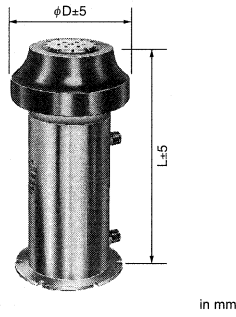
DCA Series

Part Number	Nom. Cap. (pF)	Rated Volt. (kV)		Rated Allowable Power (kVA)	Max. Current [A(r.m.s.)]	Dimensions (mm)		
		HF Peak Value	D.C			φ D±10%	T±2	H±2
DCT3UF4102KB8B	1000	30	25	300	60	200	33	73
DCT3UF4501KB6B	500	30	25	90	35	140	25	53
DCT3UE4102KB6B	1000	25	21	90	35	140	22	50
DCT3UC4152KB6B	1500	15	13	90	35	140	19	47
DCT3UAT152KB5B	1500	9	7	22	27	110	16	44
DCT3UAF501KB4B	500	14	12	15	20	80	16	31
DCT3UB4301KB3B	300	12	10	7.5	15	60	15	26
DCT2CAZ101KB6B	100	31.5	37	135	35	140	26	52
DCT2CAX101KB4B	100	16	19	30	20	80	17	32
DCT2AAZ500KB6B	50	31.5	34	90	35	140	31	51
DCA3UD3501KA2B	500	2	3.5	2.2	8.5	40	—	22

Operating Temp. Range : -10 to +75°C

High-frequency Power Ceramic Capacitors

Water-cooled Ceramic RF Power Capacitors DCW Series

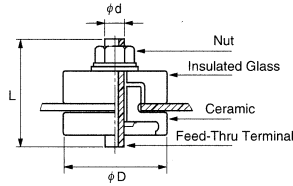


Part Number	Temp. Coefficient	Nom. Cap. (pF)	Cap. Tol. (%)	Rated Volt.(kV) HF Peak	Rated Power (kVA)	Max. Current [A(r.m.s.)]	Min. Water Flow Rate (ℓ/min.)	Dimensions (mm)	
								ϕ D	L
DCW3UC4252MF1B	UJ (N750)	2500	± 20	15	1000	100	1.0	100	135
DCW3UAF502MF2B	UJ (N750)	5000	± 20	14	2000	200	1.0	122	249
DCW3UD4502KF3B	UJ (N750)	5000	± 10	20	3000	250	1.5	135	283

Operating Temp. Range : 0 to +55°C

High-frequency Power Ceramic Capacitors

Small Size Feed-thru Type DC6 Series

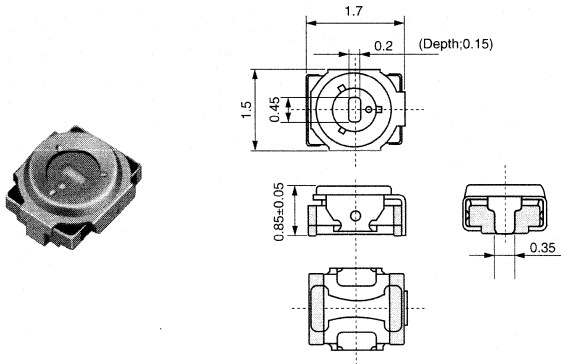


Part Number	Cap. (pF)	Cap. Tol. (%)	DC Rated Volt. (kV)	DC Test Volt. (kV)	Dimensions (mm)			Torque (N·m)
					ϕ D	L	ϕ d	
DC6F33G502PE2B	5000	+100 - 0	4	6	60	48	8	0.5
DC6F33D502PE1B	5000	+100 - 0	2	3	40	48	8	0.3

Operating Temp. Range : -10 to +75°C

Ceramic Trimmer Capacitors

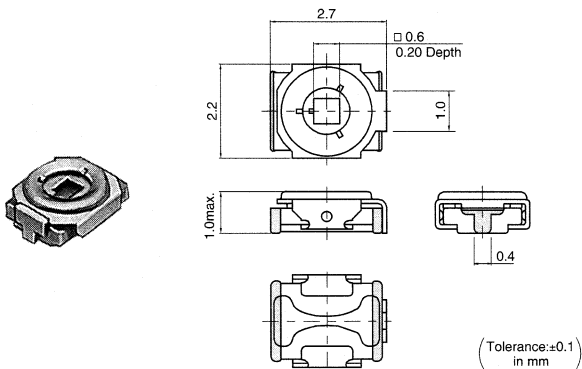
● TZR1 Series



Part Number	Cmin. (pF)	Cmax. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZR1Z040A001	1.5 max.	4.0 +100/-0%	NP0±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZR1R080A001	3.0 max.	8.0 +100/-0%	N750±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc

Insulation Resistance : 10000M ohm min. Torque : 0.1-1.0mN.m Operating Temperature Range : -25 ~ +85°C

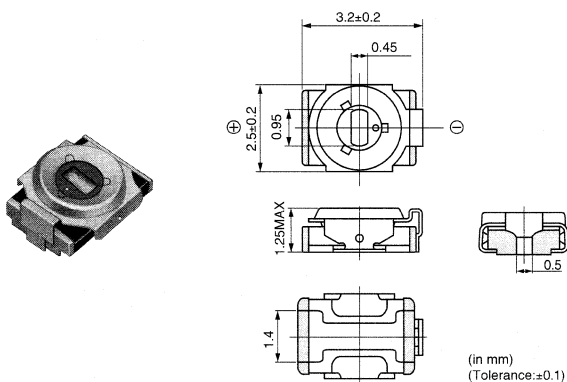
● TZS2 Series



Part Number	Cmin. (pF)	Cmax. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZS2Z060A001	3.0 max.	6.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZS2Z100A001	3.5 max.	10.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZS2R200A001	7.0 max.	20.0 +100/-0%	N750±500ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc

Insulation Resistance : 10000M ohm min. Torque : 0.5-5.0mNm Operating Temperature Range : -25~+85°C

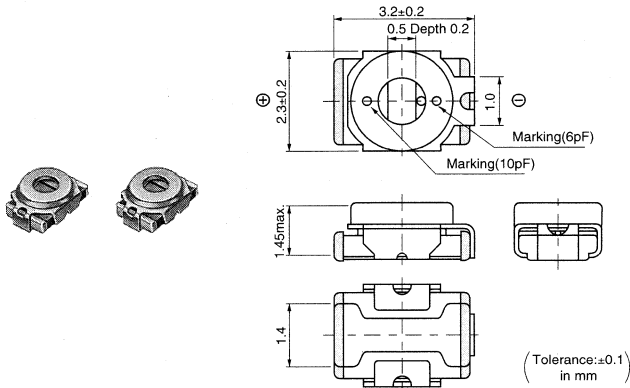
● TZY2 Series



Part Number	Cmin. (pF)	Cmax. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZY2Z2R5A001	0.65 max.	2.5 +100/-0%	NP0±300ppm/°C	200min. at 200MHz, Cmax.	25Vdc	55Vdc
TZY2Z030A001	1.5 max.	3.0 +100/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2Z060A001	2.5 max.	6.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2Z100A001	3.0 max.	10.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2R200A001	4.5 max.	20.0 +100/-0%	N750±500ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2R250A001	5.5 max.	25.0 +100/-0%	N750±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZY2K450A001	8.0 max.	45.0 +100/-0%	N1000±500ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc

Insulation Resistance : 10000M ohm min. Torque : 0.5~5.0mNm Operating Temperature Range : -25~+85°C

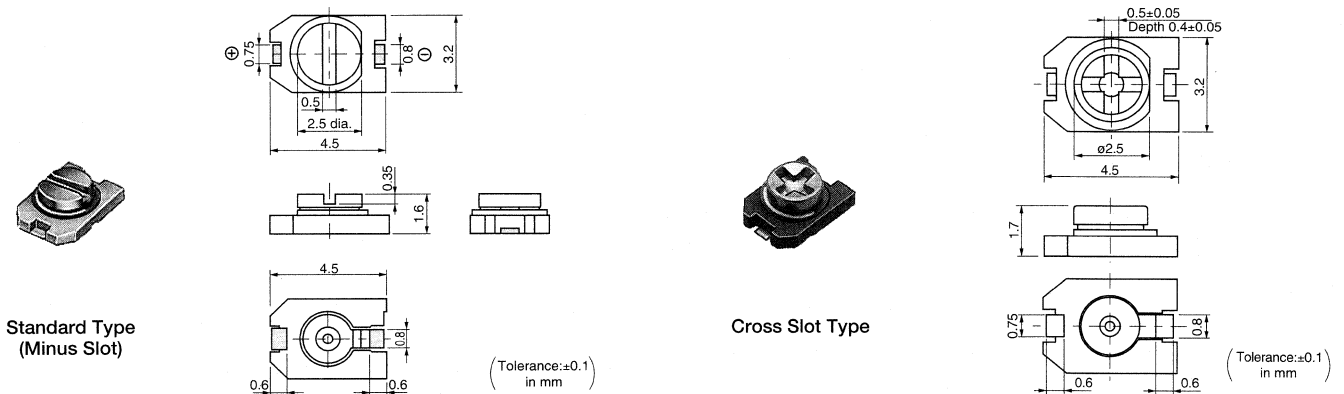
● TZV2 Series



Part Number	Cmin. (pF)	Cmax. (pF)	TC	Q	Rated Voltage	Withstanding Voltage
TZV2Z2R5A110	0.65 max.	2.5 +100/-0%	NP0±300ppm/°C	200min. at 200MHz, Cmax.	25Vdc	55Vdc
TZV2Z030A110	1.5 max.	3.0 +100/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	25Vdc	55Vdc
TZV2Z060A110	2.5 max.	6.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZV2Z100A110	3.0 max.	10.0 +100/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc
TZV2R200A110	4.5 max.	20.0 +100/-0%	N750±500ppm/°C	500min. at 1MHz, Cmax.	25Vdc	55Vdc

Insulation Resistance : 10000M ohm min. Torque : 1.0~10.0mNm Operating Temperature Range : -25~+85°C

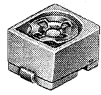
● TZC3 Series



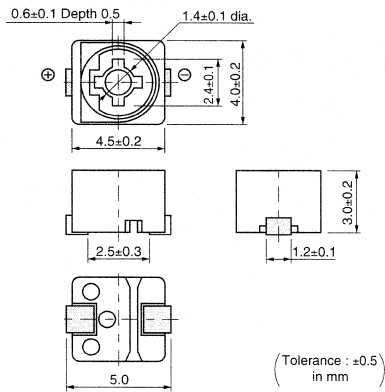
Part Number	Cmin. (pF)	Cmax. (pF)	TC	Q	Rated Voltage	Withstanding Voltage	Stator/Case Color
TZC3Z030□□□	1.4 max.	3.0 +50/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Brown
TZC3Z060□□□	2.0 max.	6.0 +50/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZC3R100□□□	3.0 max.	10.0 +50/-0%	N750±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	White
TZC3P200□□□	5.0 max.	20.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Red
TZC3P300□□□	6.5 max.	30.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Green

Insulation Resistance : 10000M ohm min. Torque : 1.5~10.0mNm Operating Temperature Range : -25~+85°C
The last three digits show the slot type. 110:standard(minus) type, 310:plus type.

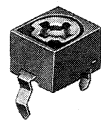
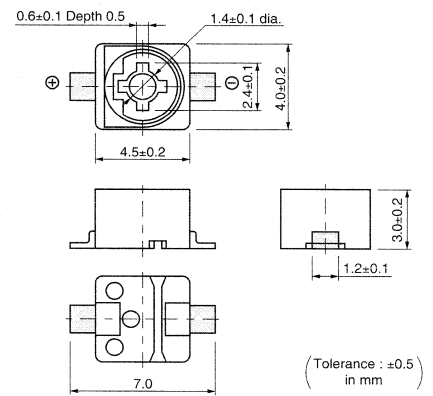
● TZB4 Series



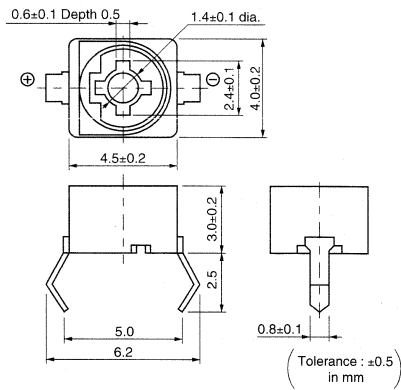
A Type



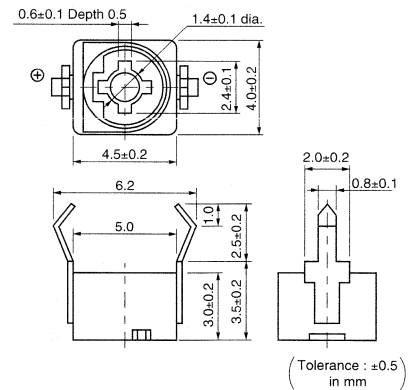
B Type



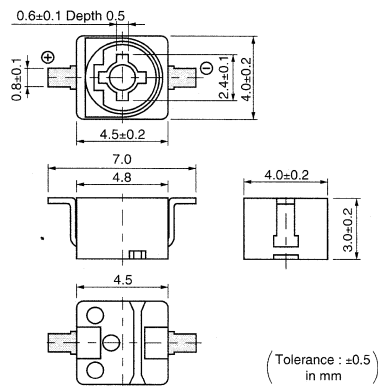
C Type



D Type



E Type



Part Number	Cmin. (pF)	Cmax. (pF)	TC	Q	Rated Voltage	Withstanding Voltage	Stator/Case Color
TZB4Z030□□10	1.4 max.	3.0 +50/-0%	NP0±200ppm/°C	300min. at 1MHz, Cmax	100Vdc	220Vdc	Brown
TZB4Z060□□10	2.0 max.	6.0 +50/-0%	NP0±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZB4Z100□□10	3.0 max.	10.0 +50/-0%	NP0±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	White
TZB4R200□□10	4.5 max.	20.0 +50/-0%	N750±300ppm/°C	500min. at 1MHz, Cmax	100Vdc	220Vdc	Red
TZB4P300□□10	6.5 max.	30.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax	100Vdc	220Vdc	Green
TZB4P400□□10	8.5 max.	40.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax	100Vdc	220Vdc	Yellow
TZB4Z250□□10	4.0 max.	25.0 +100/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	50Vdc	110Vdc	Black+Marking
TZB4R500□□10	7.0 max.	50.0 +100/-0%	N750±300ppm/°C	300min. at 1MHz, Cmax	50Vdc	110Vdc	Black+Marking

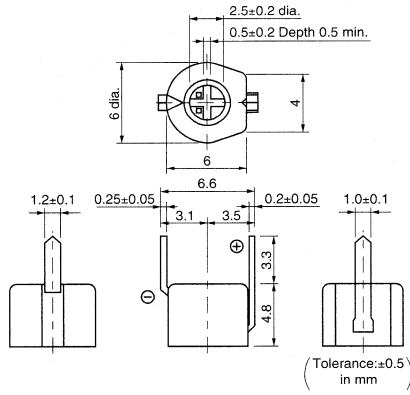
Insulation Resistance : 10000M ohm min. Torque : 1.5~10.0mNm Operating Temperature Range : -25~+85°C
Two blank columns are filled with cover film codes(A: not provided, B: provided) and terminal type codes.

Capacitors

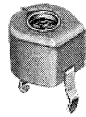
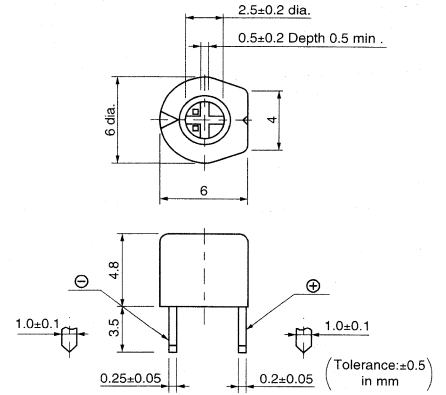
● TZ03 Series



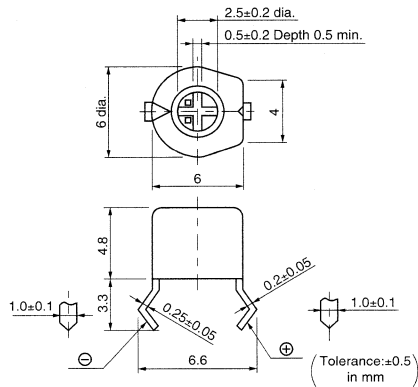
B Type



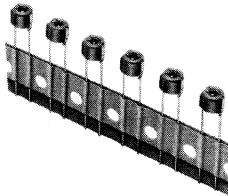
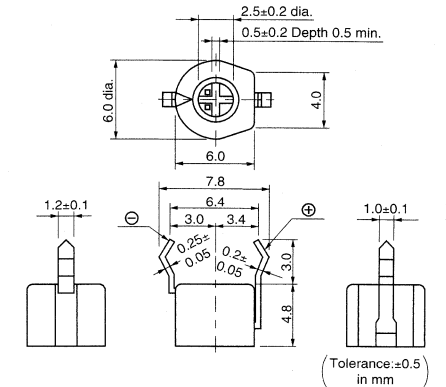
E Type



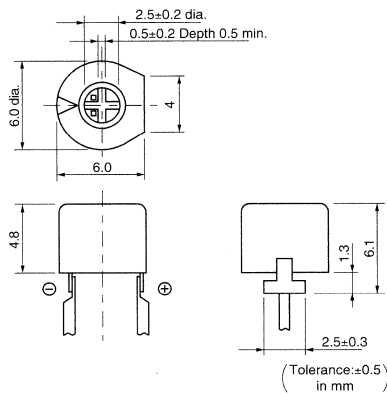
F Type



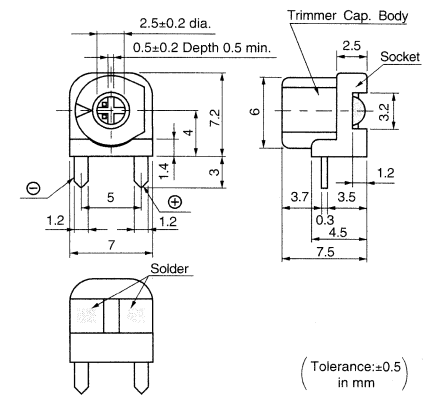
N Type



T Type



Y Type

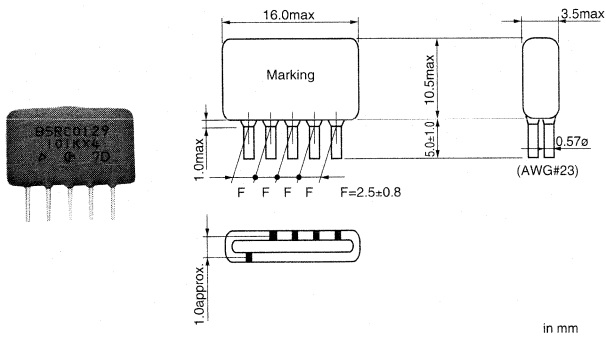


Part Number	Cmin. (pF)	Cmax. (pF)	TC	Q	Rated Voltage	Withstanding Voltage	Stator/Case Color
TZ03Z2R3□169	1.25 max.	2.3 +50/-0%	NP0±200ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Black
TZ03Z050□169	1.5 max.	5.0 +50/-0%	NP0±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZ03Z070□169	2.0 max.	7.0 +50/-0%	NP0±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZ03N100□169	2.1 max.	10.0 +50/-0%	N200±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	White
TZ03Z100□169	2.7 max.	10.0 +50/-0%	NP0±200ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Blue
TZ03T110□169	3.0 max.	11.0 +50/-0%	N450±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	White
TZ03R200□169	4.2 max.	20.0 +50/-0%	N750±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Red
TZ03T200□169	4.2 max.	20.0 +50/-0%	N450±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Pink
TZ03R300□169	5.2 max.	30.0 +50/-0%	N750±300ppm/°C	500min. at 1MHz, Cmax.	100Vdc	220Vdc	Green
TZ03P450□169	6.8 max.	45.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Yellow
TZ03P600□169	9.8 max.	60.0 +50/-0%	N1200±500ppm/°C	300min. at 1MHz, Cmax.	100Vdc	220Vdc	Brown
TZ03Z500□169	6.0 max.	50.0 +100/-0%	NP0±300ppm/°C	300min. at 1MHz, Cmax.	50Vdc	110Vdc	Orange
TZ03R900□169	9.0 max.	90.0 +100/-0%	N750±300ppm/°C	300min. at 1MHz, Cmax.	50Vdc	110Vdc	Black+Dot
TZ03R121□169	10.0 max.	120.0 +100/-0%	N750±300ppm/°C	300min. at 1MHz, Cmax.	50Vdc	110Vdc	Black

Insulation Resistance : 10000M ohm min. Torque : 2.0~15.0mNm Operating Temperature Range : -25~+85°C
A blank column is filled with terminal type codes.

C Networks

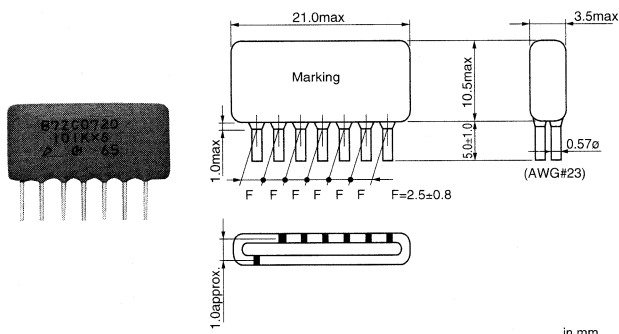
● 4 Elements BXXC Series



in mm

Part Number	Number of Elements	Capacitance (pF)	Cap. Tolerance (%)	TC	Rated Voltage (Vdc)
B5RC0129-33N	4	100	±10	Y5P	50
B5RC0128-33N	4	220	±10	Y5P	50
B5RC0122-33N	4	330	±20	Y5P	50
B5RC0123-33N	4	470	±20	Y5P	50
B5RC0135-33N	4	560	±20	Y5P	50
B5RC0124-33N	4	1000	±20	Y5P	50
B5RC0125-33N	4	2200	±20	Y5T	50
B5RC0126-33N	4	4700	+80,-20	FZ	50
B5RC0127-65N	4	10000	+80,-20	FZ	50

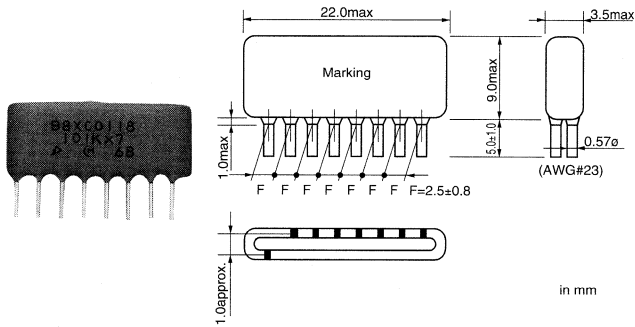
● 6 Elements BXXC Series



in mm

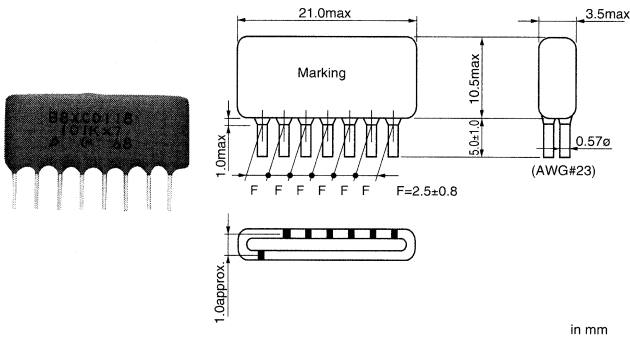
Part Number	Number of Elements	Capacitance (pF)	Cap. Tolerance (%)	TC	Rated Voltage (Vdc)
B7ZC0720-33N	6	100	±10	Y5P	50
B7ZC0713-33N	6	220	±10	Y5P	50
B7ZC0719-33N	6	330	±20	Y5P	50
B7ZC0717-33N	6	470	±20	Y5P	50
B7ZC0718-33N	6	560	±20	Y5P	50
B7ZC0716-33N	6	1000	±20	Y5P	50
B7ZC0715-33N	6	2200	±20	Y5T	50
B7ZC0714-33N	6	4700	+80,-20	FZ	50
B7ZC0711-65N	6	10000	+80,-20	FZ	50

● 7 Elements BXXC Series



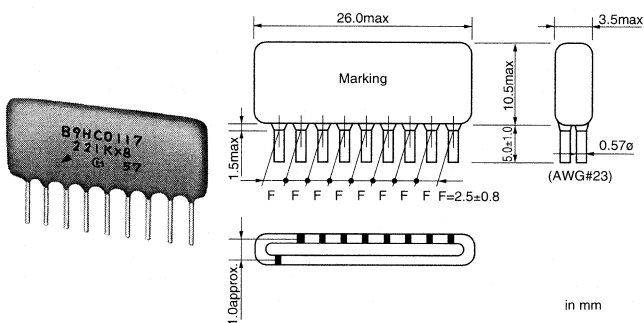
Part Number	Number of Elements	Capacitance (pF)	Cap. Tolerance (%)	TC	Rated Voltage (Vdc)
B8XC0118-33N	7	100	±10	Y5P	50
B8XC0117-33N	7	220	±10	Y5P	50
B8XC0116-33N	7	330	±20	Y5P	50
B8XC0119-33N	7	470	±20	Y5P	50
B8XC0115-33N	7	560	±20	Y5P	50
B8XC0114-33N	7	1000	±20	Y5P	50
B8XC0113-33N	7	2200	+40,-20	Y5U	50
B8XC0112-33N	7	4700	+80,-20	FZ	50

● 7 Elements B8ZC Series



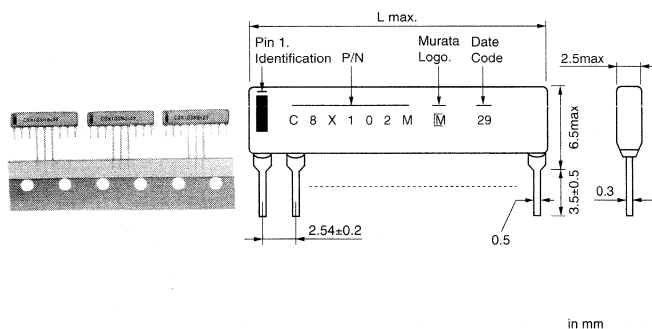
Part Number	Number of Elements	Capacitance (pF)	Cap. Tolerance (%)	TC	Rated Voltage (Vdc)
B8ZC0111-33N	7	8200	+80,-20	FZ	50

● 8 Elements BXXC Series



Part Number	Number of Elements	Capacitance (pF)	Cap. Tolerance (%)	TC	Rated Voltage (Vdc)
B9HC0118-33N	8	100	±10	Y5P	50
B9HC0117-33N	8	220	±10	Y5P	50
B9HC0119-33N	8	330	±20	Y5P	50
B9HC0115-33N	8	470	±20	Y5P	50
B9HC0116-33N	8	560	±20	Y5P	50
B9HC0114-33N	8	1000	±20	Y5P	50
B9HC0113-33N	8	2200	+40,-20	Y5U	50

● Low-Profile CGSD Series



Part Number	Number of Elements	Capacitance (pF)	Cap. Tolerance (%)	TC	Rated Voltage (Vdc)
CGSD4X101M-T21	4	100	±20	Y5P	50
CGSD4X221M-T21	4	220	±20	Y5P	50
CGSD4X331M-T21	4	330	±20	Y5P	50
CGSD4X102M-T21	4	1000	±20	Y5R	50
CGSD4X222M-T21	4	2200	±20	Y5R	50
CGSD4X103N-T21	4	10000	±30	Y5R	16
CGSD6X101M-T21	6	100	±20	Y5P	50
CGSD6X221M-T21	6	220	±20	Y5P	50
CGSD6X331M-T21	6	330	±20	Y5P	50
CGSD6X102M-T21	6	1000	±20	Y5R	50
CGSD6X222M-T21	6	2200	±20	Y5R	50
CGSD6X103N-T21	6	10000	±30	Y5R	16
CGSD8X101M-T21	8	100	±20	Y5P	50
CGSD8X221M-T21	8	220	±20	Y5P	50
CGSD8X331M-T21	8	330	±20	Y5P	50
CGSD8X102M-T21	8	1000	±20	Y5R	50
CGSD8X222M-T21	8	2200	±20	Y5R	50
CGSD8X103N-T21	8	10000	±30	Y5R	16

2

Resistors/Thermistors

PTC Thermistors (POSISTOR[®]) for Heater

PTC Thermistors (POSISTOR[®]) for Circuit Protection

PTC Thermistors (POSISTOR[®]) for Overheat Sensing

PTC Thermistors (POSISTOR[®]) for Motor Starters

PTC Thermistors (POSISTOR[®]) for Degaussing Circuits

NTC Thermistors for Temperature Compensation

NTC Thermistors for Temperature Sensor

NTC Thermistors for Inrush Current Suppression

High Voltage Resistors

R Networks

Trimmer Potentiometers

- **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
If you have any questions about details, inquire at your usual Murata sales office or distributor.

PTC Thermistors (POSISTOR®) for Heater

(Global Part Number)

PT	WSB1	AS	201	T	260	A00
1	2	3	4	5	6	7

1 Product ID

Product ID	
PT	PTC Thermistors

2 Series

Code	Series
WSB1	Heater Standard Type B1 Series
WSB2	Heater Standard Type B2 Series
WTA1	High-temperature Heater A1 Series

3 Temperature Characteristics

Code	Temperature Characteristics
AD	Curie Point 280°C
AG	Curie Point 225°C
AH	Curie Point 205°C
AS	Curie Point 135°C
BC	Curie Point 90°C

PTC Thermistors (POSISTOR®) for Circuit Protection

(Global Part Number)

PR	G	18	BB	470	M	B1	RB
1	2	3	4	5	6	7	8

1 Product ID

Product ID	
PR	PTC Thermistors Chip Type

2 Series

Code	Series
G	for Overcurrent Protection

3 Dimensions (L×W)

Code	Dimensions (L×W)
18	1.60×0.80

4 Temperature Characteristics

Code	Temperature Characteristics
BB	Curie Point 100°C

4 Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
201	200 Ω

5 Resistance Tolerance

Code	Resistance Tolerance
Y	Special Tolerance

6 Maximum Voltage

Code	Maximum Voltage
260	260V

7 Individual Specifications

Code	Individual Specifications
A00	Structure, others

5 Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
470	47 Ω
471	470 Ω

6 Resistance Tolerance

Code	Resistance Tolerance
M	±20%
Q	Special Tolerance

7 Individual Specifications

Code	Individual Specifications
B1	Structure, others

8 Packaging

Code	Packaging
RB	Paper Taping (4mm Pitch)

PTC Thermistors (POSISTOR®) for Circuit Protection SMD Type

(Global Part Number)

PD	G	A8	AR	200	M	A0	RS
1	2	3	4	5	6	7	8

① Product ID

Product ID	
PD	PTC Thermistors SMD Type

② Series

Code	Series
G	for Overcurrent Protection

③ Dimensions (L×W)

Code	Dimensions (L×W)
A0	Special (10.0×8.0mm)

④ Temperature Characteristics

Code	Temperature Characteristics
AR	Curie Point 120°C
BB	Curie Point 100°C

⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Code	Resistance
100	10 Ω
200	20 Ω

⑥ Resistance Tolerance

Code	Resistance Tolerance
M	$\pm 20\%$

⑦ Individual Specifications

Code	Individual Specifications
A0	Structure, others

⑧ Packaging

Code	Packaging
RS	Plastic Taping 12mm Pitch

PTC Thermistors (POSISTOR®) for Overheat Sensing Chip Type

(Global Part Number)

PR	F	18	BB	471	Q	B1	RB
1	2	3	4	5	6	7	8

① Product ID

Product ID	
PR	PTC Thermistors Chip Type

② Series

Code	Series
F	for Overheat Sensing

③ Dimensions (L×W)

Code	Dimensions (L×W)
18	1.60×0.80

④ Temperature Characteristics

Code	Temperature Characteristics
AR	Curie Point 120°C
AS	Curie Point 130°C
BA	Curie Point 110°C
BB	Curie Point 100°C
BC	Curie Point 90°C
BD	Curie Point 80°C
BE	Curie Point 70°C

⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Code	Resistance
471	470 Ω

⑥ Resistance Tolerance

Code	Resistance Tolerance
Q	Special Tolerance

⑦ Individual Specifications

Code	Individual Specifications
B1	Structure, others

⑧ Packaging

Code	Packaging
RB	Paper Taping (4mm Pitch)

PTC Thermistors (POSISTOR®) for Circuit Protection / for Overheat Sensing Lead Type

(Global Part Number) **PT** **GL** **07** **AR** **220** **M** **3P51** **A0**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
PT	PTC Thermistors

② Series

Code	Series
FL	for Overheat Sensing Lead Type
FM	for Overheat Sensing with Lug-terminal
GL	for Circuit Protection Lead Type

③ Dimensions

Code	Dimensions
04	Nominal Body Diameter 4mm Series
05	Nominal Body Diameter 5mm Series
07	Nominal Body Diameter 7mm Series
09	Nominal Body Diameter 9mm Series
10	Nominal Body Diameter 10mm Series
12	Nominal Body Diameter 12mm Series
13	Nominal Body Diameter 13mm Series
14	Nominal Body Diameter 14mm Series
16	Nominal Body Diameter 16mm Series
18	Nominal Body Diameter 18mm Series
S5	Nominal 5mm Rectangular Series
S6	Nominal 6mm Rectangular Series
S7	Nominal 7mm Rectangular Series

④ Temperature Characteristics

Code	Temperature Characteristics
AR	Curie Point 120°C
BA	Curie Point 110°C
BB	Curie Point 100°C
BC	Curie Point 90°C
BD	Curie Point 80°C
BE	Curie Point 70°C
BF	Curie Point 60°C
BG	Curie Point 50°C
BH	Curie Point 40°C

⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
R22	0.22 Ω
2R2	2.2 Ω
220	22 Ω

⑥ Resistance Tolerance

Code	Resistance Tolerance
H	$\pm 25\%$
N	$\pm 30\%$
M	$\pm 20\%$
Q	Special Tolerance

⑦ Individual Specifications

Code	Individual Specifications
3P51	Lead Type, others

⑧ Packaging

Code	Packaging
A0	Ammo Pack
B0	Bulk

PTC Thermistors (POSISTOR®) for Motor Starters

(Global Part Number)

PT	HGA1	AR	100	N	225	-00
1	2	3	4	5	6	7

1 Product ID

Product ID	
PT	PTC Thermistors

2 Series

Code	Series
HGA1	for Motor Starter Case Type

3 Temperature Characteristics

Code	Temperature Characteristics
AR	Curie Point 120°C

4 Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
3R3	3.3 Ω
330	33 Ω

5 Resistance Tolerance

Code	Resistance Tolerance
N	$\pm 30\%$

6 Maximum Voltage

Code	Maximum Voltage
225	Expressed by three significant digits. The unit is in volts (V).

7 Individual Specifications

Code	Individual Specifications
-00	Structure, others

PTC Thermistors (POSISTOR®) for Motor Starter Plug-on Type

(Global Part Number)

PT	H7M	100	M	C1	-00
1	2	3	4	5	6

1 Product ID

Product ID	
PT	PTC Thermistors

2 Series

Code	Series
H7M	for Motor Starter Plug-on Type (Size $\phi 16\text{mm}$)
H8M	for Motor Starter Plug-on Type (Size $\phi 20\text{mm}$)

3 Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
4R7	4.7 Ω
470	47 Ω

4 Resistance Tolerance

Code	Resistance Tolerance
M	$\pm 20\%$

5 Starting Circuit

Code	Starting Circuit
B3	Starting Circuit : CSR 3Pin
C1	Starting Circuit : RSIR 1Pin
C2	Starting Circuit : RSIR 2Pin
D2	Starting Circuit : RSCR 2Pin
D3	Starting Circuit : RSCR 3Pin

Please contact us for details.

6 Individual Specifications

Code	Individual Specifications
-00	Structures, others

PTC Thermistors (POSISTOR®) for Degaussing Circuits

(Global Part Number) **PT** **DAA1** **BF** **4R5** **Q** **200**
 ① ② ③ ④ ⑤ ⑥

① Product ID

Product ID	
PT	PTC Thermistors

② Series

Code	Series
DAA1	2-terminals Case Type
DCA1	3-terminals Case Type
DL7P	Lead Type

③ Temperature Characteristics

Code	Temperature Characteristics
BF	Curie Point 60°C

④ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
3R0	3 Ω
4R5	4.5 Ω
140	14 Ω

⑤ Resistance Tolerance

Code	Resistance Tolerance
M	$\pm 20\%$
N	$\pm 30\%$
Q	Special Tolerance

⑥ Individual Specifications

Code	Individual Specifications
100	1st Digit : Voltage (100V Type) 2nd-3rd Digits : Others
200	1st Digit : Voltage (200V Type) 2nd-3rd Digits : Others

Please contact us for details.

NTC Thermistors for Temperature Compensation Chip Type

(Global Part Number)

NC	P	18	XH	103	J	03	RB
1	2	3	4	5	6	7	8

① Product ID

Product ID	
NC	NTC Thermistors Chip Type

② Series

Code	Series
P	Plated Termination Series

③ Dimensions (L×W)

Code	Dimensions (L×W)	EIA
03	0.60×0.30mm	0201
15	1.00×0.50mm	0402
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805

④ Temperature Characteristics

Code	Temperature Characteristics
WB	Nominal B-Constant 4050—4099K
WD	Nominal B-Constant 4150—4199K
WF	Nominal B-Constant 4250—4299K
WM	Nominal B-Constant 4500—4549K
XF	Nominal B-Constant 3250—3299K
XQ	Nominal B-Constant 3650—3699K
XH	Nominal B-Constant 3350—3399K
XM	Nominal B-Constant 3500—3549K
XV	Nominal B-Constant 3900—3949K
XW	Nominal B-Constant 3950—3999K

⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)	Code	Resistance
	102	1k Ω
	103	10k Ω
	104	100k Ω

⑥ Resistance Tolerance

Code	Resistance Tolerance
F	±1%
J	±5%
K	±10%

⑦ Individual Specifications

Code	Individual Specifications
03	Structure, others

Please contact us for details.

⑧ Packaging

Code	Packaging
RA	Plastic Taping 8mm Pitch
RB	Paper Taping 4mm Pitch
RC	Paper Taping 2mm Pitch (10000 pcs.)
RD	Paper Taping 2mm Pitch (15000 pcs.)

NTC Thermistors for Temperature Sensor Lead Type

(Global Part Number) **NT SA0 XH 103 F E1 B0**
① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
NT	NTC Thermistors

② Series

Code	Series
SA0	for Temperature Sensors No Lead-coating Type
SD0	for Temperature Sensors Lead-coating Type

③ Temperature Characteristics

Code	Temperature Characteristics
WB	Nominal B-Constant 4050–4099K
WC	Nominal B-Constant 4100–4149K
WD	Nominal B-Constant 4150–4199K
WF	Nominal B-Constant 4250–4299K
XM	Nominal B-Constant 3500–3549K
XH	Nominal B-Constant 3350–3399K
XR	Nominal B-Constant 3700–3749K
XV	Nominal B-Constant 3900–3949K

④ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
202	2k Ω
203	20k Ω

⑤ Resistance Tolerance

Code	Resistance Tolerance
E	$\pm 3\%$
F	$\pm 1\%$

⑥ Individual Specifications

Code	Individual Specifications
E1	Lead Style, others

⑦ Packaging

Code	Packaging
A0	Ammo Pack
B0	Bulk

NTC Thermistors for Inrush Current Suppression

(Global Part Number) **NT PD7 160 L D7 B0**
① ② ③ ④ ⑤ ⑥

① Product ID

Product ID	
NT	NTC Thermistors

② Series

Code	Series	Nominal Body Diameter
PD7	Inrush Current Suppression Lead Type	7mm
PD9		9mm
PDB		11mm
PDD		13mm
PDJ		18mm
PDN		22mm

③ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
3R0	3 Ω
100	10 Ω

④ Resistance Tolerance

Code	Resistance Tolerance
L	$\pm 15\%$

⑤ Individual Specifications

Code	Individual Specifications
D7	Lead Style, others

⑥ Packaging

Code	Packaging
A0	Ammo Pack
B0	Bulk

High-voltage Resistors

(Global Part Number) **MHR** **0409** **S** **A** **107** **J** **60** **T7**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
MHR	High-voltage Resistors

② Board (W×L) Dimensions

Ex.)

Code	Dimensions
0409	4×9mm
0609	6×9mm
0830	8×30mm

③ Type

Code	Type
S	Hoop Terminal, Blue Epoxy Resin
P	øpin, Semitransparent Epoxy Resin

④ Circuit

Code	Circuit
A	Single Element
B	Two Elements, Series Circuit

⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)

Code	Resistance
406	40M Ω
207	200M Ω

⑥ Resistance Tolerance

Code	Resistance Tolerance
G	±2%
J	±5%
K	±10%
M	±20%

⑦ Individual Specifications

Two digits indicate other specifications.

⑧ Packaging

Code	Packaging
T7	Taping

R Network

(Global Part Number)

X, Y, L Circuit	RG	LD	8	X	103	J			T2
	①	②	③	④	⑤	⑥			⑨
Z, M Circuit	RG	LD	8	M	103	J	104	J	T2
	①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Product ID

Product ID	
RG	R Networks

② Structure

Code	Structure
LD	Terminal Pitch : 2.54mm, Height : 5.0mm max.
LE	Terminal Pitch : 1.78mm, Height : 5.0mm max.
SD	Terminal Pitch : 2.54mm, Height : 6.5mm max.

③ Number of Element

Code	Number of Element
8	1 or 2 digits shows the number of element.

④ Circuit

Code	Circuit
X	Pull-up, Pull-down Circuit
Y	Isolated Circuit
Z	Double Terminator Circuit
M	Divider Circuit
L	R/2R Ladder Circuit

⑤ Nominal Resistance (Z, M Circuit : R_A)

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Code	Nominal Resistance
150	15 Ω
103	10k Ω

⑥ Resistance Tolerance (Z, M Circuit : R_A)

Code	Resistance Tolerance
J	$\pm 5\%$
G	$\pm 2\%$ (22 Ω min.)

⑦ Nominal Resistance (Z, M Circuit : R_B)

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Code	Nominal Resistance
150	15 Ω
104	100k Ω

If R_A and R_B values are the same, ⑦ and ⑥ remain blanks, and the corresponding code is omitted.

⑧ Resistance Tolerance (Z, M Circuit : R_B)

Code	Resistance Tolerance
J	$\pm 5\%$
G	$\pm 2\%$ (22 Ω min.)

⑨ Packaging

Code	Packaging
T2	3pins Taping

Trimmer Potentiometers

(Global Part Number)

PV	Z3	A	103	A01	R00
1	2	3	4	5	6

① Product ID

Product ID	
PV	Trimmer Potentiometers

② Series

③ Lead Type /Adjustment Direction

Code	Series	Code	Lead Type/ Adjustment Direction
Z2	2mm Size	A	Top
		K	Rear
Z3	3mm Size	A	Top
		K	Rear
S3	3mm Size with Stopper Low-profile	A	Top
A3	3mm Size	A	Top
M4	Closed 4mm Size	A	Top
F2	Closed 2mm Size	A	Top
G3	Closed 3mm Size	A	Top, J-hook
		G	Top, Gull-wing
G5	SMD 11-turns 5 Size	A	Top
		H	Side
01	SMD 12-turns	P	Side
		W	Top
		X	Side
C6	Single-turn Closed Type 6mm Size	A	Top, Triangle
		D	Top, Triangle
		E	Side, Triangle
		G	Side, Triangle
		H	Side, Triangle
		M	Top, Inline
		Q	Side, Inline
32	Single-turn Closed Type 6mm Size	H	Top, Triangle
		P	Top, Triangle
		R	Top, Inline
		N	Side, Triangle
		T	Side, Triangle
34	Single-turn Closed Type	S	Side, Triangle
		F	Top, Triangle
		P	Top, Triangle
		H	Side, Triangle
		X	Side, Triangle
12	4-turn Closed Type	W	Side, Inline
		H	Top, Triangle
		P	Top, Triangle
		T	Side, Triangle
22	22-turn Closed Type	S	Side, Triangle
		L	Side
		Y	Side, Triangle

23	15-turn Closed Type	P	Side, Triangle
		Y	Side, Triangle
36	25-turn Closed Type	W	Top, Inline
		Y	Top, Triangle
		P	Side, Triangle
		X	Side, Inline
37	12-turn Closed Type	Z	Side, Triangle
		W	Top, Triangle
		Y	Top, Inline
		P	Side, Triangle
		X	Side, Triangle
		Z	Side, Inline

④ All Resistance

Expressed by three figures. The unit is ohm. The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

Ex.)	Code	All Resistance
	100	100ohm
	102	1000ohm
	104	100000ohm (=100kohm)

⑤ Individual Specification Code

Code	Series	Individual Specification Code
A01	—	Standard
B01	PVZ3	Heat-resistance Type
B01	PVM4	High-liability Type
A31	PV36/PV37	Radial Taping
A04	PVC6	Radial Taping
A11	PVF2	Standard Type (Resistance Change Characteristics : Linear)
A41	PVF2	Standard Type (Resistance Change Characteristics : Log curve)
A81	PVF2	Standard Type (Resistance Change Characteristics : Log curve)
A51	PVF2	Standard Type (Resistance Change Characteristics : Log-log curve)
A91	PVF2	Standard Type (Resistance Change Characteristics : Log-log curve)

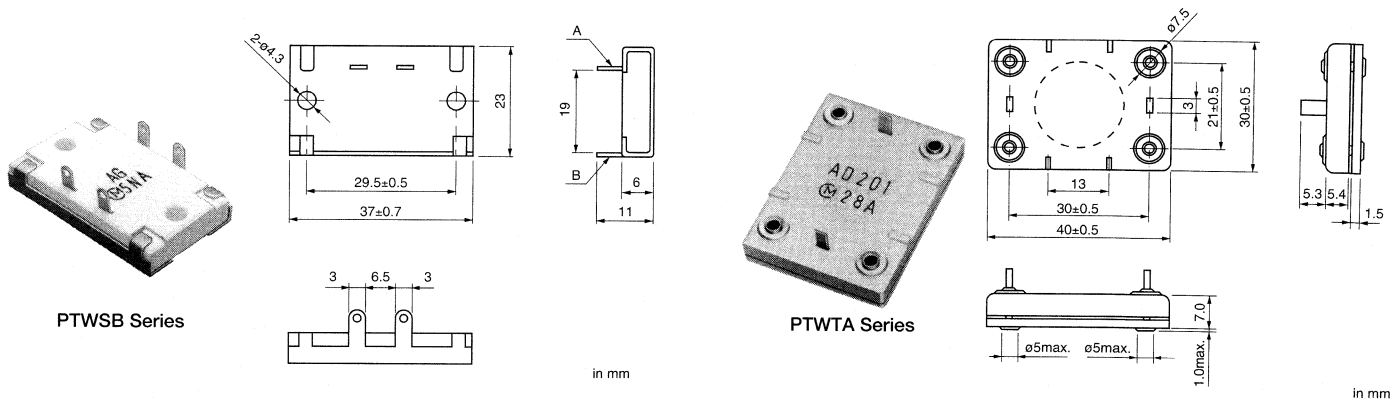
⑥ Packaging

Code	Packaging
A00	Ammo Pack
B00	Bulk
M00*	Magazine
R00	Reel

* M02 for PV01 series

PTC (POSISTOR®) for Heater

Standard Type



Part Number	Curie Point (°C)	Rated Volt.	Max. Volt. (Vrms)	Inrush Current (A)	Steady State Current (at 120Vrms) (mA)	Steady State Current (at 220Vrms) (mA)	Surface Temp. (Nominal Value) (°C)
PTWSB1BC201T260A00	90 (BC)	120/220Vrms.	260	5.0 max.	28 ±20%	17 ±20%	105
PTWSB1AS201T260A00	135 (AS)	120/220Vrms.	260	5.0 max.	33 ±20%	21 ±20%	130
PTWSB2AH201T260A00	205 (AH)	120/220Vrms.	260	5.0 max.	58 ±20%	35 ±20%	185
PTWSB2AG201T260A00	225 (AG)	120/220Vrms.	260	5.0 max.	65 ±20%	39 ±20%	200
PTWTA1AD201T260A00	280 (AD)	120/220Vrms.	260	7.0 max.	-	75 ±30%	285

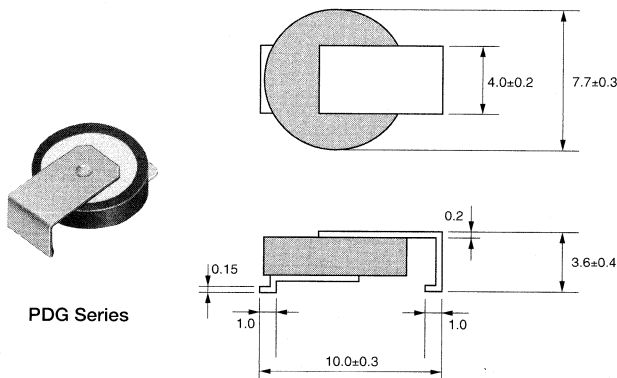
Inrush current based on 220Vrms.

Operating temperature range PTWSB1: -20 to +60(°C), PTWSB2: -20 to +85(°C), PTWTA: 0 to +60 (°C)

PTC(POSISTOR®) for Circuit Protection

SMD Type

● PDG Series



Part Number	Max. Voltage (V)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (A)	Resistance (at 25°C) (ohm)	Curie Point (°C)
PDGA8AR200MA0RS	60 DC.	80	230	2	20 ±20%	120 (AR)
PDGA8BB100MA0RS	60 DC.	90	280	3	10 ±20%	100 (BB)

Maximum Current shows typical capacities of the transformer which can be used.

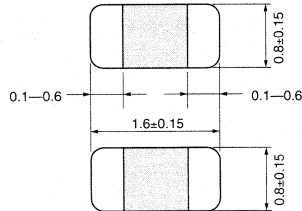
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR®) for Circuit Protection

24V Series Chip Type



PRG Series



(in mm)

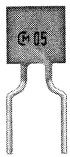
Part Number	Max. Voltage (V)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (mA)	Resistance (at 25°C) (ohm)	Curie Point (°C)
PRG18BB471MB1RB	24	7	25	40	470 ±20%	100 (BB)
PRG18BB221MB1RB	24	10	35	90	220 ±20%	100 (BB)
PRG18BB101MB1RB	24	15	55	200	100 ±20%	100 (BB)
PRG18BB470MB1RB	24	20	75	300	47 ±20%	100 (BB)
PRG18BB330MB1RB	24	25	85	350	33 ±20%	100 (BB)

Maximum Current shows typical capacities of the transformer which can be used.

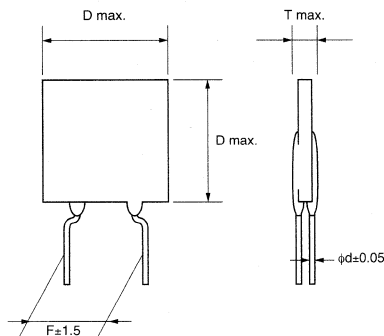
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR®) for Circuit Protection

6V Series



PTGL Series



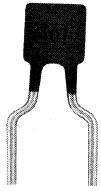
Part Number	Max. Voltage (Vdc)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (A)	Resistance (at 25°C) (ohm)	Curie Point (°C)	Body Diameter (D) (mm)	Thickness (T) (mm)	Lead Space (F) (mm)	Lead Diameter (φd) (mm)
PTGLS5BCR22N1N53B0	6	430	1400	10	0.22 ±30%	90 (BC)	6.5	3.0	5.0	0.5
PTGLS6BCR15N1N53B0	6	530	1750	10	0.15 ±30%	90 (BC)	7.5	3.0	5.0	0.5
PTGLS7BC0R1Q1N53B0	6	700	2230	10	0.10 +40/-20%	90 (BC)	8.5	3.0	5.0	0.5

Maximum Current shows typical capacities of the transformer which can be used.

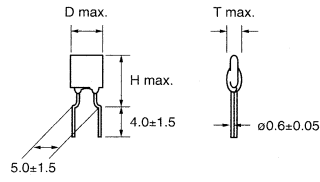
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR[®]) for Circuit Protection

16V Series



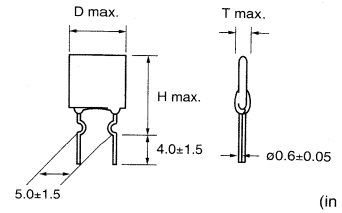
PTGLS4/S5 Series



Type	D	T	H
PTGLS4AR1R0M1B53	5.5	4.0	9.5
PTGLS5AR0R8M1B53	6.0	4.0	10.0



PTGLS6/S7/S8/S9/S0 Series



Type	D	T	H
PTGLS6ARR47M1B51	7.5	4.0	11.5
PTGLS7ARR33M1B51	8.0	4.0	12.0
PTGLS8ARR27M1B51	9.0	4.0	13.0
PTGLS9AR0R2M1B51	10.0	4.0	14.0
PTGLS0ARR15M1B51	11.5	4.0	15.5

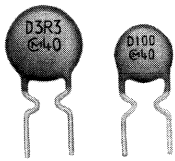
Part Number	Max. Voltage (V)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (A)	Resistance (at 25°C) (ohm)	Curie Point (°C)	Body Diameter (D) (mm)	Thickness (T) (mm)	Lead Space (F) (mm)	Lead Diameter (fai d)(mm)
PTGLS4AR1R0M1B53B0	16	370	1040	2.0	1.0 ±20%	120 (AR)	5.5	4.0	5.0	0.6
PTGLS5AR0R8M1B53B0	16	400	1120	3.0	0.8 ±20%	120 (AR)	6.0	4.0	5.0	0.6
PTGLS6ARR47M1B51B0	16	560	1570	5.0	0.47 ±20%	120 (AR)	7.5	4.0	5.0	0.6
PTGLS7ARR33M1B51B0	16	680	1900	7.0	0.33 ±20%	120 (AR)	8.0	4.0	5.0	0.6
PTGLS8ARR27M1B51B0	16	800	2250	8.0	0.27 ±20%	120 (AR)	9.0	4.0	5.0	0.6
PTGLS9AR0R2M1B51B0	16	1000	2800	9.0	0.2 ±20%	120 (AR)	10.0	4.0	5.0	0.6
PTGLS0ARR15M1B51B0	16	1200	3360	10.0	0.15 ±20%	120 (AR)	11.5	4.0	5.0	0.6

Maximum Current shows typical capacities of the transformer which can be used.

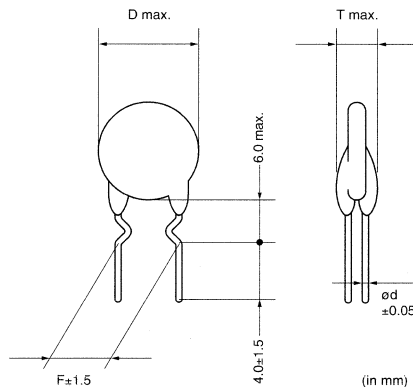
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR[®]) for Circuit Protection

24/30/32V Series



PTGL Series



Part Number	Max. Voltage (V)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (A)	Resistance (at 25°C) (ohm)	Curie Point (°C)	Body Diameter (D) (mm)	Thickness (T) (mm)	Lead Space (F) (mm)	Lead Diameter (fai d)(mm)
PTGL07BD100N2B51B0	24	80	320	2.0	10 ±30%	80 (BD)	7.4	4.0	5.0	0.6
PTGL07BD6R8N2B51B0	24	90	370	2.0	6.8 ±30%	80 (BD)	7.4	4.0	5.0	0.6
PTGL09BD4R7N2B51B0	24	120	500	2.0	4.7 ±30%	80 (BD)	9.5	4.0	5.0	0.6
PTGL09BD3R3N2B51B0	24	140	580	2.0	3.3 ±30%	80 (BD)	9.5	4.0	5.0	0.6
PTGL09BD2R2N2B51B0	24	180	710	2.0	2.2 ±30%	80 (BD)	9.5	4.0	5.0	0.6
PTGL04AR130H2B51B0	30	145	400	0.7	13 ±25%	120 (AR)	5.5	4.0	5.0	0.6
PTGL07AR4R6H2B51B0	30	250	700	1.0	4.6 ±25%	120 (AR)	7.4	4.0	5.0	0.6
PTGL09AR1R8H2B51B0	30	410	1120	3.0	1.8 ±25%	120 (AR)	9.5	4.0	5.0	0.6
PTGL12AR1R2H2B51B0	30	520	1420	4.3	1.2 ±25%	120 (AR)	12.0	4.0	5.0	0.6
PTGL13AR0R8H2B71B0	30	680	1900	5.5	0.8 ±25%	120 (AR)	13.5	4.0	7.5	0.6
PTGL07BD470N3B51B0	32	30	140	1.5	47 ±30%	80 (BD)	7.4	4.0	5.0	0.6

Continued on the following page.

Continued from the preceding page.

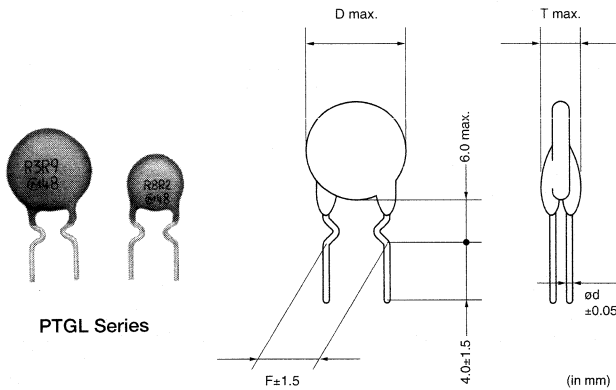
Part Number	Max. Voltage (V)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (A)	Resistance (at 25°C) (ohm)	Curie Point (°C)	Body Diameter (D) (mm)	Thickness (T) (mm)	Lead Space (F) (mm)	Lead Diameter (fai d)(mm)
PTGL07BD330N3B51B0	32	40	170	1.5	33 ±30%	80 (BD)	7.4	4.0	5.0	0.6
PTGL07BD220N3B51B0	32	45	200	1.5	22 ±30%	80 (BD)	7.4	4.0	5.0	0.6
PTGL07BD150N3B51B0	32	60	240	1.5	15 ±30%	80 (BD)	7.4	4.0	5.0	0.6

Maximum Current shows typical capacities of the transformer which can be used.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR®) for Circuit Protection

56/80V Series



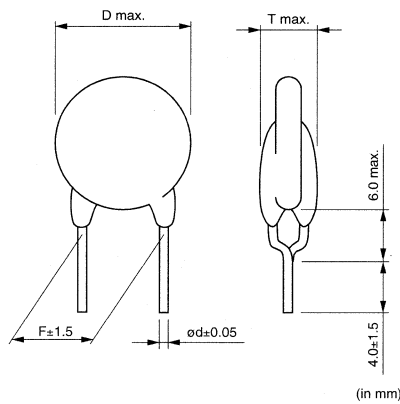
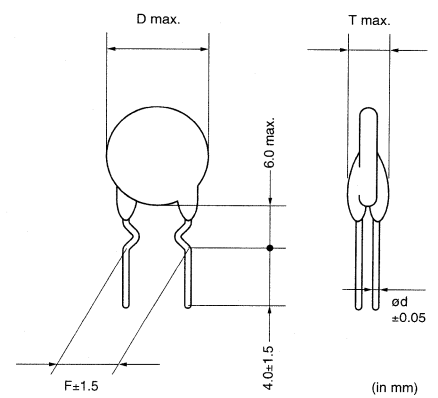
Part Number	Max. Voltage (V)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (A)	Resistance (at 25°C) (ohm)	Curie Point (°C)	Body Diameter (D) (mm)	Thickness (T) (mm)	Lead Space (F) (mm)	Lead Diameter (fai d)(mm)
PTGL07AR220M3P51B0	56	90	240	1.0	22 ±20%	120 (AR)	7.4	4.0	5.0	0.6
PTGL07AR8R2M3P51B0	56	130	350	1.0	8.2 ±20%	120 (AR)	7.4	4.0	5.0	0.6
PTGL09AR150M3B51B0	56	150	400	1.2	15 ±20%	120 (AR)	9.5	4.0	5.0	0.6
PTGL10AR3R9M3P51B0	56	210	550	2.0	3.9 ±20%	120 (AR)	10.5	4.0	5.0	0.6
PTGL09AR4R7M3B51B0	56	270	700	2.0	4.7 ±20%	120 (AR)	9.5	4.0	5.0	0.6
PTGL10AR3R9M3B51B0	56	300	800	2.0	3.9 ±20%	120 (AR)	10.5	4.0	5.0	0.6
PTGL14AR3R3M3B71B0	56	380	980	2.5	3.3 ±20%	120 (AR)	14.5	4.0	7.5	0.6
PTGL05AR550H4P51B0	80	50	135	0.7	55 ±25%	120 (AR)	5.5	4.5	5.0	0.6
PTGL07AR250H4B51B0	80	110	300	1.0	25 ±25%	120 (AR)	7.4	4.5	5.0	0.6
PTGL09AR9R4H4B51B0	80	190	530	3.0	9.4 ±25%	120 (AR)	9.5	4.5	5.0	0.6
PTGL12AR5R6H4B71B0	80	270	760	4.3	5.6 ±25%	120 (AR)	12.0	4.5	7.5	0.6
PTGL13AR3R7H4B71B0	80	310	860	5.5	3.7 ±25%	120 (AR)	13.5	4.5	7.5	0.6

Maximum Current shows typical capacities of the transformer which can be used.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR[®]) for Circuit Protection

125/140V Series

PTGL Series
125V TypePTGL Series
140V Type

Part Number	Max. Voltage (V)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (A)	Resistance (at 25°C) (ohm)	Curie Point (°C)	Body Diameter (D) (mm)	Thickness (T) (mm)	Lead Space (F) (mm)	Lead Diameter (fai d)(mm)
PTGL05AR181M7P52B0	125	30	75	0.3	180 ±20%	120 (AR)	6.0	5.0	5.0	0.6
PTGL07AR750M7B52B0	125	65	165	0.3	75 ±20%	120 (AR)	8.0	6.0	5.0	0.6
PTGL09AR470M6B52B0	125	90	230	0.5	47 ±20%	120 (AR)	10.0	5.5	5.0	0.6
PTGL09AR220M6B52B0	125	135	340	0.8	22 ±20%	120 (AR)	10.0	5.5	5.0	0.6
PTGL12AR150M6B72B0	125	175	440	1.0	15 ±20%	120 (AR)	12.5	5.5	7.5	0.6
PTGL14AR100M6B72B0	125	220	550	1.2	10 ±20%	120 (AR)	15.0	5.5	7.5	0.6
PTGL18AR6R8M6B72B0	125	300	750	1.4	6.8 ±20%	120 (AR)	18.5	5.5	7.5	0.6
PTGL18AR4R7M6B72B0	125	360	900	1.7	4.7 ±20%	120 (AR)	18.5	5.5	7.5	0.6
PTGL18AR3R3M6B72B0	125	420	1050	2.0	3.3 ±20%	120 (AR)	18.5	5.5	7.5	0.6
PTGL07AR330M6A51B0	140	100	230	0.5	33 ±20%	120 (AR)	7.4	6.0	5.0	0.50
PTGL09AR220M6C61B0	140	140	330	1.0	22 ±20%	120 (AR)	9.6	6.0	6.5	0.65
PTGL10AR150M6C61B0	140	170	400	1.0	15 ±20%	120 (AR)	11.6	6.0	6.5	0.65
PTGL12AR100M6C01B0	140	220	510	1.0	10 ±20%	120 (AR)	13.0	6.0	10.0	0.65
PTGL13AR6R8M6C01B0	140	290	670	1.0	6.8 ±20%	120 (AR)	14.0	6.0	10.0	0.65
PTGL16AR5R6M6C01B0	140	340	780	2.0	5.6 ±20%	120 (AR)	17.0	6.0	10.0	0.65

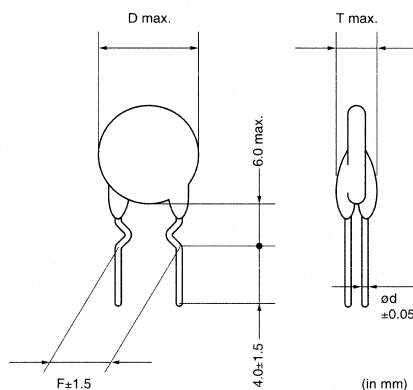
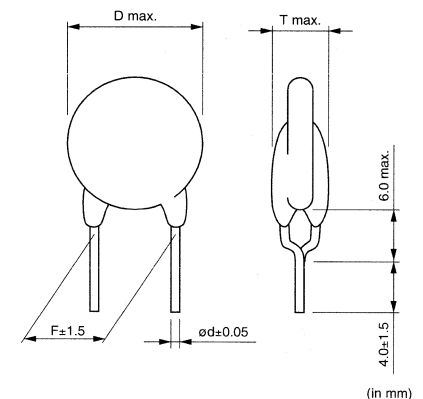
Maximum Current shows typical capacities of the transformer which can be used.

UL recognized 140v type is also available. Please contact us.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR[®]) for Circuit Protection

250/265V Series

PTGL_F51/A51/C01/C61
SeriesPTGL_P52/B52/B72
Series

Part Number	Max. Voltage (V)	Non-operating Current at +60°C (mA)	Operating Current at -10°C (mA)	Max. Current (A)	Resistance (at 25°C) (ohm)	Curie Point (°C)	Body Diameter (D) (mm)	Thickness (T) (mm)	Lead Space (F) (mm)	Lead Diameter (fai d)(mm)
PTGL07BB220N0B52A0	250	90	300	0.5	22 ±30%	100 (BB)	8.0	6.0	5.0	0.6
PTGL10BB120N0P52A0	250	90	330	0.6	12 ±30%	100 (BB)	11.0	6.0	5.0	0.6
PTGL09AR390N0B52A0	250	100	280	0.6	39 ±30%	120 (AR)	10.0	6.0	5.0	0.6
PTGL05AR151H8P52B0	265	28	78	0.2	150 ±25%	120 (AR)	6.0	6.0	5.0	0.6
PTGL05AR181M9F51B0	265	29	70	0.3	180 ±20%	120 (AR)	6.5	6.5	5.0	0.50
PTGL05AR121M9F51B0	265	35	85	0.3	120 ±20%	120 (AR)	6.5	6.5	5.0	0.50
PTGL07AR820M9A51B0	265	60	150	0.5	82 ±20%	120 (AR)	8.2	6.5	5.0	0.50
PTGL07AR700H8B52B0	265	66	185	0.4	70 ±25%	120 (AR)	8.0	6.0	5.0	0.6
PTGL07AR650H8B52B0	265	68	190	1.0	65 ±25%	120 (AR)	8.0	6.0	5.0	0.6
PTGL07AR450H8B52B0	265	80	220	1.0	45 ±25%	120 (AR)	8.0	6.0	5.0	0.6
PTGL07AR560M9A51B0	265	80	190	0.8	56 ±20%	120 (AR)	8.2	6.5	5.0	0.50
PTGL09AR390M9C61B0	265	100	240	1.2	39 ±20%	120 (AR)	10.0	6.5	6.5	0.65
PTGL09AR250H8B52B0	265	118	330	1.0	25 ±25%	120 (AR)	10.0	6.0	5.0	0.6
PTGL12AR270M9C01B0	265	150	360	1.5	27 ±20%	120 (AR)	14.0	6.5	10.0	0.65
PTGL12AR150H8B72B0	265	165	460	1.5	15 ±25%	120 (AR)	12.5	6.0	7.5	0.6
PTGL14AR180M9C01B0	265	180	440	1.8	18 ±20%	120 (AR)	15.7	6.5	10.0	0.65
PTGL13AR100H8B72B0	265	200	560	2.2	10 ±25%	120 (AR)	14.0	6.0	7.5	0.6
PTGL18AR6R0H8B72B0	265	300	830	4.1	6 ±25%	120 (AR)	18.5	6.0	7.5	0.6

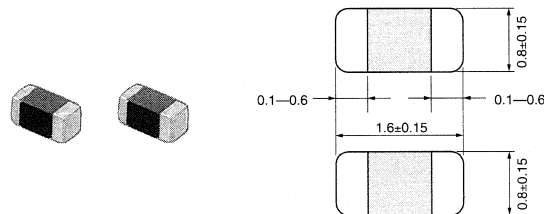
Maximum Current shows typical capacities of the transformer which can be used.

Maximum voltage 250V series are recognized by UL.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR[®]) for Overheat Sensing

Chip Type



(in mm)

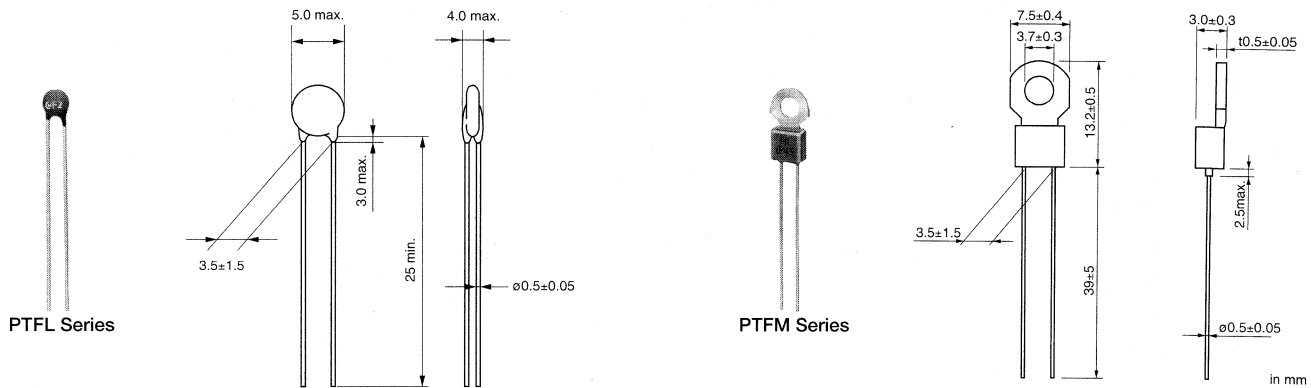
Part Number	Sensing Temperature (at 4.7k ohm) (°C)	Maximum Voltage (V)	Maximum Current (mA)	Curie Point (°C)	Resistance (at 25 degree) (ohm)	Operating Temperature Range (°C)
PRF18BE471QB1RB	85 ±5	16	30	70 (BE)	470 ±50%	-20 to 100
PRF18BD471QB1RB	95 ±5	16	30	80 (BD)	470 ±50%	-20 to 110
PRF18BC471QB1RB	105 ±5	16	30	90 (BC)	470 ±50%	-20 to 120
PRF18BB471QB1RB	115 ±5	16	30	100 (BB)	470 ±50%	-20 to 130
PRF18BA471QB1RB	125 ±5	16	30	110 (BA)	470 ±50%	-20 to 140
PRF18AR471QB1RB	135 ±5	16	30	120 (AR)	470 ±50%	-20 to 150
PRF18AS471QB1RB	145 ±5	16	30	130 (AS)	470 ±50%	-20 to 160

This product is applied to reflow soldering. Please consult us for flow soldering usage.

The order quantity should be an integral multiple of the "Minimum Quantity" the beginning of this catalog.

PTC(POSISTOR®) for Overheat Sensing

Lead Type



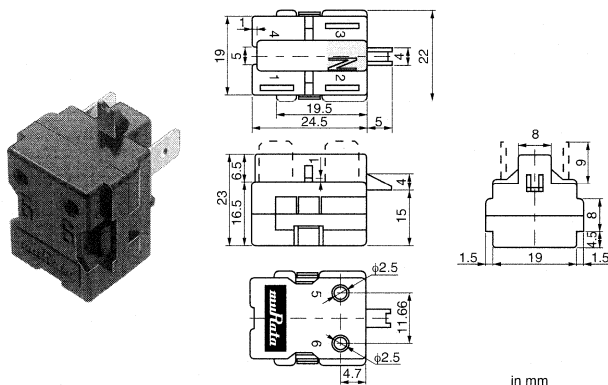
Part Number	Max. Voltage (V)	Curie Point (°C)	Sensing Temp.(TS) (°C)	Resistance Value at 25°C (ohm)	Resistance Value (Sensing Temp. -10°C)	Resistance Value at Sensing Temp.(TS°C)
PTF□04BH471Q2N34B0	16	40 (BH)	60	100 max.	330ohm max.	470ohm min.
PTF□04BG471Q2N34B0	16	50 (BG)	70	100 max.	330ohm max.	470ohm min.
PTF□04BF471Q2N34B0	16	60 (BF)	80	100 max.	330ohm max.	470ohm min.
PTF□04BE471Q2N34B0	16	70 (BE)	90	100 max.	330ohm max.	470ohm min.
PTF□04BD471Q2N34B0	16	80 (BD)	100	100 max.	330ohm max.	470ohm min.
PTF□04BC471Q2N34B0	16	90 (BC)	110	100 max.	330ohm max.	470ohm min.
PTF□04BB471Q2N34B0	16	100 (BB)	120	100 max.	330ohm max.	470ohm min.
PTF□04BH222Q2N34B0	16	40 (BH)	60	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BG222Q2N34B0	16	50 (BG)	70	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BF222Q2N34B0	16	60 (BF)	80	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BE222Q2N34B0	16	70 (BE)	90	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BD222Q2N34B0	16	80 (BD)	100	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BC222Q2N34B0	16	90 (BC)	110	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BB222Q2N34B0	16	100 (BB)	120	330 max.	1.5k ohm max.	2.2k ohm min.

A blank is filled with type codes. (L:Lead type, M:with Lug-terminal)

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

PTC(POSISTOR®) for Motor Starters

● Plug on Type PTH7M Series



Part Number	Resistance Value(at 25°C) (ohm)	Max. Volt. (V)	Max. Current (A)	Starting System
PTH7M4R7MB3-00	4.7 +/-20%	180	12	CSR
PTH7M4R7MC1-00	4.7 +/-20%	180	12	RSIR
PTH7M4R7MC2-00	4.7 +/-20%	180	12	RSIR

Continued on the following page.

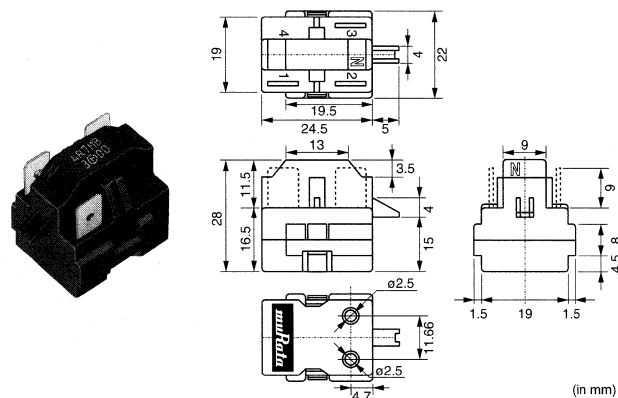
Continued from the preceding page.

Part Number	Resistance Value(at 25°C) (ohm)	Max. Volt. (V)	Max. Current (A)	Starting System
PTH7M4R7MD2-00	4.7 +/-20%	180	12	RSCR
PTH7M4R7MD3-00	4.7 +/-20%	180	12	RSCR
PTH7M6R8MB3-00	6.8 +/-20%	200	10	CSR
PTH7M6R8MC1-00	6.8 +/-20%	200	10	RSIR
PTH7M6R8MC2-00	6.8 +/-20%	200	10	RSIR
PTH7M6R8MD2-00	6.8 +/-20%	200	10	RSCR
PTH7M6R8MD3-00	6.8 +/-20%	200	10	RSCR
PTH7M100MB3-00	10 +/-20%	225	9	CSR
PTH7M100MC1-00	10 +/-20%	225	9	RSIR
PTH7M100MC2-00	10 +/-20%	225	9	RSIR
PTH7M100MD2-00	10 +/-20%	225	9	RSCR
PTH7M100MD3-00	10 +/-20%	225	9	RSCR
PTH7M330MB3-00	33 +/-20%	355	6	CSR
PTH7M330MC1-00	33 +/-20%	355	6	RSIR
PTH7M330MC2-00	33 +/-20%	355	6	RSIR
PTH7M330MD2-00	33 +/-20%	355	6	RSCR
PTH7M330MD3-00	33 +/-20%	355	6	RSCR

Please contact us when you need UL approved models another above mentioned type.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● Plug on Type PTH8M Series



(in mm)

Part Number	Resistance Value(at 25°C) (ohm)	Max. Volt. (V)	Max. Current (A)	Starting System
PTH8M4R7MB3-00	4.7 +/-20%	180	12	CSR
PTH8M4R7MC1-00	4.7 +/-20%	180	12	RSIR
PTH8M4R7MC2-00	4.7 +/-20%	180	12	RSIR
PTH8M4R7MD2-00	4.7 +/-20%	180	12	RSCR
PTH8M4R7MD3-00	4.7 +/-20%	180	12	RSCR
PTH8M6R8MB3-00	6.8 +/-20%	200	10	CSR
PTH8M6R8MC1-00	6.8 +/-20%	200	10	RSIR
PTH8M6R8MC2-00	6.8 +/-20%	200	10	RSIR
PTH8M6R8MD2-00	6.8 +/-20%	200	10	RSCR
PTH8M6R8MD3-00	6.8 +/-20%	200	10	RSCR
PTH8M100MB3-00	10 +/-20%	225	9	CSR
PTH8M100MC1-00	10 +/-20%	225	9	RSIR
PTH8M100MC2-00	10 +/-20%	225	9	RSIR
PTH8M100MD2-00	10 +/-20%	225	9	RSCR
PTH8M100MD3-00	10 +/-20%	225	9	RSCR
PTH8M330MB3-00	33 +/-20%	355	6	CSR
PTH8M330MC1-00	33 +/-20%	355	6	RSIR
PTH8M330MC2-00	33 +/-20%	355	6	RSIR
PTH8M330MD2-00	33 +/-20%	355	6	RSCR

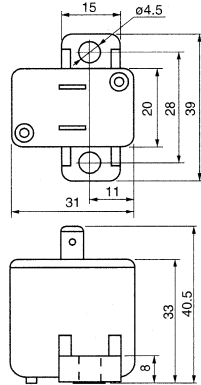
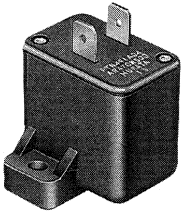
Continued on the following page.

Continued from the preceding page.

Part Number	Resistance Value(at 25°C) (ohm)	Max. Volt. (V)	Max. Current (A)	Starting System
PTH8M330MD3-00	33 +/-20%	355	6	RSCR

Please contact us when you need UL approved models another above mentioned type.
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● PTHGA Series

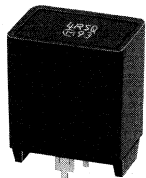


in mm

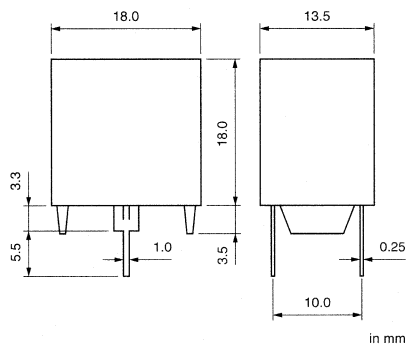
Part Number	Resistance Value(at 25°C) (ohm)	Max. Volt. (V)	Max. Current (A)	Starting System
PTHGA1AR3R3N160-00	3.3 +/-30%	160	12	-
PTHGA1AR4R7N180-00	4.7 +/-30%	180	12	-
PTHGA1AR6R8N200-00	6.8 +/-30%	200	10	-
PTHGA4AR6R8N225-00	6.8 +/-30%	225	13	-
PTHGA1AR100N225-00	10 +/-30%	225	9	-
PTHGA4AR100N315-00	10 +/-30%	315	12	-
PTHGA1AR150N250-00	15 +/-30%	250	8	-
PTHGA4AR150N355-00	15 +/-30%	355	10	-
PTHGA1AR220N300-00	22 +/-30%	300	7	-
PTHGA4AR220N400-00	22 +/-30%	400	9	-
PTHGA1AR330N355-00	33 +/-30%	355	6	-
PTHGA4AR330N450-00	33 +/-30%	450	8	-
PTHGA1AR470N400-00	47 +/-30%	400	5	-
PTHGA4AR470N500-00	47 +/-30%	500	7	-

Please contact us when you need UL approved models another above mentioned type.
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

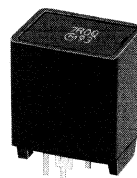
PTC(POSISTOR®) for Degaussing Circuits



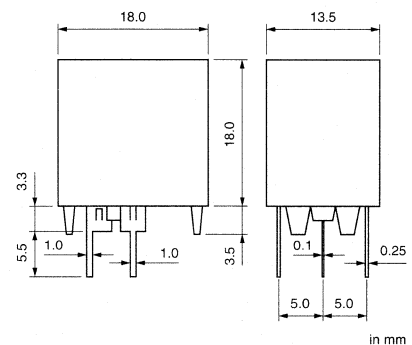
PTDA Series



in mm



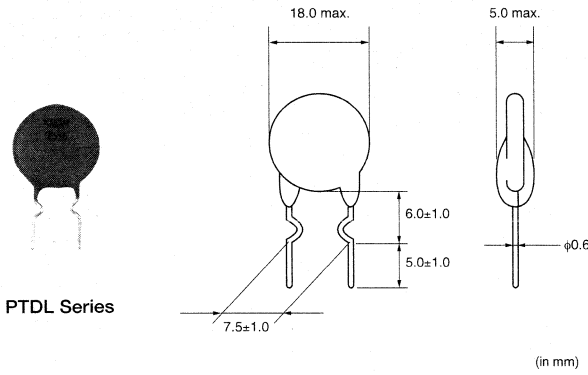
PTDC Series



in mm

Continued on the following page.

Continued from the preceding page.

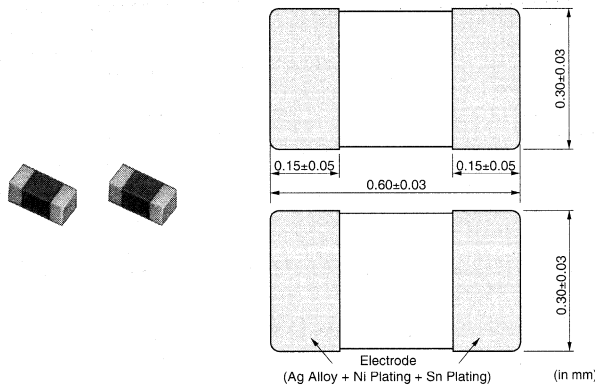


Part Number	Curie Point (°C)	Resistance Value(25°C) (ohm)	Rated Volt. (V)	Max. Volt. (V)	Current(25°C) 0sec. (Ap-p)	Current(25°C) 3sec. (mAp-p)	Current(25°C) 180sec. (mAp-p)	Condition Volt. (V)	Condition Coil Resistance (ohm)
PTDAA1BF1R5M100	60 (BF)	1.5 ±20%	100/120	140	38 min.	500 max.	90 max.	100	5.5
PTDAA1BF3R0Q100	60 (BF)	3 +30,-20%	100/120	140	17 min.	200 max.	60 max.	100	11
PTDAA1BF4R5Q200	60 (BF)	4.5 +30,-20%	220/240	270	22 min.	300 max.	50 max.	200	20
PTDAA1BF7R0Q200	60 (BF)	7 +30,-20%	220/240	270	19 min.	300 max.	50 max.	200	20
PTDAA1BF9R0Q200	60 (BF)	9 +30,-20%	220/240	270	18 min.	300 max.	50 max.	200	20
PTDAA1BF140M200	60 (BF)	14 ±20%	220/240	270	25 min.	300 max.	40 max.	220	10
PTDAA1BF180N200	60 (BF)	18 ±30%	220/240	270	25 min.	250 max.	35 max.	220	8
PTDCA1BF3R0Q100	60 (BF)	3 +30,-20%	100/120	140	28 min.	300 max.	7 max.	100	5
PTDCA1BF4R5Q200	60 (BF)	4.5 +30,-20%	200/220	270	21 min.	300 max.	7 max.	200	20
PTDCA1BF7R0Q200	60 (BF)	7 +30,-20%	220/240	270	19 min.	300 max.	7 max.	200	20
PTDCA1BF9R0Q200	60 (BF)	9 +30,-20%	220/240	270	18 min.	300 max.	10 max.	200	20
PTDCA1BF140M200	60 (BF)	14 ±20%	220/240	270	25 min.	200 max.	10 max.	220	10
PTDCA1BF180N200	50 (BG)	18 ±30%	220/240	270	15 min.	300 max.	10 max.	200	13
PTDL7PBF5R0M10B	60 (BF)	5 ±20%	100/120	140	45 min.	300 max.	60 max.	100	1
PTDL7PBF7R0M10B	60 (BF)	7 ±20%	100/120	140	25 min.	260 max.	60 max.	100	3.5

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

NTC for Temperature Compensation

0201(0603) Size



Part Number	Resistance (25°C) (k ohm)	B-Constant (25-50°C) (K)	Max. Operating Current(25°C) (mA)	Rated Electric Power(25°C) (mW)	Typical Dissipation Constant(25°C) (mW/°C)	Operating Temperature Range (°C)
NCP03XH103□05RD	10	3380 ±3%	0.31	100	1	-40 to 125

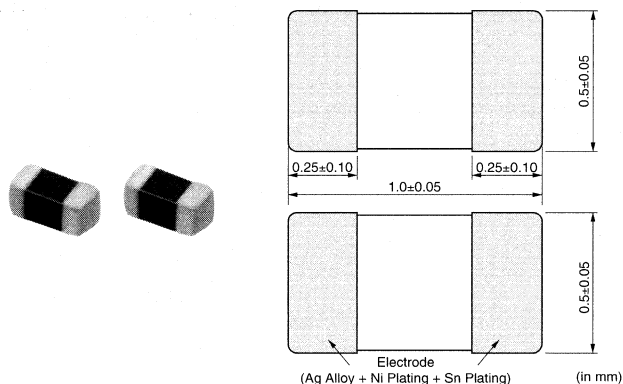
A blank column is filled with resistance tolerance codes. (J:±5%, K:±10%)

NTC for Temperature Compensation

0402(1005) Size

2

Resistors/Thermistors



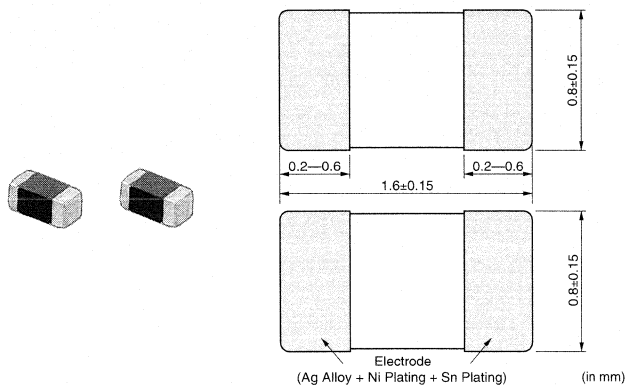
Part Number	Resistance (25°C)	B-Constant (25-50°C) (K)	Max. Operating Current(25°C) (mA)	Rated Electric Power(25°C) (mW)	Typical Dissipation Constant(25°C) (mW/°C)	Operating Temperature Range (°C)
NCP15XF101□03RC	100ohm	3250 ±3%	3.10	100	1	-40 to 125
NCP15XF151□03RC	150ohm	3250 ±3%	2.50	100	1	-40 to 125
NCP15XM221□03RC	220ohm	3500 ±3%	2.10	100	1	-40 to 125
NCP15XM331□03RC	330ohm	3500 ±3%	1.70	100	1	-40 to 125
NCP15XQ471□03RC	470ohm	3650 ±3%	1.40	100	1	-40 to 125
NCP15XQ681□03RC	680ohm	3650 ±3%	1.20	100	1	-40 to 125
NCP15XQ102□03RC	1.0k ohm	3650 ±3%	1.00	100	1	-40 to 125
NCP15XW152□03RC	1.5k ohm	3950 ±3%	0.81	100	1	-40 to 125
NCP15XW222□03RC	2.2k ohm	3950 ±3%	0.67	100	1	-40 to 125
NCP15XW332□03RC	3.3k ohm	3950 ±3%	0.55	100	1	-40 to 125
NCP15XM472□03RC	4.7k ohm	3500 ±3%	0.46	100	1	-40 to 125
NCP15XW682□03RC	6.8k ohm	3950 ±3%	0.38	100	1	-40 to 125
NCP15XH103□03RC	10k ohm	3380 ±3%	0.31	100	1	-40 to 125
NCP15XW153□03RC	15k ohm	3950 ±3%	0.25	100	1	-40 to 125
NCP15XW223□03RC	22k ohm	3950 ±3%	0.21	100	1	-40 to 125
NCP15WB333□03RC	33k ohm	4050 ±3%	0.17	100	1	-40 to 125
NCP15WB473□03RC	47k ohm	4050 ±3%	0.14	100	1	-40 to 125
NCP15WD683□03RC	68k ohm	4150 ±3%	0.12	100	1	-40 to 125
NCP15WF104□03RC	100k ohm	4250 ±3%	0.10	100	1	-40 to 125
NCP15WM154□03RC	150k ohm	4500 ±3%	0.08	100	1	-40 to 125
NCP15WM224□03RC	220k ohm	4500 ±3%	0.06	100	1	-40 to 125
NCP15WM474□03RC	470k ohm	4500 ±3%	0.04	100	1	-40 to 125

A blank column is filled with resistance tolerance codes. (J:±5%, K:±10%)

Tolerance ±1% NCP15XH103F04RC is also available for 10k ohm type.

NTC for Temperature Compensation

0603(1608) Size



Part Number	Resistance (25°C)	B-Constant (25-50°C) (K)	Max. Operating Current(25°C) (mA)	Rated Electric Power(25°C) (mW)	Typical Dissipation Constant(25°C) (mW/°C)	Operating Temperature Range (°C)
NCP18XF101□03RB	100ohm	3250 ±3%	3.10	100	1	-40 to 125
NCP18XF151□03RB	150ohm	3250 ±3%	2.50	100	1	-40 to 125
NCP18XM221□03RB	220ohm	3500 ±3%	2.10	100	1	-40 to 125
NCP18XM331□03RB	330ohm	3500 ±3%	1.70	100	1	-40 to 125
NCP18XQ471□03RB	470ohm	3650 ±3%	1.40	100	1	-40 to 125
NCP18XQ681□03RB	680ohm	3650 ±3%	1.2	100	1	-40 to 125
NCP18XQ102□03RB	1.0k ohm	3650 ±3%	1.00	100	1	-40 to 125
NCP18XW152□03RB	1.5k ohm	3950 ±3%	0.81	100	1	-40 to 125
NCP18XW222□03RB	2.2k ohm	3950 ±3%	0.67	100	1	-40 to 125
NCP18XW332□03RB	3.3k ohm	3950 ±3%	0.55	100	1	-40 to 125
NCP18XM472□03RB	4.7k ohm	3500 ±3%	0.46	100	1	-40 to 125
NCP18XW682□03RB	6.8k ohm	3950 ±3%	0.38	100	1	-40 to 125
NCP18XH103□03RB	10k ohm	3380 ±3%	0.31	100	1	-40 to 125
NCP18XW153□03RB	15k ohm	3950 ±3%	0.25	100	1	-40 to 125
NCP18XW223□03RB	22.0k ohm	3950 ±3%	0.21	100	1	-40 to 125
NCP18WB333□03RB	33k ohm	4050 ±3%	0.17	100	1	-40 to 125
NCP18WB473□03RB	47k ohm	4050 ±3%	0.14	100	1	-40 to 125
NCP18WD683□03RB	68k ohm	4150 ±3%	0.12	100	1	-40 to 125
NCP18WF104□03RB	100k ohm	4250 ±3%	0.10	100	1	-40 to 125
NCP18WM154□03RB	150k ohm	4500 ±3%	0.08	100	1	-40 to 125
NCP18WM224□03RB	220k ohm	4500 ±3%	0.06	100	1	-40 to 125
NCP18WM474□03RB	470k ohm	4500 ±3%	0.04	100	1	-40 to 125

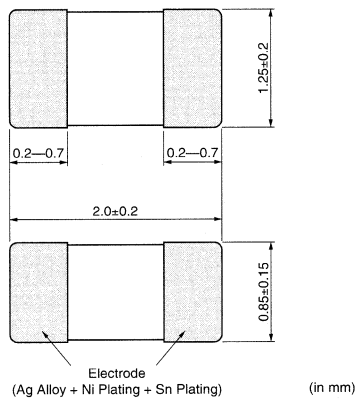
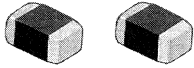
Both flow and reflow soldering methods can be employed.

A blank column is filled with resistance tolerance codes. (J:±5%, K:±10%)

Tolerance ±1% NCP18XH103F03RB is also available for 10k ohm type.

NTC for Temperature Compensation

0805(2012) Size



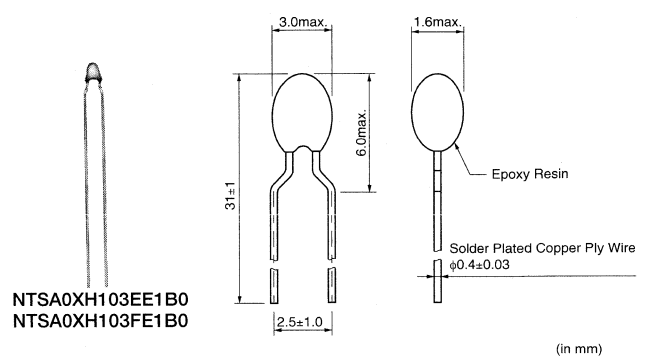
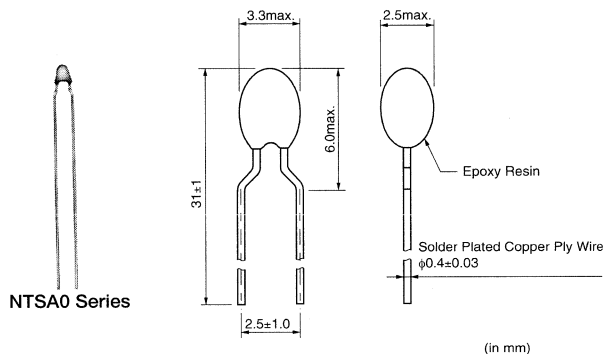
Part Number	Resistance (25°C)	B-Constant (25-50°C) (K)	Max. Operating Current(25°C) (mA)	Rated Electric Power(25°C) (mW)	Typical Dissipation Constant(25°C) (mW/°C)	Operating Temperature Range (°C)
NCP21XM221□03RA	220ohm	3500 ±3%	3.00	200	2	-40 to 125
NCP21XQ471□03RA	470ohm	3650 ±3%	2.00	200	2	-40 to 125
NCP21XQ102□03RA	1.0k ohm	3650 ±3%	1.40	200	2	-40 to 125
NCP21XW222□03RA	2.2k ohm	3950 ±3%	0.90	200	2	-40 to 125
NCP21XM472□03RA	4.7k ohm	3500 ±3%	0.65	200	2	-40 to 125
NCP21XV103□03RA	10k ohm	3900 ±3%	0.44	200	2	-40 to 125
NCP21XW153□03RA	15k ohm	3950 ±3%	0.36	200	2	-40 to 125
NCP21XW223□03RA	22k ohm	3950 ±3%	0.30	200	2.0	-40 to 125
NCP21WB333□03RA	33k ohm	4050 ±3%	0.24	200	2.0	-40 to 125
NCP21WB473□03RA	47k ohm	4050 ±3%	0.20	200	2.0	-40 to 125
NCP21WF104□03RA	100k ohm	4250 ±3%	0.14	200	2.0	-40 to 125

Both flow and reflow soldering methods can be employed.

A blank column is filled with resistance tolerance codes. (J:±5%, K:±10%)

NTC for Temperature Sensor

Resin Coated Radial Lead Type



Part Number	Resistance (25°C) (k ohm)	B-Constant (25-50°C) (K)	Max. Operating Current(25°C) (mA)	Rated Electric Power(25°C) (mW)	Typical Dissipation Constant(25°C) (mW/°C)	Thermal Time Constant(s)	Operating Temperature Range (°C)
NTSA0XM202□E1B0	2.0	3500 ±1%	1.05	21	2.1	less than7	-40 to 125
NTSA0XR502□E1B0	5.0	3700 ±1%	0.68	21	2.1	less than7	-40 to 125
NTSA0XH103□E1B0	10	3380 ±1%	0.38	15	1.5	less than7	-40 to 125
NTSA0XV103□E1B0	10	3900 ±1%	0.46	21	2.1	less than7	-40 to 125
NTSA0WB203□E1B0	20	4050 ±1%	0.31	21	2.1	less than7	-40 to 125
NTSA0WC303□E1B0	30	4100 ±1%	0.26	21	2.1	less than7	-40 to 125
NTSA0WD503□E1B0	50	4150 ±1%	0.20	21	2.1	less than7	-40 to 125

Continued on the following page.

Continued from the preceding page.

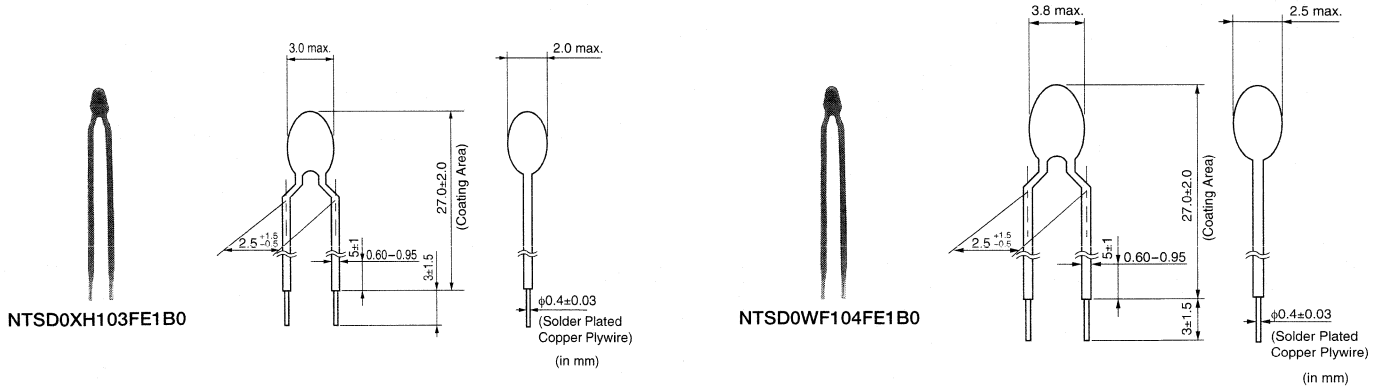
Part Number	Resistance (25°C) (k ohm)	B-Constant (25-50°C) (K)	Max. Operating Current (25°C) (mA)	Rated Electric Power (25°C) (mW)	Typical Dissipation Constant (25°C) (mW/°C)	Thermal Time Constant(s)	Operating Temperature Range (°C)
NTSA0WF104□E1B0	100	4250 ±1%	0.14	21	2.1	less than 7	-40 to 125

A blank column is filled with resistance tolerance codes. (F:±1%, E:±3%)

Taping type of part numbers with "A0" is available.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

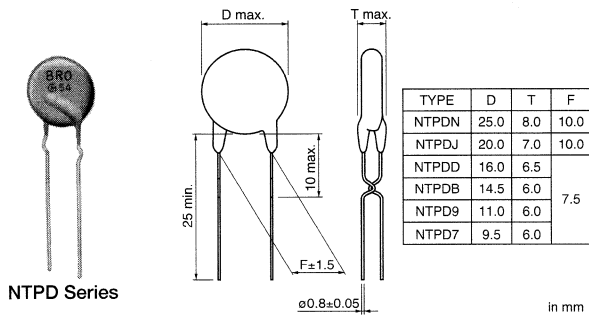
● Lead-Coating Type



Part Number	Resistance (25°C) (k ohm)	B-Constant (25-50°C) (K)	Max. Operating Current (25°C) (mA)	Rated Electric Power (25°C) (mW)	Typical Dissipation Constant (25°C) (mW/°C)	Thermal Time Constant(s)	Operating Temperature Range (°C)
NTSD0XH103FE1B0	10 ±1%	3380 ±1%	0.38	15	1.5	less than 7	-40 to 125
NTSD0WF104FE1B0	100 ±1%	4250 ±1%	0.14	21	2.1	less than 7	-40 to 125

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the shown in the beginning of this catalog.

NTC for Inrush Current Suppression



Part Number	Resistance (25°C) (ohm)	Permissible Max. Current (25°C) (A)	Permissible Max. Current (55°C) (A)	Thermal Time Constant(s)	Thermal Dissipation Constant (mW/°C)	Permissible Electrolytic Capacitor (μF)
NTPDN3R0LDFB0	3.0 ±15%	5.1	4.5	135	23.3	5000 at 100V
NTPDN4R0LDFB0	4.0 ±15%	4.4	3.9	130	22.3	5000 at 100V
NTPDN6R0LDFB0	6.0 ±15%	3.6	3.2	130	23.8	5000 at 100V
NTPDJ4R0LDFB0	4.0 ±15%	3.7	3.3	125	16.7	2000 at 100V
NTPDJ6R0LDFB0	6.0 ±15%	3.3	2.9	125	18.4	2000 at 100V
NTPDJ8R0LDFB0	8.0 ±15%	2.8	2.5	130	18.2	2000 at 100V
NTPDJ100LDFB0	10.0 ±15%	2.5	2.2	130	18.2	2000 at 100V
NTPDD8R0LD7B0	8.0 ±15%	2.7	2.4	65	16.4	2000 at 100V
NTPDD120LD7B0	12.0 ±15%	2.2	1.9	85	17.1	2000 at 100V
NTPDD160LD7B0	16.0 ±15%	2.0	1.7	100	14.5	2000 at 100V

Continued on the following page. ↗

Continued from the preceding page.

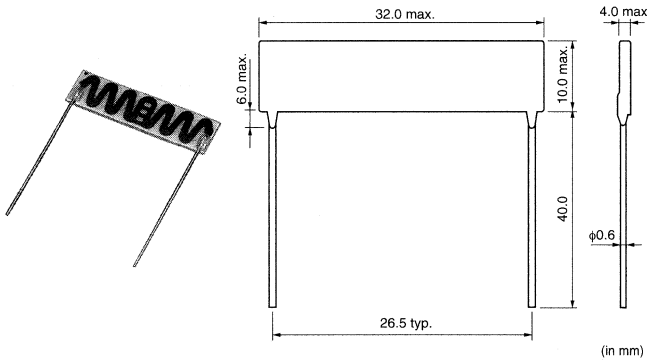
Part Number	Resistance (25C.) (ohm)	Permissible Max. Current(25C.) (A)	Permissible Max. Current(55C.) (A)	Thermal Time Constant(s)	Thermal Dissipation Constant (mW/°C)	Permissible Electrolytic Capacitor (μF)
NTPDB5R0LD7B0	5.0 ±15%	2.8	2.5	80	12.6	1000 at 100V
NTPDB8R0LD7B0	8.0 ±15%	2.4	2.1	80	12.9	1000 at 100V
NTPDB100LD7B0	10.0 ±15%	2.2	1.8	80	13.0	1000 at 100V
NTPD9100LD7B0	10.0 ±15%	1.9	1.6	50	10.8	400 at 100V
NTPD9160LD7B0	16.0 ±15%	1.4	1.2	65	10.0	400 at 100V
NTPD74R0LD7B0	4.0 ±15%	2.3	2.0	40	9.0	400 at 100V
NTPD78R0LD7B0	8.0 ±15%	1.7	1.5	40	10.2	400 at 100V
NTPD7160LD7B0	16.0 ±15%	1.4	1.2	40	9.0	400 at 100V
NTPD7220LD7B0	22.0 ±15%	1.1	1.0	40	9.0	400 at 100V

The part numbers with "7B0" are also available on tape.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

High Voltage Resistors

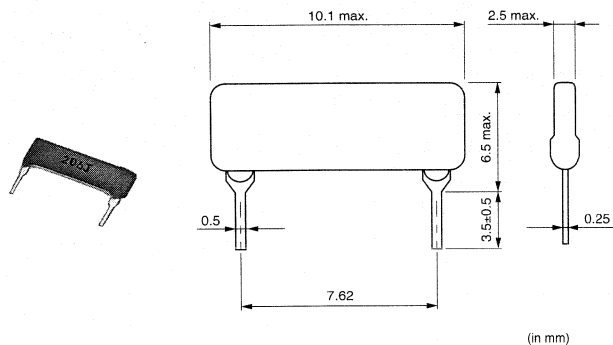
● MHR*PA Series



Part Number	Resistance Range (M ohm)	Rated Voltage(Single Use)	Rated Voltage(Molded Use) (kV)	Rated Power (W)	Lead Pitch (mm)
MHR0622PA***#	5M to 1000	-	18	1.0	19.0
MHR0830PA***#	5M to 1500	-	23	1.3	26.5
MHR1033PA***#	20M to 1500	-	25	1.5	30.0
MHR0844PA***#	20M to 2000	-	30	1.7	40.5
MHR0950PA***#	20M to 2000	-	35	2.0	47.0

For resistance value and ratio of B circuit, please contact us.

MHR*SA Series

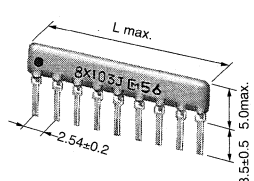


(in mm)

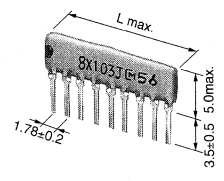
Part Number	Resistance Range (M ohm)	Rated Voltage(Single Use) (kV)	Rated Voltage(Molded Use) (kV)	Rated Power (W)	Lead Pitch (mm)
MHR0409SA***#	1M to 500	3	6	0.6	7.62
MHR0412SA***#	1M to 600	4	8	0.8	10.16
MHR0414SA***#	1M to 800	5	10	1.0	12.70
MHR0417SA***#	1M to 1000	6	12	1.1	15.24
MHR0419SA***#	1M to 1000	7	13	1.2	17.78
MHR0422SA***#	1M to 1000	8	14	1.3	20.32
MHR0609SA***#	1M to 600	3	7	0.8	7.62
MHR0612SA***#	1M to 800	4	10	1.0	10.16
MHR0614SA***#	1M to 1000	5	12	1.2	12.70
MHR0617SA***#	1M to 1000	6	14	1.3	15.24
MHR0619SA***#	1M to 1000	7	15	1.4	17.78
MHR0622SA***#	1M to 1000	8	16	1.5	20.32

For resistance value and ratio of B circuit, please contact us.

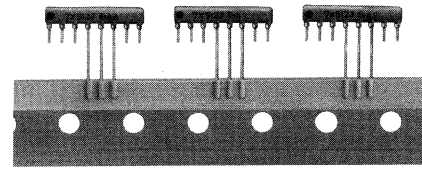
R Networks



Standard Profile RGLD Series



Shrink Profile RGLE Series



RGLD Series Taping Type (4-9 pin)

in mm

Standard Circuits

Type	X Type	Y Type	Z Type	M Type
Circuit (n: Number of resistors)				
Number of Resistor	RGLD 3 to 12	3 to 7	8 to 18	6 to 12
	RGLE 3 to 15	3 to 8	—	6 to 12

● Rating

	RGLD Series	RGLE Series
Rated Power (W)	1/8	1/10
Package Power (W)	Rated Power × Number of Resistors × K (K: coefficient)	
Resistance Range (Ω)	10 to 1M (X, Y, M Type)	
Resistance Value	E-12 Value (X, Y, M Type)	
Resistance Tolerance (%)	J ; ±5, G ; ±2 (22Ωmin)	
T.C.R (ppm/°C)	±200	
Max Operating Voltage (V)	100	
Operating Temperature (°C)	-55 to +125	
Derating Curve	<p>E-12 Values 10, 12, 15, 18, 22, 27, 33, 39, 47, 56, 68, 82</p>	Standard Resistance Value for Z type(Ω) R1/R2=180/390,220/330, 330/390,330/470

● L Dimensions

Series	Number of Pins													
	4	5	6	7	8	9	10	11	12	13	14	15	16	
RGLE (pitch 1.78)	7.7	9.5	11.2	12.9	14.6	16.4	18.2	20.0	21.8	23.5	25.3	27.1	28.9	
RGLD (pitch 2.54)	10.1	12.6	15.1	17.6	20.2	22.7	25.3	27.8	30.5	33.0	35.5	-	-	

in mm

Custom-made circuits are also available. Please contact us.

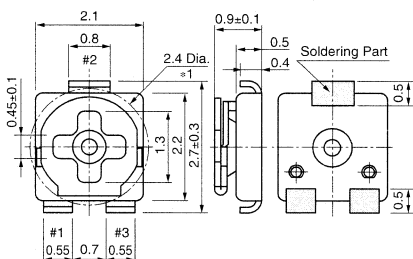
Minimum Quantity (order in sets only) : 1,000 pcs.(Bulk/Taping)

Trimmer Potentiometers

Chip Open Type 2mm Size

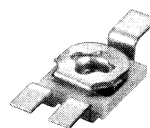


PVZ2A Series

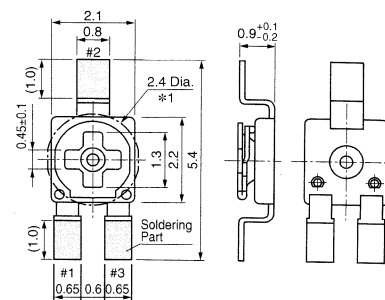


*1 Driver Plate Rotation Area :
Please do not place any components which height
is more than 0.7mm within this area.

(Tolerance : ±0.2) in mm



PVZ2K Series



*1. Driver Plate Rotation Area :
Please do not place any components which
high is more than 0.7mm within this area.

(Tolerance : ±0.2) in mm

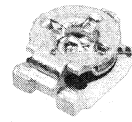
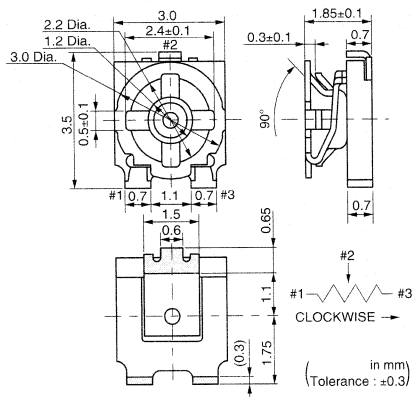
Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PVZ2A	0.1(50°C)	Reflow	1(240°±10°)	500ohm to 1M ohm ±30%	±500
PVZ2K	0.1(50°C)	Reflow	1(240°±10°)	500ohm to 1M ohm ±30%	±500

Trimmer Potentiometers

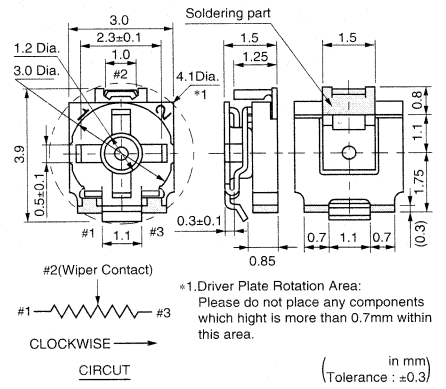
Chip Open Type 3mm Size



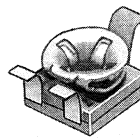
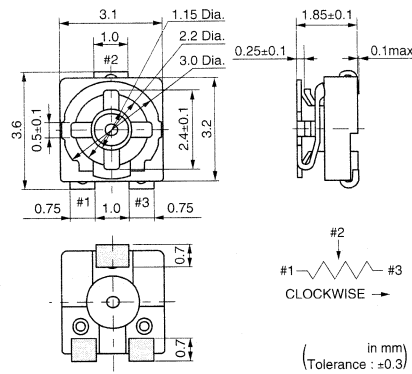
PVA3A Series



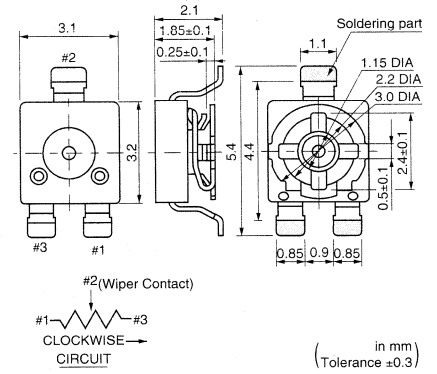
PVS3A Series



PVZ3A Series



PVZ3K Series

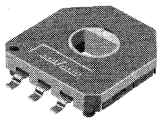


Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PVA3A	0.1(70°C)	Flow/Reflow	1(270°±10°)	100ohm to 2M ohm ±25%	±250
PVS3A	0.1(70°C)	Reflow	1(270°±10°)	100ohm to 2M ohm ±25%	±250
PVZ3A	0.1(50°C)	Reflow	1(230°±10°)	200ohm to 2M ohm ±30%	±500
PVZ3K	0.1(50°C)	Reflow	1(230°±10°)	200ohm to 2M ohm ±30%	±500

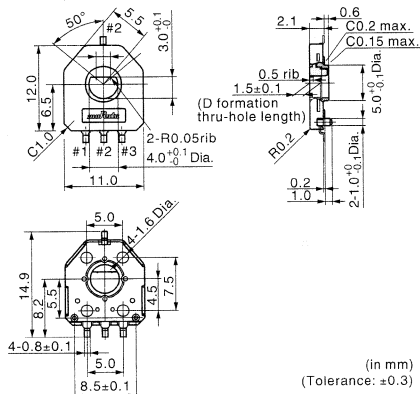
Trimmer Potentiometers

Chip Open type 12mm Size

● PVS1A Series



PVS1A Series



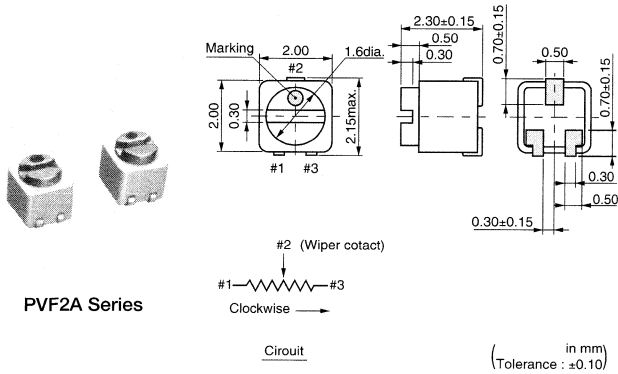
Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value (k ohm)	TCR (ppm/°C)
PVS1A	-	Reflow	-	10 ±30%	±500

Operating Temperature Range: -40 to 80 °C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

Trimmer Potentiometers

Chip Closed Type 2mm Size



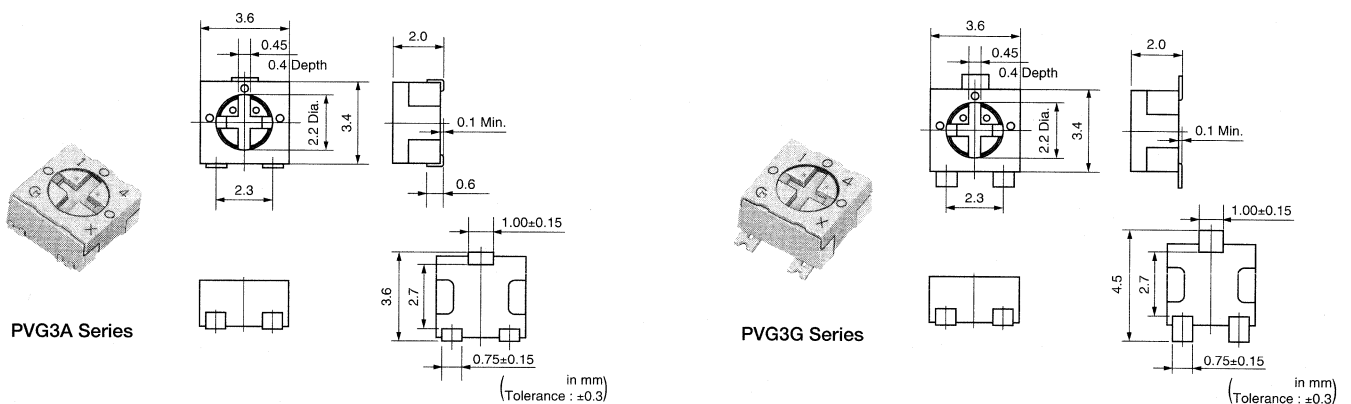
Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PVF2A	0.001(50°C)	Reflow	1(210°±10°)	500ohm to 1M ohm ±30%	±500

Operating Temperature Range: -55 to 125 °C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

Trimmer Potentiometers

Chip Closed Type 3mm Size



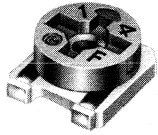
Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PVG3A	0.25(70°C)	Reflow	1(210°±10°)	10ohm to 2M ohm ±20%	±250
PVG3G	0.25(70°C)	Reflow	1(210°±10°)	10ohm to 2M ohm ±20%	±250

Operating Temperature Range: -55 to 125 °C

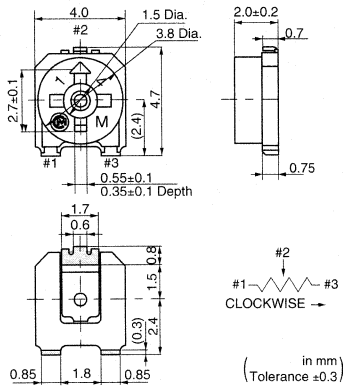
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

Trimmer Potentiometers

Chip Closed Type 4mm Size



PVM4A Series



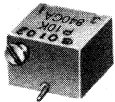
Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PVM4A	0.25(70°C)	Flow/Reflow	1(240°±10°)	100ohm to 2M ohm ±20%	±150

Operating Temperature Range: -55 to 125 °C

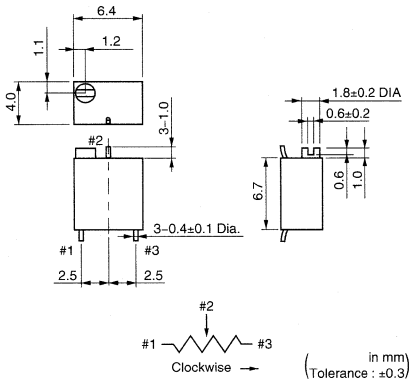
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

Trimmer Potentiometers

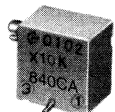
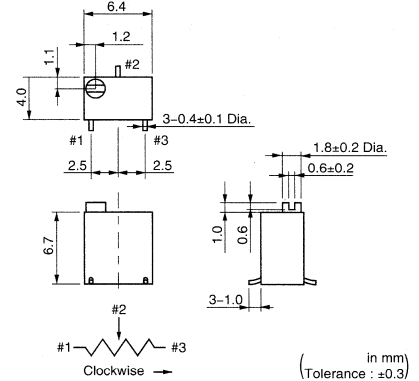
Chip Closed Type Multi-turns



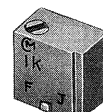
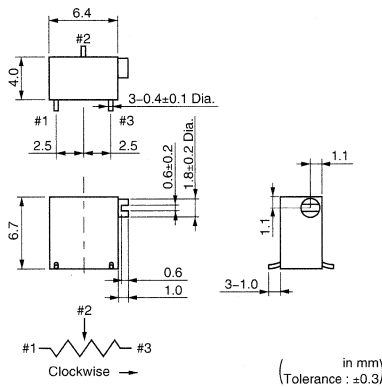
PV01P Series



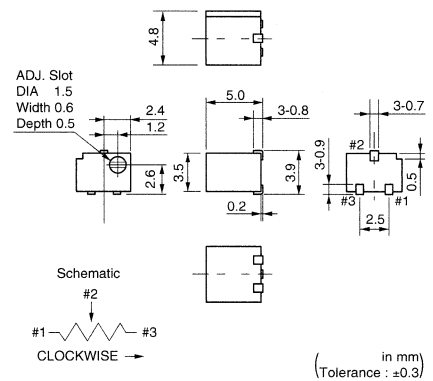
PV01W Series



PV01X Series



PVG5A Series

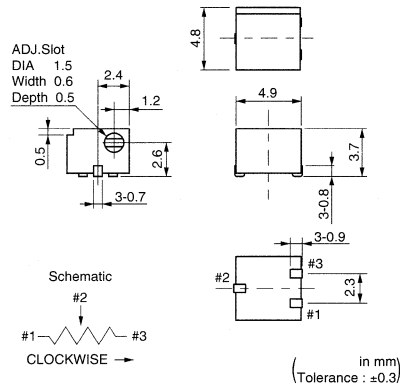


Continued on the following page.

Continued from the preceding page.



PVG5H Series



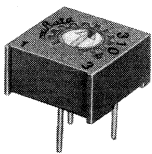
Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PV01P	0.25(85°C)	Reflow	12	10ohm to 1M ohm ±10%	±100
PV01W	0.25(85°C)	Reflow	12	10ohm to 1M ohm ±10%	±100
PV01X	0.25(85°C)	Reflow	12	10ohm to 1M ohm ±10%	±100
PVG5A	0.25(70°C)	Reflow	11	10ohm to 2M ohm ±10%	±200
PVG5H	0.25(70°C)	Reflow	11	10ohm to 2M ohm ±10%	±200

Operating Temperature Range: -55 to 150 °C

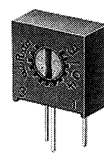
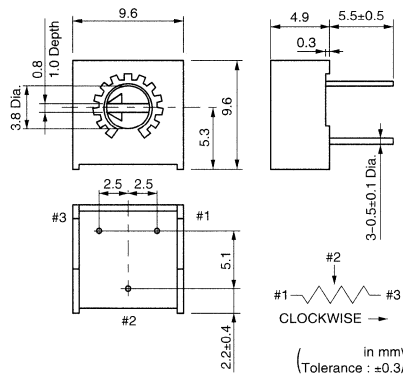
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

Trimmer Potentiometers

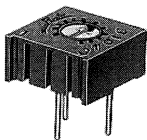
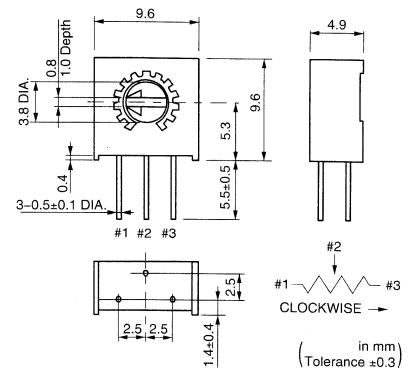
Lead Closed Type Single-turn



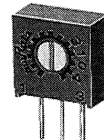
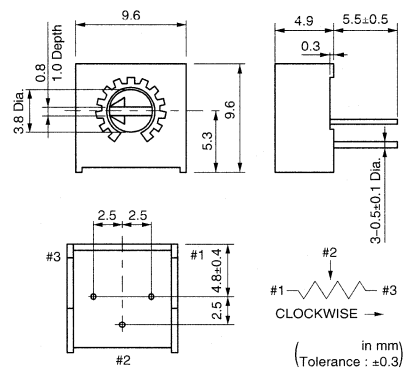
PV34F Series



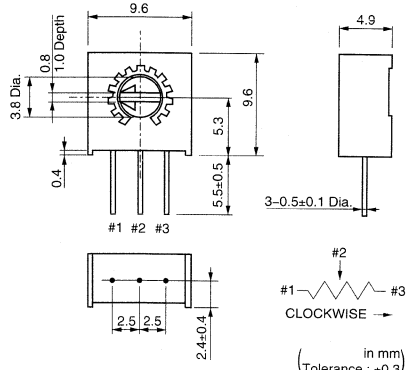
PV34H Series



PV34P Series

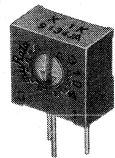


PV34W Series

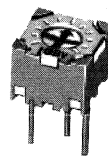
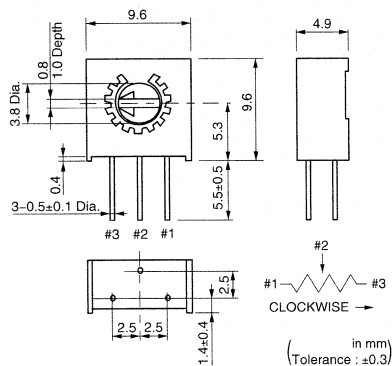


Continued on the following page. ↗

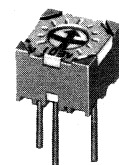
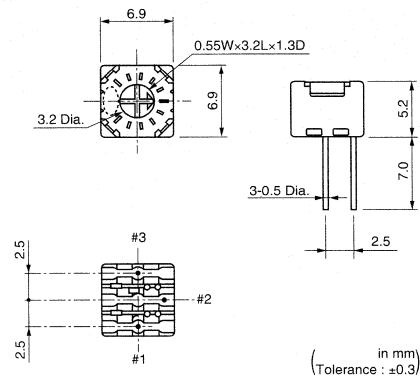
Continued from the preceding page.



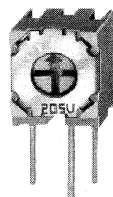
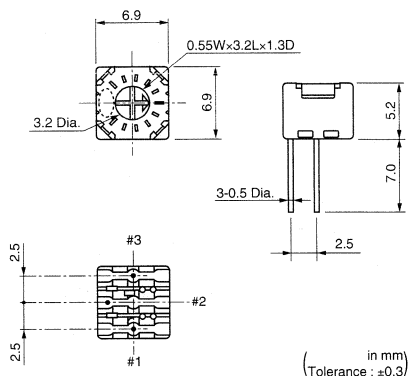
PV34X Series



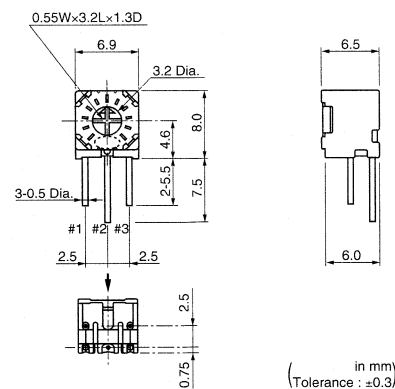
PVC6A Series



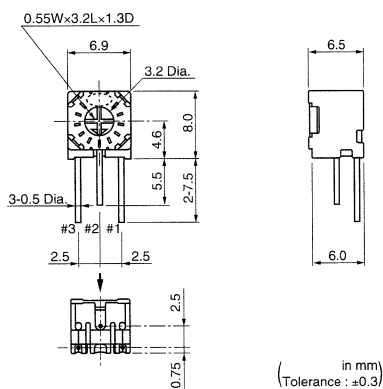
PVC6D Series



PVC6E Series



PVC6G Series



Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PV34F	0.5(70°C)	Soldering Iron	1(280°±15°)	10ohm to 2M ohm ±10%	±100
PV34H	0.5(70°C)	Soldering Iron	1(280°±15°)	10ohm to 2M ohm ±10%	±100
PV34P	0.5(70°C)	Soldering Iron	1(280°±15°)	10ohm to 2M ohm ±10%	±100
PV34W	0.5(70°C)	Soldering Iron	1(280°±15°)	10ohm to 2M ohm ±10%	±100
PV34X	0.5(70°C)	Soldering Iron	1(280°±15°)	10ohm to 2M ohm ±10%	±100
PVC6A	0.5(70°C)	Soldering Iron	1(240°±5°)	10ohm to 5M ohm ±10%	±100
PVC6D	0.5(70°C)	Soldering Iron	1(240°±5°)	10ohm to 5M ohm ±10%	±100
PVC6E	0.5(70°C)	Soldering Iron	1(240°±5°)	10ohm to 5M ohm ±10%	±100
PVC6G	0.5(70°C)	Soldering Iron	1(240°±5°)	10ohm to 5M ohm ±10%	±100
PVC6H	0.5(70°C)	Soldering Iron	1(240°±5°)	10ohm to 5M ohm ±10%	±100
PVC6M	0.5(70°C)	Soldering Iron	1(240°±5°)	10ohm to 5M ohm ±10%	±100
PVC6Q	0.5(70°C)	Soldering Iron	1(240°±5°)	10ohm to 5M ohm ±10%	±100

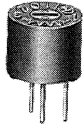
Operating Temperature Range: -55 to 125 °C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

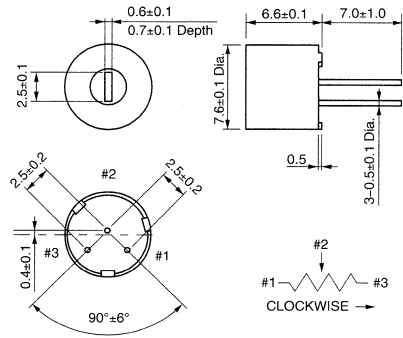
Trimmer Potentiometers

Lead Closed Type Multi-turns

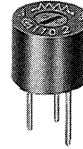
● PV12 Series



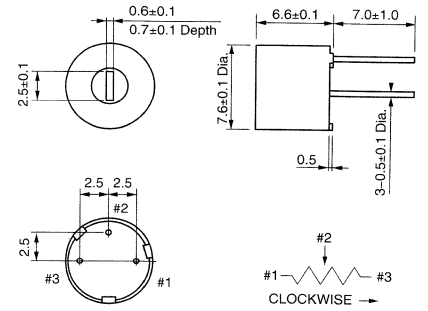
PV12H Series



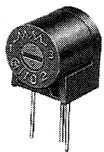
in mm
(Tolerance : ±0.3)



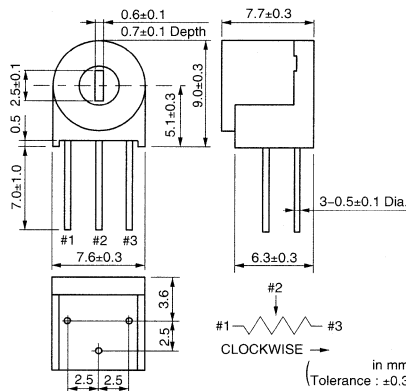
PV12P Series



in mm
(Tolerance : ±0.3)



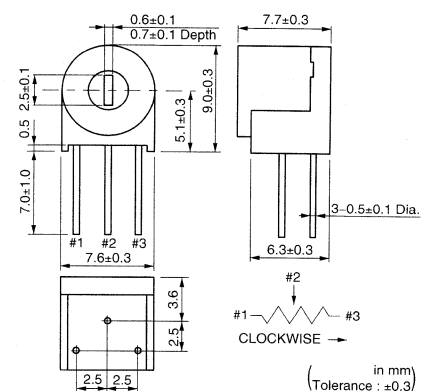
PV12S Series



in mm
(Tolerance : ±0.3)



PV12T Series



in mm
(Tolerance : ±0.3)

Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PV12H	0.5(70°C)	Soldering Iron	4	10ohm to 2M ohm ±10%	±100
PV12P	0.5(70°C)	Soldering Iron	4	10ohm to 2M ohm ±10%	±100
PV12S	0.5(70°C)	Soldering Iron	4	10ohm to 2M ohm ±10%	±100
PV12T	0.5(70°C)	Soldering Iron	4	10ohm to 2M ohm ±10%	±100

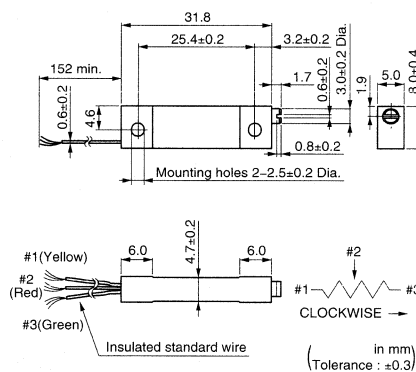
Operating Temperature Range: -55 to 125 °C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

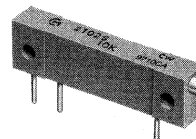
● PV22 Series



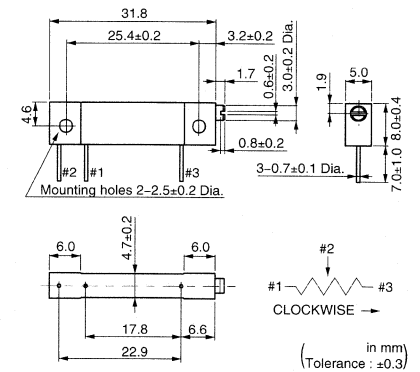
PV22L Series



in mm
(Tolerance : ±0.3)



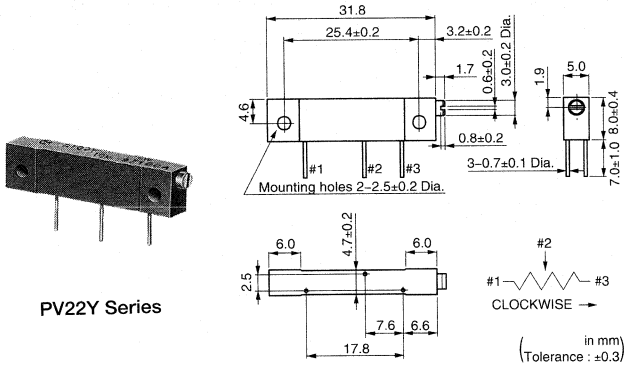
PV22S Series



in mm
(Tolerance : ±0.3)

Continued on the following page.

Continued from the preceding page.

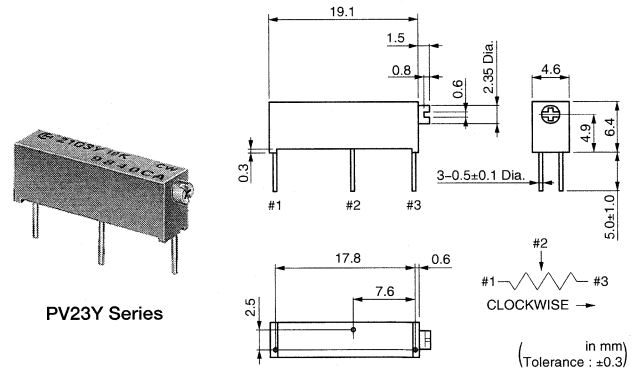
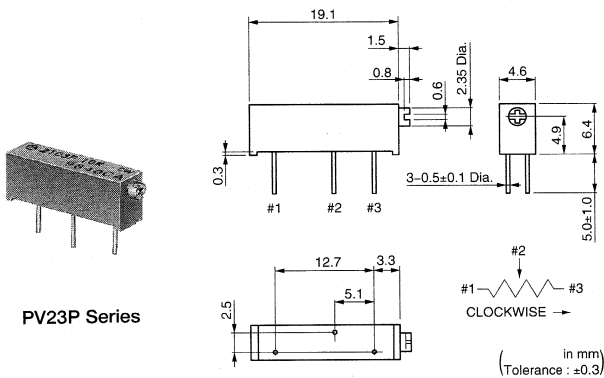


Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PV22L	1.0(70°C)	Soldering Iron	22	10ohm to 2M ohm ±10%	±100
PV22S	1.0(70°C)	Soldering Iron	22	10ohm to 2M ohm ±10%	±100
PV22Y	1.0(70°C)	Soldering Iron	22	10ohm to 2M ohm ±10%	±100

Operating Temperature Range: -55 to 150 °C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● PV23 Series

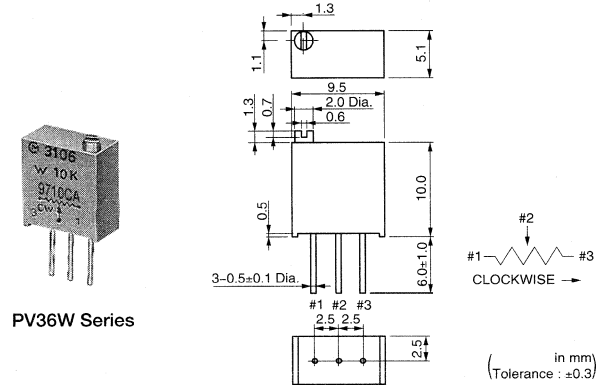
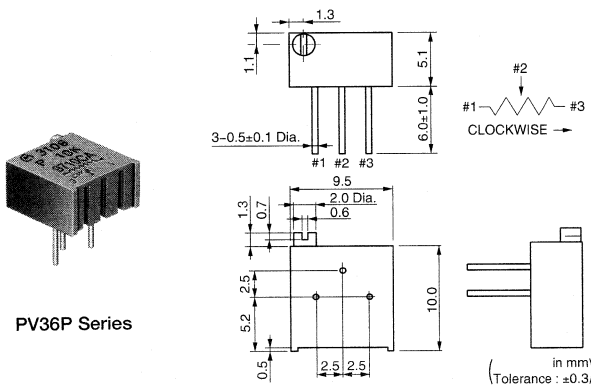


Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PV23P	0.75(70°C)	Soldering Iron	15	10ohm to 2M ohm ±10%	±100
PV23Y	0.75(70°C)	Soldering Iron	15	10ohm to 2M ohm ±10%	±100

Operating Temperature Range: -55 to 125 °C

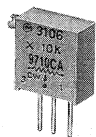
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● PV36 Series

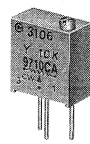
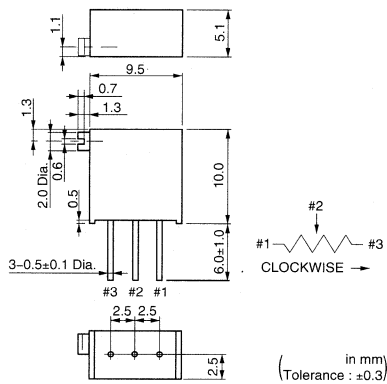


Continued on the following page.

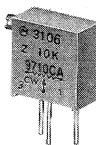
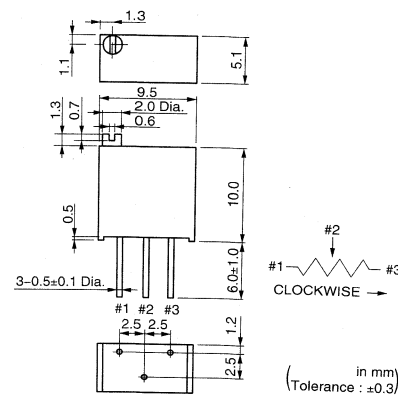
Continued from the preceding page.



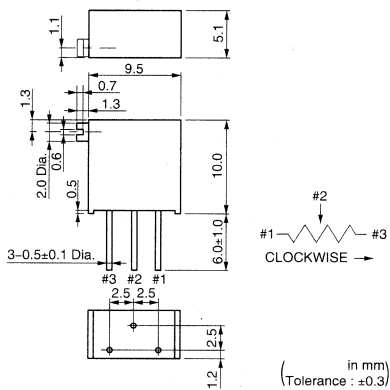
PV36X Series



PV36Y Series



PV36Z Series

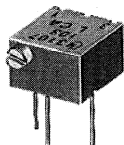


Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PV36P	0.5(70°C)	Soldering Iron	25	10ohm to 2M ohm ±10%	±100
PV36W	0.5(70°C)	Soldering Iron	25	10ohm to 2M ohm ±10%	±100
PV36X	0.5(70°C)	Soldering Iron	25	10ohm to 2M ohm ±10%	±100
PV36Y	0.5(70°C)	Soldering Iron	25	10ohm to 2M ohm ±10%	±100
PV36Z	0.5(70°C)	Soldering Iron	25	10ohm to 2M ohm ±10%	±100

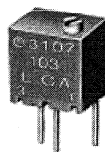
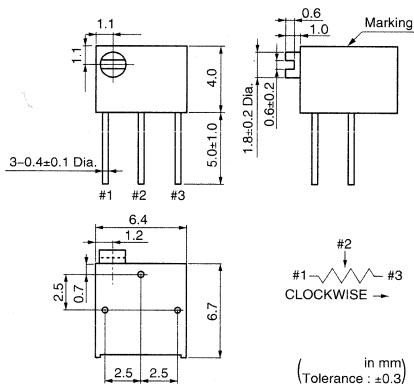
Operating Temperature Range: -55 to 125 °C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

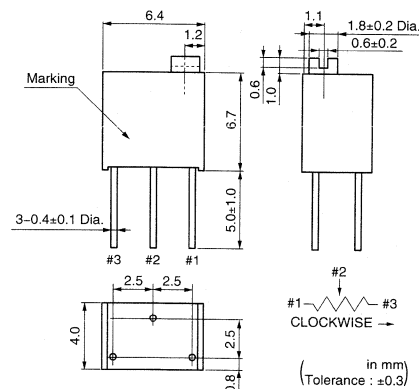
● PV37 Series



PV37P Series

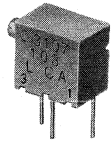


PV37W Series

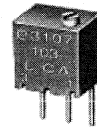
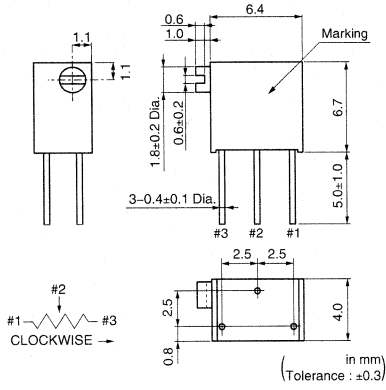


Continued on the following page.

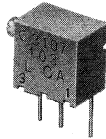
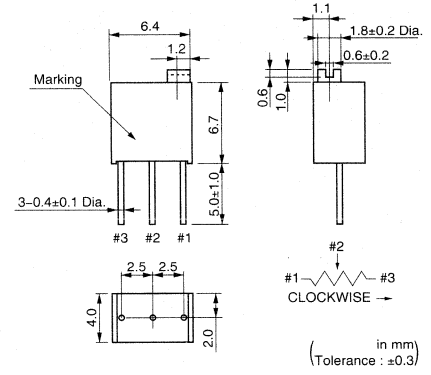
Continued from the preceding page.



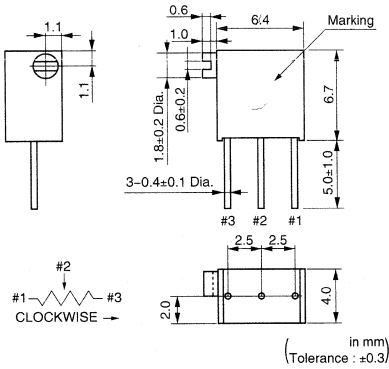
PV37X Series



PV37Y Series



PV37Z Series



Part Number	Power Rating (W)	Soldering Method	Number of Turns (Effective Rotation Angle)	Total Resistance Value	TCR (ppm/°C)
PV37P	0.25(85°C)	Soldering Iron	12	10ohm to 2M ohm ±10%	±100
PV37W	0.25(85°C)	Soldering Iron	12	10ohm to 2M ohm ±10%	±100
PV37X	0.25(85°C)	Soldering Iron	12	10ohm to 2M ohm ±10%	±100
PV37Y	0.25(85°C)	Soldering Iron	12	10ohm to 2M ohm ±10%	±100
PV37Z	0.25(85°C)	Soldering Iron	12	10ohm to 2M ohm ±10%	±100

Operating Temperature Range: -55 to 125 °C

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

3

Coils/Delay Lines

Chip Coils

Chip Multilayer Delay Lines

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein. If you have any questions about details, inquire at your usual Murata sales office or distributor.)

Chip Coils (SMD)

(Global Part Number)

LQ	H	32	M	N	331	K	2	1	L
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

① Product ID

Product ID	
LQ	Chip Coils

② Structure

Code	Structure
G	Monolithic Type (Air-core Coil)
H	Winding Type (Ferrite Core)
M	Monolithic (Ferriet Core)
P	Film Type
W	Winding Type (Air-core Coil)

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
03	0.60×0.30mm	0201
15	1.00×0.50mm	0402
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805
2B	2.00×1.50mm	0805
31	3.20×1.60mm	1206
32	3.20×2.50mm	1210
3E	3.50×3.20mm	1214
3K	3.30×3.30mm	1212
43	4.50×3.20mm	1812
55	5.70×5.00mm	2220
66	6.30×6.30mm	2525

④ Applications and Characteristics

Code	Series	Applications and Characteristics
H	LQG	Monolithic Air-core
N		for Resonant Circuit
D	LQM	for Choke (Low-current DC Power Supplies)
F		for Choke (DC Power Supplies)
M	LQP	Film Type
T		Film Type (Low DC Resistance Type)
A	LQW	High Q Type (UFH-SHF)
H		High Q Type (VHF-UHF)
N		for Resonant Circuit
M		for Resonant Circuit (Coating Type)
R	LQH	for Resonant Circuit (Magnetically Shielded Type)
D		for Choke
C		for Choke (Coating Type)
S		for Choke (Magnetically Shielded Type)
H		for High-frequency Resonant Circuit

⑤ Category

Code	Category
N	Standard Type

⑥ Inductance

Expressed by three figures. The unit is micro-henry (μ H). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits. If inductance is less than 0.1 μ H, the inductance code is expressed by combination of two figures are capital letter "N", and the unit of inductance is nano-henry (nH).

Capital letter "N" indicates the unit of "nH", and also expresses a decimal point. In this case, all figure are significant digits.

⑦ Inductance Tolerance

Code	Inductance Tolerance
B	± 0.1 nH
C	± 0.2 nH
D	± 0.5 nH
G	$\pm 2\%$
H	$\pm 3\%$
J	$\pm 5\%$
K	$\pm 10\%$
M	$\pm 20\%$
N	$\pm 30\%$
S	± 0.3 nH
W	± 0.05 nH

⑧ Features

Expressed by a figure from "0" to "2".

Ex.)

Code	Features
0	Standard Type

⑨ Electrode

Code	Electrode
0	Solder etc
1	Ni alloy + Solder
2	Sn

Continued on the following page.

Continued from the preceding page.

(Global Part Number) **LQ H 32 M N 331 K 2 1 L**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

⑩ Packaging

Code	Packaging	Series
K	Plastic Taping (ø330mm Reel)	LQM*1 /LQH*2 /LQW2B
L	Plastic Taping (ø180mm Reel)	LQH/LQM*3
B	Bulk	All series except LQH/LQW2B/LQW31/LQP03
J	Paper Taping (ø330mm Reel)	LQG/LQM*4 /LQW*5
D	Paper Taping (ø180mm Reel)	LQG/LQP/LQM*6

- *1 LQM31F/LQM21N(2.7 - 4.7αH)/LQM21D(22 - 47αH)/LQM21F(4.7 - 47αH) series only.
- *2 Except LQH3ER/LQH43C/LQH66S
- *3 LQM31F/LQM21N(2.7 - 4.7αH)/LQM21D(22 - 47αH)/LQM21F(4.7 - 47αH) series only.
- *4 LQM21N(0.1 - 2.2αH)/LQM21D(1 - 10αH)/LQM21F(1 - 2.2αH) series only.
- *5 Except LQW15A
- *6 LQM21N(0.1 - 2.2αH)/LQM21D(1 - 10αH)/LQM21F(1 - 2.2αH) series only.

Chip Multilayer Delay Lines

(Global Part Number) **LD H 65 100P A A A -400**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
LD	Chip Multilayer Devices

② Function

Code	Function
H	Delay Lines

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
21	2.00×1.25mm	0805
31	3.20×1.60mm	1206
32	3.20×2.50mm	1210
54	5.00×4.00mm	-
65	6.30×5.00mm	-
A2	10.0×6.3mm	-

④ Delay Time

Three figures and a capital letter express the nominal value. If the unit is "nano-second", a decimal point is expressed by the capital letter "N". If the unit is "pico-second", the letter "P".

⑤ Delay Time Tolerance

Code	Delay Time Tolerance
A	±0.05ns
B	±0.1ns
C	±0.2ns
K	±10%
L	±15%

⑥ Individual Specification Code (1)

Code	Individual Specification Code (1)
A	Standard

⑦ Design

Code	Design
A	An alphabet expresses identification of design type for each function.

⑧ Individual Specification Code (2)

A hyphen (-), figures, alphabets, express the specifications or characteristics or others.

Chip Coils

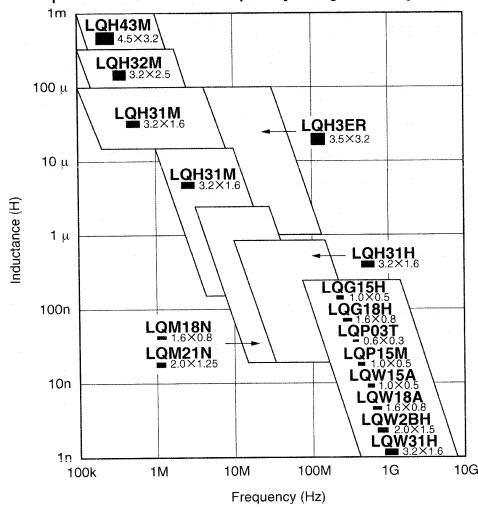
Application	Part Number	Structure	Dimensions		Inductance Range (H)							
			(mm)	EIA Code	1n	10n	100n	1μ	10μ	100μ	1m	10m
General frequency range	LQH31M	Winding (ferrite core)	$\frac{3.2}{\blacksquare}$ 1.6	1206				[Bar]				
	LQH32M		$\frac{3.2}{\blacksquare}$ 2.5	1210				[Bar]				
	LQH43M(N)		$\frac{4.5}{\blacksquare}$ 3.2	1812				[Bar]				
	LQM18N	Magnetically shielded multilayer	$\frac{1.6}{\blacksquare}$ 10.8	0603			[Bar]					
	LQM21N		$\frac{2.0}{\blacksquare}$ 11.25	0805			[Bar]					
Tight inductance tolerance	LQH3ER	Magnetically shielded	$\frac{3.2}{\blacksquare}$ 3.5	1214				[Bar]				
High-frequency range	LQG15H	Multilayer	$\frac{1.0}{\blacksquare}$ 0.5	0402		[Bar]						
	LQG18H		$\frac{1.6}{\blacksquare}$ 10.8	0603		[Bar]						
Tight inductance tolerance	LQP03T	Film	$\frac{0.6}{\blacksquare}$ 0.3	0201	[Bar]							
	LQP15M		$\frac{1.0}{\blacksquare}$ 0.5	0402	[Bar]							
	LQW15A	Winding (air core)	$\frac{1.0}{\blacksquare}$ 0.5	0402	[Bar]							
	LQW18A		$\frac{1.6}{\blacksquare}$ 10.8	0603	[Bar]							
	LQW2BH		$\frac{2.0}{\blacksquare}$ 11.5	0805	[Bar]							
	LQW31H		$\frac{3.2}{\blacksquare}$ 11.6	1206	[Bar]							
LQH31H	Winding (ferrite core)	$\frac{3.2}{\blacksquare}$ 11.6	1206			[Bar]						
Chokes	LQH31C	Winding	$\frac{3.2}{\blacksquare}$ 1.6	1206			[Bar]					
	LQH32C		$\frac{3.2}{\blacksquare}$ 2.5	1210			[Bar]					
	LQH43C		$\frac{4.5}{\blacksquare}$ 3.2	1812			[Bar]					
	LQM21D	Magnetically shielded multilayer	$\frac{2.0}{\blacksquare}$ 11.25	0805			[Bar]					
	LQM21F		$\frac{2.0}{\blacksquare}$ 11.25	0805			[Bar]					
	LQM31F		$\frac{3.2}{\blacksquare}$ 11.6	1206			[Bar]					
	LQH55D	Winding	$\frac{5.7}{\blacksquare}$ 5.0	2220			[Bar]					
	LQH3KS	Magnetically shielded	$\frac{3.3}{\blacksquare}$ 3.3	1212						[Bar]		
LQH66S	Magnetically shielded	$\frac{6.3}{\blacksquare}$ 6.3	2525			[Bar]						

CAUTION : Use rosin-based flux, but not strong acidic flux (with chlorine content exceeding 0.2wt%) when soldering chip coil.
Do not use water-soluble flux.

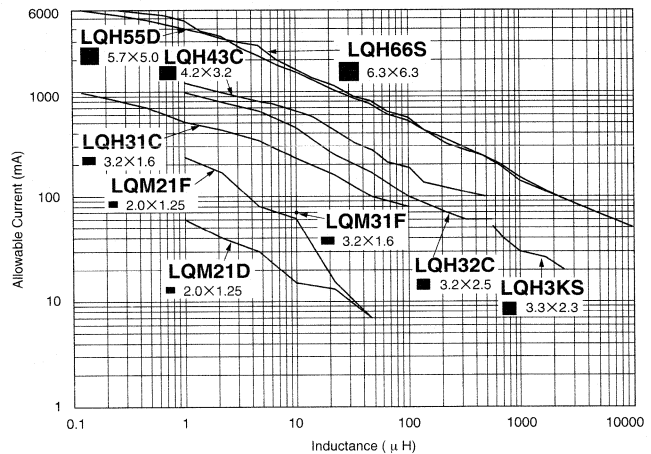
Chip Coils

Chip Coil for General Frequency Range

● Line-up of Chip Coils for General Frequency Range and High-frequency Range



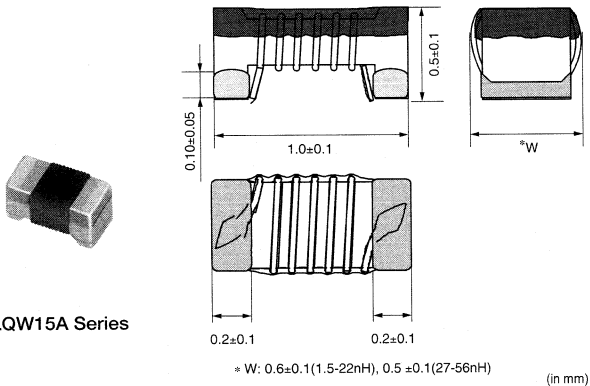
● Line-up of Chip Coils for Chokes



Chip Coils

for High-frequency Horizontal Winding

● LQW15A Series (0402)



Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (GHz)	EIA
LQW15AN1N5C00	1.5 ±0.2nH	1000	0.03	10 at 250MHz	18.0 min.	0402
LQW15AN2N7C00	2.7 ±0.2nH	850	0.05	20 at 250MHz	15.0 min.	0402
LQW15AN4N3C00	4.3 ±0.2nH	750	0.07	25 at 250MHz	10.0 min.	0402
LQW15AN4N7C00	4.7 ±0.2nH	750	0.07	25 at 250MHz	8.0 min.	0402
LQW15AN5N1C00	5.1 ±0.2nH	600	0.12	25 at 250MHz	8.0 min.	0402
LQW15AN6N2C00	6.2 ±0.2nH	700	0.09	25 at 250MHz	8.0 min.	0402
LQW15AN1N5D00	1.5 ±0.5nH	1000	0.03	10 at 250MHz	18.0 min.	0402
LQW15AN2N7D00	2.7 ±0.5nH	850	0.05	20 at 250MHz	15.0 min.	0402
LQW15AN4N3D00	4.3 ±0.5nH	750	0.07	25 at 250MHz	10.0 min.	0402
LQW15AN4N7D00	4.7 ±0.5nH	750	0.07	25 at 250MHz	8.0 min.	0402
LQW15AN5N1D00	5.1 ±0.5nH	600	0.12	25 at 250MHz	8.0 min.	0402
LQW15AN6N2D00	6.2 ±0.5nH	700	0.09	25 at 250MHz	8.0 min.	0402
LQW15AN6N8H00	6.8 ±3%	700	0.09	25 at 250MHz	6.0 min.	0402
LQW15AN7N5H00	7.5 ±3%	570	0.13	25 at 250MHz	6.0 min.	0402
LQW15AN9N1H00	9.1 ±3%	540	0.14	25 at 250MHz	5.5 min.	0402
LQW15AN10NH00	10 ±3%	500	0.17	25 at 250MHz	5.5 min.	0402
LQW15AN12NH00	12 ±3%	500	0.14	30 at 250MHz	5.5 min.	0402
LQW15AN15NH00	15 ±3%	460	0.16	30 at 250MHz	5.0 min.	0402

Continued on the following page.

Coils/Delay Lines

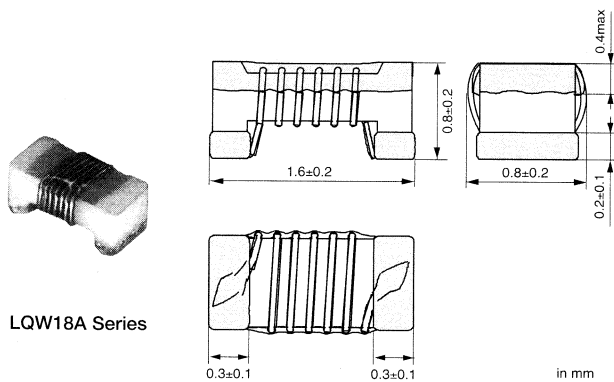
Continued from the preceding page.

Coils/Delay Lines

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (GHz)	EIA
LQW15AN18NH00	18 ±3%	370	0.27	25 at 250MHz	4.5 min.	0402
LQW15AN22NH00	22 ±3%	310	0.30	25 at 250MHz	4.0 min.	0402
LQW15AN27NH00	27 ±3%	280	0.52	25 at 250MHz	3.5 min.	0402
LQW15AN33NH00	33 ±3%	260	0.63	25 at 250MHz	3.2 min.	0402
LQW15AN39NH00	39 ±3%	250	0.70	25 at 250MHz	3.0 min.	0402
LQW15AN47NH00	47 ±3%	210	1.08	25 at 200MHz	2.9 min.	0402
LQW15AN56NH00	56 ±3%	200	1.17	25 at 200MHz	2.8 min.	0402
LQW15AN6N8J00	6.8 ±5%	700	0.09	25 at 250MHz	6.0 min.	0402
LQW15AN7N5J00	7.5 ±5%	570	0.13	25 at 250MHz	6.0 min.	0402
LQW15AN9N1J00	9.1 ±5%	540	0.14	25 at 250MHz	5.5 min.	0402
LQW15AN10NJ00	10 ±5%	500	0.17	25 at 250MHz	5.5 min.	0402
LQW15AN12NJ00	12 ±5%	500	0.14	30 at 250MHz	5.5 min.	0402
LQW15AN15NJ00	15 ±5%	460	0.16	30 at 250MHz	5.0 min.	0402
LQW15AN18NJ00	18 ±5%	370	0.27	25 at 250MHz	4.5 min.	0402
LQW15AN22NJ00	22 ±5%	310	0.30	25 at 250MHz	4.0 min.	0402
LQW15AN27NJ00	27 ±5%	280	0.52	25 at 250MHz	3.5 min.	0402
LQW15AN33NJ00	33 ±5%	260	0.63	25 at 250MHz	3.2 min.	0402
LQW15AN39NJ00	39 ±5%	250	0.70	25 at 250MHz	3.0 min.	0402
LQW15AN47NJ00	47 ±5%	210	1.08	25 at 200MHz	2.9 min.	0402
LQW15AN56NJ00	56 ±5%	200	1.17	25 at 200MHz	2.8 min.	0402

Min. of Operating Temp. : -50°C to 125°C

● LQW18A Series (0603)



LQW18A Series

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQW18AN3N6C00	3.6 ±0.2nH	850	0.059	25 at 250MHz	6000 min.	0603
LQW18AN3N9C00	3.9 ±0.2nH	850	0.059	35 at 250MHz	6000 min.	0603
LQW18AN3N9C10	3.9 ±0.2nH	1000	0.032	38 at 250MHz	11000 min.	0603
LQW18AN4N3C00	4.3 ±0.2nH	850	0.059	35 at 250MHz	6000 min.	0603
LQW18AN5N6C00	5.6 ±0.2nH	750	0.082	35 at 250MHz	6000 min.	0603
LQW18AN6N2C00	6.2 ±0.2nH	750	0.082	35 at 250MHz	6000 min.	0603
LQW18AN6N8C00	6.8 ±0.2nH	750	0.082	35 at 250MHz	6000 min.	0603
LQW18AN6N8C10	6.8 ±0.2nH	900	0.045	38 at 250MHz	7000 min.	0603
LQW18AN2N2D00	2.2 ±0.5nH	700	0.049	16 at 250MHz	6000 min.	0603
LQW18AN2N2D10	2.2 ±0.5nH	1400	0.018	25 at 250MHz	18000 min.	0603
LQW18AN3N6D00	3.6 ±0.5nH	850	0.059	25 at 250MHz	6000 min.	0603
LQW18AN3N9D00	3.9 ±0.5nH	850	0.059	35 at 250MHz	6000 min.	0603
LQW18AN3N9D10	3.9 ±0.5nH	1000	0.032	38 at 250MHz	11000 min.	0603
LQW18AN4N3D00	4.3 ±0.5nH	850	0.059	35 at 250MHz	6000 min.	0603
LQW18AN4N7D00	4.7 ±0.5nH	850	0.059	35 at 250MHz	6000 min.	0603
LQW18AN5N6D00	5.6 ±0.5nH	750	0.082	35 at 250MHz	6000 min.	0603
LQW18AN5N6D10	5.6 ±0.5nH	900	0.045	38 at 250MHz	10000 min.	0603

Continued on the following page.

Coils/Delay Lines

Continued from the preceding page.

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQW18AN6N2D00	6.2 ±0.5nH	750	0.082	35 at 250MHz	6000 min.	0603
LQW18AN6N8D00	6.8 ±0.5nH	750	0.082	35 at 250MHz	6000 min.	0603
LQW18AN6N8D10	6.8 ±0.5nH	900	0.045	38 at 250MHz	7000 min.	0603
LQW18AN7N5D00	7.5 ±0.5nH	750	0.082	35 at 250MHz	6000 min.	0603
LQW18AN8N2D00	8.2 ±0.5nH	650	0.11	35 at 250MHz	6000 min.	0603
LQW18AN8N2D10	8.2 ±0.5nH	800	0.058	38 at 250MHz	7000 min.	0603
LQW18AN8N7D00	8.7 ±0.5nH	650	0.11	35 at 250MHz	6000 min.	0603
LQW18AN9N1D00	9.1 ±0.5nH	650	0.11	35 at 250MHz	6000 min.	0603
LQW18AN9N5D00	9.5 ±0.5nH	650	0.11	35 at 250MHz	6000 min.	0603
LQW18AN10NG00	10 ±2%	650	0.11	35 at 250MHz	6000 min.	0603
LQW18AN10NG10	10 ±2%	800	0.058	38 at 250MHz	5000 min.	0603
LQW18AN11NG00	11 ±2%	650	0.11	35 at 250MHz	6000 min.	0603
LQW18AN12NG00	12 ±2%	600	0.13	35 at 250MHz	6000 min.	0603
LQW18AN12NG10	12 ±2%	750	0.071	38 at 250MHz	5000 min.	0603
LQW18AN13NG00	13 ±2%	600	0.13	35 at 250MHz	6000 min.	0603
LQW18AN15NG00	15 ±2%	600	0.13	40 at 250MHz	6000 min.	0603
LQW18AN16NG00	16 ±2%	550	0.16	40 at 250MHz	5500 min.	0603
LQW18AN18NG00	18 ±2%	550	0.16	40 at 250MHz	5500 min.	0603
LQW18AN18NG10	18 ±2%	700	0.085	42 at 250MHz	3500 min.	0603
LQW18AN20NG00	20 ±2%	550	0.16	40 at 250MHz	4900 min.	0603
LQW18AN22NG00	22 ±2%	500	0.17	40 at 250MHz	4600 min.	0603
LQW18AN22NG10	22 ±2%	640	0.099	42 at 250MHz	3200 min.	0603
LQW18AN24NG00	24 ±2%	500	0.21	40 at 250MHz	3800 min.	0603
LQW18AN27NG00	27 ±2%	440	0.21	40 at 250MHz	3700 min.	0603
LQW18AN27NG10	27 ±2%	590	0.116	42 at 250MHz	2800 min.	0603
LQW18AN30NG00	30 ±2%	420	0.23	40 at 250MHz	3300 min.	0603
LQW18AN33NG00	33 ±2%	420	0.23	40 at 250MHz	3200 min.	0603
LQW18AN36NG00	36 ±2%	400	0.26	40 at 250MHz	2900 min.	0603
LQW18AN39NG00	39 ±2%	400	0.26	40 at 250MHz	2800 min.	0603
LQW18AN43NG00	43 ±2%	380	0.29	40 at 200MHz	2700 min.	0603
LQW18AN47NG00	47 ±2%	380	0.29	38 at 200MHz	2600 min.	0603
LQW18AN51NG00	51 ±2%	370	0.33	38 at 200MHz	2500 min.	0603
LQW18AN56NG00	56 ±2%	360	0.35	38 at 200MHz	2400 min.	0603
LQW18AN62NG00	62 ±2%	280	0.51	38 at 200MHz	2300 min.	0603
LQW18AN68NG00	68 ±2%	340	0.38	38 at 200MHz	2200 min.	0603
LQW18AN72NG00	72 ±2%	270	0.56	34 at 150MHz	2100 min.	0603
LQW18AN75NG00	75 ±2%	270	0.56	34 at 150MHz	2050 min.	0603
LQW18AN82NG00	82 ±2%	250	0.60	34 at 150MHz	2000 min.	0603
LQW18AN91NG00	91 ±2%	230	0.64	34 at 150MHz	1900 min.	0603
LQW18ANR10G00	100 ±2%	220	0.68	34 at 150MHz	1800 min.	0603
LQW18ANR11G00	110 ±2%	220	1.2	32 at 150MHz	1350 min.	0603
LQW18ANR12G00	120 ±2%	180	1.3	32 at 150MHz	1600 min.	0603
LQW18ANR13G00	130 ±2%	170	1.4	32 at 150MHz	1450 min.	0603
LQW18ANR15G00	150 ±2%	160	1.5	32 at 150MHz	1400 min.	0603
LQW18ANR16G00	160 ±2%	150	2.1	32 at 150MHz	1350 min.	0603
LQW18ANR18G00	180 ±2%	140	2.2	25 at 100MHz	1300 min.	0603
LQW18ANR20G00	200 ±2%	120	2.4	25 at 100MHz	1250 min.	0603
LQW18ANR22G00	220 ±2%	120	2.5	25 at 100MHz	1200 min.	0603
LQW18ANR27G00	270 ±2%	110	3.4	30 at 100MHz	960 min.	0603
LQW18ANR33G00	330 ±2%	85	5.5	30 at 100MHz	800 min.	0603
LQW18ANR39G00	390 ±2%	80	6.2	30 at 100MHz	800 min.	0603
LQW18ANR47G00	470 ±2%	75	7.0	30 at 100MHz	700 min.	0603
LQW18AN10NJ00	10 ±5%	650	0.11	35 at 250MHz	6000 min.	0603
LQW18AN10NJ10	10 ±5%	800	0.058	38 at 250MHz	5000 min.	0603
LQW18AN11NJ00	11 ±5%	650	0.11	35 at 250MHz	6000 min.	0603
LQW18AN12NJ00	12 ±5%	600	0.13	35 at 250MHz	6000 min.	0603

Continued on the following page.

Coils/Delay Lines

Continued from the preceding page.

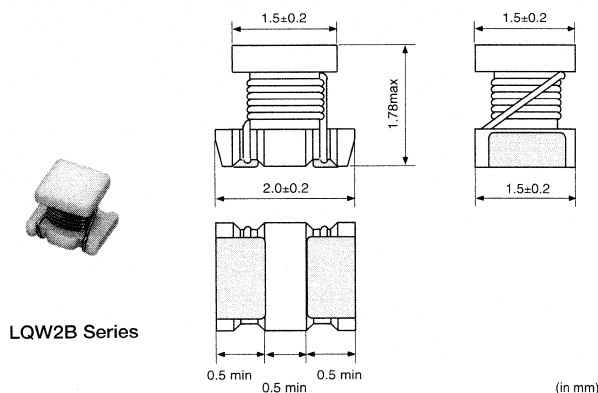
Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQW18AN12NJ10	12 ±5%	750	0.071	38 at 250MHz	5000 min.	0603
LQW18AN13NJ00	13 ±5%	600	0.13	35 at 250MHz	6000 min.	0603
LQW18AN15NJ00	15 ±5%	600	0.13	40 at 250MHz	6000 min.	0603
LQW18AN15NJ10	15 ±5%	700	0.085	42 at 250MHz	4500 min.	0603
LQW18AN16NJ00	16 ±5%	550	0.16	40 at 250MHz	5500 min.	0603
LQW18AN18NJ00	18 ±5%	550	0.16	40 at 250MHz	5500 min.	0603
LQW18AN18NJ10	18 ±5%	700	0.085	42 at 250MHz	3500 min.	0603
LQW18AN20NJ00	20 ±5%	550	0.16	40 at 250MHz	4900 min.	0603
LQW18AN22NJ00	22 ±5%	500	0.17	40 at 250MHz	4600 min.	0603
LQW18AN22NJ10	22 ±5%	640	0.099	42 at 250MHz	3200 min.	0603
LQW18AN24NJ00	24 ±5%	500	0.21	40 at 250MHz	3800 min.	0603
LQW18AN27NJ00	27 ±5%	440	0.21	40 at 250MHz	3700 min.	0603
LQW18AN27NJ10	27 ±5%	590	0.116	42 at 250MHz	2800 min.	0603
LQW18AN30NJ00	30 ±5%	420	0.23	40 at 250MHz	3300 min.	0603
LQW18AN33NJ00	33 ±5%	420	0.23	40 at 250MHz	3200 min.	0603
LQW18AN33NJ10	33 ±5%	550	0.132	42 at 250MHz	2500 min.	0603
LQW18AN36NJ00	36 ±5%	400	0.26	40 at 250MHz	2900 min.	0603
LQW18AN39NJ00	39 ±5%	400	0.26	40 at 250MHz	2800 min.	0603
LQW18AN43NJ00	43 ±5%	380	0.29	40 at 200MHz	2700 min.	0603
LQW18AN47NJ00	47 ±5%	380	0.29	38 at 200MHz	2600 min.	0603
LQW18AN51NJ00	51 ±5%	370	0.33	38 at 200MHz	2500 min.	0603
LQW18AN56NJ00	56 ±5%	360	0.35	38 at 200MHz	2400 min.	0603
LQW18AN62NJ00	62 ±5%	280	0.51	38 at 200MHz	2300 min.	0603
LQW18AN68NJ00	68 ±5%	340	0.38	38 at 200MHz	2200 min.	0603
LQW18AN72NJ00	72 ±5%	270	0.56	34 at 150MHz	2100 min.	0603
LQW18AN75NJ00	75 ±5%	270	0.56	34 at 150MHz	2050 min.	0603
LQW18AN82NJ00	82 ±5%	250	0.60	34 at 150MHz	2000 min.	0603
LQW18AN91NJ00	91 ±5%	230	0.64	34 at 150MHz	1900 min.	0603
LQW18ANR10J00	100 ±5%	220	0.68	34 at 150MHz	1800 min.	0603
LQW18ANR11J00	110 ±5%	220	1.2	32 at 150MHz	1350 min.	0603
LQW18ANR12J00	120 ±5%	180	1.3	32 at 150MHz	1600 min.	0603
LQW18ANR13J00	130 ±5%	170	1.4	32 at 150MHz	1450 min.	0603
LQW18ANR15J00	150 ±5%	160	1.5	32 at 150MHz	1400 min.	0603
LQW18ANR16J00	160 ±5%	150	2.1	32 at 150MHz	1350 min.	0603
LQW18ANR18J00	180 ±5%	140	2.2	25 at 100MHz	1300 min.	0603
LQW18ANR20J00	200 ±5%	120	2.4	25 at 100MHz	1250 min.	0603
LQW18ANR22J00	220 ±5%	120	2.5	25 at 100MHz	1200 min.	0603
LQW18ANR27J00	270 ±5%	110	3.4	30 at 100MHz	960 min.	0603
LQW18ANR33J00	330 ±5%	85	5.5	30 at 100MHz	800 min.	0603
LQW18ANR39J00	390 ±5%	80	6.2	30 at 100MHz	800 min.	0603
LQW18ANR47J00	470 ±5%	75	7.0	30 at 100MHz	700 min.	0603

Min. of Operating Temp. : -25°C to 85°C

Chip Coils

for High-frequency Vertical Winding

● LQW2BH Series (0805)



Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQW2BHN2N7D11	2.7 ±0.5nH	1900	0.02	20 at 250MHz	6000 min.	0805
LQW2BHN3N1D11	3.1 ±0.5nH	1800	0.02	20 at 250MHz	6000 min.	0805
LQW2BHN3N3D01	3.3 ±0.5nH	910	0.05	10 at 250MHz	6000 min.	0805
LQW2BHN3N3D11	3.3 ±0.5nH	1700	0.02	20 at 250MHz	6000 min.	0805
LQW2BHN5N6D11	5.6 ±0.5nH	1500	0.02	35 at 250MHz	6000 min.	0805
LQW2BHN6N8D01	6.8 ±0.5nH	680	0.11	20 at 250MHz	5400 min.	0805
LQW2BHN6N8D11	6.8 ±0.5nH	1400	0.02	35 at 250MHz	5400 min.	0805
LQW2BHN8N2D01	8.2 ±0.5nH	630	0.12	20 at 250MHz	3900 min.	0805
LQW2BHN8N6D11	8.6 ±0.5nH	1300	0.03	35 at 250MHz	3900 min.	0805
LQW2BHN33NG01	33 ±2%	570	0.15	40 at 250MHz	1900 min.	0805
LQW2BHN39NG01	39 ±2%	730	0.09	40 at 250MHz	1700 min.	0805
LQW2BHN47NG01	47 ±2%	450	0.23	40 at 200MHz	1600 min.	0805
LQW2BHN56NG01	56 ±2%	430	0.26	40 at 200MHz	1500 min.	0805
LQW2BHN68NG01	68 ±2%	460	0.23	40 at 200MHz	1200 min.	0805
LQW2BHN82NG01	82 ±2%	320	0.42	40 at 150MHz	1100 min.	0805
LQW2BHNR10G01	100 ±2%	270	0.55	35 at 150MHz	900 min.	0805
LQW2BHNR12G01	120 ±2%	320	0.40	40 at 150MHz	750 min.	0805
LQW2BHNR15G01	150 ±2%	260	0.68	30 at 150MHz	350 min.	0805
LQW2BHNR18G01	180 ±2%	250	0.71	35 at 100MHz	700 min.	0805
LQW2BHNR22G01	220 ±2%	240	0.70	35 at 100MHz	500 min.	0805
LQW2BHN10NJ01	10 ±5%	1320	0.03	30 at 250MHz	3300 min.	0805
LQW2BHN10NJ11	10 ±5%	1320	0.03	35 at 250MHz	3300 min.	0805
LQW2BHN12NJ01	12 ±5%	680	0.11	30 at 250MHz	3200 min.	0805
LQW2BHN15NJ01	15 ±5%	630	0.12	30 at 250MHz	2700 min.	0805
LQW2BHN18NJ01	18 ±5%	690	0.10	30 at 250MHz	2600 min.	0805
LQW2BHN22NJ01	22 ±5%	720	0.09	30 at 250MHz	2100 min.	0805
LQW2BHN27NJ01	27 ±5%	540	0.17	40 at 250MHz	2300 min.	0805
LQW2BHN33NJ01	33 ±5%	570	0.15	40 at 250MHz	1900 min.	0805
LQW2BHN39NJ01	39 ±5%	730	0.09	40 at 250MHz	1700 min.	0805
LQW2BHN47NJ01	47 ±5%	450	0.23	40 at 200MHz	1600 min.	0805
LQW2BHN56NJ01	56 ±5%	430	0.26	40 at 200MHz	1500 min.	0805
LQW2BHN68NJ01	68 ±5%	460	0.23	40 at 200MHz	1200 min.	0805
LQW2BHN82NJ01	82 ±5%	320	0.42	40 at 150MHz	1100 min.	0805
LQW2BHNR10J01	100 ±5%	350	0.38	40 at 150MHz	900 min.	0805
LQW2BHNR12J01	120 ±5%	320	0.40	40 at 150MHz	750 min.	0805
LQW2BHNR15J01	150 ±5%	390	0.47	30 at 150MHz	350 min.	0805
LQW2BHNR18J01	180 ±5%	250	0.71	35 at 100MHz	700 min.	0805
LQW2BHNR22J01	220 ±5%	240	0.70	35 at 100MHz	500 min.	0805
LQW2BHN12NK11	12 ±10%	1100	0.04	40 at 250MHz	3200 min.	0805
LQW2BHN15NK11	15 ±10%	1000	0.04	40 at 250MHz	3100 min.	0805

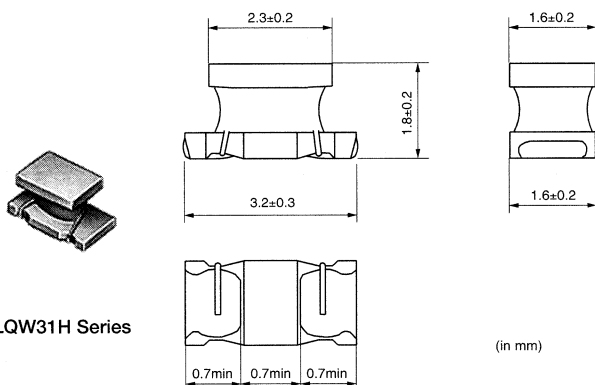
Continued on the following page.

Continued from the preceding page.

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQW2BHN18NK11	18.8 ±10%	1000	0.05	40 at 250MHz	2600 min.	0805
LQW2BHN21NK11	21 ±10%	950	0.05	40 at 250MHz	2200 min.	0805
LQW2BHN27NK11	27 ±10%	900	0.06	40 at 250MHz	1800 min.	0805
LQW2BHN33NK01	33 ±10%	570	0.15	40 at 250MHz	1900 min.	0805
LQW2BHN39NK01	39 ±10%	730	0.09	40 at 250MHz	1700 min.	0805
LQW2BHN47NK01	47 ±10%	450	0.23	40 at 200MHz	1600 min.	0805
LQW2BHN56NK01	56 ±10%	430	0.26	40 at 200MHz	1500 min.	0805
LQW2BHN68NK01	68 ±10%	460	0.23	40 at 200MHz	1200 min.	0805
LQW2BHN82NK01	82 ±10%	320	0.42	40 at 150MHz	1100 min.	0805
LQW2BHNR10K01	100 ±10%	350	0.38	40 at 150MHz	900 min.	0805
LQW2BHNR12K01	120 ±10%	320	0.40	40 at 150MHz	750 min.	0805
LQW2BHNR15K01	150 ±10%	390	0.47	30 at 150MHz	350 min.	0805
LQW2BHNR18K01	180 ±10%	250	0.71	35 at 100MHz	700 min.	0805
LQW2BHNR22K01	220 ±10%	240	0.70	35 at 100MHz	500 min.	0805
LQW2BHNR27K01	270 ±10%	190	2.00	15 at 25.2MHz	550 min.	0805
LQW2BHNR33K01	330 ±10%	180	2.20	15 at 25.2MHz	500 min.	0805
LQW2BHNR39K01	390 ±10%	170	2.50	15 at 25.2MHz	400 min.	0805
LQW2BHNR47K01	470 ±10%	160	2.80	15 at 25.2MHz	350 min.	0805

Min. of Operating Temp. : -25°C to 85°C

● LQW31H Series (1206)



LQW31H Series

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQW31HN8N8J01	8.8 ±5%	750	0.0406	50 at 436MHz	1000 min.	1206
LQW31HN15NJ01	14.7 ±5%	680	0.049	60 at 436MHz	1000 min.	1206
LQW31HN17NJ01	17 ±5%	650	0.0518	60 at 436MHz	1000 min.	1206
LQW31HN23NJ01	23 ±5%	590	0.0644	60 at 436MHz	1000 min.	1206
LQW31HN27NJ01	27 ±5%	560	0.0714	60 at 436MHz	1000 min.	1206
LQW31HN33NJ01	33 ±5%	530	0.0798	60 at 436MHz	1000 min.	1206
LQW31HN39NJ01	39 ±5%	490	0.0938	60 at 436MHz	1000 min.	1206
LQW31HN47NJ01	47 ±5%	380	0.154	60 at 436MHz	1000 min.	1206
LQW31HN56NJ01	56 ±5%	330	0.196	60 at 436MHz	1000 min.	1206
LQW31HN64NJ01	64 ±5%	290	0.252	60 at 436MHz	1000 min.	1206
LQW31HN84NJ01	84 ±5%	240	0.392	60 at 436MHz	1000 min.	1206
LQW31HNR10J01	100 ±5%	230	0.42	60 at 436MHz	900 min.	1206
LQW31HN8N8K01	8.8 ±10%	750	0.0406	50 at 436MHz	1000 min.	1206
LQW31HN15NK01	14.7 ±10%	680	0.049	60 at 436MHz	1000 min.	1206
LQW31HN17NK01	17 ±10%	650	0.0518	60 at 436MHz	1000 min.	1206
LQW31HN23NK01	23 ±10%	590	0.0644	60 at 436MHz	1000 min.	1206
LQW31HN27NK01	27 ±10%	560	0.0714	60 at 436MHz	1000 min.	1206
LQW31HN33NK01	33 ±10%	530	0.0798	60 at 436MHz	1000 min.	1206
LQW31HN39NK01	39 ±10%	490	0.0938	60 at 436MHz	1000 min.	1206

Continued on the following page. ↗

Continued from the preceding page.

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQW31HN47NK01	47 ±10%	380	0.154	60 at 436MHz	1000 min.	1206
LQW31HN56NK01	56 ±10%	330	0.196	60 at 436MHz	1000 min.	1206
LQW31HN64NK01	64 ±10%	290	0.252	60 at 436MHz	1000 min.	1206
LQW31HN84NK01	84 ±10%	240	0.392	60 at 436MHz	1000 min.	1206
LQW31HNR10K01	100 ±10%	230	0.42	60 at 436MHz	900 min.	1206

Min. of Operating Temp. : -25°C to 85°C

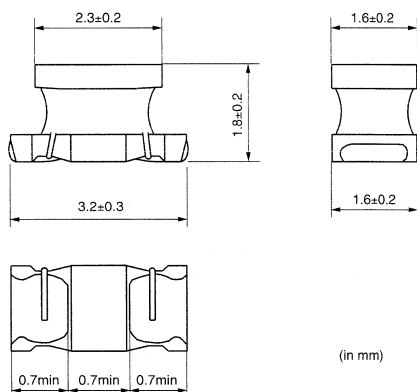
Chip Coils

for High-frequency Winding Ferrite Type

● LQH31H Series (1206)



LQH31H Series



(in mm)

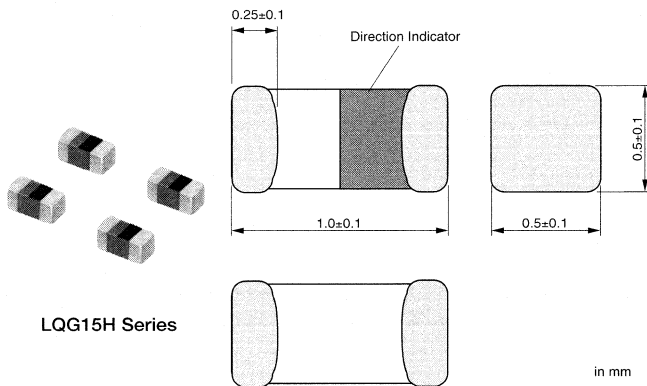
Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH31HN54NK01	54 ±10%	920	0.0455	50 at 100MHz	800 min.	1206
LQH31HN95NK01	95 ±10%	790	0.0611	60 at 100MHz	650 min.	1206
LQH31HNR14K01	145 ±10%	700	0.0793	60 at 100MHz	500 min.	1206
LQH31HNR21K01	215 ±10%	520	0.143	60 at 100MHz	430 min.	1206
LQH31HNR29K01	290 ±10%	420	0.221	60 at 100MHz	360 min.	1206
LQH31HNR39K01	390 ±10%	330	0.338	60 at 100MHz	300 min.	1206
LQH31HNR50K01	500 ±10%	260	0.572	60 at 100MHz	270 min.	1206
LQH31HNR61K01	610 ±10%	250	0.624	60 at 100MHz	240 min.	1206
LQH31HNR75K01	750 ±10%	190	1.027	60 at 100MHz	220 min.	1206
LQH31HNR88K01	880 ±10%	180	1.118	60 at 100MHz	200 min.	1206

Min. of Operating Temp. : -25°C to 85°C

Chip Coils

for High-frequency Monolithic Type

● LQG15H Series (0402)

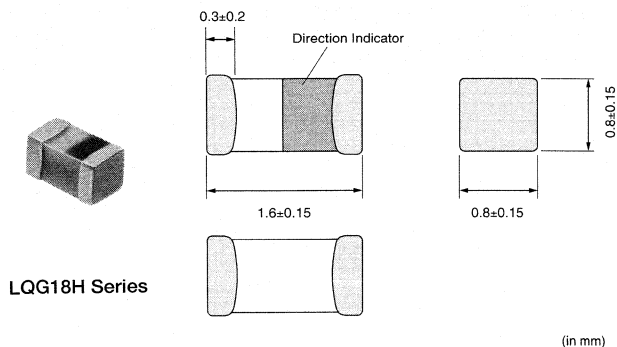


Coils/Delay Lines

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQG15HN6N8J02	6.8 ±5%	200	0.29 max	8 at 100MHz	4200 min.	0402
LQG15HN8N2J02	8.2 ±5%	200	0.33 max	8 at 100MHz	3600 min.	0402
LQG15HN10NJ02	10 ±5%	200	0.35 max	8 at 100MHz	3200 min.	0402
LQG15HN12NJ02	12 ±5%	200	0.41 max	8 at 100MHz	2800 min.	0402
LQG15HN15NJ02	15 ±5%	200	0.46 max	8 at 100MHz	2300 min.	0402
LQG15HN18NJ02	18 ±5%	200	0.51 max	8 at 100MHz	2100 min.	0402
LQG15HN22NJ02	22 ±5%	200	0.58 max	8 at 100MHz	1800 min.	0402
LQG15HN27NJ02	27 ±5%	200	0.67 max	8 at 100MHz	1600 min.	0402
LQG15HN33NJ02	33 ±5%	200	0.67 max	8 at 100MHz	1500 min.	0402
LQG15HN39NJ02	39 ±5%	150	1.06 max	8 at 100MHz	1200 min.	0402
LQG15HN47NJ02	47 ±5%	150	1.15 max	8 at 100MHz	1000 min.	0402
LQG15HN56NJ02	56 ±5%	150	1.20 max	8 at 100MHz	800 min.	0402
LQG15HN68NJ02	68 ±5%	150	1.25 max	8 at 100MHz	800 min.	0402
LQG15HN82NJ02	82 ±5%	150	1.60 max	8 at 100MHz	600 min.	0402
LQG15HNR10J02	100 ±5%	150	1.60 max	8 at 100MHz	600 min.	0402
LQG15HNR12J02	120 ±5%	150	1.60 max	8 at 100MHz	600 min.	0402
LQG15HN1N2S02	1.2 ±0.3nH	200	0.10 max	8 at 100MHz	6000 min.	0402
LQG15HN1N5S02	1.5 ±0.3nH	200	0.10 max	8 at 100MHz	6000 min.	0402
LQG15HN1N8S02	1.8 ±0.3nH	200	0.10 max	8 at 100MHz	6000 min.	0402
LQG15HN2N2S02	2.2 ±0.3nH	200	0.15 max	8 at 100MHz	6000 min.	0402
LQG15HN2N7S02	2.7 ±0.3nH	200	0.17 max	8 at 100MHz	6000 min.	0402
LQG15HN3N3S02	3.3 ±0.3nH	200	0.19 max	8 at 100MHz	6000 min.	0402
LQG15HN3N9S02	3.9 ±0.3nH	200	0.19 max	8 at 100MHz	6000 min.	0402
LQG15HN4N7S02	4.7 ±0.3nH	200	0.23 max	8 at 100MHz	6000 min.	0402
LQG15HN5N6S02	5.6 ±0.3nH	200	0.26 max	8 at 100MHz	5300 min.	0402

Min. of Operating Temp. : -40°C to 85°C

LQG18H Series (0603)



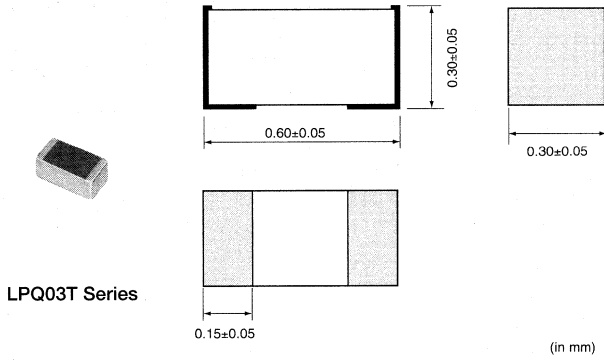
Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQG18HN6N8J00	6.8 ±5%	300	0.25 max	12 at 100MHz	5000 min.	0603
LQG18HN8N2J00	8.2 ±5%	300	0.25 max	12 at 100MHz	4000 min.	0603
LQG18HN10NJ00	10 ±5%	300	0.30 max	12 at 100MHz	3500 min.	0603
LQG18HN12NJ00	12 ±5%	300	0.35 max	12 at 100MHz	3000 min.	0603
LQG18HN15NJ00	15 ±5%	300	0.40 max	12 at 100MHz	2800 min.	0603
LQG18HN18NJ00	18 ±5%	300	0.45 max	12 at 100MHz	2600 min.	0603
LQG18HN22NJ00	22 ±5%	300	0.50 max	12 at 100MHz	2300 min.	0603
LQG18HN27NJ00	27 ±5%	300	0.55 max	12 at 100MHz	2000 min.	0603
LQG18HN33NJ00	33 ±5%	300	0.60 max	12 at 100MHz	1700 min.	0603
LQG18HN39NJ00	39 ±5%	300	0.65 max	12 at 100MHz	1500 min.	0603
LQG18HN47NJ00	47 ±5%	300	0.70 max	12 at 100MHz	1200 min.	0603
LQG18HN56NJ00	56 ±5%	300	0.75 max	12 at 100MHz	1100 min.	0603
LQG18HN68NJ00	68 ±5%	300	0.80 max	12 at 100MHz	1000 min.	0603
LQG18HN82NJ00	82 ±5%	300	0.85 max	12 at 100MHz	900 min.	0603
LQG18HNR10J00	100 ±5%	300	0.90 max	12 at 100MHz	800 min.	0603
LQG18HN1N2S00	1.2 ±0.3nH	300	0.10 max	12 at 100MHz	6000 min.	0603
LQG18HN1N5S00	1.5 ±0.3nH	300	0.10 max	12 at 100MHz	6000 min.	0603
LQG18HN1N8S00	1.8 ±0.3nH	300	0.10 max	12 at 100MHz	6000 min.	0603
LQG18HN2N2S00	2.2 ±0.3nH	300	0.10 max	12 at 100MHz	6000 min.	0603
LQG18HN2N7S00	2.7 ±0.3nH	300	0.15 max	12 at 100MHz	6000 min.	0603
LQG18HN3N3S00	3.3 ±0.3nH	300	0.15 max	12 at 100MHz	6000 min.	0603
LQG18HN3N9S00	3.9 ±0.3nH	300	0.15 max	12 at 100MHz	6000 min.	0603
LQG18HN4N7S00	4.7 ±0.3nH	300	0.20 max	12 at 100MHz	6000 min.	0603
LQG18HN5N6S00	5.6 ±0.3nH	300	0.20 max	12 at 100MHz	5000 min.	0603

Min. of Operating Temp. : -40°C to +85°C

Chip Coils

for High-Frequency Film Type

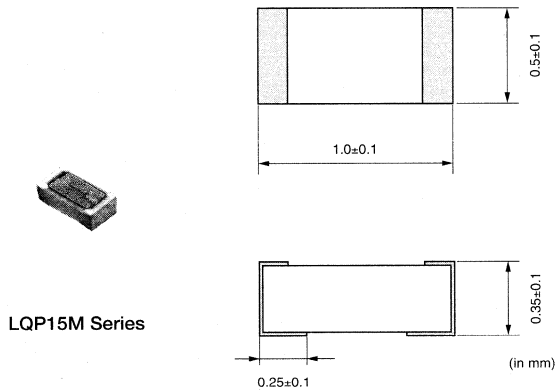
● LQP03T Series (0201)



Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQP03TN0N6C00	0.6 ±0.2nH	420	0.08	11 at 500MHz	6000 min.	0201
LQP03TN0N8C00	0.8 ±0.2nH	410	0.09	11 at 500MHz	6000 min.	0201
LQP03TN1N0C00	1.0 ±0.2nH	400	0.10	11 at 500MHz	6000 min.	0201
LQP03TN1N2C00	1.2 ±0.2nH	280	0.13	11 at 500MHz	6000 min.	0201
LQP03TN1N5C00	1.5 ±0.2nH	280	0.16	11 at 500MHz	6000 min.	0201
LQP03TN1N8C00	1.8 ±0.2nH	280	0.16	11 at 500MHz	6000 min.	0201
LQP03TN2N2C00	2.2 ±0.2nH	220	0.18	11 at 500MHz	6000 min.	0201
LQP03TN2N7C00	2.7 ±0.2nH	220	0.21	11 at 500MHz	6000 min.	0201
LQP03TN3N3C00	3.3 ±0.2nH	190	0.30	11 at 500MHz	6000 min.	0201
LQP03TN3N9C00	3.9 ±0.2nH	170	0.45	11 at 500MHz	6000 min.	0201
LQP03TN4N7J00	4.7 ±5%	160	0.55	11 at 500MHz	6000 min.	0201
LQP03TN5N6J00	5.6 ±5%	140	0.68	11 at 500MHz	6000 min.	0201
LQP03TN6N8J00	6.8 ±5%	130	0.75	11 at 500MHz	6000 min.	0201
LQP03TN8N2J00	8.2 ±5%	110	0.86	11 at 500MHz	5500 min.	0201
LQP03TN10NJ00	10 ±5%	100	1.10	11 at 500MHz	4500 min.	0201
LQP03TN12NJ00	12 ±5%	90	1.25	11 at 500MHz	3700 min.	0201
LQP03TN15NJ00	15 ±5%	90	1.50	11 at 500MHz	3300 min.	0201

Min. of Operating Temp. : -40°C to +85°C

● LQP15M Series (0402)



Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQP15MN1N0B02	1.0 ±0.1nH	400	0.1	13 at 500MHz	6000 min.	0402
LQP15MN1N1B02	1.1 ±0.1nH	390	0.1	13 at 500MHz	6000 min.	0402
LQP15MN1N2B02	1.2 ±0.1nH	390	0.1	13 at 500MHz	6000 min.	0402
LQP15MN1N3B02	1.3 ±0.1nH	280	0.2	13 at 500MHz	6000 min.	0402

Continued on the following page.

Coils/Delay Lines

Continued from the preceding page.

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQP15MN1N5B02	1.5 ±0.1nH	280	0.2	13 at 500MHz	6000 min.	0402
LQP15MN1N6B02	1.6 ±0.1nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN1N8B02	1.8 ±0.1nH	280	0.2	13 at 500MHz	6000 min.	0402
LQP15MN2N0B02	2.0 ±0.1nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN2N2B02	2.2 ±0.1nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN2N4B02	2.4 ±0.1nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN2N7B02	2.7 ±0.1nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN3N0B02	3.0 ±0.1nH	190	0.4	13 at 500MHz	6000 min.	0402
LQP15MN3N3B02	3.3 ±0.1nH	190	0.4	13 at 500MHz	6000 min.	0402
LQP15MN3N6B02	3.6 ±0.1nH	170	0.5	13 at 500MHz	6000 min.	0402
LQP15MN3N9B02	3.9 ±0.1nH	170	0.5	13 at 500MHz	6000 min.	0402
LQP15MN4N3B02	4.3 ±0.1nH	160	0.6	13 at 500MHz	6000 min.	0402
LQP15MN4N7B02	4.7 ±0.1nH	160	0.6	13 at 500MHz	6000 min.	0402
LQP15MN5N1B02	5.1 ±0.1nH	140	0.7	13 at 500MHz	6000 min.	0402
LQP15MN5N6B02	5.6 ±0.1nH	140	0.7	13 at 500MHz	6000 min.	0402
LQP15MN6N2B02	6.2 ±0.1nH	130	0.9	13 at 500MHz	6000 min.	0402
LQP15MN6N8B02	6.8 ±0.1nH	130	0.9	13 at 500MHz	6000 min.	0402
LQP15MN7N5B02	7.5 ±0.1nH	110	1.1	13 at 500MHz	5500 min.	0402
LQP15MN8N2B02	8.2 ±0.1nH	110	1.1	13 at 500MHz	5500 min.	0402
LQP15MN9N1B02	9.1 ±0.1nH	100	1.3	13 at 500MHz	4500 min.	0402
LQP15MN1N0C02	1.0 ±0.2nH	400	0.1	13 at 500MHz	6000 min.	0402
LQP15MN1N1C02	1.1 ±0.2nH	390	0.1	13 at 500MHz	6000 min.	0402
LQP15MN1N2C02	1.2 ±0.2nH	390	0.1	13 at 500MHz	6000 min.	0402
LQP15MN1N3C02	1.3 ±0.2nH	280	0.2	13 at 500MHz	6000 min.	0402
LQP15MN1N5C02	1.5 ±0.2nH	280	0.2	13 at 500MHz	6000 min.	0402
LQP15MN1N6C02	1.6 ±0.2nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN1N8C02	1.8 ±0.2nH	280	0.2	13 at 500MHz	6000 min.	0402
LQP15MN2N0C02	2.0 ±0.2nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN2N2C02	2.2 ±0.2nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN2N4C02	2.4 ±0.2nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN2N7C02	2.7 ±0.2nH	220	0.3	13 at 500MHz	6000 min.	0402
LQP15MN3N0C02	3.0 ±0.2nH	190	0.4	13 at 500MHz	6000 min.	0402
LQP15MN3N3C02	3.3 ±0.2nH	190	0.4	13 at 500MHz	6000 min.	0402
LQP15MN3N6C02	3.6 ±0.2nH	170	0.5	13 at 500MHz	6000 min.	0402
LQP15MN3N9C02	3.9 ±0.2nH	170	0.5	13 at 500MHz	6000 min.	0402
LQP15MN4N3C02	4.3 ±0.2nH	160	0.6	13 at 500MHz	6000 min.	0402
LQP15MN4N7C02	4.7 ±0.2nH	160	0.6	13 at 500MHz	6000 min.	0402
LQP15MN5N1C02	5.1 ±0.2nH	140	0.7	13 at 500MHz	6000 min.	0402
LQP15MN5N6C02	5.6 ±0.2nH	140	0.7	13 at 500MHz	6000 min.	0402
LQP15MN6N2C02	6.2 ±0.2nH	130	0.9	13 at 500MHz	6000 min.	0402
LQP15MN6N8C02	6.8 ±0.2nH	130	0.9	13 at 500MHz	6000 min.	0402
LQP15MN7N5C02	7.5 ±0.2nH	110	1.1	13 at 500MHz	5500 min.	0402
LQP15MN8N2C02	8.2 ±0.2nH	110	1.1	13 at 500MHz	5500 min.	0402
LQP15MN9N1C02	9.1 ±0.2nH	100	1.3	13 at 500MHz	4500 min.	0402
LQP15MN10NG02	10 ±2%	100	1.3	13 at 500MHz	4500 min.	0402
LQP15MN12NG02	12 ±2%	90	1.6	13 at 500MHz	3700 min.	0402
LQP15MN15NG02	15 ±2%	90	1.8	13 at 500MHz	3300 min.	0402
LQP15MN18NG02	18 ±2%	80	2.0	13 at 500MHz	3100 min.	0402
LQP15MN22NG02	22 ±2%	70	2.6	13 at 500MHz	2800 min.	0402
LQP15MN27NG02	27 ±2%	70	3.1	13 at 500MHz	2500 min.	0402
LQP15MN33NG02	33 ±2%	60	3.8	13 at 500MHz	2100 min.	0402
LQP15MN10NJ02	10 ±5%	100	1.3	13 at 500MHz	4500 min.	0402
LQP15MN12NJ02	12 ±5%	90	1.6	13 at 500MHz	3700 min.	0402
LQP15MN15NJ02	15 ±5%	90	1.8	13 at 500MHz	3300 min.	0402
LQP15MN18NJ02	18 ±5%	80	2.0	13 at 500MHz	3100 min.	0402
LQP15MN22NJ02	22 ±5%	70	2.6	13 at 500MHz	2800 min.	0402

Continued on the following page.

Continued from the preceding page.

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQP15MN27NJ02	27 ±5%	70	3.1	13 at 500MHz	2500 min.	0402
LQP15MN33NJ02	33 ±5%	60	3.8	13 at 500MHz	2100 min.	0402

Min. of Operating Temp. : -40°C to +85°C

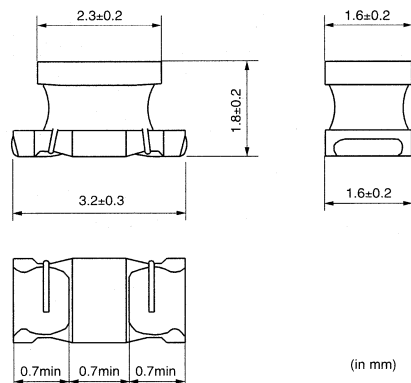
Chip Coils

for General Use Winding Type

● LQH31M Series (1206)



LQH31M Series



Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH31MN1R5J01	1.5 ±5%	155	1.3	35 at 10MHz	75 min.	1206
LQH31MN1R8J01	1.8 ±5%	150	2.08	35 at 10MHz	60 min.	1206
LQH31MN2R2J01	2.2 ±5%	140	0.91	35 at 10MHz	50 min.	1206
LQH31MN2R7J01	2.7 ±5%	135	0.715	35 at 10MHz	43 min.	1206
LQH31MN3R3J01	3.3 ±5%	130	1.82	35 at 8MHz	38 min.	1206
LQH31MN3R9J01	3.9 ±5%	125	1.95	35 at 8MHz	35 min.	1206
LQH31MN4R7J01	4.7 ±5%	120	2.21	35 at 8MHz	31 min.	1206
LQH31MN5R6J01	5.6 ±5%	115	2.34	35 at 8MHz	28 min.	1206
LQH31MN6R8J01	6.8 ±5%	110	2.6	35 at 8MHz	25 min.	1206
LQH31MN8R2J01	8.2 ±5%	105	2.86	35 at 8MHz	23 min.	1206
LQH31MN100J01	10 ±5%	100	3.25	35 at 5MHz	20 min.	1206
LQH31MN120J01	12 ±5%	95	3.51	35 at 5MHz	18 min.	1206
LQH31MN150J01	15 ±5%	90	3.9	35 at 5MHz	16 min.	1206
LQH31MN180J01	18 ±5%	85	4.42	35 at 5MHz	15 min.	1206
LQH31MN220J01	22 ±5%	85	4.03	40 at 2.5MHz	14 min.	1206
LQH31MN270J01	27 ±5%	85	4.42	40 at 2.5MHz	13 min.	1206
LQH31MN330J01	33 ±5%	80	4.94	40 at 2.5MHz	12 min.	1206
LQH31MN390J01	39 ±5%	55	9.36	40 at 2.5MHz	11 min.	1206
LQH31MN470J01	47 ±5%	55	10.4	40 at 2.5MHz	10 min.	1206
LQH31MN560J01	56 ±5%	50	11.57	40 at 2.5MHz	9 min.	1206
LQH31MN680J01	68 ±5%	50	12.87	40 at 2.5MHz	8.5 min.	1206
LQH31MN820J01	82 ±5%	45	14.3	40 at 2.5MHz	7.5 min.	1206
LQH31MN101J01	100 ±5%	45	15.6	40 at 2.5MHz	7 min.	1206
LQH31MNR15K01	0.15 ±10%	250	0.546	20 at 25MHz	250 min.	1206
LQH31MNR22K01	0.22 ±10%	240	0.602	20 at 25MHz	250 min.	1206
LQH31MNR33K01	0.33 ±10%	230	0.63	30 at 25MHz	250 min.	1206
LQH31MNR47K01	0.47 ±10%	215	1.162	30 at 25MHz	200 min.	1206
LQH31MNR56K01	0.56 ±10%	200	0.854	30 at 25MHz	180 min.	1206
LQH31MNR68K01	0.68 ±10%	190	0.938	30 at 25MHz	160 min.	1206
LQH31MNR82K01	0.82 ±10%	185	1.022	30 at 25MHz	120 min.	1206
LQH31MN1R0K01	1.0 ±10%	175	0.637	35 at 10MHz	100 min.	1206

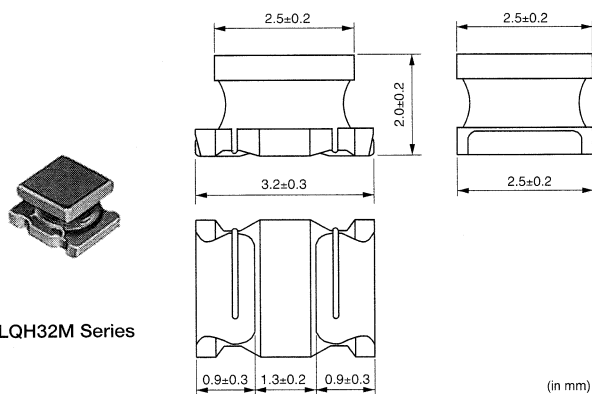
Continued on the following page.

Continued from the preceding page.

Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH31MN1R2K01	1.2 ±10%	165	1.17	35 at 10MHz	90 min.	1206
LQH31MN1R5K01	1.5 ±10%	155	1.3	35 at 10MHz	75 min.	1206
LQH31MN1R8K01	1.8 ±10%	150	2.08	35 at 10MHz	60 min.	1206
LQH31MN2R2K01	2.2 ±10%	140	0.91	35 at 10MHz	50 min.	1206
LQH31MN2R7K01	2.7 ±10%	135	0.715	35 at 10MHz	43 min.	1206
LQH31MN3R3K01	3.3 ±10%	130	1.82	35 at 8MHz	38 min.	1206
LQH31MN3R9K01	3.9 ±10%	125	1.95	35 at 8MHz	35 min.	1206
LQH31MN4R7K01	4.7 ±10%	120	2.21	35 at 8MHz	31 min.	1206
LQH31MN5R6K01	5.6 ±10%	115	2.34	35 at 8MHz	28 min.	1206
LQH31MN6R8K01	6.8 ±10%	110	2.6	35 at 8MHz	25 min.	1206
LQH31MN8R2K01	8.2 ±10%	105	2.86	35 at 8MHz	23 min.	1206
LQH31MN100K01	10 ±10%	100	3.25	35 at 5MHz	20 min.	1206
LQH31MN120K01	12 ±10%	95	3.51	35 at 5MHz	18 min.	1206
LQH31MN150K01	15 ±10%	90	3.9	35 at 5MHz	16 min.	1206
LQH31MN180K01	18 ±10%	85	4.42	35 at 5MHz	15 min.	1206
LQH31MN220K01	22 ±10%	85	4.03	40 at 2.5MHz	14 min.	1206
LQH31MN270K01	27 ±10%	85	4.42	40 at 2.5MHz	13 min.	1206
LQH31MN330K01	33 ±10%	80	4.94	40 at 2.5MHz	12 min.	1206
LQH31MN390K01	39 ±10%	55	9.36	40 at 2.5MHz	11 min.	1206
LQH31MN470K01	47 ±10%	55	10.4	40 at 2.5MHz	10 min.	1206
LQH31MN560K01	56 ±10%	50	11.57	40 at 2.5MHz	9 min.	1206
LQH31MN680K01	68 ±10%	50	12.87	40 at 2.5MHz	8.5 min.	1206
LQH31MN820K01	82 ±10%	45	14.3	40 at 2.5MHz	7.5 min.	1206
LQH31MN101K01	100 ±10%	45	15.6	40 at 2.5MHz	7 min.	1206

Min. of Operating Temp. : -25°C to 85°C

● LQH32M Series (1210)



Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH32MN100J21	10 ±5%	190	1.8	35 at 1MHz	20 min.	1210
LQH32MN120J21	12 ±5%	180	2	35 at 1MHz	18 min.	1210
LQH32MN150J21	15 ±5%	170	2.2	35 at 1MHz	16 min.	1210
LQH32MN180J21	18 ±5%	165	2.5	35 at 1MHz	15 min.	1210
LQH32MN220J21	22 ±5%	150	2.8	35 at 1MHz	14 min.	1210
LQH32MN270J21	27 ±5%	125	3.1	35 at 1MHz	13 min.	1210
LQH32MN330J21	33 ±5%	115	3.5	40 at 1MHz	12 min.	1210
LQH32MN390J21	39 ±5%	110	3.9	40 at 1MHz	11 min.	1210
LQH32MN470J21	47 ±5%	100	4.3	40 at 1MHz	11 min.	1210
LQH32MN560J21	56 ±5%	85	4.9	40 at 1MHz	10 min.	1210
LQH32MN680J21	68 ±5%	80	5.5	40 at 1MHz	9 min.	1210
LQH32MN820J21	82 ±5%	70	6.2	40 at 1MHz	8.5 min.	1210
LQH32MN101J21	100 ±5%	80	7	40 at 0.796MHz	8 min.	1210

Continued on the following page. ↗

Coils/Delay Lines

Continued from the preceding page.

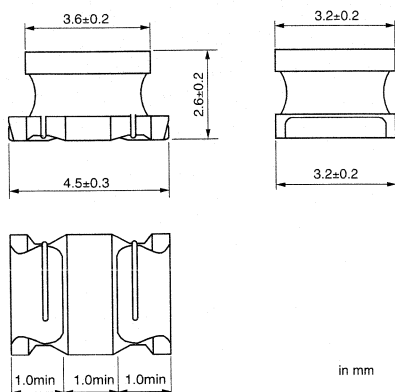
Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH32MN121J21	120 ±5%	75	8.0	40 at 0.796MHz	7.5 min.	1210
LQH32MN151J21	150 ±5%	70	9.3	40 at 0.796MHz	7 min.	1210
LQH32MN181J21	180 ±5%	65	10.2	40 at 0.796MHz	6 min.	1210
LQH32MN221J21	220 ±5%	65	11.8	40 at 0.796MHz	5.5 min.	1210
LQH32MN271J21	270 ±5%	65	12.5	40 at 0.796MHz	5 min.	1210
LQH32MN331J21	330 ±5%	65	13.0	40 at 0.796MHz	5 min.	1210
LQH32MN391J21	390 ±5%	50	22.0	50 at 0.796MHz	5 min.	1210
LQH32MN471J21	470 ±5%	45	25.0	50 at 0.796MHz	5 min.	1210
LQH32MN561J21	560 ±5%	40	28.0	50 at 0.796MHz	5 min.	1210
LQH32MN1R5K21	1.5 ±10%	400	0.6	20 at 1MHz	75 min.	1210
LQH32MN1R8K21	1.8 ±10%	390	0.7	20 at 1MHz	60 min.	1210
LQH32MN2R2K21	2.2 ±10%	370	0.8	20 at 1MHz	50 min.	1210
LQH32MN2R7K21	2.7 ±10%	320	0.9	20 at 1MHz	43 min.	1210
LQH32MN3R3K21	3.3 ±10%	300	1.0	20 at 1MHz	38 min.	1210
LQH32MN3R9K21	3.9 ±10%	290	1.1	20 at 1MHz	35 min.	1210
LQH32MN4R7K21	4.7 ±10%	270	1.2	20 at 1MHz	31 min.	1210
LQH32MN5R6K21	5.6 ±10%	250	1.3	20 at 1MHz	28 min.	1210
LQH32MN6R8K21	6.8 ±10%	240	1.5	20 at 1MHz	25 min.	1210
LQH32MN8R2K21	8.2 ±10%	225	1.6	20 at 1MHz	23 min.	1210
LQH32MN100K21	10 ±10%	190	1.8	35 at 1MHz	20 min.	1210
LQH32MN120K21	12 ±10%	180	2	35 at 1MHz	18 min.	1210
LQH32MN150K21	15 ±10%	170	2.2	35 at 1MHz	16 min.	1210
LQH32MN180K21	18 ±10%	165	2.5	35 at 1MHz	15 min.	1210
LQH32MN220K21	22 ±10%	150	2.8	35 at 1MHz	14 min.	1210
LQH32MN270K21	27 ±10%	125	3.1	35 at 1MHz	13 min.	1210
LQH32MN330K21	33 ±10%	115	3.5	40 at 1MHz	12 min.	1210
LQH32MN390K21	39 ±10%	110	3.9	40 at 1MHz	11 min.	1210
LQH32MN470K21	47 ±10%	100	4.3	40 at 1MHz	11 min.	1210
LQH32MN560K21	56 ±10%	85	4.9	40 at 1MHz	10 min.	1210
LQH32MN680K21	68 ±10%	80	5.5	40 at 1MHz	9 min.	1210
LQH32MN820K21	82 ±10%	70	6.2	40 at 1MHz	8.5 min.	1210
LQH32MN101K21	100 ±10%	80	7	40 at 0.796MHz	8 min.	1210
LQH32MN121K21	120 ±10%	75	8.0	40 at 0.796MHz	7.5 min.	1210
LQH32MN151K21	150 ±10%	70	9.3	40 at 0.796MHz	7 min.	1210
LQH32MN181K21	180 ±10%	65	10.2	40 at 0.796MHz	6 min.	1210
LQH32MN221K21	220 ±10%	65	11.8	40 at 0.796MHz	5.5 min.	1210
LQH32MN271K21	270 ±10%	65	12.5	40 at 0.796MHz	5 min.	1210
LQH32MN331K21	330 ±10%	65	13.0	40 at 0.796MHz	5 min.	1210
LQH32MN391K21	390 ±10%	50	22.0	50 at 0.796MHz	5 min.	1210
LQH32MN471K21	470 ±10%	45	25.0	50 at 0.796MHz	5 min.	1210
LQH32MN561K21	560 ±10%	40	28.0	50 at 0.796MHz	5 min.	1210
LQH32MNR10M21	0.1 ±20%	700	0.25	20 at 25.2MHz	200 min.	1210
LQH32MNR18M21	0.18 ±20%	650	0.25	20 at 25.2MHz	200 min.	1210
LQH32MNR27M21	0.27 ±20%	600	0.25	25 at 25.2MHz	200 min.	1210
LQH32MNR39M21	0.39 ±20%	530	0.25	25 at 25.2MHz	200 min.	1210
LQH32MNR56M21	0.56 ±20%	530	0.25	30 at 25.2MHz	160 min.	1210
LQH32MNR68M21	0.68 ±20%	470	0.25	30 at 25.2MHz	160 min.	1210
LQH32MNR82M21	0.82 ±20%	450	0.25	30 at 25.2MHz	120 min.	1210
LQH32MN1R0M21	1 ±20%	445	0.5	20 at 1MHz	100 min.	1210
LQH32MN1R2M21	1.2 ±20%	425	0.6	20 at 1MHz	100 min.	1210

Min. of Operating Temp. : -25°C to 85°C

● LQH43M/N Series (1812)



LQH43M Series



in mm

Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH43MN100J01	10 ±5%	400	0.56	35 at 1MHz	23 min.	1812
LQH43MN120J01	12 ±5%	380	0.62	35 at 1MHz	21 min.	1812
LQH43MN150J01	15 ±5%	360	0.73	35 at 1MHz	19 min.	1812
LQH43MN180J01	18 ±5%	340	0.82	35 at 1MHz	17 min.	1812
LQH43MN220J01	22 ±5%	320	0.94	35 at 1MHz	15 min.	1812
LQH43MN270J01	27 ±5%	300	1.1	35 at 1MHz	14 min.	1812
LQH43MN330J01	33 ±5%	270	1.2	35 at 1MHz	12 min.	1812
LQH43MN390J01	39 ±5%	240	1.4	35 at 1MHz	11 min.	1812
LQH43MN470J01	47 ±5%	220	1.5	35 at 1MHz	10 min.	1812
LQH43MN560J01	56 ±5%	200	1.7	35 at 1MHz	9.3 min.	1812
LQH43MN680J01	68 ±5%	180	1.9	35 at 1MHz	8.4 min.	1812
LQH43MN820J01	82 ±5%	170	2.2	35 at 1MHz	7.5 min.	1812
LQH43MN101J01	100 ±5%	160	2.5	40 at 0.796MHz	6.8 min.	1812
LQH43MN121J01	120 ±5%	150	3.0	40 at 0.796MHz	6.2 min.	1812
LQH43MN151J01	150 ±5%	130	3.7	40 at 0.796MHz	5.5 min.	1812
LQH43MN181J01	180 ±5%	120	4.5	40 at 0.796MHz	5 min.	1812
LQH43MN221J01	220 ±5%	110	5.4	40 at 0.796MHz	4.5 min.	1812
LQH43MN271J01	270 ±5%	100	6.8	40 at 0.796MHz	4 min.	1812
LQH43MN331J01	330 ±5%	95	8.2	40 at 0.796MHz	3.6 min.	1812
LQH43MN391J01	390 ±5%	90	9.7	40 at 0.796MHz	3.3 min.	1812
LQH43MN471J01	470 ±5%	80	11.8	40 at 0.796MHz	3 min.	1812
LQH43MN561J01	560 ±5%	70	14.5	40 at 0.796MHz	2.7 min.	1812
LQH43MN681J01	680 ±5%	65	17.0	40 at 0.796MHz	2.5 min.	1812
LQH43MN821J01	820 ±5%	60	20.5	40 at 0.796MHz	2.2 min.	1812
LQH43MN102J01	1000 ±5%	50	25.0	40 at 0.252MHz	2 min.	1812
LQH43MN122J01	1200 ±5%	45	30.0	40 at 0.252MHz	1.8 min.	1812
LQH43MN152J01	1500 ±5%	40	37.0	40 at 0.252MHz	1.6 min.	1812
LQH43NN182J01	1800 ±5%	35	45.0	40 at 0.252MHz	1.5 min.	1812
LQH43NN222J01	2200 ±5%	30	50.0	40 at 0.252MHz	1.3 min.	1812
LQH43MN4R7K01	4.7 ±10%	500	0.40	30 at 1MHz	38 min.	1812
LQH43MN5R6K01	5.6 ±10%	500	0.47	30 at 1MHz	33 min.	1812
LQH43MN6R8K01	6.8 ±10%	450	0.50	30 at 1MHz	31 min.	1812
LQH43MN8R2K01	8.2 ±10%	450	0.56	30 at 1MHz	27 min.	1812
LQH43MN100K01	10 ±10%	400	0.56	35 at 1MHz	23 min.	1812
LQH43MN120K01	12 ±10%	380	0.62	35 at 1MHz	21 min.	1812
LQH43MN150K01	15 ±10%	360	0.73	35 at 1MHz	19 min.	1812
LQH43MN180K01	18 ±10%	340	0.82	35 at 1MHz	17 min.	1812
LQH43MN220K01	22 ±10%	320	0.94	35 at 1MHz	15 min.	1812
LQH43MN270K01	27 ±10%	300	1.1	35 at 1MHz	14 min.	1812
LQH43MN330K01	33 ±10%	270	1.2	35 at 1MHz	12 min.	1812
LQH43MN390K01	39 ±10%	240	1.4	35 at 1MHz	11 min.	1812
LQH43MN470K01	47 ±10%	220	1.5	35 at 1MHz	10 min.	1812
LQH43MN560K01	56 ±10%	200	1.7	35 at 1MHz	9.3 min.	1812

Continued on the following page.

Continued from the preceding page.

Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH43MN680K01	68 ±10%	180	1.9	35 at 1MHz	8.4 min.	1812
LQH43MN820K01	82 ±10%	170	2.2	35 at 1MHz	7.5 min.	1812
LQH43MN101K01	100 ±10%	160	2.5	40 at 0.796MHz	6.8 min.	1812
LQH43MN121K01	120 ±10%	150	3.0	40 at 0.796MHz	6.2 min.	1812
LQH43MN151K01	150 ±10%	130	3.7	40 at 0.796MHz	5.5 min.	1812
LQH43MN181K01	180 ±10%	120	4.5	40 at 0.796MHz	5 min.	1812
LQH43MN221K01	220 ±10%	110	5.4	40 at 0.796MHz	4.5 min.	1812
LQH43MN271K01	270 ±10%	100	6.8	40 at 0.796MHz	4 min.	1812
LQH43MN331K01	330 ±10%	95	8.2	40 at 0.796MHz	3.6 min.	1812
LQH43MN391K01	390 ±10%	90	9.7	40 at 0.796MHz	3.3 min.	1812
LQH43MN471K01	470 ±10%	80	11.8	40 at 0.796MHz	3 min.	1812
LQH43MN561K01	560 ±10%	70	14.5	40 at 0.796MHz	2.7 min.	1812
LQH43MN681K01	680 ±10%	65	17.0	40 at 0.796MHz	2.5 min.	1812
LQH43MN821K01	820 ±10%	60	20.5	40 at 0.796MHz	2.2 min.	1812
LQH43MN102K01	1000 ±10%	50	25.0	40 at 0.252MHz	2 min.	1812
LQH43MN122K01	1200 ±10%	45	30.0	40 at 0.252MHz	1.8 min.	1812
LQH43MN152K01	1500 ±10%	40	37.0	40 at 0.252MHz	1.6 min.	1812
LQH43NN182K01	1800 ±10%	35	45.0	40 at 0.252MHz	1.5 min.	1812
LQH43NN222K01	2200 ±10%	30	50.0	40 at 0.252MHz	1.3 min.	1812
LQH43MN1R0M01	1 ±20%	500	0.20	20 at 1MHz	120 min.	1812
LQH43MN1R2M01	1.2 ±20%	500	0.20	20 at 1MHz	100 min.	1812
LQH43MN1R5M01	1.5 ±20%	500	0.30	20 at 1MHz	85 min.	1812
LQH43MN1R8M01	1.8 ±20%	500	0.30	20 at 1MHz	75 min.	1812
LQH43MN2R2M01	2.2 ±20%	500	0.30	20 at 1MHz	62 min.	1812
LQH43MN2R7M01	2.7 ±20%	500	0.32	20 at 1MHz	53 min.	1812
LQH43MN3R3M01	3.3 ±20%	500	0.35	20 at 1MHz	47 min.	1812
LQH43MN3R9M01	3.9 ±20%	500	0.38	20 at 1MHz	41 min.	1812

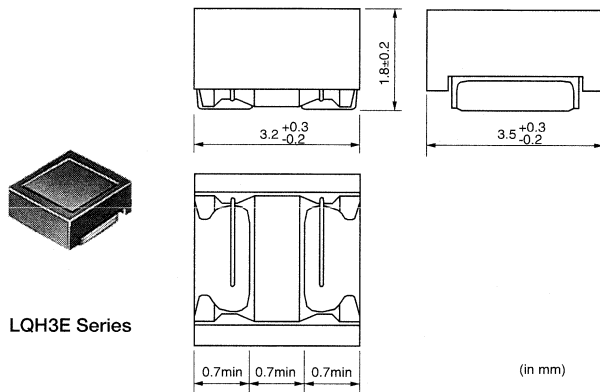
Min. of Operating Temp. : -25°C to 85°C

Coils/Delay Lines 3

Chip Coils

for General Use Magnetic Shielded Type

● LQH3ER Series (1214)



LQH3E Series

(in mm)

Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH3ERN1R0G01	1 ±2%	70	0.247	60 at 7.96MHz	120 min.	1214
LQH3ERN1R2G01	1.2 ±2%	70	0.286	60 at 7.96MHz	100 min.	1214
LQH3ERN1R5G01	1.5 ±2%	70	0.338	60 at 7.96MHz	80 min.	1214
LQH3ERN1R8G01	1.8 ±2%	70	0.364	60 at 7.96MHz	70 min.	1214
LQH3ERN2R2G01	2.2 ±2%	50	0.429	60 at 7.96MHz	60 min.	1214
LQH3ERN2R7G01	2.7 ±2%	50	0.507	60 at 7.96MHz	55 min.	1214

Continued on the following page.

Coils/Delay Lines

Continued from the preceding page.

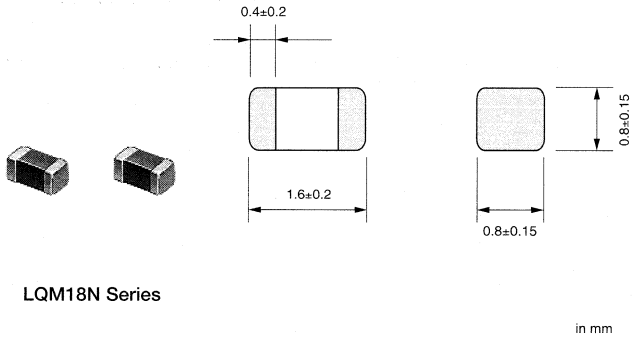
Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQH3ERN3R3G01	3.3 ±2%	50	0.559	60 at 7.96MHz	50 min.	1214
LQH3ERN3R9G01	3.9 ±2%	50	0.585	60 at 7.96MHz	45 min.	1214
LQH3ERN4R7G01	4.7 ±2%	30	0.676	60 at 7.96MHz	40 min.	1214
LQH3ERN5R6G01	5.6 ±2%	30	0.728	60 at 7.96MHz	37 min.	1214
LQH3ERN6R8G01	6.8 ±2%	30	0.806	60 at 7.96MHz	35 min.	1214
LQH3ERN8R2G01	8.2 ±2%	30	0.897	60 at 7.96MHz	32 min.	1214
LQH3ERN100G01	10 ±2%	15	1.222	70 at 2.52MHz	30 min.	1214
LQH3ERN120G01	12 ±2%	15	1.43	70 at 2.52MHz	27 min.	1214
LQH3ERN150G01	15 ±2%	15	1.56	70 at 2.52MHz	25 min.	1214
LQH3ERN180G01	18 ±2%	15	1.69	70 at 2.52MHz	23 min.	1214
LQH3ERN220G01	22 ±2%	10	1.95	70 at 2.52MHz	20 min.	1214
LQH3ERN270G01	27 ±2%	10	2.21	70 at 2.52MHz	18 min.	1214
LQH3ERN330G01	33 ±2%	10	3.12	80 at 2.52MHz	16 min.	1214
LQH3ERN390G01	39 ±2%	10	3.38	80 at 2.52MHz	15 min.	1214
LQH3ERN470G01	47 ±2%	10	3.9	80 at 2.52MHz	14 min.	1214
LQH3ERN560G01	56 ±2%	10	4.29	80 at 2.52MHz	13 min.	1214
LQH3ERN680G01	68 ±2%	10	6.89	80 at 2.52MHz	12 min.	1214
LQH3ERN820G01	82 ±2%	10	7.54	80 at 2.52MHz	11 min.	1214
LQH3ERN101G01	100 ±2%	10	8.58	80 at 2.52MHz	10 min.	1214
LQH3ERN1R0J01	1 ±5%	70	0.247	60 at 7.96MHz	120 min.	1214
LQH3ERN1R2J01	1.2 ±5%	70	0.286	60 at 7.96MHz	100 min.	1214
LQH3ERN1R5J01	1.5 ±5%	70	0.338	60 at 7.96MHz	80 min.	1214
LQH3ERN1R8J01	1.8 ±5%	70	0.364	60 at 7.96MHz	70 min.	1214
LQH3ERN2R2J01	2.2 ±5%	50	0.429	60 at 7.96MHz	60 min.	1214
LQH3ERN2R7J01	2.7 ±5%	50	0.507	60 at 7.96MHz	55 min.	1214
LQH3ERN3R3J01	3.3 ±5%	50	0.559	60 at 7.96MHz	50 min.	1214
LQH3ERN3R9J01	3.9 ±5%	50	0.585	60 at 7.96MHz	45 min.	1214
LQH3ERN4R7J01	4.7 ±5%	30	0.676	60 at 7.96MHz	40 min.	1214
LQH3ERN5R6J01	5.6 ±5%	30	0.728	60 at 7.96MHz	37 min.	1214
LQH3ERN6R8J01	6.8 ±5%	30	0.806	60 at 7.96MHz	35 min.	1214
LQH3ERN8R2J01	8.2 ±5%	30	0.897	60 at 7.96MHz	32 min.	1214
LQH3ERN100J01	10 ±5%	15	1.222	70 at 2.52MHz	30 min.	1214
LQH3ERN120J01	12 ±5%	15	1.43	70 at 2.52MHz	27 min.	1214
LQH3ERN150J01	15 ±5%	15	1.56	70 at 2.52MHz	25 min.	1214
LQH3ERN180J01	18 ±5%	15	1.69	70 at 2.52MHz	23 min.	1214
LQH3ERN220J01	22 ±5%	10	1.95	70 at 2.52MHz	20 min.	1214
LQH3ERN270J01	27 ±5%	10	2.21	70 at 2.52MHz	18 min.	1214
LQH3ERN330J01	33 ±5%	10	3.12	80 at 2.52MHz	16 min.	1214
LQH3ERN390J01	39 ±5%	10	3.38	80 at 2.52MHz	15 min.	1214
LQH3ERN470J01	47 ±5%	10	3.9	80 at 2.52MHz	14 min.	1214
LQH3ERN560J01	56 ±5%	10	4.29	80 at 2.52MHz	13 min.	1214
LQH3ERN680J01	68 ±5%	10	6.89	80 at 2.52MHz	12 min.	1214
LQH3ERN820J01	82 ±5%	10	7.54	80 at 2.52MHz	11 min.	1214
LQH3ERN101J01	100 ±5%	10	8.58	80 at 2.52MHz	10 min.	1214

Min. of Operating Temp. : -25°C to 85°C

Chip Coils

for General Use Monolithic Type

● LQM18N Series (0603)



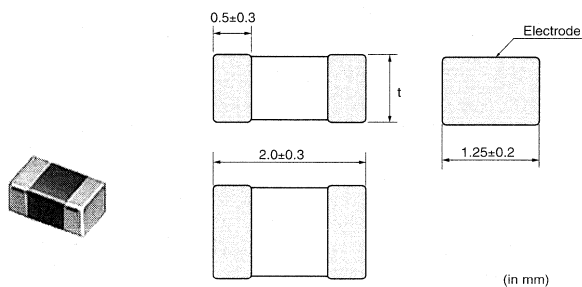
LQM18N Series

in mm

Part Number	Inductance (nH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQM18NNR10K00	100 ±10%	50	0.50 max	15 at 25MHz	240 min.	0603
LQM18NNR12K00	120 ±10%	50	0.50 max	15 at 25MHz	205 min.	0603
LQM18NNR15K00	150 ±10%	50	0.60 max	15 at 25MHz	180 min.	0603
LQM18NNR18K00	180 ±10%	50	0.60 max	15 at 25MHz	165 min.	0603
LQM18NNR22K00	220 ±10%	50	0.80 max	15 at 25MHz	150 min.	0603
LQM18NNR27K00	270 ±10%	50	0.80 max	15 at 25MHz	136 min.	0603
LQM18NNR33K00	330 ±10%	35	0.85 max	15 at 25MHz	125 min.	0603
LQM18NNR39K00	390 ±10%	35	1.00 max	15 at 25MHz	110 min.	0603
LQM18NNR47K00	470 ±10%	35	1.35 max	15 at 25MHz	105 min.	0603
LQM18NNR56K00	560 ±10%	35	1.55 max	15 at 25MHz	95 min.	0603
LQM18NNR68K00	680 ±10%	35	1.70 max	15 at 25MHz	90 min.	0603
LQM18NNR82K00	820 ±10%	35	2.10 max	15 at 25MHz	85 min.	0603
LQM18NN1R0K00	1000 ±10%	25	0.60 max	35 at 10MHz	75 min.	0603
LQM18NN1R2K00	1200 ±10%	25	0.80 max	35 at 10MHz	65 min.	0603
LQM18NN1R5K00	1500 ±10%	25	0.80 max	35 at 10MHz	60 min.	0603
LQM18NN1R8K00	1800 ±10%	25	0.95 max	35 at 10MHz	55 min.	0603
LQM18NN2R2K00	2200 ±10%	15	1.15 max	35 at 10MHz	50 min.	0603
LQM18NN47NM00	47 ±20%	50	0.30 max	10 at 50MHz	260 min.	0603
LQM18NN68NM00	68 ±20%	50	0.30 max	10 at 50MHz	250 min.	0603
LQM18NN82NM00	82 ±20%	50	0.30 max	10 at 50MHz	245 min.	0603

Min. of Operating Temp. : -40°C to +85°C

● LQM21N Series (0805)



LQM21N Series

Part Number	t
LQM21NNR10K10 to N2R2K10	0.85±0.2
LQM21NN2R7K10 to N4R7K10	1.25±0.2

Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Q (min.)	Self Resonance Frequency (MHz)	EIA
LQM21NNR10K10	0.1 ±10%	250	0.26	20 at 25MHz	340 min.	0805
LQM21NNR12K10	0.12 ±10%	250	0.29	20 at 25MHz	310 min.	0805
LQM21NNR15K10	0.15 ±10%	250	0.32	20 at 25MHz	270 min.	0805
LQM21NNR18K10	0.18 ±10%	250	0.35	20 at 25MHz	250 min.	0805
LQM21NNR22K10	0.22 ±10%	250	0.38	20 at 25MHz	220 min.	0805
LQM21NNR27K10	0.27 ±10%	250	0.42	20 at 25MHz	200 min.	0805
LQM21NNR33K10	0.33 ±10%	250	0.48	20 at 25MHz	180 min.	0805
LQM21NNR39K10	0.39 ±10%	200	0.53	25 at 25MHz	165 min.	0805
LQM21NNR47K10	0.47 ±10%	200	0.57	25 at 25MHz	150 min.	0805
LQM21NNR56K10	0.56 ±10%	150	0.63	25 at 25MHz	140 min.	0805
LQM21NNR68K10	0.68 ±10%	150	0.72	25 at 25MHz	125 min.	0805
LQM21NNR82K10	0.82 ±10%	150	0.81	25 at 25MHz	115 min.	0805
LQM21NN1R0K10	1 ±10%	50	0.40	45 at 10MHz	107 min.	0805
LQM21NN1R2K10	1.2 ±10%	50	0.47	at 10MHz	97 min.	0805
LQM21NN1R5K10	1.5 ±10%	50	0.50	45 at 10MHz	87 min.	0805
LQM21NN1R8K10	1.8 ±10%	50	0.57	30 at 10MHz	80 min.	0805
LQM21NN2R2K10	2.2 ±10%	30	0.63	45 at 10MHz	71 min.	0805
LQM21NN2R7K10	2.7 ±10%	30	0.69	45 at 10MHz	66 min.	0805
LQM21NN3R3K10	3.3 ±10%	30	0.80	45 at 10MHz	59 min.	0805
LQM21NN3R9K10	3.9 ±10%	30	0.89	45 at 10MHz	53 min.	0805
LQM21NN4R7K10	4.7 ±10%	30	1.00	45 at 10MHz	47 min.	0805

Min. of Operating Temp. : -40°C to 85°C

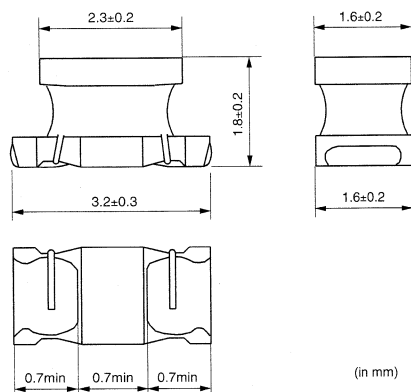
Chip Coils

for Choke Winding Type

● LQH31C Series (1206)



LQH31C Series



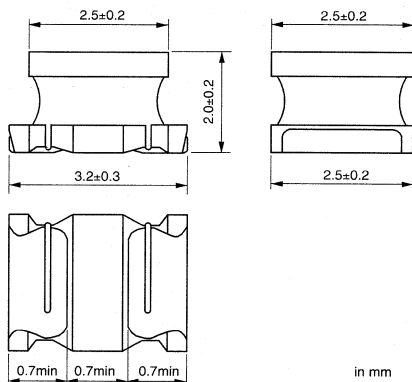
Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQH31CN100K01	10 ±10%	230	1.69	20 min.	1206
LQH31CN220K01	22 ±10%	160	3.9	14 min.	1206
LQH31CN470K01	47 ±10%	100	10.4	10 min.	1206
LQH31CN101K01	100 ±10%	80	15.6	7 min.	1206
LQH31CNR12M01	0.12 ±20%	970	0.112	250 min.	1206
LQH31CNR22M01	0.22 ±20%	850	0.14	250 min.	1206
LQH31CNR47M01	0.47 ±20%	700	0.21	180 min.	1206
LQH31CN1R0M01	1 ±20%	510	0.364	100 min.	1206
LQH31CN2R2M01	2.2 ±20%	430	0.533	50 min.	1206
LQH31CN4R7M01	4.7 ±20%	340	0.845	31 min.	1206

Min. of Operating Temp. : -25°C to 85°C

● LQH32C Series (1210)



LQH32C Series



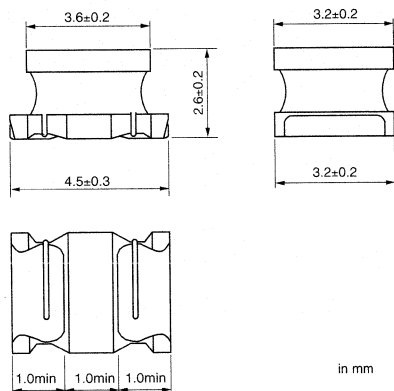
Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQH32CN100K11	10 ±10%	450	0.39	26 min.	1210
LQH32CN100K21	10 ±10%	300	0.572	26 min.	1210
LQH32CN100K51	10 ±10%	450	0.390	26 min.	1210
LQH32CN150K51	15 ±10%	300	0.754	26 min.	1210
LQH32CN220K21	22 ±10%	250	0.923	19 min.	1210
LQH32CN220K51	22 ±10%	250	0.923	19 min.	1210
LQH32CN330K51	33 ±10%	200	1.43	17 min.	1210
LQH32CN470K21	47 ±10%	170	1.69	15 min.	1210
LQH32CN470K51	47 ±10%	170	1.69	15 min.	1210
LQH32CN680K51	68 ±10%	130	2.86	12 min.	1210
LQH32CN101K21	100 ±10%	100	4.55	10 min.	1210
LQH32CN101K51	100 ±10%	100	4.55	10 min.	1210
LQH32CN221K21	220 ±10%	70	10.92	6.8 min.	1210
LQH32CN331K21	330 ±10%	60	13	5.6 min.	1210
LQH32CN391K21	390 ±10%	60	22.1	5 min.	1210
LQH32CN471K21	470 ±10%	60	24.7	5 min.	1210
LQH32CN561K21	560 ±10%	60	28.6	5 min.	1210
LQH32CNR15M11	0.15 ±20%	1450	0.036	400 min.	1210
LQH32CNR27M11	0.27 ±20%	1250	0.044	250 min.	1210
LQH32CNR47M11	0.47 ±20%	1100	0.055	150 min.	1210
LQH32CN1R0M11	1 ±20%	1000	0.078	100 min.	1210
LQH32CN1R0M21	1.0 ±20%	1000	0.078	26 min.	1210
LQH32CN1R0M51	1.0 ±20%	1000	0.078	100 min.	1210
LQH32CN2R2M11	2.2 ±20%	790	0.1261	64 min.	1210
LQH32CN2R2M21	2.2 ±20%	600	0.169	64 min.	1210
LQH32CN2R2M51	2.2 ±20%	790	0.126	64 min.	1210
LQH32CN4R7M11	4.7 ±20%	650	0.195	43 min.	1210
LQH32CN4R7M21	4.7 ±20%	450	0.26	43 min.	1210
LQH32CN4R7M51	4.7 ±20%	650	0.195	43 min.	1210

Min. of Operating Temp. : -25°C to 85°C

● LQH43C Series (1812)



LQH43C Series



in mm

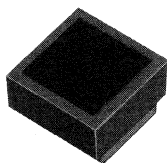
Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQH43CN100K01	10 ±10%	650	0.24	23	1812
LQH43CN150K01	15 ±10%	570	0.32	20	1812
LQH43CN220K01	22 ±10%	420	0.6	15	1812
LQH43CN330K01	33 ±10%	310	1.0	12	1812
LQH43CN470K01	47 ±10%	280	1.1	10	1812
LQH43CN680K01	68 ±10%	220	1.7	8.4	1812
LQH43CN101K01	100 ±10%	190	2.2	6.8	1812
LQH43CN151K01	150 ±20%	130	3.5	5.5	1812
LQH43CN221K01	220 ±10%	110	4.0	4.5	1812
LQH43CN331K01	330 ±10%	100	6.8	3.6	1812
LQH43CN471K01	470 ±10%	90	8.5	3.0	1812
LQH43CN1R0M01	1.0 ±20%	1080	0.08	100	1812
LQH43CN1R5M01	1.5 ±20%	1000	0.09	85	1812
LQH43CN2R2M01	2.2 ±20%	900	0.11	60	1812
LQH43CN3R3M01	3.3 ±20%	800	0.13	47	1812
LQH43CN4R7M01	4.7 ±20%	750	0.15	35	1812
LQH43CN6R8M01	6.8 ±20%	720	0.20	30	1812

Min. of Operating Temp. : -25°C to 85°C

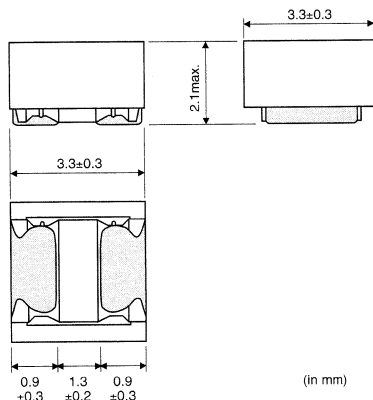
Chip Coils

for Choke Magnetic Shielded Type

● LQH3KS Series (1212)



LQH3K Series



(in mm)

Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQH3KSN561N21	560 ±30%	50	10.14	3.0 min.	1212
LQH3KSN681N21	680 ±30%	40	11.83	2.6 min.	1212
LQH3KSN102N21	1000 ±30%	30	14.3	2.1 min.	1212

Continued on the following page.

Coils/Delay Lines

Continued from the preceding page.

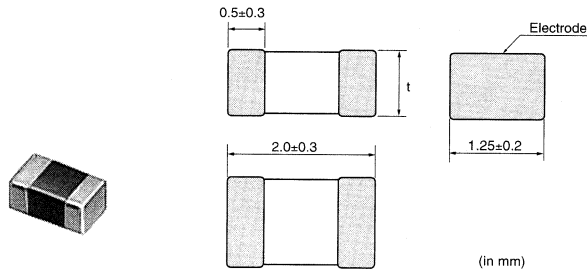
Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQH3KSN152N21	1500 ±30%	25	29.9	1.7 min.	1212
LQH3KSN222N21	2200 ±30%	20	36.4	1.5 min.	1212

Min. of Operating Temp.: -25°C to 85°C

Chip Coils

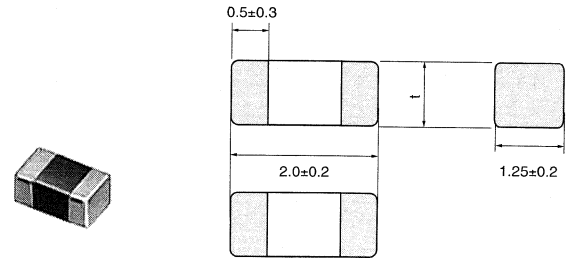
for Choke Monolithic Type

● LQM21D/LQM21F Series (0805)



LQM21D Series

Part Number	t
LQM21DN1R0N00 to N100N00	0.85±0.2
LQM21DN220N00 to N470N00	1.25±0.2



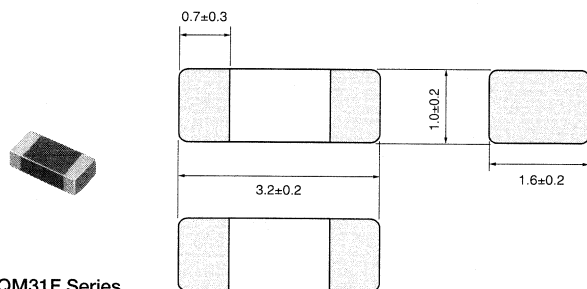
LQM21F Series

Part Number	t
LQM21FN1R0N00 to N2R2N00	0.85±0.2
LQM21FN4R7N00 to N470N00	1.25±0.2

Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQM21DN1R0N00	1 ±30%	60	0.10	75 min.	0805
LQM21FN1R0N00	1.0 ±30%	220	0.26	105 min.	0805
LQM21DN2R2N00	2.2 ±30%	40	0.17	50 min.	0805
LQM21FN2R2N00	2.2 ±30%	150	0.364	70 min.	0805
LQM21DN4R7N00	4.7 ±30%	30	0.30	35 min.	0805
LQM21FN4R7N00	4.7 ±30%	80	0.39	25 min.	0805
LQM21DN100N00	10 ±30%	15	0.50	24 min.	0805
LQM21FN100N00	10 ±30%	60	0.65	15 min.	0805
LQM21DN220N00	22 ±30%	13	0.65	16 min.	0805
LQM21FN220N00	22 ±30%	13	0.455	15 min.	0805
LQM21DN470N00	47 ±30%	7	1.20	7.5 min.	0805
LQM21FN470N00	47 ±30%	7	0.78	7.5 min.	0805

Min. of Operating Temp.: -40°C to 85°C

● LQM31F Series (1206)



LQM31F Series

(in mm)

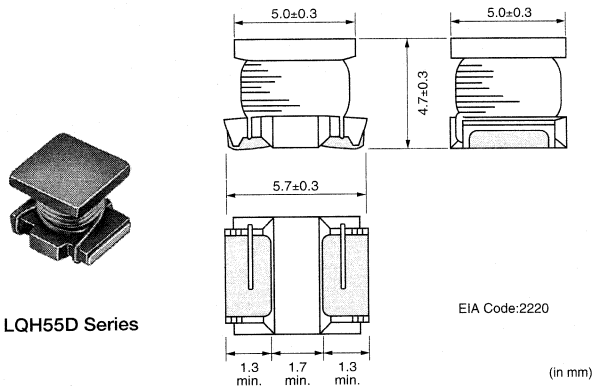
Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQM31FN100M00	10 ±20%	70	0.50	20 min.	1206

Min. of Operating Temp. : -40°C to 85°C

Chip Coils

for Choke Large Current Type

● LQH55D Series (2220)



LQH55D Series

EIA Code:2220

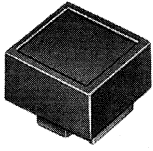
(in mm)

Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQH55DNR12M01	0.12 ±20%	6000	0.0098	450 min.	2220
LQH55DNR27M01	0.27 ±20%	5300	0.014	300 min.	2220
LQH55DNR47M01	0.47 ±20%	4800	0.0182	200 min.	2220
LQH55DN1R0M01	1.0 ±20%	4000	0.027	150 min.	2220
LQH55DN1R5M01	1.5 ±20%	3700	0.031	110 min.	2220
LQH55DN2R2M01	2.2 ±20%	3200	0.041	80 min.	2220
LQH55DN3R3M01	3.3 ±20%	2900	0.05	40 min.	2220
LQH55DN4R7M01	4.7 ±20%	2700	0.0574	30 min.	2220
LQH55DN6R8M01	6.8 ±20%	2000	0.104	25 min.	2220
LQH55DN100M01	10 ±20%	1700	0.130	20 min.	2220
LQH55DN150M01	15 ±20%	1400	0.21	17 min.	2220
LQH55DN220M01	22 ±20%	1200	0.266	15 min.	2220
LQH55DN330M01	33 ±20%	900	0.448	12 min.	2220
LQH55DN470M01	47 ±20%	800	0.56	10 min.	2220
LQH55DN680M01	68 ±20%	640	0.938	7.6 min.	2220
LQH55DN101M01	100 ±20%	560	1.204	6.5 min.	2220
LQH55DN151M01	150 ±20%	420	2.660	5.0 min.	2220
LQH55DN221M01	220 ±20%	320	3.36	4.0 min.	2220
LQH55DN331M01	330 ±20%	270	6.16	3.1 min.	2220
LQH55DN471M01	470 ±20%	240	7.56	2.4 min.	2220
LQH55DN681M01	680 ±20%	190	11.34	1.9 min.	2220
LQH55DN102M01	1000 ±20%	150	14.42	1.7 min.	2220
LQH55DN222M01	2200 ±20%	100	30.1	1.2 min.	2220
LQH55DN472M01	4700 ±20%	70	61.04	0.8 min.	2220
LQH55DN103M01	10000 ±20%	50	140	0.5 min.	2220

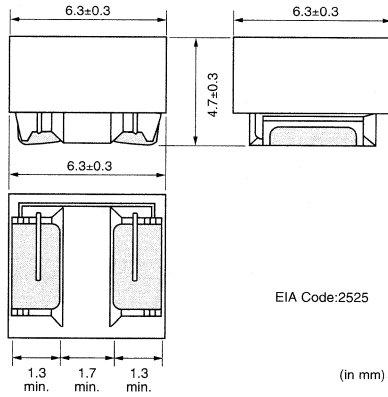
Min. of Operating Temp. : -25°C to 80°C

Coils/Delay Lines

● LQH66S Series (2525)



LQH66S Series



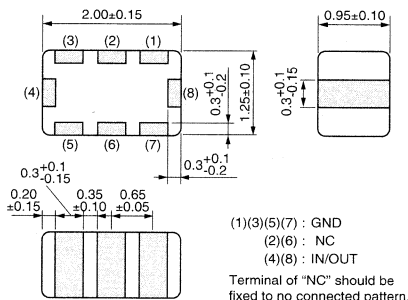
Part Number	Inductance (μH)	Rated Current (mA)	Max. of DC resistance (ohm)	Self Resonance Frequency (MHz)	EIA
LQH66SNR27M01	0.27 ±20%	6000	0.0098	300 min.	2525
LQH66SNR68M01	0.68 ±20%	5300	0.014	180 min.	2525
LQH66SN1R0M01	1.0 ±20%	4700	0.018	150 min.	2525
LQH66SN1R5M01	1.5 ±20%	3800	0.022	110 min.	2525
LQH66SN2R2M01	2.2 ±20%	3300	0.027	80 min.	2525
LQH66SN3R3M01	3.3 ±20%	2600	0.031	40 min.	2525
LQH66SN4R7M01	4.7 ±20%	2200	0.035	30 min.	2525
LQH66SN6R8M01	6.8 ±20%	1800	0.0406	25 min.	2525
LQH66SN100M01	10 ±20%	1600	0.050	20 min.	2525
LQH66SN150M01	15 ±20%	1300	0.067	17 min.	2525
LQH66SN220M01	22 ±20%	1100	0.122	15 min.	2525
LQH66SN330M01	33 ±20%	860	0.196	12 min.	2525
LQH66SN470M01	47 ±20%	760	0.238	10 min.	2525
LQH66SN680M01	68 ±20%	600	0.406	7.6 min.	2525
LQH66SN101M01	100 ±20%	520	0.504	6.5 min.	2525
LQH66SN151M01	150 ±20%	420	0.882	5.0 min.	2525
LQH66SN221M01	220 ±20%	350	1.106	4.0 min.	2525
LQH66SN331M01	330 ±20%	280	2.52	3.2 min.	2525
LQH66SN471M01	470 ±20%	240	3.08	2.5 min.	2525
LQH66SN681M01	680 ±20%	200	5.46	2.0 min.	2525
LQH66SN102M01	1000 ±20%	160	6.86	1.7 min.	2525
LQH66SN222M01	2200 ±20%	100	13.16	1.2 min.	2525
LQH66SN472M01	4700 ±20%	70	27.3	0.8 min.	2525
LQH66SN103M01	10000 ±20%	50	55.58	0.5 min.	2525

Min. of Operating Temp. : -25°C to 80°C

Chip Multilayer Delay Lines



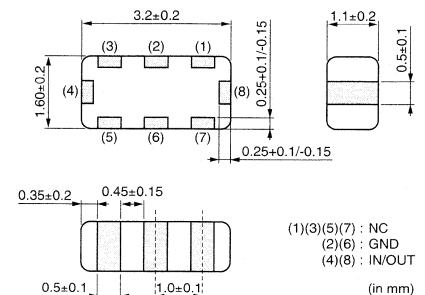
LDH21 Series



All the technical data and Information contained herein are subject to change without prior notice.



LDH31 Series

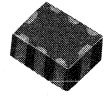


Terminal of "NC" should not be fixed to any pattern.

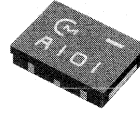
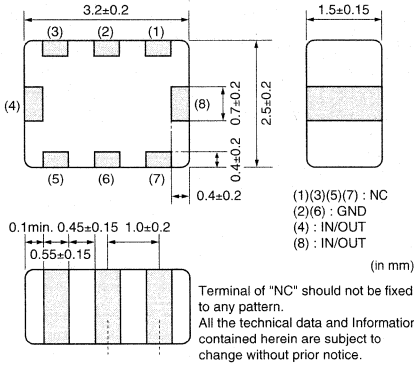
All the technical data and Information contained herein are subject to change without prior notice.

Continued on the following page.

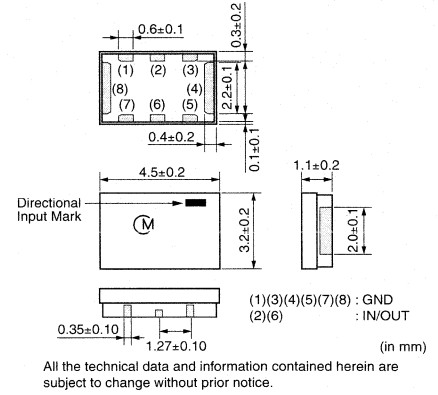
Continued from the preceding page.



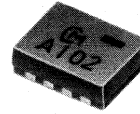
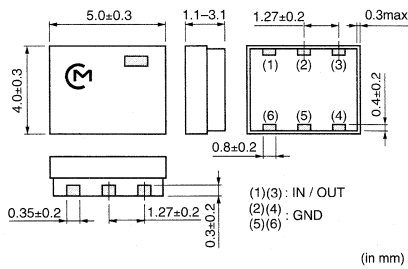
LDH32 Series



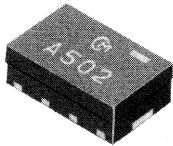
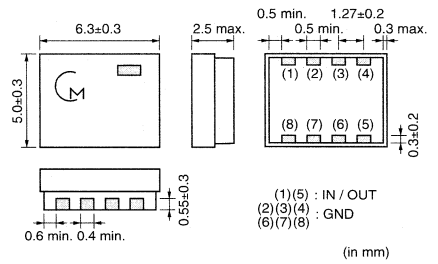
LDH43 Series



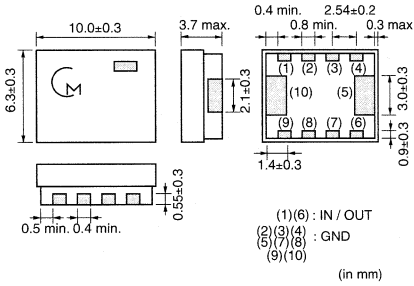
LDH54 Series



LDH65 Series



LDHA2 Series



Part Number	Delay Time (ns)	Impedance (ohm)	Rising Time (ns)	Insulation Resistance (M ohm)	Rated Current (mA)
LDH21600PLAC-820	0.60 ± 0.09ns	50 (Nominal)	0.7 max.	100 min.	50
LDH21800PLAC-820	0.80 ± 0.12ns	50 (Nominal)	0.75 max.	100 min.	50
LDH211N00LAC-820	1.00 ± 0.15ns	50 (Nominal)	0.8 max.	100 min.	50
LDH211N20LAC-820	1.20 ± 0.18ns	50 (Nominal)	0.85 max.	100 min.	50
LDH311N00LAC-810	0.1 ± 15%	50 (Nominal)	0.8 max.	100 min.	50
LDH311N50LAC-810	1.5 ± 15%	50 (Nominal)	1.0 max.	100 min.	50
LDH312N00LAC-810	2.0 ± 15%	50 (Nominal)	1.5 max.	100 min.	50
LDH321N00LAC-800	1.0 ± 15%	50 (Nominal)	0.8 max.	100 min.	50
LDH321N50LAC-800	1.5 ± 15%	50 (Nominal)	1.0 max.	100 min.	50
LDH322N00LAC-800	2.0 ± 15%	50 (Nominal)	1.5 max.	100 min.	50
LDH322N50LAC-800	2.5 ± 15%	50 (Nominal)	1.8 max.	100 min.	50
LDH323N00LAC-800	3.0 ± 15%	50 (Nominal)	2.0 max.	100 min.	50
LDH43050PAAA-830	50.0 ns ± 11.0ns (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43060PAAA-830	60.0 ps ± 11.0ps (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43070PAAA-830	70.0 ps ± 11.0ps (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43080PAAA-830	80.0 ps ± 11.0ps (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50

Continued on the following page. ↗

Coils/Delay Lines

Continued from the preceding page.

Part Number	Delay Time (ns)	Impedance (ohm)	Rising Time (ns)	Insulation Resistance (M ohm)	Rated Current (mA)
LDH43090PAAA-830	90.0 ps±11.0ps (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43100PAAA-830	100.0 ps±11.0% (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43110PKAA-830	110.0 ps±11.0% (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43120PKAA-830	120.0 ps±11.0% (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43130PKAA-830	130.0 ps±11.0% (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43140PKAA-830	140.0 ps±11.0% (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH43150PKAA-830	150.0 ps±11.0% (at 10.0GHz)	50 (at 10.0GHz) (Nominal)	-	100 min.	50
LDH54100PAAA-600	0.1 ±0.05ns	50 ±7 (at 100MHz)	0.15 max.	100 min.	50
LDH54200PAAA-600	0.2 ±0.05ns	50 ±7 (at 100MHz)	0.15 max.	100 min.	50
LDH54300PAAA-600	0.3 ±0.05ns	50 ±7 (at 100MHz)	0.15 max.	100 min.	50
LDH54400PAAA-600	0.4 ±0.05ns	50 ±7 (at 100MHz)	0.15 max.	100 min.	50
LDH54500PAAA-600	0.5 ±0.05ns	50 ±7 (at 100MHz)	0.15 max.	100 min.	50
LDH54600PBAA-600	0.6 ±0.1ns	50 ±7 (at 100MHz)	0.3 max.	100 min.	50
LDH54700PBAA-600	0.7 ±0.1ns	50 ±7 (at 100MHz)	0.3 max.	100 min.	50
LDH54800PBAA-600	0.8 ±0.1ns	50 ±7 (at 100MHz)	0.3 max.	100 min.	50
LDH54900PBAA-600	0.9 ±0.1ns	50 ±7 (at 100MHz)	0.3 max.	100 min.	50
LDH541N00BAA-600	1.0 ±0.1ns	50 ±7 (at 100MHz)	0.3 max.	100 min.	50
LDH541N50BAA-600	1.5 ±0.1ns	50 ±7 (at 100MHz)	0.5 max.	100 min.	50
LDH542N00BAA-600	2.0 ±0.1ns	50 ±7 (at 100MHz)	0.5 max.	100 min.	50
LDH542N50BAA-600	2.5 ±0.1ns	50 ±7 (at 100MHz)	0.5 max.	100 min.	50
LDH543N00KAB-700	3.0 ±0.3ns	75 (Nominal)	2.0 max.	100 min.	50
LDH544N00KAB-700	4.0 ±0.4ns	75 (Nominal)	2.5 max.	100 min.	50
LDH545N00KAB-700	5.0 ±0.5ns	75 (Nominal)	2.5 max.	100 min.	50
LDH546N00KAB-700	6.0 ±0.6ns	75 (Nominal)	3.0 max.	100 min.	50
LDH547N00KAB-700	7.0 ±0.7ns	75 (Nominal)	3.5 max.	100 min.	50
LDH548N00KAB-700	8.0 ±0.8ns	75 (Nominal)	3.5 max.	100 min.	50
LDH549N00KAB-700	9.0 ±0.9ns	75 (Nominal)	4.0 max.	100 min.	50
LDH5410N0KAB-700	10.0 ±1.0ns	75 (Nominal)	4.5 max.	100 min.	50
LDH65100PAAA-400	0.1 ±0.05ns	50 ±5 (at 100MHz)	0.10 max.	100 min.	100
LDH65200PAAA-400	0.2 ±0.05ns	50 ±5 (at 100MHz)	0.10 max.	100 min.	100
LDH65300PAAA-400	0.3 ±0.05ns	50 ±5 (at 100MHz)	0.15 max.	100 min.	100
LDH65400PAAA-400	0.4 ±0.05ns	50 ±5 (at 100MHz)	0.15 max.	100 min.	100
LDH65500PAAA-400	0.5 ±0.05ns	50 ±5 (at 100MHz)	0.15 max.	100 min.	100
LDH65600PBAA-400	0.6 ±0.1ns	50 ±5 (at 100MHz)	0.15 max.	100 min.	100
LDH65700PBAA-400	0.7 ±0.1ns	50 ±5 (at 100MHz)	0.20 max.	100 min.	100
LDH65800PBAA-400	0.8 ±0.1ns	50 ±5 (at 100MHz)	0.20 max.	100 min.	100
LDH65900PBAA-400	0.9 ±0.1ns	50 ±5 (at 100MHz)	0.20 max.	100 min.	100
LDH651N00BAA-400	1.0 ±0.1ns	50 ±5 (at 100MHz)	0.20 max.	100 min.	100
LDHA2500PAAA-300	0.5 ±0.05ns	50 ±5 (at 100MHz)	0.15 max.	100 min.	100
LDHA21N00BAA-300	1.0 ±0.1ns	50 ±5 (at 100MHz)	0.20 max.	100 min.	100
LDHA21N50BAA-300	1.5 ±0.1ns	50 ±5 (at 100MHz)	0.30 max.	100 min.	100
LDHA22N00BAA-300	2.0 ±0.1ns	50 ±5 (at 100MHz)	0.40 max.	100 min.	100
LDHA22N50BAA-300	2.5 ±0.1ns	50 ±5 (at 100MHz)	0.40 max.	100 min.	100
LDHA23N00BAA-300	3.0 ±0.1ns	50 ±10 (at 100MHz)	0.75 max.	100 min.	100
LDHA24N00BAA-300	4.0 ±0.1ns	50 ±10 (at 100MHz)	1.00 max.	100 min.	100
LDHA25N00BAA-300	5.0 ±0.1ns	50 ±10 (at 100MHz)	1.25 max.	100 min.	100
LDHA26N00CAA-300	6.0 ±0.2ns	50 ±10 (at 100MHz)	1.50 max.	100 min.	100
LDHA27N00CAA-300	7.0 ±0.2ns	50 ±10 (at 100MHz)	1.75 max.	100 min.	100
LDHA28N00CAA-300	8.0 ±0.2ns	50 ±10 (at 100MHz)	2.00 max.	100 min.	100
LDHA29N00CAA-300	9.0 ±0.2ns	50 ±10 (at 100MHz)	2.25 max.	100 min.	100
LDHA210N0CAA-300	10.0 ±0.2ns	50 ±10 (at 100MHz)	2.50 max.	100 min.	100

Operating Temperature Range : -40°C to +85°C

4

Noise Suppression Products/ EMI Suppression Filters (EMIFIL[®])

- Chip EMIFIL[®] Inductor Type
- Chip EMIFIL[®] Capacitor Type
- Chip EMIFIL[®] LC Combined Type
- Chip EMIFIL[®] RC Combined Type
- Chip Common Mode Choke Coils
- Lead EMIFIL[®] Inductor Type
- Lead EMIFIL[®] Capacitor Type
- Lead EMIFIL[®] LC Combined Type
- Lead Common Mode Choke Coils
- Chip Varistors
- EMIGUARD[®] (EMIFIL[®] with Varistor Function)
- AC Line Filters
- RC/C Modules
- Microwave Absorbers
- Ferrite Cores for EMI Suppression

● Part Numbering (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
If you have any questions about details, inquire at your usual Murata sales office or distributor.

Chip EMIFIL® Inductor Type

(Global Part Number)

BL	M	18	AG	102	S	N	1	D
1	2	3	4	5	6	7	8	9

① Product ID

Product ID	
BL	Chip Ferrite Beads

② Type

Code	Type
A	Array Type
M	Monolithic Type

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
15	1.00×0.50mm	0402
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805
31	3.20×1.60mm	1206
41	4.50×1.60mm	1806

④ Characteristics/Applications

Code *1	Characteristics/Applications	Series
AF	for General Use	BLM31/BLM41
AG		BLM15/BLM18/BLM21/BLM31/BLA31
AJ		BLM21/BLM31
AH		BLM21
BA	for High-speed Signal Lines	BLM18
BB		BLM15/BLM18/BLM21
BD		BLM15/BLM18/BLM21/BLA31
BE		BLM31
PF	for Power Supplies	BLM41
PG		BLM18/BLM21/BLM31/BLM41
RK	for Digital Interface	BLM18/BLM21
HG	for GHz Band General Use	BLM18
HD	for GHz Band High-speed Signal Line	BLM18
HK	for GHz Band Digital Interface	BLM18

*1 Frequency characteristics is varied with each code.

⑨ Packaging

Code	Packaging	Series
K	Plastic Taping (ø330mm Reel)	BLM31/BLM41/BLM21 *1
L	Plastic Taping (ø180mm Reel)	
B	Bulk	All series
J	Paper Taping (ø330mm Reel)	BLM15/BLM18/BLM21*2 /BLA31
D	Paper Taping (ø180mm Reel)	
C	Bulk Case	BLM15/BLM18

*1 BLM21BD222SN1/BLM21BD272SN1/BLM21BD252SN1 only.

*2 Except BLM21BD222SN1/BLM21BD272SN1/BLM21BD252SN1

⑤ Impedance

Expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Performance

Expressed by an alphabet.

Ex.)

Code	Performance
S	Sn Plating

⑦ Category

Code	Category
N	Standard Type
H	for Automotive Electronics

⑧ Numbers of Circuit

Code	Numbers of Circuit
1	1Circuit
4	4Circuit

Chip EMIFIL® Capacitor Type

(Global Part Number) **NF** **M** **3D** **CC** **102** **R** **1H** **3** **L**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
NF	Chip EMI Filters Capacitor Type

② Structure

Code	Structure
M	Capacitor Type

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
21	2.00×1.25mm	0805
3D	3.20×1.25mm	1206
41	4.50×1.60mm	1806
55	5.70×5.00mm	2200

④ Features

Code	Features
CC	Capacitor Type for Signal Lines
PC	Capacitor Type for Large Current
HC	Capacitor Type for Automotive Electronics

⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

⑨ Packaging

Code	Packaging	Series
L	Plastic Taping (ø180mm Reel)	NFM3D/NFM41/NFM55
B	Bulk	All series
D	Paper Taping (ø180mm Reel)	NFM21

⑥ Capacitance Change

Code	Capacitance Change
B	±10%
F	+30/-80%
R	±15%
U	-750 ±120ppm
S	+350 to -1000ppm

⑦ Rated Voltage

Code	Rated Voltage
1A	10V
1C	16V
1E	25V
1H	50V
2A	100V

⑧ Electrode/Others

Expressed by a figure.

Ex.) Code	Electrode
3	Sn Plating
4	Solder Coating
9	Others

Chip EMIFIL® Capacitor Array Type

(Global Part Number) **NF** **A** **31** **CC** **101** **S** **1E** **4** **B**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
NF	Chip EMI Filters Capacitor Type

② Structure

Code	Structure
A	Array Type

③ Dimension (L×W)

Code	Dimension (L×W)
31	3.20×1.60mm

④ Features

Code	Features
CC	Capacitor Type for Signal Lines

⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

⑥ Capacitance Change

Code	Capacitance Change
R	±15%
S	+350 to -1000ppm

⑦ Rated Voltage

Code	Rated Voltage
1C	16V
1E	25V

⑧ Numbers of Circuit

Code	Number of Circuit
4	4 circuit

⑨ Packaging

Code	Packaging
B	Bulk
D	Paper Taping (ø180mm Reel)

Chip EMIFIL® LC Combined Type

(Global Part Number) **NF** **W** **31** **SP** **206** **X** **1E** **4** **L**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
NF	Chip EMI Filters LC Combined Type

② Structure

Code	Structure
L	Monolithic, LC Combined Type
W	Winding, LC Combined Type
E	Block, LC Combined Type

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
21	2.0×1.25mm	0805
31	3.20×1.60mm	1206
61	6.80×1.60mm	2606

④ Features

Code	Features
SP	π Circuit for Signal Lines
PT	T Circuit for Large Current
HP	π Circuit for Automotive Electronics
HT	T Circuit for Automotive Electronics

⑤ Cut-off Frequency (NFL/NFW Series)

Expressed by three figures. The unit is in hertz (Hz). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures.

⑥ Capacitance (NFE Series)

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

⑨ Packaging

Code	Packaging	Series
K	Plastic Taping (ø330mm Reel)	NFW31/NFE
L	Plastic Taping (ø180mm Reel)	NFW31/NFE
B	Bulk	NFL21/NFE
D	Paper Taping (ø180mm Reel)	NFL21

⑥ Characteristics (NFL/NFW Series)

Code	Characteristics
X	Cut off Frequency

⑥ Capacitance Change (NFE Series)

Code	Capacitance Change
B	±10%
C	±20%, ±22%
D	+20/-30%, +22/-33%
E	+20/-55%, +22/-56%
F	+30/-80%, +22/-82%
R	±15%
U	-750 ±120ppm/ °C
Z	Other

⑦ Rated Voltage

Code	Rated Voltage
1C	16V
1E	25V
1H	50V
2A	100V

⑧ Electrode

Expressed by a figure.

Ex.)

Code	Electrode
0	Ag / Pd Outer Electrode
3	Sn Plating
4	Solder Coating
9	Others

Chip EMIFIL® RC Combined Type

(Global Part Number)

NF	R	21	GD	470	470	2	L
1	2	3	4	5	6	7	8

① Product ID

Product ID	
NF	EMIFIL®

② Structure

Code	Structure
R	RC Combined Type

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
21	2.00×1.25mm	0805

④ Features

Code	Features
GD	RC Combined Type for Signal Lines

⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figure are significant digits.

⑥ Resistance

Expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits.

⑦ Electrode/Others

Code	Electrode
1	Ag Plating
2	Sn Plating

⑧ Packaging

Code	Packaging
L	Plastic Taping (ϕ 180mm Reel)
B	Bulk

4

Noise Suppression Products/(EMIFIL®)

Chip EMIFIL® RC Combined Array Type

(Global Part Number)

NF	A	31	GD	100	101	4	D
1	2	3	4	5	6	7	8

① Product ID

Product ID	
NF	EMIFIL®

② Structure

Code	Structure
A	Array Type

③ Dimension (L×W)

Code	Dimension (L×W)
31	3.20×1.60mm

④ Features

Code	Features
GD	RC Combined Type for Signal Lines

⑤ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figure are significant digits.

⑥ Resistance

Expressed by three figures. The unit is in ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits.

⑦ Numbers of Circuit

Code	Numbers of Circuit
4	4 Circuit

⑧ Packaging

Code	Packaging
B	Bulk
D	Paper Taping (ϕ 180mm Reel)

Chip EMIFIL® Common Mode Choke Coils

(Global Part Number) **DL M 31 K N 281 S J 2 L**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Product ID

Product ID	
DL	Chip Common Mode Choke Coils

② Structure

Code	Structure
W	Monolithic Type
M	Winding Type
P	Film Type

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
21	2.00×1.20mm	0805
31	3.20×1.60mm	1206
2H	2.50×2.00mm	-
5A	5.00×3.60mm	-
5B	5.00×5.00mm	-

④ Type

Code	Type
S	Magnetically Shielded One Circuit Type
D	Magnetically Shielded Two Circuit Type
H	Open Magnetic One Circuit Type
K	Magnetically Monolithic Type (bifilar winding)
G	Magnetically Monolithic Type (sectional winding)

⑩ Packaging

Code	Packaging	Series
K	Plastic Taping (ø330mm Reel)	DLW5AH/DLW5BS
L	Plastic Taping (ø180mm Reel)	All series
B	Bulk	All series except DLM2H

⑤ Category

Code	Category
N	Standard Type

⑥ Impedance

Typical impedance at 100MHz is expressed by three figures. The unit is in ohm (|). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

⑦ Circuit

Ex.)

Code	Circuit
S	Standard Type

⑧ Features

Expressed by an alphabet.

⑨ Numbers of Signal Line

Code	Number of Signal Line
2	Two Lines
3	Three Lines
4	Four Lines

Lead Type EMIFIL® Inductor Type

(Global Part Number) **BL** **02** **RN** **2** **R1** **M** **2** **B**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
BL	Ferrite Beads Inductors

② Series

Code	Series
01	Beads ϕ 3.6
02	Beads ϕ 3.4
03	Beads ϕ 2.3 max.

③ Beads Core Material

Code	Beads Core Material
RN	Standard Type

④ Numbers of Beads Core

Code	Numbers of Beads Core
1	1
2	2

⑤ Lead Type

Code	Lead Type
A1	Axial Straight Type
A2	Axial Crimp Type
R1	Radial Straight Type
R2	Radial Straight and wave formed Leads Type

⑧ Packaging

Code	Packaging	Series
A	Ammo Pack	BL01RN1A1E1A/BL02/BL03
B	Bulk	All series
J	Corrugated Reel (ϕ 320mm)	BL01RN1A1F1J

⑥ Lead Length, Space

Code	Lead Length, Space
A	Bulk, Axial Type, 3.7mm
B	Bulk, Axial Type, 4.6mm
C	Bulk, Axial Type, 10.0mm
D	Bulk, Axial Type, 47.0mm
E	Taping Axial Type, 26.0mm
F	Taping, Axial Type, 52.0mm
G	Bulk, Radial Type, 3.5mm
H	Bulk, Radial Type, 4.0mm
J	Bulk, Radial Type, 5.0mm
K	Bulk, Radial Type, 6.0mm
L	Bulk, Radial Type, 8.0mm
M	Bulk, Radial Type, 10.0mm
N	Taping, Radial Type, 16.5mm
P	Taping, Radial Type, 18.5mm
Q	Taping, Radial Type, 20.0mm

⑦ Lead Diameter

Code	Lead Diameter
1	ϕ 0.60mm
2	ϕ 0.65mm

Lead Type EMIFIL® Capacitor Type

(Global Part Number) **DS** **S** **9** **H** **B3** **2E** **271** **Q55** **B**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
DS	Three-terminals Capacitor

② Structure

Code	Structure
N	No Ferrite Beads Type
S	Built-in Ferrite Beads Type
T	with Ferrite Beads Type

③ Style

Code	Style
6	Diameter 8.0mm Type
9	Diameter 9.5mm Type

④ Category

Code	Category
N	for General Use
H	for Heavy-duty

⑨ Packaging

Code	Packaging	Series
A	Ammo Pack	All series except DSS9
B	Bulk	All series
J	Corrugated Reel (ø320mm)	DSS9

⑤ Temperature Characteristics

Code	Temperature Characteristics
B3	±10% (Temperature Range : -25°C to +85°C)
D3	+20/-30% (Temperature Range : -25°C to +85°C)
E3	+20/-55% (Temperature Range : -25°C to +85°C)
F3	+30/-80% (Temperature Range : -25°C to +85°C)
Z8	+30/-85% (Temperature Range : -10°C to +60°C)

⑥ Rated Voltage

Code	Rated Voltage
1C	16V
1H	50V
2A	100V
2E	250V

⑦ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

⑧ Lead Type

Code	Lead Type
Q□□	Straight Type
T□□, U□□	Others

Lead Type Common Mode Choke Coils / AC Line Filters

(Global Part Number) **PL A 10 A S 152 2R0 R 2 B**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Product ID

Product ID	
PL	Common Mode Choke Coils

② Type

Code	Type
T	DC Type
A	Standard Type
H	High-frequency Type
Y	Hybrid Choke Coils Type

③ Applications

Code	Applications
08	for DC Line
09	for DC Line High-frequency Type
10	for AC Line

④ Structure

Code	Structure
A	Core Vertical Type
H	Core Horizontal Type
C	Case Type

⑤ Features

Code	Features
S	Safety Recognized
N	General Use

⑩ Packaging

Code	Packaging	Series
B	Bulk	All series
M	Magazine Package	PLT All series

•Please contact us for FKOB type.

⑥ Inductance

Expressed by three figures. The unit is micro-henry (μ H). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits. If inductance is less than 0.1 μ H, the inductance code is expressed by combination of two figures and capital letter "N", and the unit of inductance is nano-henry (nH). Capital letter "N" indicates the unit of "nH", and also expresses a decimal point. In this case, all figure are significant digits.

⑦ Rated Current

Expressed by three figures. The unit is in ampere (A). A decimal point is expressed capital letter "R". In this case, all figures are significant digits.

⑧ Winding Mode

Code	Winding Mode
D	Sectional Winding Type
R	Standard Type
P	Aligned Winding Type
T	Troidal Type

⑨ Lead Dimensions

Code	Lead Dimensions
2	3.5mm
1	5mm
0	4mm (PLT)
3	4mm (Except for PLT)

Chip Varistors

(Global Part Number)

VC	M	18	R	N	180	D	S	1	L
1	2	3	4	5	6	7	8	9	10

① Product ID

Product ID	
VC	Chip Varistor

② Structure

Code	Structure
M	Monolithic Type

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805

④ Style

Code	Style
R	Standard Type

⑤ Category

Code	Category
N	Standard Type

⑥ Rated Voltage

Expressed by three figures. The unit is in volts (V). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures. If there is a decimal point, it is expressed by capital letter "R". In this case, all figures are significant digits.

⑦ Electrode

Expressed by a figure.

Ex.)

Code	Electrode
D	Ag/Pd
S	Sn

⑧ Characteristics

Code	Characteristics
S	Standard Type

⑨ Number of Circuit

Code	Number of Circuit
1	1 Circuit

⑩ Packaging

Code	Packaging
L	Plastic Taping (ø180mm Reel)
B	Bulk

Chip EMIGUARD® (EMIFIL® with Varistor Function)

(Global Part Number)

VF	M	41	R	N	222	N	1C	L
1	2	3	4	5	6	7	8	9

① Product ID

Product ID	
VF	Chip Solid EMIGUARD®

② Structure

Code	Structure
M	Monolithic Type

③ Dimension (L×W)

Code	Dimension (L×W)
41	4.50×1.60mm

④ Outer Electrode

Code	Outer Electrode
R	Standard Type

⑤ Category

Code	Category
N	Standard

⑥ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

⑦ Capacitance Tolerance

Code	Capacitance Tolerance
N	±30%

⑧ Rated Voltage

Code	Rated Voltage
1C	16V

⑨ Packaging

Code	Packaging
L	Plastic Taping (ø180mm Reel)
B	Bulk

Lead Type EMIGUARD® (EMIFIL® with Varistor Function)

(Global Part Number) **VF** **S** **6** **V** **D8** **1E** **221** **T51** **B**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
VF	EMIGUARD® Lead Type

② Structure

Code	Structure
S	Built-in Ferrite Beads Type
R	with Resistance

③ Style

Code	Style
3	Size is expressed by a figure
6	
9	

④ Features

Code	Features
V	with Varistor Function

⑨ Packaging

Code	Packaging	Series
A	Ammo Pack	VFR3V/VFS6V
B	Bulk	VFR3V/VFS6V/VFS9V
J	Corrugated Reel ø320mm	VFS9V

⑤ Temperature Characteristics

Code	Temperature Characteristics
D8	+20/-30% (Temperature Range : -40°C~+105°C)
D3	+20/-30% (Temperature Range : -25°C~+85°C)

⑥ Rated Voltage

Code	Rated Voltage
1E	25V
1B	12V

⑦ Capacitance

Expressed by three figures. The unit is in pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zero which follow the two figures.

⑧ Lead Type

Code	Lead Type
Q□□	Straight Type
T□□, U□□	Others

RC/C Module

(Global Part Number)

RC Module

AR	CL	8	L	S	103	102	
①	②	③	④	⑤	⑥	⑦	⑧

C Module

CN	TL	8	X	W	102M	
①	②	③	④	⑤	⑦	⑧

① Product ID

Product ID	
AR	RC Module
CN	C Module

② Series

Code	Series
C	Standard (H : 7.6mm max.)
CL	Low-profile Standard (H : 5.5mm max.)
TL	Low-profile Standard (H : 5.5mm max.)

③ Number of Lead Terminal

Expressed by one or two figures.

④ Circuit Type

Expressed by an alphabet.

⑤ Lead Pitch

Code	Lead Pitch	
None	AR Series	Inch Pitch
W	CNTL Series	Inch Pitch
S	Shrink Pitch	

⑥ Resistance and Tolerance (RC Module)

Expressed by three figures.

Ex.)

Code	Resistance and Tolerance
103	10000Ω±5%

Please contact us for any other tolerance.

⑦ Capacitance and Tolerance

RC Module : Expressed by three figures.

C Module : Expressed by three figures and an alphabet.

Ex.)

Code	Capacitance and Tolerance	
102	RC Module	1000pF
102M	C Module	1000pF, M : ±20%

As for the tolerance of RC Modules.

⑧ Other Specifications

Ferrite Cores

(Global Part Number) **FS RB 12 1 060 RT B0 0 T**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
FS	Ferrite

② Series

Code	Series
RH	Beads Core
RB	Ring Core
RC	for Flat Cable
MA	Mutli-hole Core
SA	Plate Core

③ Dimensions

Code	Dimensions
12	Approximately 12mm
05	Approximately 5mm

④ Outer Dimension Supplement Code

Code	Outer Dimension Supplement Code
0	Serial number is added in case their internal diameters are the same.

⑤ Length

Code	Length
120	12.0mm
050	5.0mm
A50	1.50mm
B50	2.50mm
Z50	0.50mm
Z55	0.55mm

Expressed by three figures or combination of an alphabet and two figures. A to J (except I) indicates one to nine. Z indicates Zero.

⑥ Material

Code	Material
RN	Ni-Zn $\mu=550$
RT	Ni-Zn $\mu=1600$
RX	Ni-Zn $\mu=750$

⑦ Process

Code	Process
00	Standard Type
B0	Barrel Type
F0	Separate Type

⑧ Individual Specification Code

Code	Individual Specification Code
0	Standard Type

⑨ Packaging

Code	Packaging
B	Bulk
T	Tray

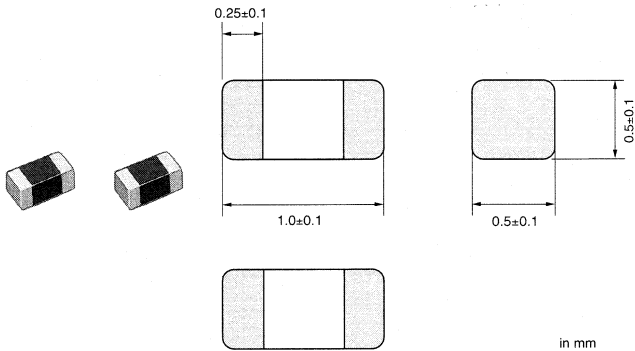
	Product Name	Series	Effective Frequency Range						
			10kHz	100kHz	1MHz	10MHz	100MHz	1GHz	10GHz
CHIP EMIFIL®	Inductors	Chip Ferrite Bead for General Line	BLM15A/18A/21A/31A/41A/BLA						
		Chip Ferrite Bead for High Frequency	BLM18B/21B/31B						
		Chip Ferrite Bead for High Current	BLM18P/21P/31P/41P						
		Chip Ferrite Beads for GHz Frequency Range	BLM18HG/18HD/18HK						
	Built-in Capacitors	Standard Type Chip EMIFIL®	NFM21C/3DC/41C NFAC1C/6CC/31C						
		Chip EMIFIL® for High Speed Signal	NFW31S/NFL21S						
		Low distortion Type Chip EMIFIL®	NFR21G/NFA31G						
		Chip EMIFIL® for High Current Lines	NFM21P/3DP/41P/55P						
		T Filter Type Large-Current Chip EMIFIL®	NFE31P/61P/61H						
		Chip Solid EMIGUARD® with Varistor Function 3-terminal Capacitors	VFM41R						
		Chip Common Mode Choke Coils	DLP31S/31D DLM31K/DLM2HG DLW21S/31S/5BS/5AH						
CHIP VARISTOR	Chip Varistor	VCM18R/21R							
LEAD TYPE EMIFIL®	Ferrite Bead Inductors	BL01/02/03							
	Built-in Capacitors Standard Type EMIFIL®	DSN6/DSS6/DSN9H DST9H/DSS9H							
	EMIGUARD® with Varistor Function 3-terminal capacitors	VFR3V/VFS9V/VFS6V							
	Block Type EMIFIL®	BNX/BNP							
	Common Mode Choke Coils	PLT08C/09H							
AC LINE EMIFIL®	Standard Type Common Mode Choke Coils	PLA10/FKOB							
	High-Frequency Common Mode Choke Coils	PLH10							
	Hybrid Choke Coil	PLY10							
	EMC Absorber	EA10/20/21							

For chip EMIFIL®, lead type EMIFIL®, feed thru capacitors, use rosin-based flux, but not strong acidic flux (with chlorine exceeding 0.20wt%). Do not use water-soluble-flux.

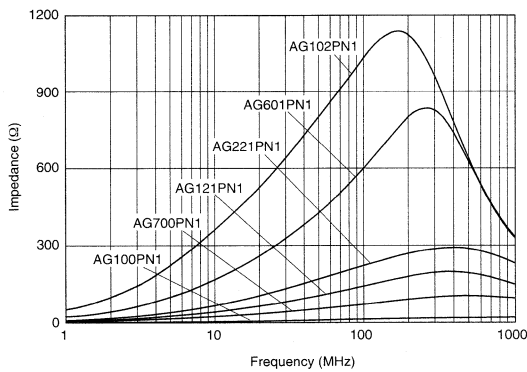
Chip EMIFIL® Inductor Type

Chip Ferrite Beads

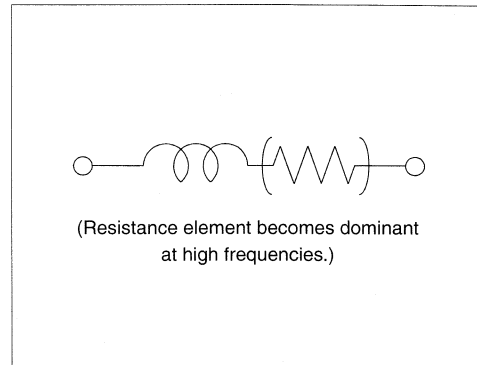
● BLM15 Series (0402)



Z-f of Main Items

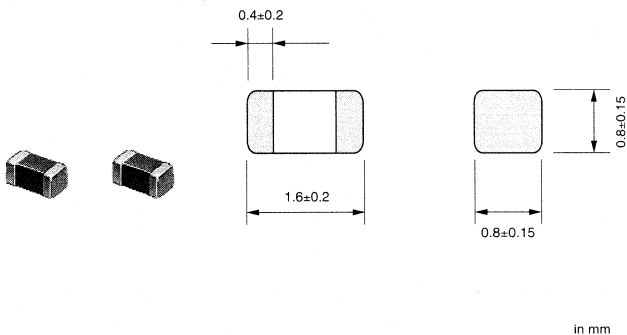


Equivalent Circuit



Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM15AG100PN1	10 (Typ.)	500	0.05	-55 to 125
BLM15AG700PN1	70 (Typ.)	200	0.40	-55 to 125
BLM15AG121PN1	120 (Typ.)	200	0.50	-55 to 125
BLM15AG221PN1	220 ±25%	100	0.70	-55 to 125
BLM15AG601PN1	600 ±25%	50	1.10	-55 to 125
BLM15AG102PN1	1000 ±25%	50	1.50	-55 to 125
BLM15BB750PN1	75 ±25%	100	0.80	-55 to 125
BLM15BB121PN1	120 ±25%	50	1.10	-55 to 125
BLM15BB221PN1	220 ±25%	50	1.40	-55 to 125
BLM15BD421PN1	420 ±25%	50	1.30	-55 to 125
BLM15BD601PN1	600 ±25%	50	1.50	-55 to 125
BLM15BD102PN1	1000 ±25%	50	1.30	-55 to 125

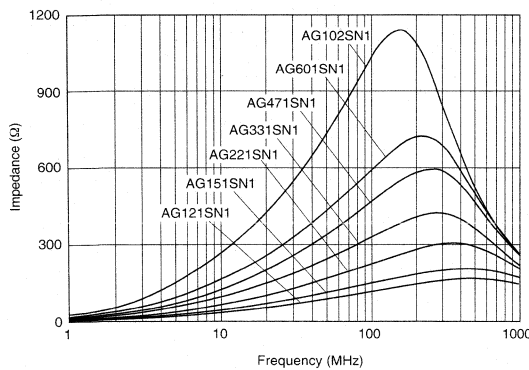
● BLM18 Series (0603)



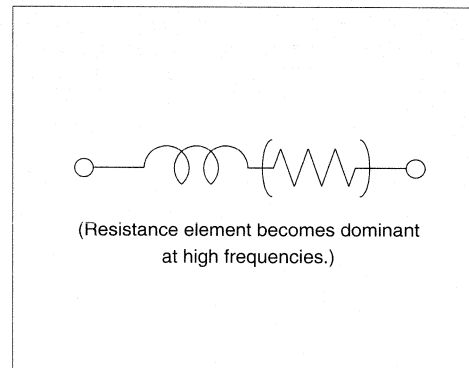
Continued on the following page.

Continued from the preceding page.

Z-f of Main Items



Equivalent Circuit



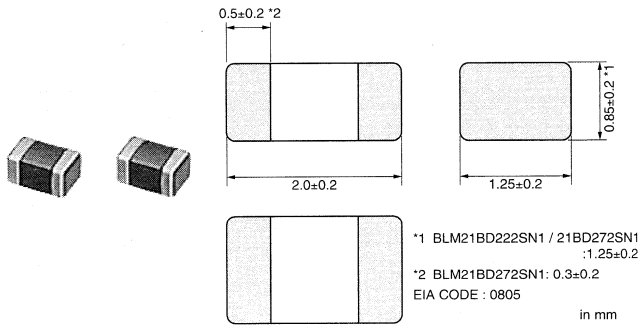
Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM18AG121SN1	120 ±25%	200	0.20	-55 to 125
BLM18AG151SN1	150 ±25%	200	0.25	-55 to 125
BLM18AG221SN1	220 ±25%	200	0.30	-55 to 125
BLM18AG331SN1	330 ±25%	200	0.45	-55 to 125
BLM18AG471SN1	470 ±25%	200	0.50	-55 to 125
BLM18AG601SN1	600 ±25%	200	0.50	-55 to 125
BLM18AG102SN1	1000 ±25%	100	0.70	-55 to 125
BLM18BA050SN1	5 ±25%	500	0.20	-55 to 125
BLM18BA100SN1	10 ±25%	500	0.25	-55 to 125
BLM18BA220SN1	22 ±25%	500	0.35	-55 to 125
BLM18BA470SN1	47 ±25%	300	0.55	-55 to 125
BLM18BA750SN1	75 ±25%	300	0.70	-55 to 125
BLM18BA121SN1	120 ±25%	200	0.90	-55 to 125
BLM18BB050SN1	5 ±25%	700	0.10	-55 to 125
BLM18BB100SN1	10 ±25%	500	0.15	-55 to 125
BLM18BB220SN1	22 ±25%	500	0.25	-55 to 125
BLM18BB470SN1	47 ±25%	500	0.30	-55 to 125
BLM18BB600SN1	60 ±25%	200	0.35	-55 to 125
BLM18BB750SN1	75 ±25%	200	0.35	-55 to 125
BLM18BB121SN1	120 ±25%	200	0.50	-55 to 125
BLM18BB141SN1	140 ±25%	200	0.55	-55 to 125
BLM18BB151SN1	150 ±25%	200	0.55	-55 to 125
BLM18BB221SN1	220 ±25%	200	0.65	-55 to 125
BLM18BB331SN1	330 ±25%	200	0.75	-55 to 125
BLM18BB471SN1	470 ±25%	50	1.00	-55 to 125
BLM18BD121SN1	120 ±25%	200	0.40	-55 to 125
BLM18BD151SN1	150 ±25%	200	0.40	-55 to 125
BLM18BD221SN1	220 ±25%	200	0.45	-55 to 125
BLM18BD331SN1	330 ±25%	200	0.50	-55 to 125
BLM18BD421SN1	420 ±25%	200	0.55	-55 to 125
BLM18BD471SN1	470 ±25%	200	0.55	-55 to 125
BLM18BD601SN1	600 ±25%	200	0.65	-55 to 125
BLM18BD102SN1	1000 ±25%	100	0.85	-55 to 125
BLM18BD152SN1	1500 ±25%	50	1.20	-55 to 125
BLM18BD182SN1	1800 ±25%	50	1.50	-55 to 125
BLM18BD222SN1	2200 ±25%	50	1.50	-55 to 125
BLM18BD252SN1	2500 ±25%	50	1.50	-55 to 125
BLM18PG300SN1	30 (Typ.)	1000	0.05	-55 to 125
BLM18PG330SN1	33 ±25%	3000	0.025	-55 to 125
BLM18PG600SN1	60 (Typ.)	500	0.10	-55 to 125
BLM18PG121SN1	120 ±25%	2000	0.05	-55 to 125
BLM18PG181SN1	180 ±25%	1500	0.09	-55 to 125

Continued on the following page.

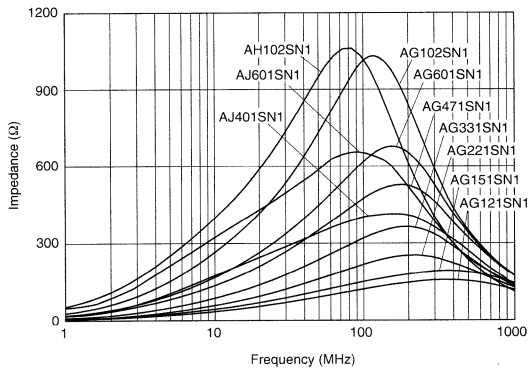
Continued from the preceding page.

Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM18RK121SN1	120 ±25%	200	0.25	-55 to 125
BLM18RK221SN1	220 ±25%	200	0.30	-55 to 125
BLM18RK471SN1	470 ±25%	200	0.50	-55 to 125
BLM18RK601SN1	600 ±25%	200	0.60	-55 to 125
BLM18RK102SN1	1000 ±25%	100	0.80	-55 to 125

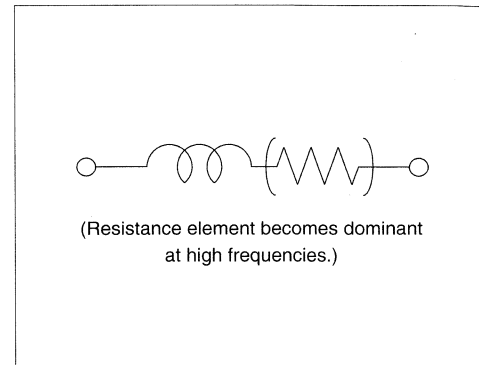
● BLM21 Series (0805)



Z-f of Main Items



Equivalent Circuit



Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM21AG121SN1	120 ±25%	200	0.15	-55 to 125
BLM21AG151SN1	150 ±25%	200	0.15	-55 to 125
BLM21AG221SN1	220 ±25%	200	0.20	-55 to 125
BLM21AG331SN1	330 ±25%	200	0.25	-55 to 125
BLM21AG471SN1	470 ±25%	200	0.25	-55 to 125
BLM21AG601SN1	600 ±25%	200	0.30	-55 to 125
BLM21AG102SN1	1000 ±25%	200	0.45	-55 to 125
BLM21AH102SN1	1000 ±25%	200	0.45	-55 to 85
BLM21AJ401SN1	400 ±25%	200	0.85	-55 to 125
BLM21AJ601SN1	600 ±25%	200	1.10	-55 to 125
BLM21BB050SN1	5 ±25%	500	0.07	-55 to 125
BLM21BB600SN1	60 ±25%	200	0.20	-55 to 125
BLM21BB750SN1	75 ±25%	200	0.25	-55 to 125
BLM21BB121SN1	120 ±25%	200	0.25	-55 to 125
BLM21BB151SN1	150 ±25%	200	0.25	-55 to 125
BLM21BB201SN1	200 ±25%	200	0.35	-55 to 125
BLM21BB221SN1	220 ±25%	200	0.35	-55 to 125
BLM21BB331SN1	330 ±25%	200	0.40	-55 to 125
BLM21BB471SN1	470 ±25%	200	0.45	-55 to 125
BLM21BD121SN1	120 ±25%	200	0.25	-55 to 125

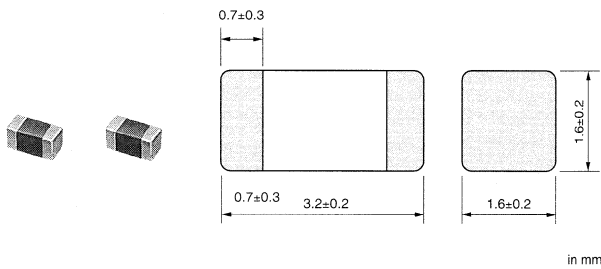
Continued on the following page. ↗

Continued from the preceding page.

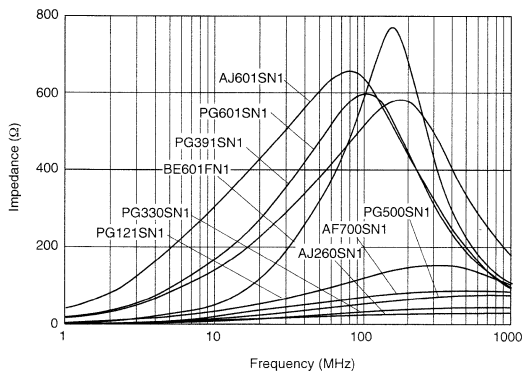
Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM21BD151SN1	150 ±25%	200	0.25	-55 to 125
BLM21BD221SN1	220 ±25%	200	0.25	-55 to 125
BLM21BD331SN1	330 ±25%	200	0.30	-55 to 125
BLM21BD421SN1	420 ±25%	200	0.30	-55 to 125
BLM21BD471SN1	470 ±25%	200	0.35	-55 to 125
BLM21BD601SN1	600 ±25%	200	0.35	-55 to 125
BLM21BD751SN1	750 ±25%	200	0.40	-55 to 125
BLM21BD102SN1	1000 ±25%	200	0.40	-55 to 125
BLM21BD152SN1	1500 ±25%	200	0.45	-55 to 125
BLM21BD182SN1	1800 ±25%	200	0.50	-55 to 125
BLM21BD222TN1	2200 ±25%	200	0.60	-55 to 125
BLM21BD222SN1	2250 (Typ.)	200	0.60	-55 to 125
BLM21BD272SN1	2700 ±25%	200	0.80	-55 to 125
BLM21PG220SN1	22 (Typ.)	6000	0.01	-55 to 125
BLM21PG300SN1	30 (Typ.)	3000	0.015	-55 to 125
BLM21PG600SN1	60 (Typ.)	3000	0.025	-55 to 125
BLM21PG221SN1	220 (Typ.)	2000	0.050	-55 to 125
BLM21PG331SN1	330 (Typ.)	1500	0.09	-55 to 125
BLM21RK121SN1	120 ±25%	200	0.15	-55 to 125
BLM21RK221SN1	220 ±25%	200	0.20	-55 to 125
BLM21RK471SN1	470 ±25%	200	0.25	-55 to 125
BLM21RK601SN1	600 ±25%	200	0.30	-55 to 125
BLM21RK102SN1	1000 ±25%	200	0.50	-55 to 125

BLM21P series require derating above 85 °C ambient. Please contact us for details.

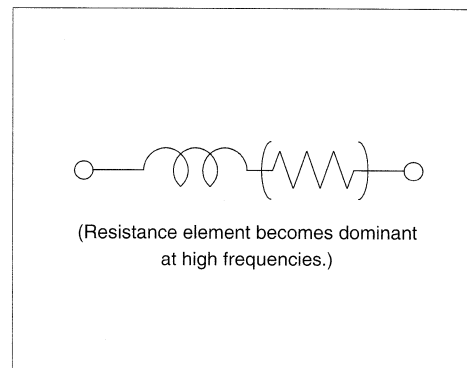
● BLM31 Series (1206)



Z-f of Main Items



Equivalent Circuit

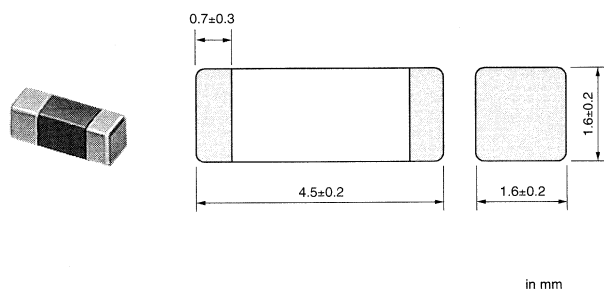


Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM31AF700SN1	70 ±25%	200	0.15	-55 to 125
BLM31AJ260SN1	26 ±25%	500	0.05	-55 to 125
BLM31AJ601SN1	600 ±25%	200	0.90	-55 to 125
BLM31BE601FN1	600 ±25%	300	0.35	-55 to 125
BLM31PG330SN1	33 (Typ.)	6000	0.01	-55 to 125
BLM31PG500SN1	50 (Typ.)	3000	0.025	-55 to 125
BLM31PG121SN1	120 (Typ.)	3000	0.025	-55 to 125
BLM31PG391SN1	390 (Typ.)	2000	0.05	-55 to 125
BLM31PG601SN1	600 (Typ.)	1500	0.09	-55 to 125

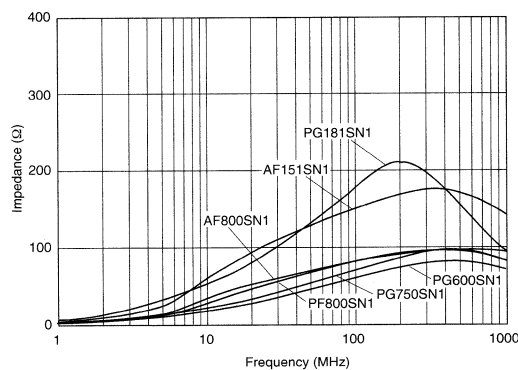
BLM31P series require derating above 85 °C ambient. Please contact us for details.

4

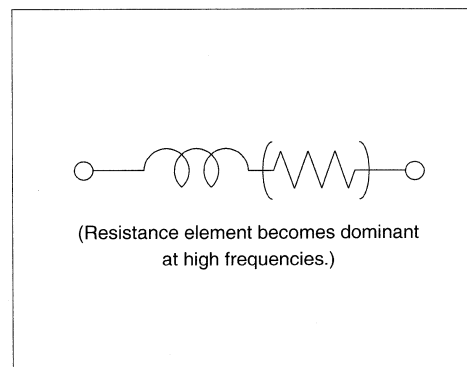
● BLM41 Series (1806)



Z-f of Main Items



Equivalent Circuit



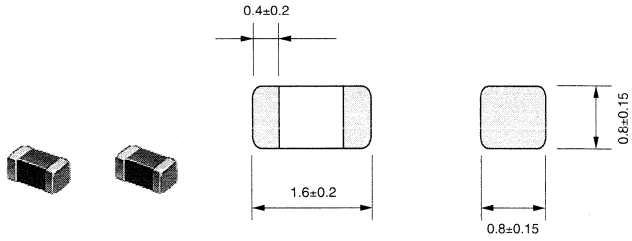
Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM41AF800SN1	80 ±25%	500	0.10	-55 to 125
BLM41AF151SN1	150 ±25%	200	0.50	-55 to 125
BLM41PF800SN1	80 (Typ.)	1000	0.10	-55 to 125
BLM41PG600SN1	60 (Typ.)	6000	0.01	-55 to 125
BLM41PG750SN1	75 (Typ.)	3000	0.025	-55 to 125
BLM41PG181SN1	180 (Typ.)	3000	0.025	-55 to 125
BLM41PG471SN1	470 (Typ.)	2000	0.05	-55 to 125
BLM41PG102SN1	1000 (Typ.)	1500	0.09	-55 to 125

BLM41P series require derating above 85 °C ambient. Please contact us for details.

Chip EMIFIL® Inductor Type

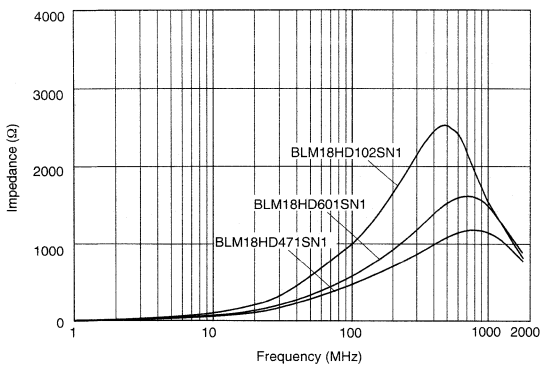
for GHz Noise Chip Ferrite Beads

● BLM18 Series (0603)

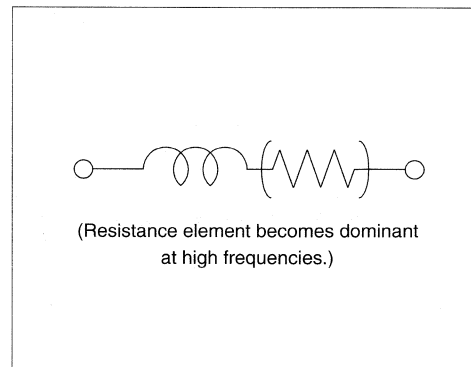


in mm

Z-f of Main Items



Equivalent Circuit

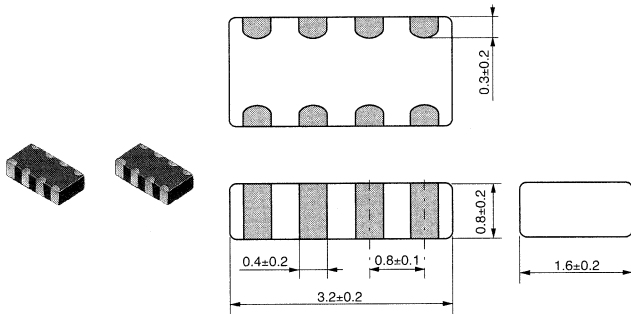


Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLM18HD471SN1	470 ±25% (1000 ohm (Typ.) at 1GHz)	100	1.20	-55 to 125
BLM18HD601SN1	600 ±25% (1200 ohm (Typ.) at 1GHz)	100	1.50	-55 to 125
BLM18HD102SN1	1000 ±25% (1700 ohm (Typ.) at 1GHz)	50	1.80	-55 to 125
BLM18HG471SN1	470 ±25% (600 ohm (Typ.) at 1GHz)	200	0.85	-55 to 125
BLM18HG601SN1	600 ±25% (700 ohm (Typ.) at 1GHz)	200	1.00	-55 to 125
BLM18HG102SN1	1000 ±25% (1000 ohm (Typ.) at 1GHz)	100	1.60	-55 to 125
BLM18HK331SN1	330 (400 ohm (Typ.) at 1GHz)	200	0.50	-55 to 125
BLM18HK471SN1	470 (600 ohm (Typ.) at 1GHz)	200	0.70	-55 to 125
BLM18HK601SN1	600 (700 ohm (Typ.) at 1GHz)	100	0.90	-55 to 125
BLM18HK102SN1	1000 (1200 ohm (Typ.) at 1GHz)	50	1.50	-55 to 125

Chip EMIFIL® Inductor Type

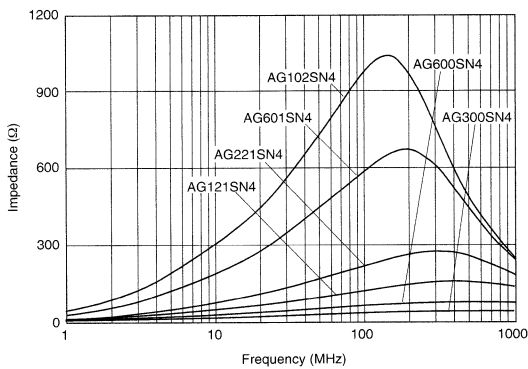
Chip Ferrite Beads Arrays

● BLA31 Series (1206)

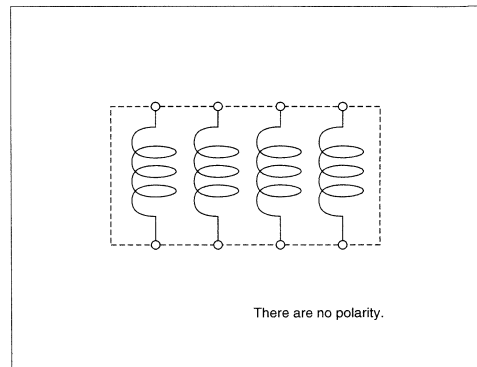


in mm

Z-f of Main Items



Equivalent Circuit



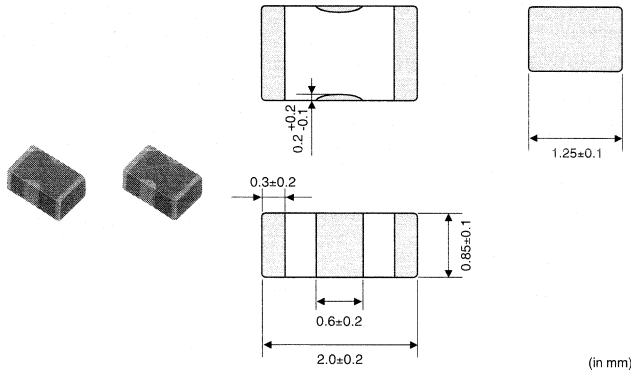
Part Number	Impedance (at 100MHz) (ohm)	Rated Current (mA)	DC Resistance(max.) (ohm)	Operating Temperature Range (°C)
BLA31AG300SN4	30 ±25%	200	0.10	-55 to 125
BLA31AG600SN4	60 ±25%	200	0.15	-55 to 125
BLA31AG121SN4	120 ±25%	150	0.20	-55 to 125
BLA31AG221SN4	220 ±25%	150	0.25	-55 to 125
BLA31AG601SN4	600 ±25%	100	0.35	-55 to 125
BLA31AG102SN4	1000 ±25%	50	0.45	-55 to 125
BLA31BD121SN4	120 ±25%	150	0.30	-55 to 125
BLA31BD221SN4	220 ±25%	150	0.35	-55 to 125
BLA31BD471SN4	470 ±25%	100	0.40	-55 to 125
BLA31BD601SN4	600 ±25%	100	0.45	-55 to 125
BLA31BD102SN4	1000 ±25%	50	0.55	-55 to 125

Number of Circuit : 4

Chip EMIFIL® Capacitor Type

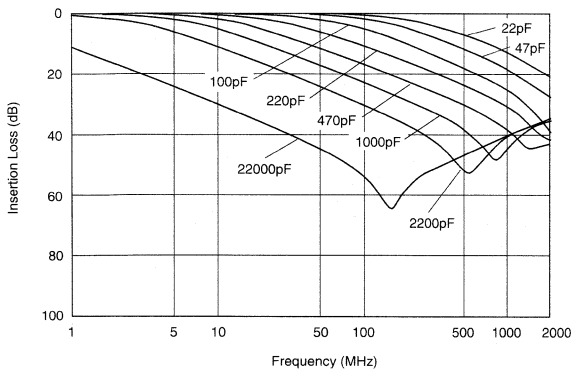
Chip EMIFIL®

● NFM21C Series (0805)

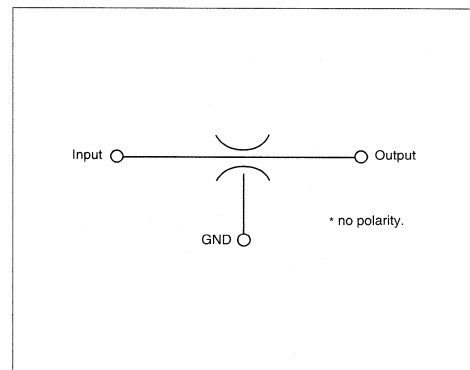


(in mm)

IL of Main Items

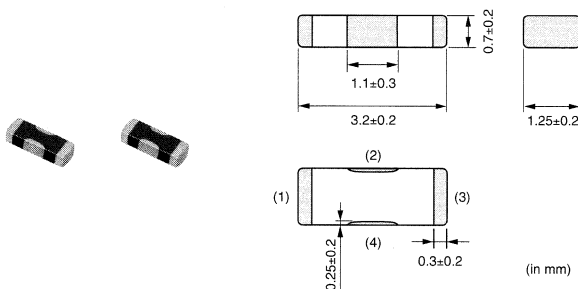


Equivalent Circuit



Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (mA)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFM21CC220U1H3	22 +20%, -20%	50	300	1000 min.	-55 to 125
NFM21CC470U1H3	47 +20%, -20%	50	300	1000 min.	-55 to 125
NFM21CC101U1H3	100 +20%, -20%	50	300	1000 min.	-55 to 125
NFM21CC221R1H3	220 +20%, -20%	50	300	1000 min.	-55 to 125
NFM21CC471R1H3	470 +20%, -20%	50	300	1000 min.	-55 to 125
NFM21CC102R1H3	1000 +20%, -20%	50	300	1000 min.	-55 to 125
NFM21CC222R1H3	2200 +20%, -20%	50	300	1000 min.	-55 to 125
NFM21CC223R1H3	22000 +20%, -20%	50	1000	1000 min.	-55 to 125

● NFM3DC Series (1205)

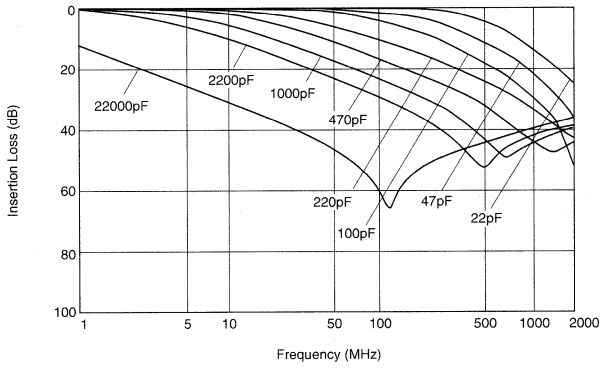


(in mm)

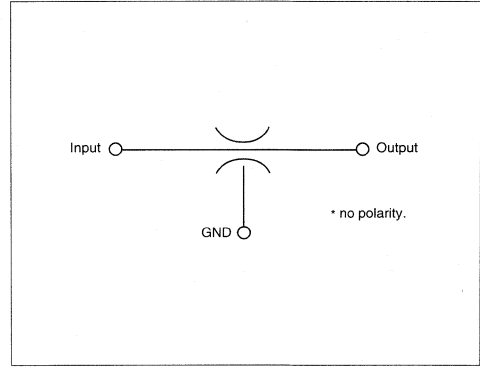
Continued on the following page. ↗

Continued from the preceding page.

IL of Main Item



Equivalent Circuit

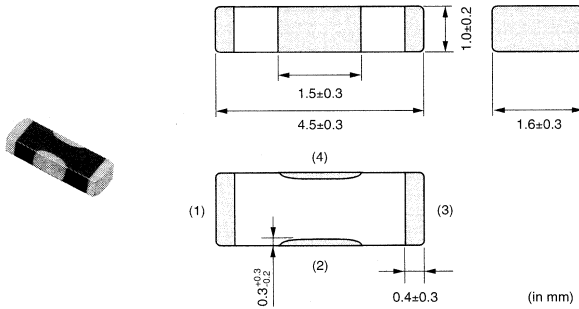


4

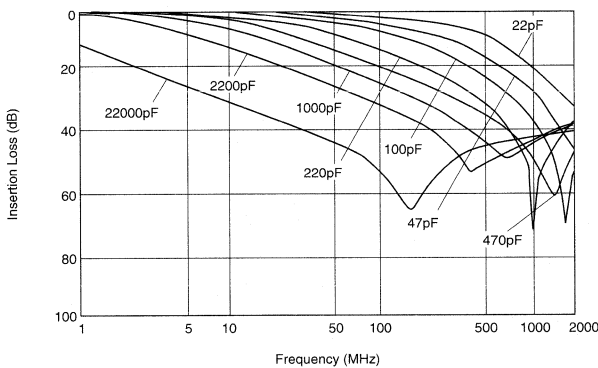
Noise Suppression Products/(EMIFIL®)

Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (mA)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFM3DCC220U1H3	22 +50%, -20%	50	300	1000 min.	-55 to 125
NFM3DCC470U1H3	47 +50%, -20%	50	300	1000 min.	-55 to 125
NFM3DCC101U1H3	100 +50%, -20%	50	300	1000 min.	-55 to 125
NFM3DCC221R1H3	220 +50%, -20%	50	300	1000 min.	-55 to 125
NFM3DCC471R1H3	470 +50%, -20%	50	300	1000 min.	-55 to 125
NFM3DCC102R1H3	1000 +50%, -20%	50	300	1000 min.	-55 to 125
NFM3DCC222R1H3	2200 +50%, -20%	50	300	1000 min.	-55 to 125
NFM3DCC223R1H3	22000 +50%, -20%	50	300	1000 min.	-55 to 125

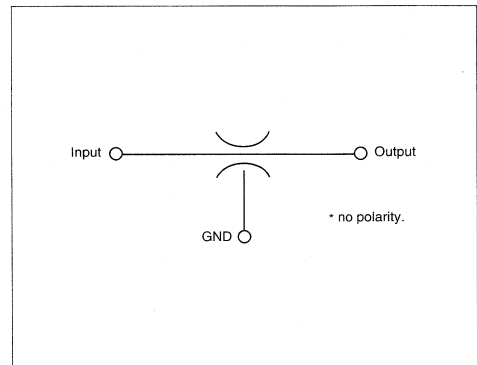
● NFM41C Series (1806)



IL of Main Item



Equivalent Circuit



Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (mA)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFM41CC220U2A3	22 +50%, -20%	100	300	10000 min.	-55 to 125
NFM41CC470U2A3	47 +50%, -20%	100	300	10000 min.	-55 to 125
NFM41CC101U2A3	100 +50%, -20%	100	300	10000 min.	-55 to 125

Continued on the following page.

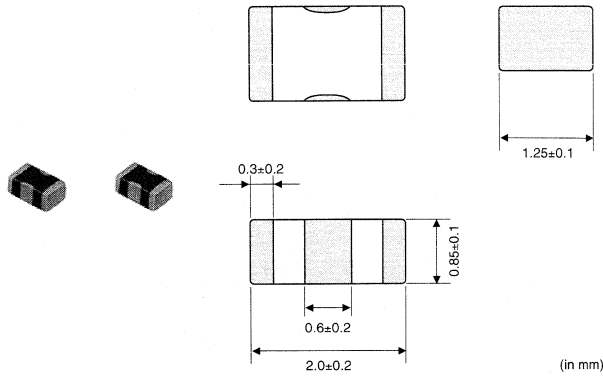
Continued from the preceding page.

Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (mA)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFM41CC221U2A3	220 +50%,-20%	100	300	10000 min.	-55 to 125
NFM41CC471R2A3	470 +50%,-20%	100	300	10000 min.	-55 to 125
NFM41CC102R2A3	1000 +50%,-20%	100	300	10000 min.	-55 to 125
NFM41CC222R2A3	2200 +50%,-20%	100	300	10000 min.	-55 to 125
NFM41CC223R2A3	22000 +50%,-20%	100	300	10000 min.	-55 to 125

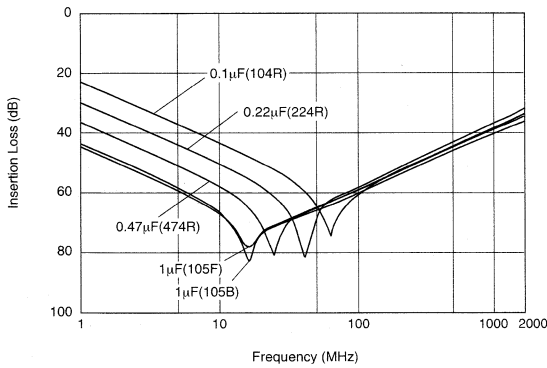
Chip EMIFIL® Capacitor Type

Chip EMIFIL® for Large Current

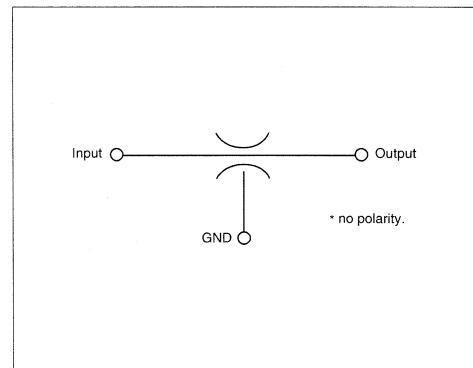
● NFM21P Series (0805)



Insertion Loss(Typ.)

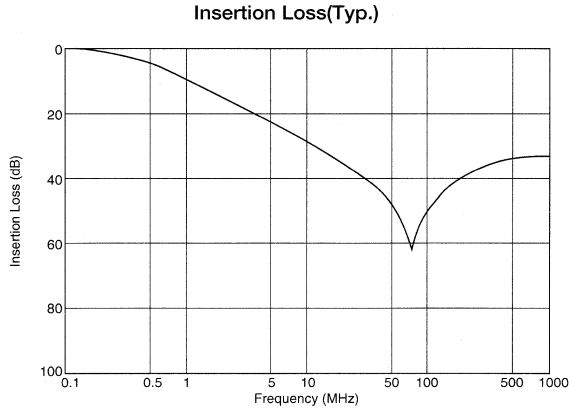
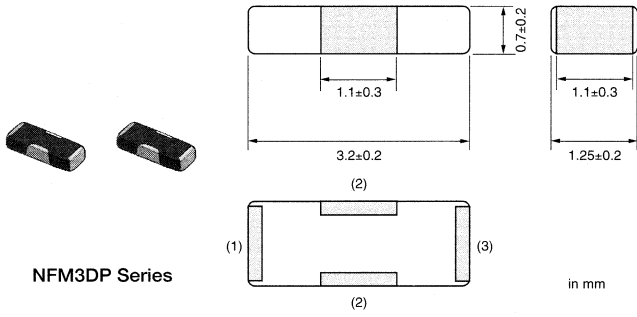


Equivalent Circuit

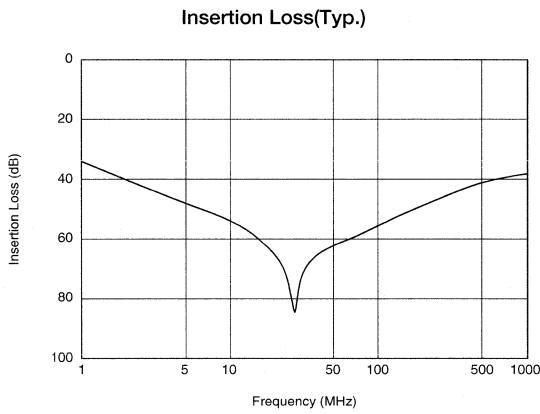
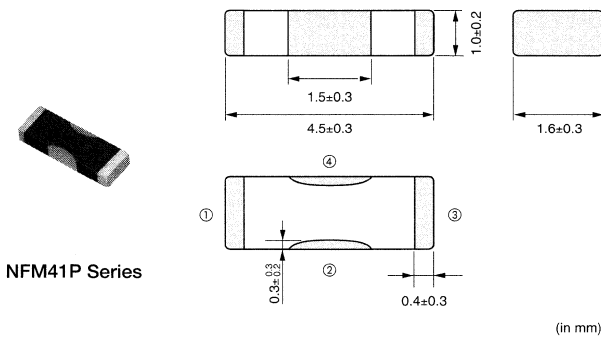
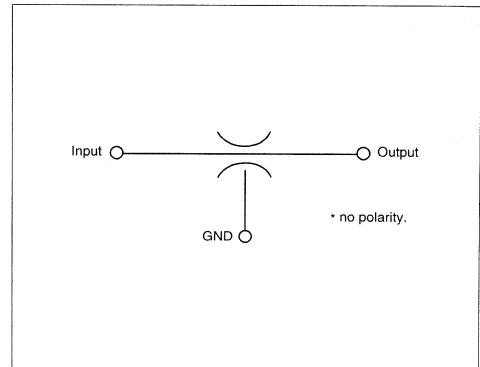


Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFM21PC104R1E3	100000 +20%,-20%	25	2	1000 min.	-55 to 125
NFM21PC224R1C3	220000 +20%,-20%	16	2	1000 min.	-55 to 125
NFM21PC474R1C3	470000 +20%,-20%	16	2	1000 min.	-55 to 125
NFM21PC105B1A3	1000000 +20%,-20%	10	4	500 min.	-40 to 85
NFM21PC105F1C3	1000000 +80%,-20%	16	2	500 min.	-40 to 85

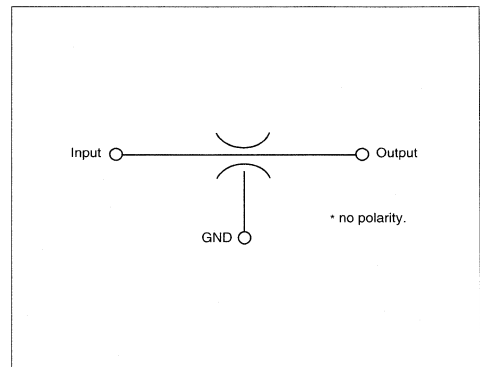
● NFM3DP(1205)/NFM41P(1806)/NFM55P(2220) Series



Equivalent Circuit

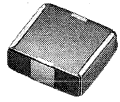


Equivalent Circuit

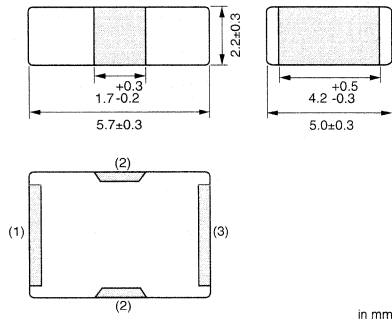


Continued on the following page.

Continued from the preceding page.

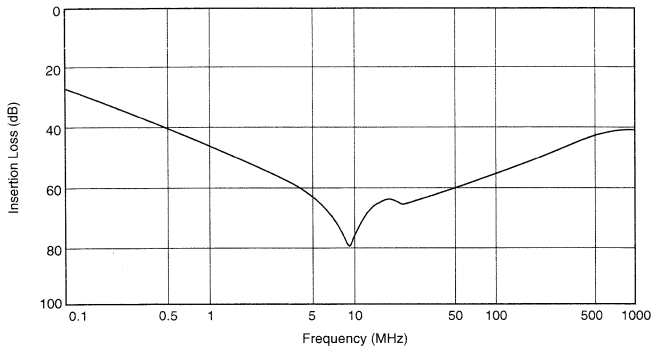


NFM55P Series

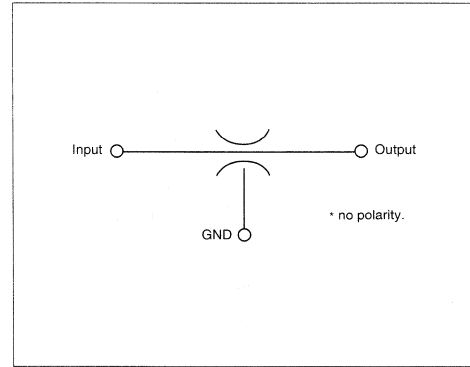


in mm

Insertion Loss(Typ.)



Equivalent Circuit

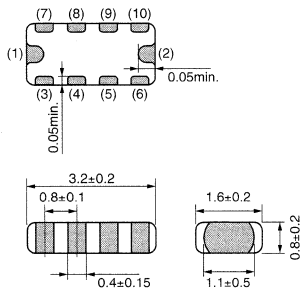


Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFM3DPC223R1H2	22000 +20%, -20%	50	2	1000 min.	-55 to 85
NFM41PC204F1H3	200000 +80%, -20%	50	2	1000 min.	-55 to 85
NFM55PC155F1H4	1500000 +80%, -20%	50	6	100 min.	-55 to 85

Chip EMIFIL® Capacitor Type

Chip EMIFIL® Arrays

● NFA31C Series (1206)

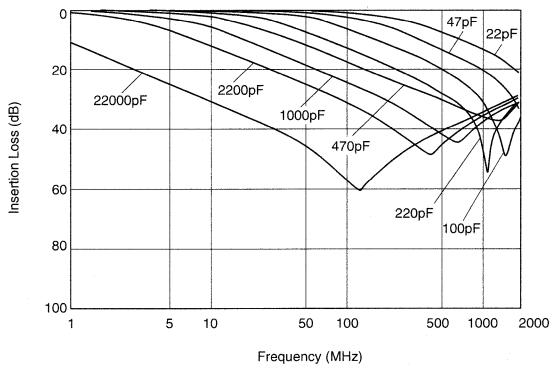


(in mm)

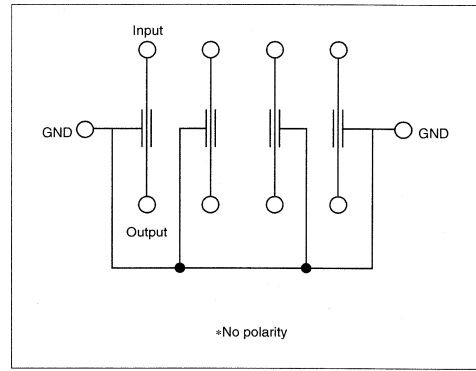
Continued on the following page.

Continued from the preceding page.

IL of Main Items



Equivalent circuit



4

Noise Suppression Products/(EMIFIL®)

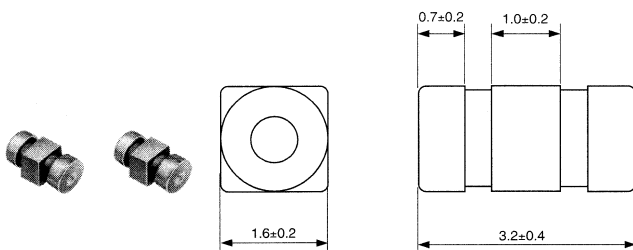
Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (mA)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFA31CC220S1E4	22 +20%,-20%	25	200	1000 min.	-40 to 85
NFA31CC470S1E4	47 +20%,-20%	25	200	1000 min.	-40 to 85
NFA31CC101S1E4	100 +20%,-20%	25	200	1000 min.	-40 to 85
NFA31CC221S1E4	220 +20%,-20%	25	200	1000 min.	-40 to 85
NFA31CC471R1E4	470 +20%,-20%	25	200	1000 min.	-40 to 85
NFA31CC102R1E4	1000 +20%,-20%	25	200	1000 min.	-40 to 85
NFA31CC222R1E4	2200 +20%,-20%	25	200	1000 min.	-40 to 85
NFA31CC223R1C4	22000 +20%,-20%	16	200	1000 min.	-40 to 85

Number of Circuit : 4

Chip EMIFIL® LC Combined Type

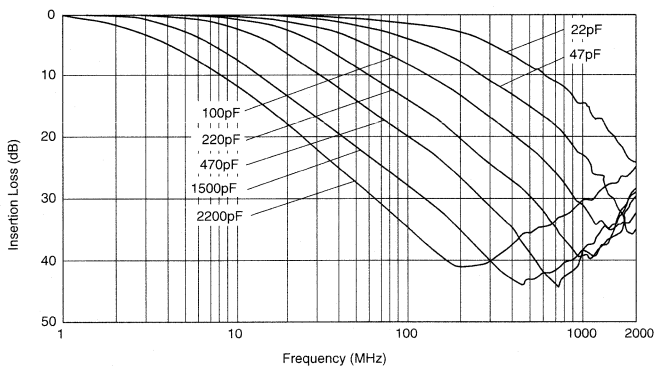
T Type EMIFIL®

● NFE31P Series (1206)

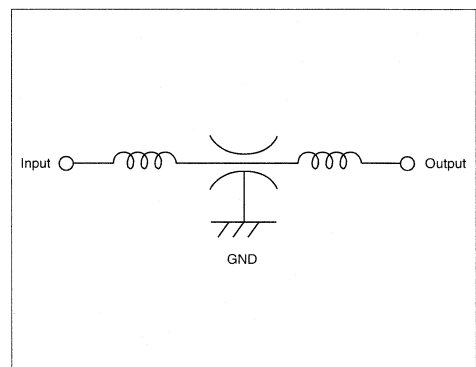


in mm

IL of Main Items

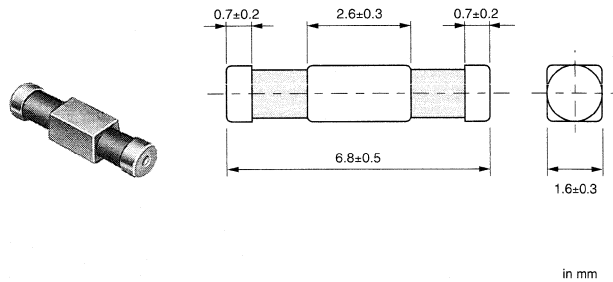


Equivalent Circuit

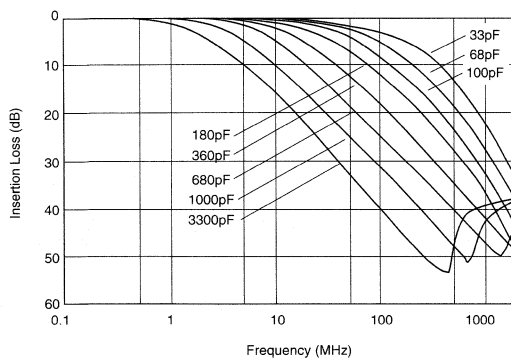


Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFE31PT220R1E9	22 +30%,-30%	25	6	1000 min.	-40 to 85
NFE31PT470C1E9	47 +50%,-20%	25	6	1000 min.	-40 to 85
NFE31PT101C1E9	100 +80%,-20%	25	6	1000 min.	-40 to 85
NFE31PT221D1E9	220 +50%,-20%	25	6	1000 min.	-40 to 85
NFE31PT471F1E9	470 +50%,-20%	25	6	1000 min.	-40 to 85
NFE31PT152Z1E9	1500 +50%,-20%	25	6	1000 min.	-40 to 85
NFE31PT222Z1E9	2200 +50%,-50%	25	6	1000 min.	-40 to 85

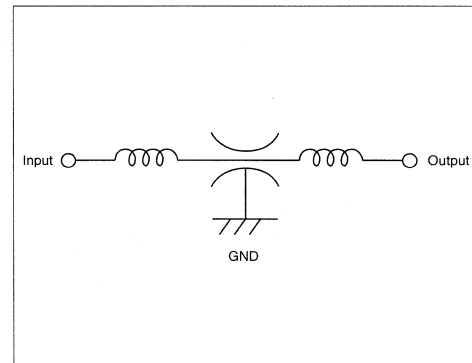
● NFE61P/NFE61H Series (2606)



IL of Main Items



Equivalent Circuit



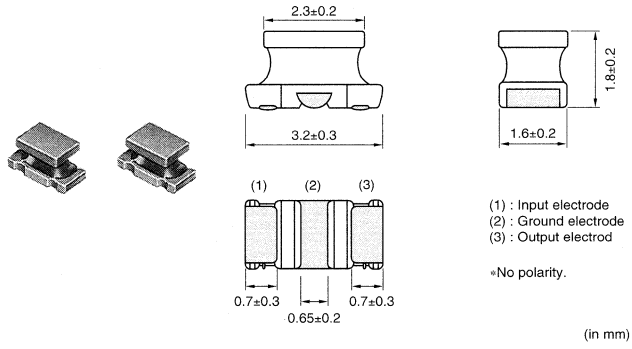
Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFE61HT330U2A9	33 +30%,-30%	100	2	1000 min.	-55 to 125
NFE61PT330B1H9	33 +30%,-30%	50	2	1000 min.	-25 to 85
NFE61HT680R2A9	68 +30%,-30%	100	2	1000 min.	-55 to 125
NFE61PT680B1H9	68 +30%,-30%	50	2	1000 min.	-25 to 85
NFE61HT101Z2A9	100 +30%,-30%	100	2	1000 min.	-55 to 125
NFE61PT101Z1H9	100 +30%,-30%	50	2	1000 min.	-25 to 85
NFE61HT181C2A9	180 +30%,-30%	100	2	1000 min.	-55 to 125
NFE61PT181B1H9	180 +30%,-30%	50	2	1000 min.	-25 to 85
NFE61HT361C2A9	360 +20%,-20%	100	2	1000 min.	-55 to 125
NFE61PT361B1H9	360 +20%,-20%	50	2	1000 min.	-25 to 85
NFE61HT681D2A9	680 +30%,-30%	100	2	1000 min.	-55 to 125
NFE61PT681B1H9	680 +30%,-30%	50	2	1000 min.	-25 to 85
NFE61HT102F2A9	1000 +80%,-20%	100	2	1000 min.	-55 to 125
NFE61PT102E1H9	1000 +80%,-20%	50	2	1000 min.	-25 to 85
NFE61HT332Z2A9	3300 +80%,-20%	100	2	1000 min.	-55 to 125
NFE61PT472C1H9	4700 +80%,-20%	50	2	1000 min.	-25 to 85

Heavy duty NFE61HT series rated 100Vdc, have an extended operating temperature range from -55 to 125 °C.

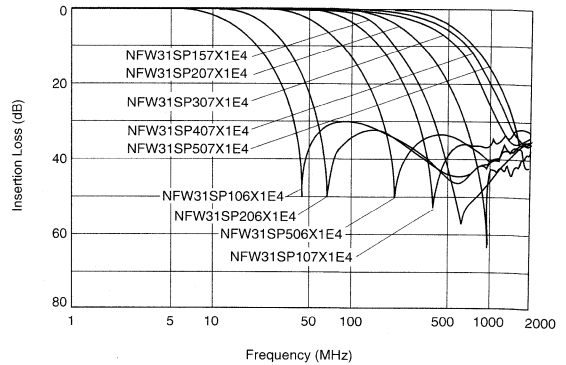
Chip EMIFIL® LC Combined Type

Winding Type

● for Signal Line NFW31S Series (1206)



IL of Main Items



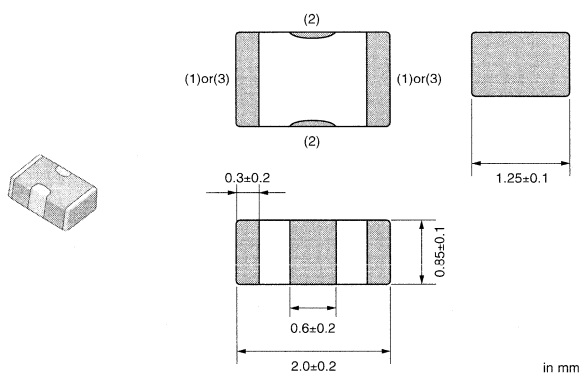
Part Number	Nominal Cutoff Freq. (MHz)	Attenuation at 10MHz (dB)	Attenuation at 20MHz (dB)	Attenuation at 50MHz (dB)	Attenuation at 100MHz (dB)	Attenuation at 150MHz (dB)	Attenuation at 200MHz (dB)	Attenuation at 300MHz (dB)	Attenuation at 400MHz (dB)	Attenuation at 500MHz (dB)	Attenuation at 1000MHz (dB)
NFW31SP106X1E4	10	6 max.	5 min.	25 min.	25 min.	-	25 min.	-	-	30 min.	30 min.
NFW31SP206X1E4	20	-	6 max.	5 min.	25 min.	-	25 min.	-	-	30 min.	30 min.
NFW31SP506X1E4	50	-	-	6 max.	10 min.	-	30 min.	-	-	30 min.	30 min.
NFW31SP107X1E4	100	-	-	-	6 max.	-	5 min.	-	-	20 min.	30 min.
NFW31SP157X1E4	150	-	-	-	-	6 max.	-	10 min.	20 min.	30 min.	30 min.
NFW31SP207X1E4	200	-	-	-	-	-	6 max.	-	-	10 min.	30 min.
NFW31SP307X1E4	300	-	-	-	-	-	-	6 max.	-	5 min.	15 min.
NFW31SP407X1E4	400	-	-	-	-	-	-	-	6 max.	-	10 min.
NFW31SP507X1E4	500	-	-	-	-	-	-	-	-	6 max.	10 min.

Rated Current : 200mA Rated Voltage : 25Vdc Operating Temperature Range : -40°C to 85°C

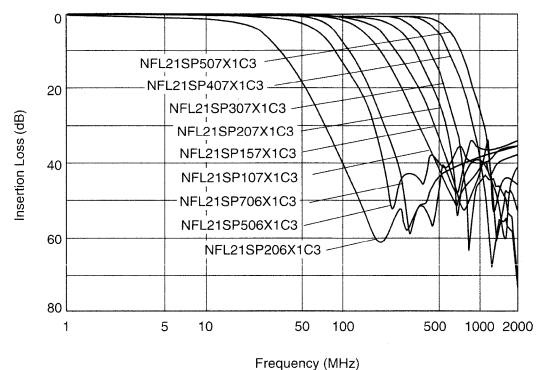
Chip EMIFIL® LC Combined Type

Monolithic Type

● NFL21S Series (0805)



IL of Main Items



Part Number	Cut-off Frequency (MHz)	Capacitance (pF)	Inductance (nH)	Rated Voltage (Vdc)	Rated Current (mA)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFL21SP206X1C3	20	240 +20%, -20%	700 +20%, -20%	16	100	1000 min.	-55 to 125
NFL21SP506X1C3	50	84 +20%, -20%	305 +20%, -20%	16	150	1000 min.	-55 to 125
NFL21SP706X1C3	70	76 +20%, -20%	185 +20%, -20%	16	150	1000 min.	-55 to 125
NFL21SP107X1C3	100	44 +20%, -20%	135 +20%, -20%	16	200	1000 min.	-55 to 125
NFL21SP157X1C3	150	28 +20%, -20%	128 +20%, -20%	16	200	1000 min.	-55 to 125
NFL21SP207X1C3	200	22 +20%, -20%	72 +20%, -20%	16	250	1000 min.	-55 to 125
NFL21SP307X1C3	300	19 +10%, -10%	45 +10%, -10%	16	300	1000 min.	-55 to 125
NFL21SP407X1C3	400	16 +10%, -10%	34 +10%, -10%	16	300	1000 min.	-55 to 125

Continued on the following page.

Continued from the preceding page.

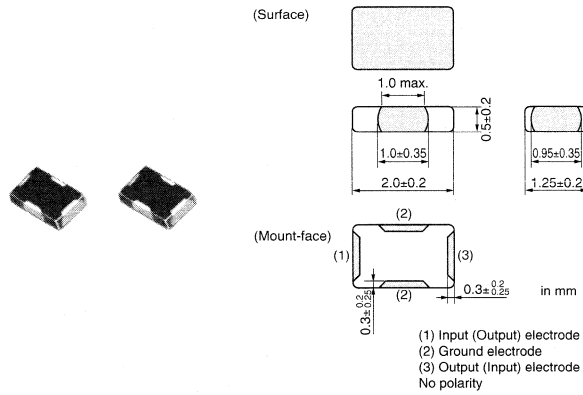
Part Number	Cut-off Frequency (MHz)	Capacitance (pF)	Inductance (nH)	Rated Voltage (Vdc)	Rated Current (mA)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFL21SP507X1C3	500	12 +10%, -10%	31 +10%, -10%	16	300	1000 min.	-55 to 125

Number of Circuits : 1

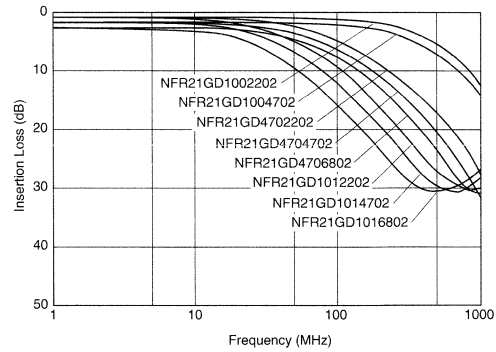
Chip EMIFIL® RC Combined Type

Chip EMIFIL®

● NFR21G Series (0805)



IL of Main Items



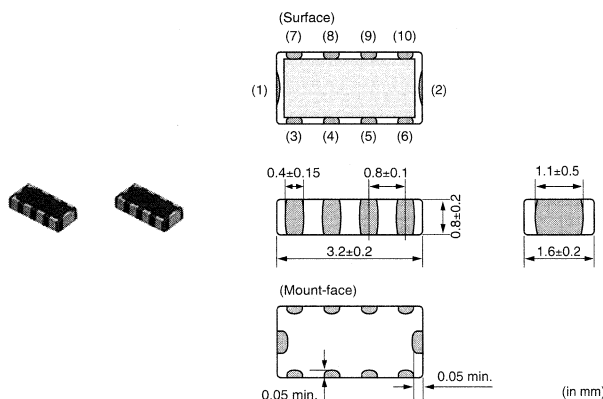
Part Number	Capacitance (pF)	Resistance (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFR21GD1002202	10 +20%, -20%	22 +30%, -30%	50	50	1000 min.	-40 to 85
NFR21GD1004702	10 +20%, -20%	47 +30%, -30%	35	50	1000 min.	-40 to 85
NFR21GD4702202	47 +20%, -20%	22 +30%, -30%	50	50	1000 min.	-40 to 85
NFR21GD4704702	47 +20%, -20%	47 +30%, -30%	35	50	1000 min.	-40 to 85
NFR21GD4706802	47 +20%, -20%	68 +30%, -30%	30	50	1000 min.	-40 to 85
NFR21GD4701012	47 +20%, -20%	100 +30%, -30%	25	50	1000 min.	-40 to 85
NFR21GD1012202	100 +20%, -20%	22 +30%, -30%	50	50	1000 min.	-40 to 85
NFR21GD1014702	100 +20%, -20%	47 +30%, -30%	35	50	1000 min.	-40 to 85
NFR21GD1016802	100 +20%, -20%	68 +30%, -30%	30	50	1000 min.	-40 to 85
NFR21GD1011012	100 +20%, -20%	100 +30%, -30%	25	50	1000 min.	-40 to 85

Number of Circuit : 1

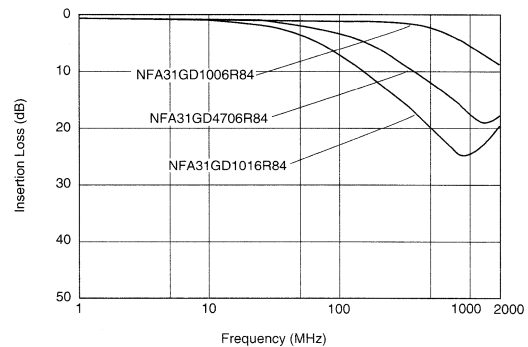
Chip EMIFIL® RC Combined Type

Chip EMIFIL® Arrays

● NFA31G Series (1206)



Insertion Loss(Typ.)



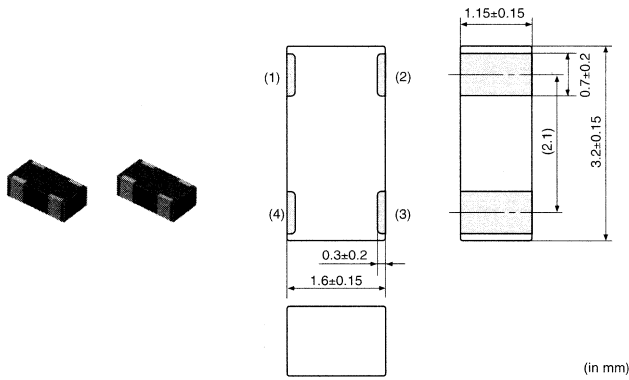
Part Number	Capacitance (pF)	Resistance (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M ohm)	Operating Temperature Range (°C)
NFA31GD1006R84	10 +20%,-20%	6.8 +40%,-40%	50	6	1000 min	-40 to 85
NFA31GD1004704	10 +20%,-20%	47 +30%,-30%	20	6	1000 min	-40 to 85
NFA31GD1001014	10 +20%,-20%	100 +30%,-30%	15	6	1000 min	-40 to 85
NFA31GD4706R84	47 +20%,-20%	6.8 +40%,-40%	50	6	1000 min	-40 to 85
NFA31GD4704704	47 +20%,-20%	47 +30%,-30%	20	6	1000 min	-40 to 85
NFA31GD4701014	47 +20%,-20%	100 +30%,-30%	15	6	1000 min	-40 to 85
NFA31GD1016R84	100 +20%,-20%	6.8 +40%,-40%	50	6	1000 min	-40 to 85
NFA31GD1014704	100 +20%,-20%	47 +30%,-30%	20	6	1000 min	-40 to 85
NFA31GD1011014	100 +20%,-20%	100 +30%,-30%	15	6	1000 min	-40 to 85

Number of Circuit : 4

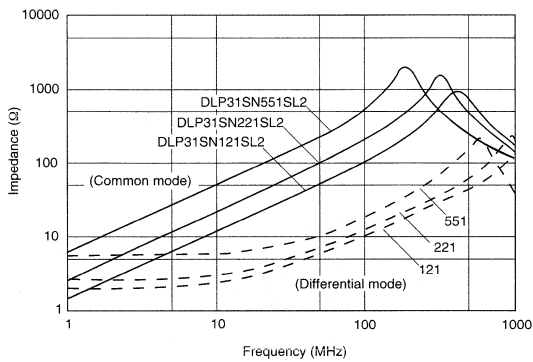
Chip Common Mode Choke Coils

Film Type

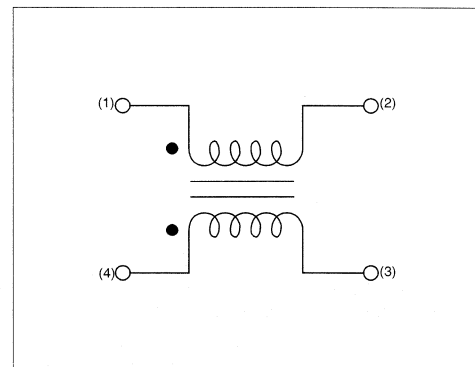
● DLP31S Series (1206)



Z-F Characteristics(Typ.)



Equivalent Circuit



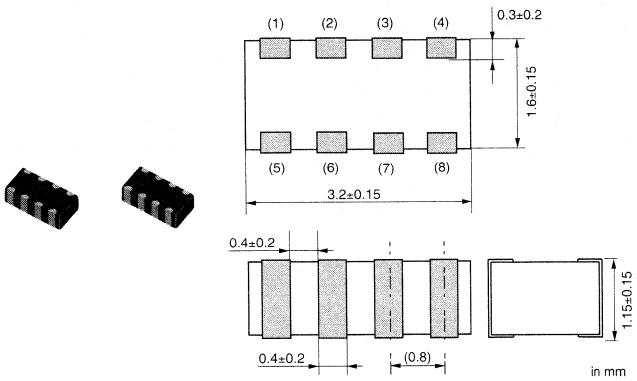
Part Number	Common Mode Impedance (ohm)	Rated Current (A)	Rated Voltage (Vdc)	Insulation Resistance (M ohm)	Withstand Voltage (Vdc)	DC Resistance (max.) (ohm)
DLP31SN551SL2	550 (Typ.) at 100MHz	0.1	16	100 min.	40	3.6
DLP31SN221SL2	220 (Typ.) at 100MHz	0.1	16	100 min.	40	2.5
DLP31SN121SL2	120 (Typ.) at 100MHz	0.1	16	100 min.	40	2.0

Operating Temperature Range : -40°C to 85°C

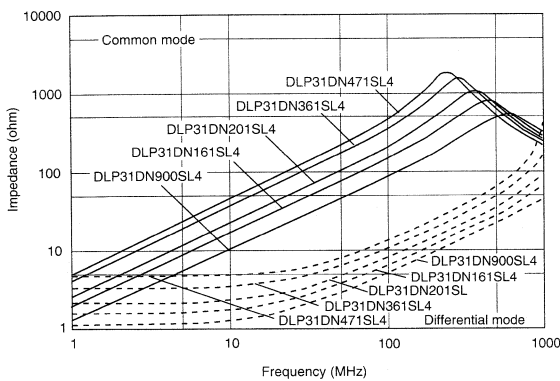
Chip Common Mode Choke Coils

Film Type Array

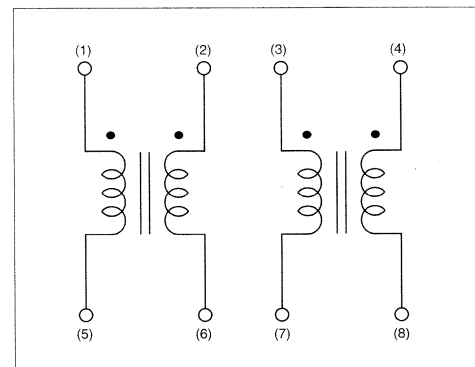
● DLP31D Series (1206)



Z-f Characteristics(Typ.)



Equivalent circuit



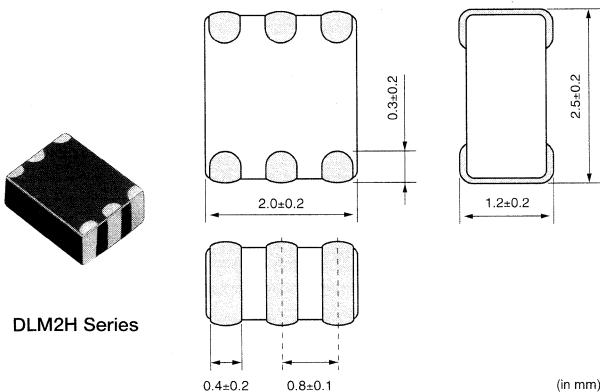
Part Number	Common Mode Impedance (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M ohm)	Withstand Voltage (Vdc)	DC Resistance (max.) (ohm)
DLP31DN471SL4	470 ±20%(Typ.) at 100MHz	100	10	100 min.	25	3.0
DLP31DN361SL4	360 ±20%(Typ.) at 100MHz	100	10	100 min.	25	2.5
DLP31DN201SL4	200 ±20%(Typ.) at 100MHz	100	10	100 min.	25	1.6
DLP31DN161SL4	160 ±20%(Typ.) at 100MHz	100	10	100 min.	25	1.2
DLP31DN900SL4	90 ±20%(Typ.) at 100MHz	100	10	100 min.	25	0.7

Operating Temperature Range : -40°C to 85°C

Chip Common Mode Choke Coils

Monolithic Type

● DLM2H (1008) /DLM31K (1206) Series

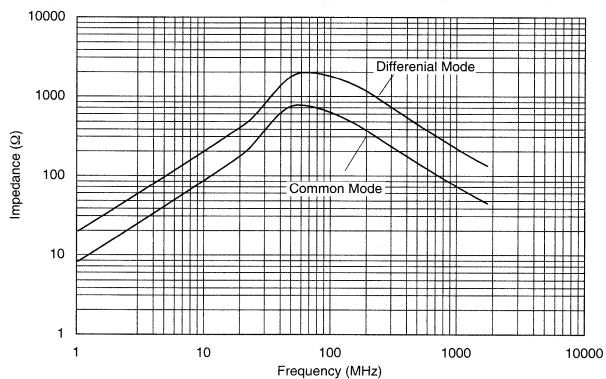


DLM2H Series

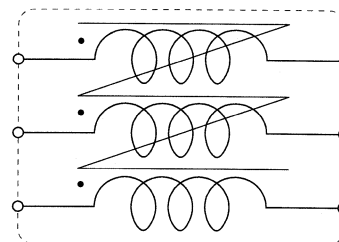
Continued on the following page.

Continued from the preceding page.

Z-f Characteristics(Typ.)

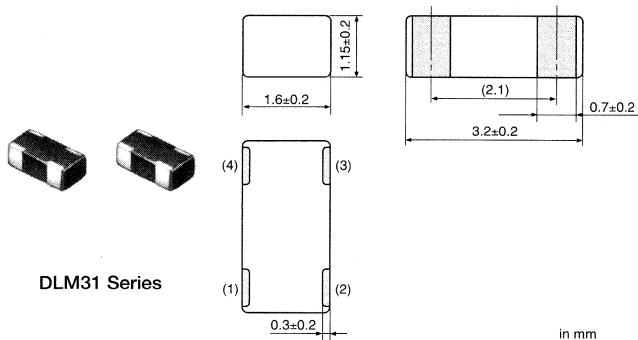


Equivalent circuit

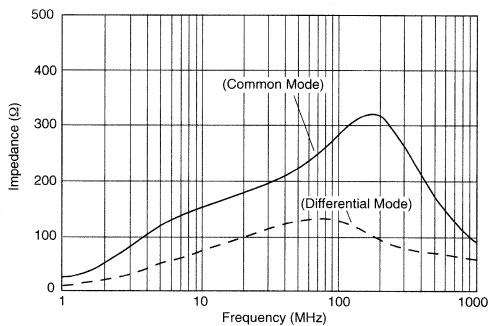


4

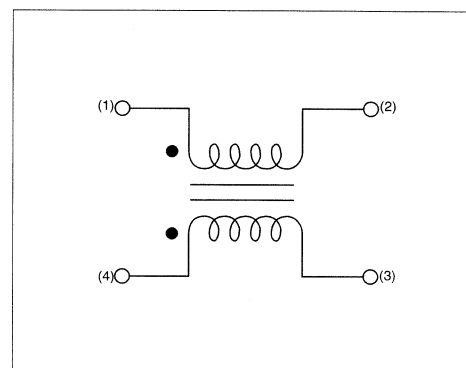
Noise Suppression Products/(EMIFIL®)



Z-f Characteristics(Typ.)



Equivalent Circuit



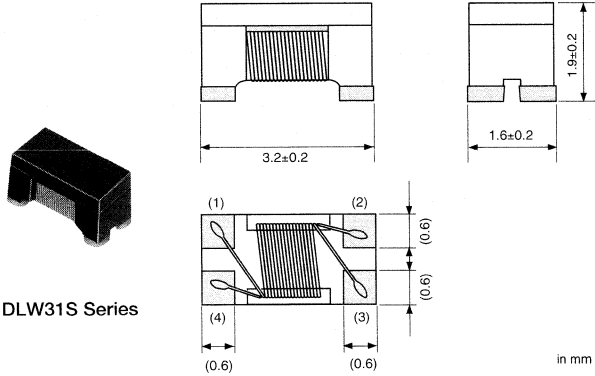
Part Number	Common Mode Impedance (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M ohm)	Withstand Voltage (Vdc)	DC Resistance (max.) (ohm)	EIA
DLM2HGN601SZ3	600 \pm 25% at 100MHz	100	16	100 min.	100	0.40	1008
DLM31KN281SJ2	280 (Typ.) at 100MHz	200	50	100 min.	125	2.0	1206

Operating Temperature Range : -40°C to 85°C

Chip Common Mode Choke Coils

Winding Type

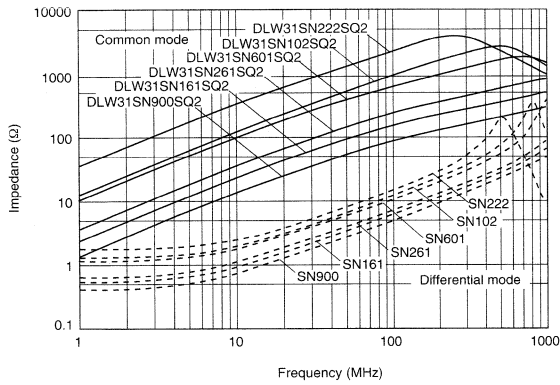
● DLW21S (0805) /DLW31S (1206) Series



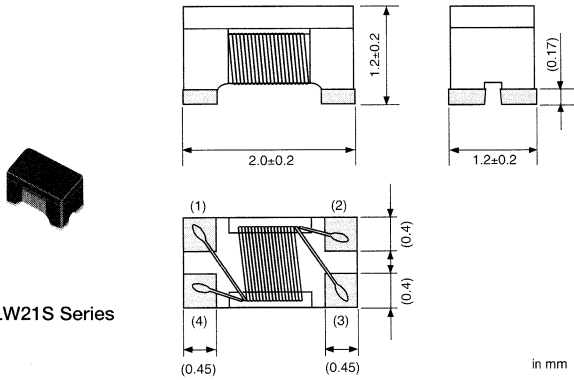
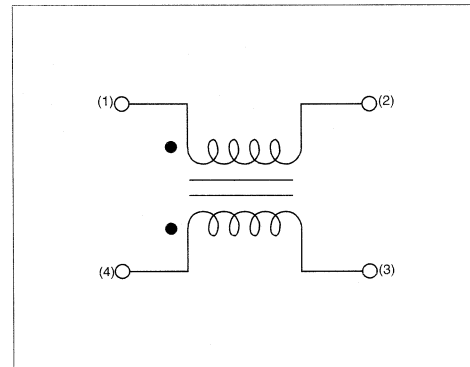
DLW31S Series

in mm

Z-f Characteristics(Typ.)



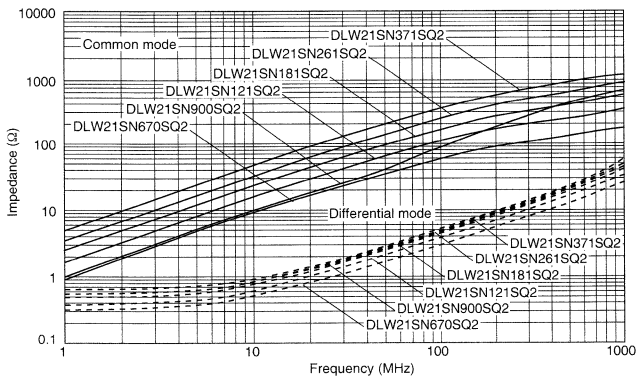
Equivalent Circuit



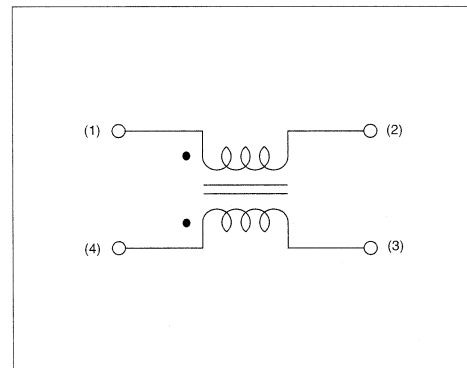
DLW21S Series

in mm

Z-f Characteristics(Typ.)



Equivalent circuit



Part Number	Common Mode Impedance (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M ohm)	Withstand Voltage (Vdc)	DC Resistance (max.) (ohm)
DLW31SN222SQ2	2200 (Typ.) at 100MHz	200	50	10 min.	125	1.2
DLW31SN102SQ2	1000 (Typ.) at 100MHz	230	50	10 min.	125	1.0
DLW31SN601SQ2	600 (Typ.) at 100MHz	260	50	10 min.	125	0.8
DLW21SN371SQ2	370 (Typ.) at 100MHz	280	50	10 min.	125	0.45
DLW21SN261SQ2	260 (Typ.) at 100MHz	300	50	10 min.	125	0.40
DLW31SN261SQ2	260 (Typ.) at 100MHz	310	50	10 min.	125	0.5
DLW21SN181SQ2	180 (Typ.) at 100MHz	330	50	10 min.	125	0.35
DLW31SN161SQ2	160 (Typ.) at 100MHz	340	50	10 min.	125	0.4
DLW21SN121SQ2	120 (Typ.) at 100MHz	370	50	10 min.	125	0.30
DLW21SN900SQ2	90 (Typ.) at 100MHz	330	50	10 min.	125	0.35
DLW31SN900SQ2	90 (Typ.) at 100MHz	370	50	10 min.	125	0.3
DLW21SN670SQ2	67 (Typ.) at 100MHz	400	50	10 min.	125	0.25

Operating Temperature Range : -40°C to 85°C

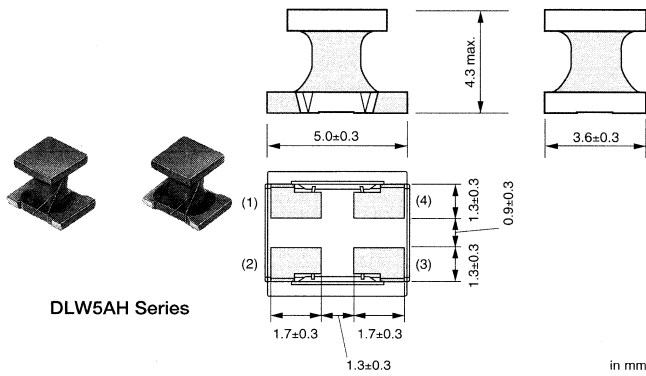
4

Noise Suppression Products/(EMIFIL®)

Chip Common Mode Choke Coils

Winding Type for Large Current

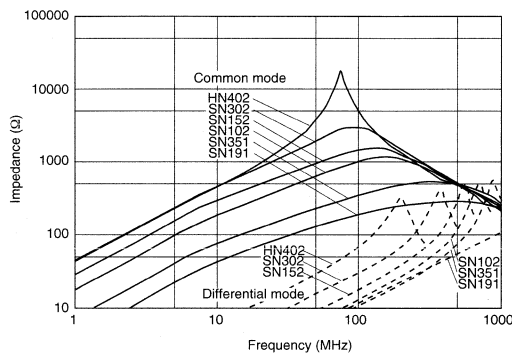
● DLW5AH (2014) /DLW5BS (2020) Series



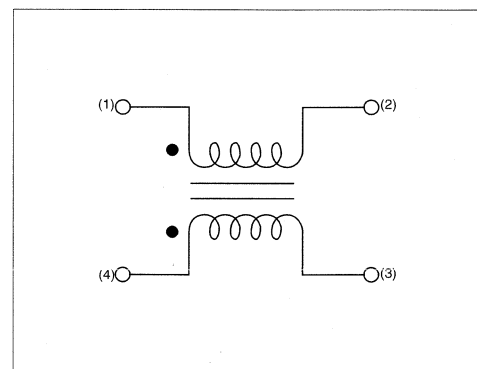
DLW5AH Series

in mm

Z-f of Main Items



Equivalent Circuit

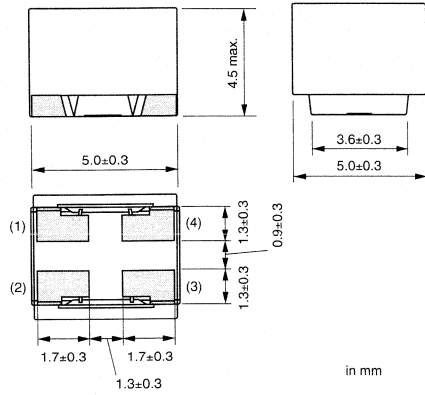


Continued on the following page.

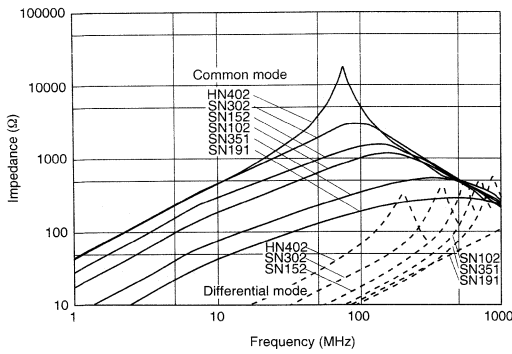
Continued from the preceding page.



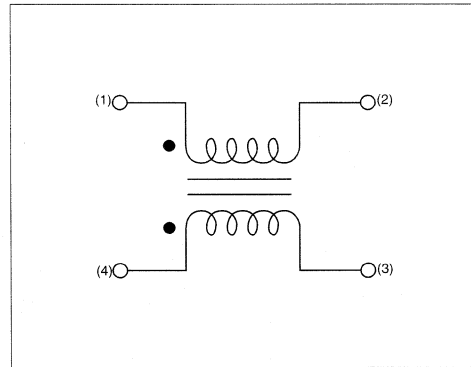
DLW5BS Series



Z-f of Main Items



Equivalent Circuit

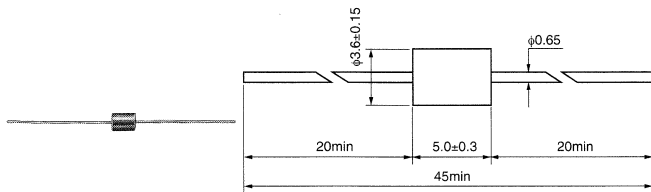


Part Number	Common Mode Impedance (ohm)	Rated Current (mA)	Rated Voltage (Vdc)	Insulation Resistance (M ohm)	Withstand Voltage (Vdc)	DC Resistance (max.) (ohm)
DLW5AHN402SQ2	4000 (Typ.) at 100MHz	200	50	10 min.	125	3.0
DLW5BSN302SQ2	3000 (Typ.) at 100MHz	500	50	10 min.	125	0.3
DLW5BSN152SQ2	1500 (Typ.) at 100MHz	1000	50	10 min.	125	0.1
DLW5BSN102SQ2	1000 (Typ.) at 100MHz	1500	50	10 min.	125	0.06
DLW5BSN351SQ2	350 (Typ.) at 100MHz	2000	50	10 min.	125	0.04
DLW5BSN191SQ2	190 (Typ.) at 100MHz	5000	50	10 min.	125	0.02

Operating Temperature Range : -25°C to 85°C

Lead EMIFIL® Inductor Type

● Ferrite Beads Inductors BL01/BL02/BL03 Series



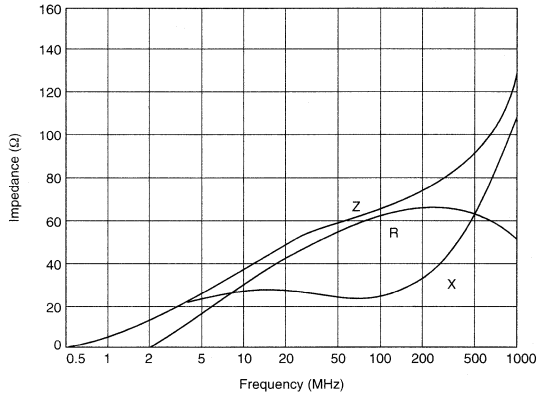
BL01RN1A1D2B

(in mm)

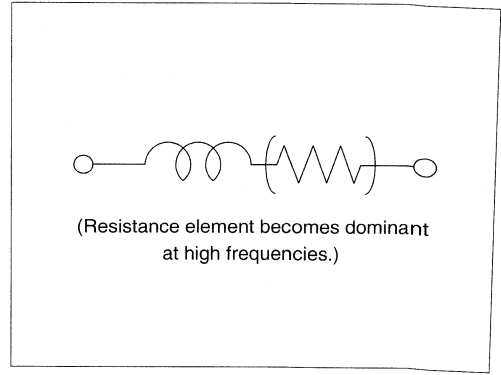
Continued on the following page.

Continued from the preceding page.

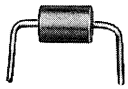
Z-f Characteristics(Typ.)



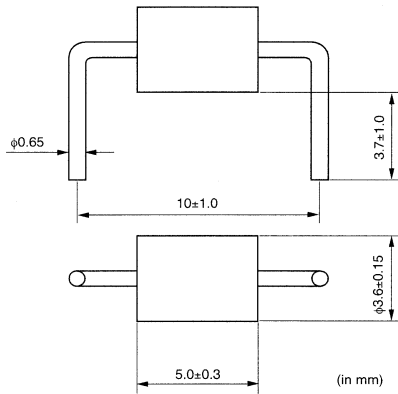
Equivalent Circuit



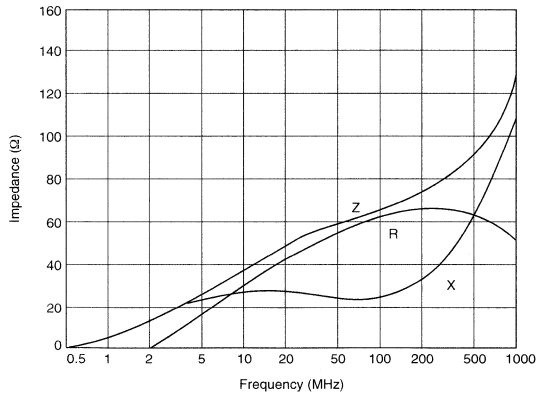
4 Noise Suppression Products/(EMIFIL®)



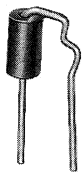
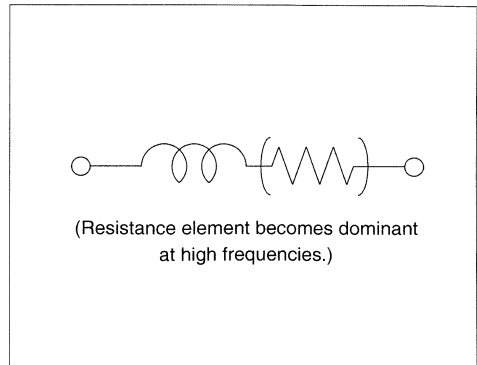
BL01RN1A2A2B



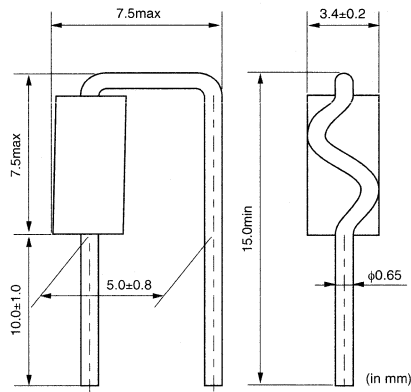
Z-f Characteristics(Typ.)



Equivalent Circuit



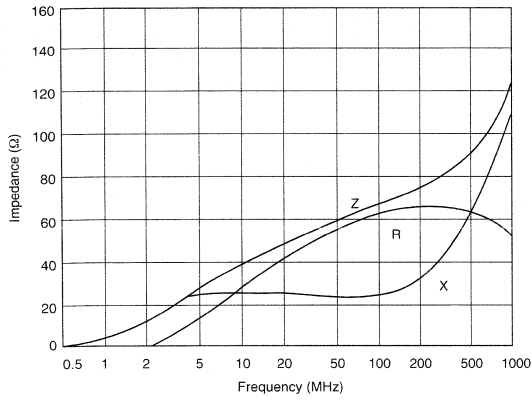
BL02RN1R2M2B



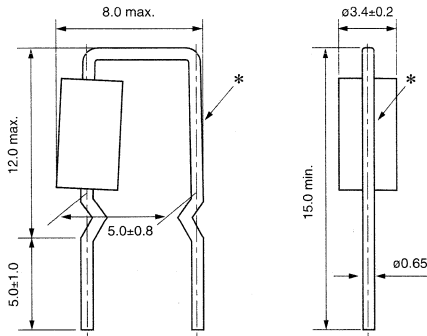
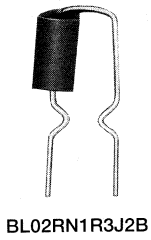
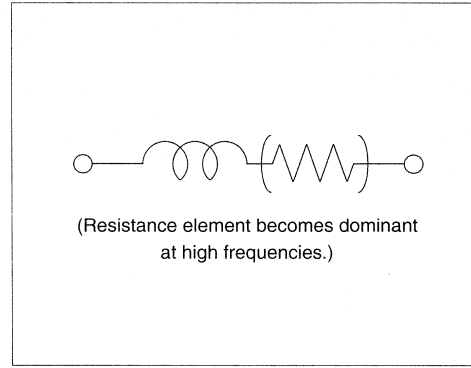
Continued on the following page.

Continued from the preceding page.

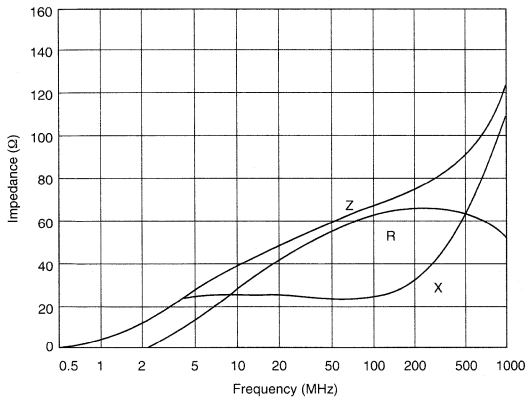
Z-f Characteristics(Typ.)



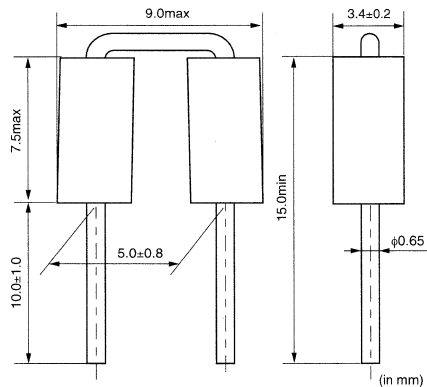
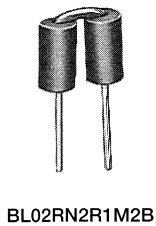
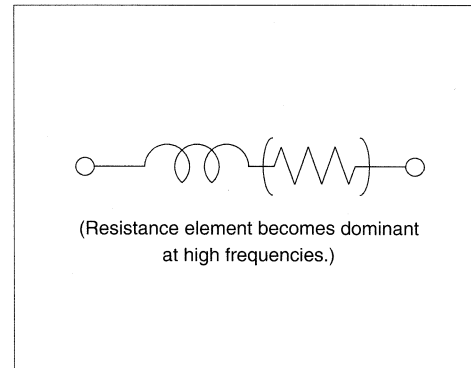
Equivalent Circuit



Z-f Characteristics(Typ.)

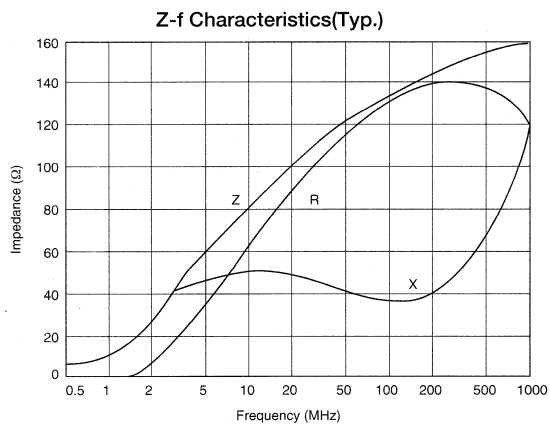


Equivalent Circuit

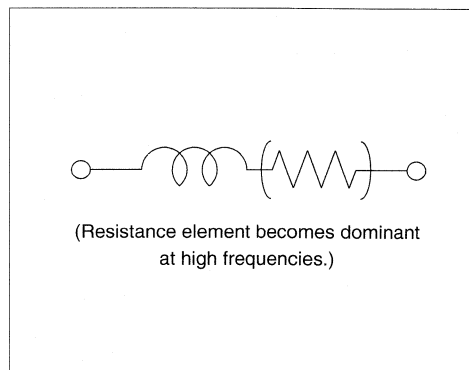


Continued on the following page. ↗

Continued from the preceding page.



Equivalent Circuit



4

Noise Suppression Products/(EMIFIL®)

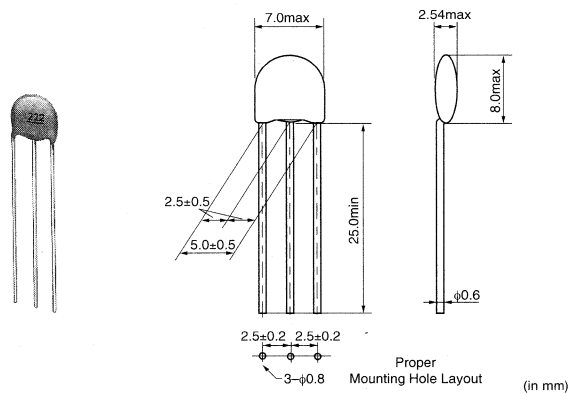
Part Number	Rated Current (mA)	Operating Temperature Range (°C)
BL01RN1A1D2B	7000	-40 to 85
BL01RN1A2A2B	7000	-40 to 85
BL02RN1R2M2B	7000	-40 to 85
BL02RN1R3J2B	7000	-40 to 85
BL02RN2R1M2B	7000	-40 to 85
BL02RN2R3J2B	7000	-40 to 85
BL03RN2R1M1B	6000	-40 to 85

Rated current is 6000 mA for taping type.

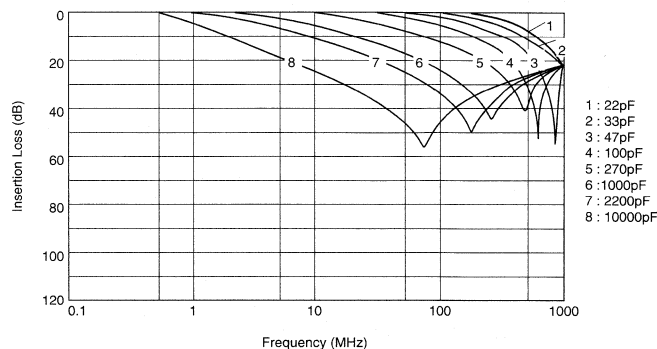
Lead EMIFIL® Capacitor Type

for General Small Type

DSN6 Series

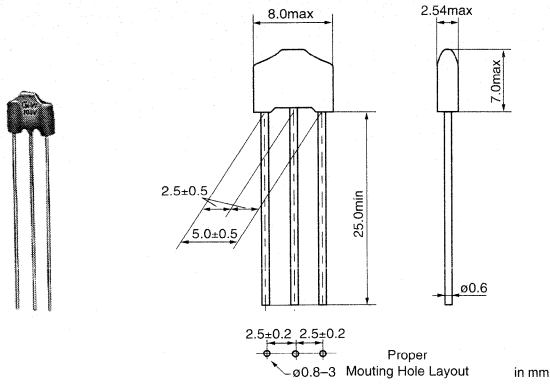


IL of Main Items

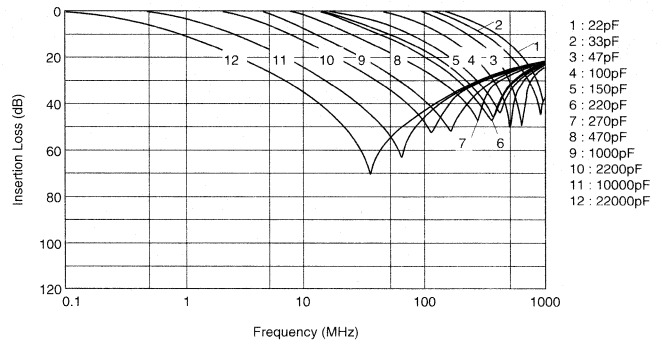


Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DSN6NC51H220Q55	22 +20%, -20%	50	6	-25 to 85
DSN6NC51H330Q55	33 +20%, -20%	50	6	-25 to 85
DSN6NC51H470Q55	47 +20%, -20%	50	6	-25 to 85
DSN6NC51H101Q55	100 +20%, -20%	50	6	-25 to 85
DSN6NC51H271Q55	270 +20%, -20%	50	6	-25 to 85
DSN6NC51H102Q55	1000 +20%, -20%	50	6	-25 to 85
DSN6NC51H222Q55	2200 +20%, -20%	50	6	-25 to 85
DSN6NZ81H103Q55	10000 +80%, -20%	50	6	-25 to 85

● Built-in Ferrite Beads DSS6 Series Straight Type



IL of Main Items

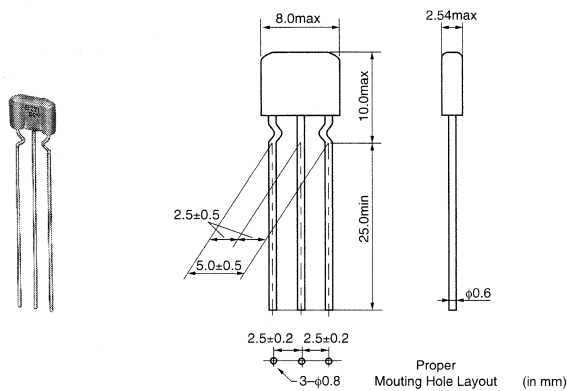


Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DSS6NC52A220Q55	22 +20%,-20%	100	6	-25 to 85
DSS6NC52A330Q55	33 +20%,-20%	100	6	-25 to 85
DSS6NC52A470Q55	47 +20%,-20%	100	6	-25 to 85
DSS6NC52A101Q55	100 +20%,-20%	100	6	-25 to 85
DSS6NC52A151Q55	150 +20%,-20%	100	6	-25 to 85
DSS6NC52A221Q55	220 +20%,-20%	100	6	-25 to 85
DSS6NC52A271Q55	270 +20%,-20%	100	6	-25 to 85
DSS6NC52A471Q55	470 +20%,-20%	100	6	-25 to 85
DSS6NC52A102Q55	1000 +20%,-20%	100	6	-25 to 85
DSS6NE52A222Q55	2200 +80%,-20%	100	6	-25 to 85
DSS6NZ82A103Q55	10000 +30%,-30%	100	6	-25 to 85
DSS6NF31C223Q55	22000 +80%,-20%	16	6	-25 to 85

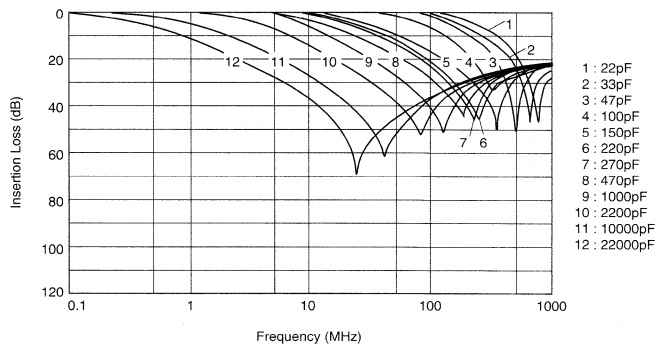
4

Noise Suppression Products/(EMIFIL®)

● Built-in Ferrite Beads DSS6 Series Incrimp Type



IL of Main Items

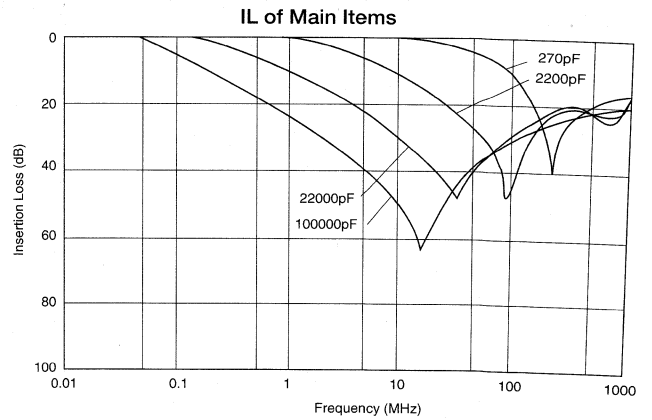
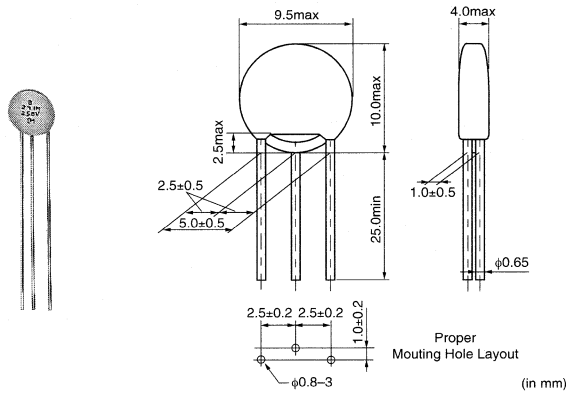


Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DSS6NC52A220T51	22 +20%,-20%	100	6	-25 to 85
DSS6NC52A330T51	33 +20%,-20%	100	6	-25 to 85
DSS6NC52A470T51	47 +20%,-20%	100	6	-25 to 85
DSS6NC52A101T51	100 +20%,-20%	100	6	-25 to 85
DSS6NC52A151T51	150 +20%,-20%	100	6	-25 to 85
DSS6NC52A221T51	220 +20%,-20%	100	6	-25 to 85
DSS6NC52A271T51	270 +20%,-20%	100	6	-25 to 85
DSS6NC52A471T51	470 +20%,-20%	100	6	-25 to 85
DSS6NC52A102T51	1000 +20%,-20%	100	6	-25 to 85
DSS6NE52A222T51	2200 +80%,-20%	100	6	-25 to 85
DSS6NZ82A103T51	10000 +30%,-30%	100	6	-25 to 85
DSS6NF31C223T51	22000 +80%,-20%	16	6	-25 to 85

Lead EMIFIL® Capacitor Type

Broad Band Type

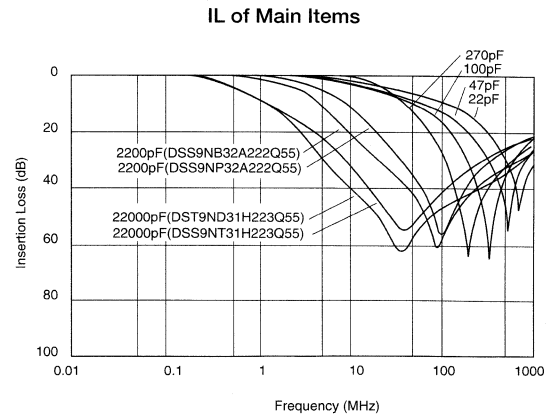
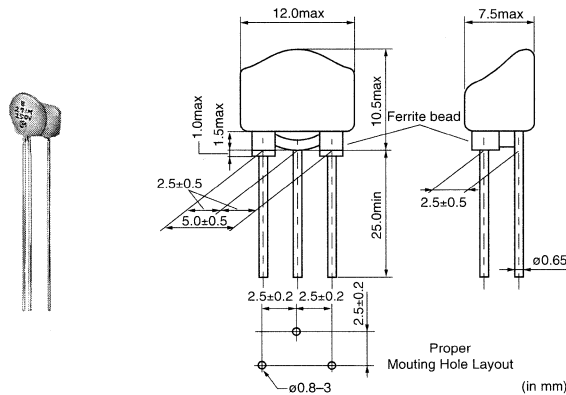
● DSN9 Series



Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DSN9NC52A271Q55	270 +20%, -20%	100	7	-25 to 85
DSN9NC52A222Q55	2200 +20%, -20%	100	7	-25 to 85
DSN9NC51H223Q55	22000 +50%, -20%	50	7	-25 to 85
DSN9NC51C104Q55	100000 +20%, -20%	16	7	-25 to 85

Rated current is 6A for taping type.

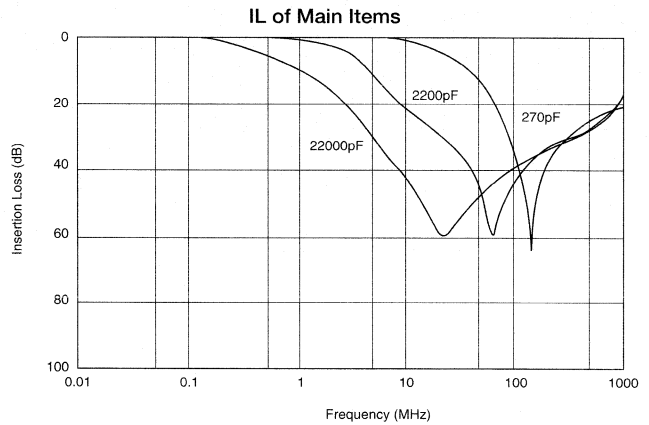
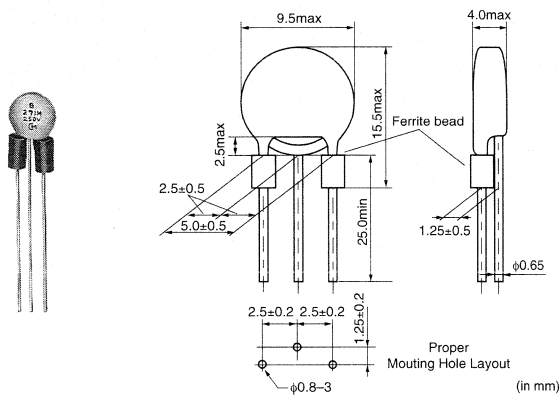
● Built-in Ferrite Beads DSS9 Series



Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DSS9NC52A220Q55	22 +20%, -20%	100	7	-25 to 85
DSS9NC52A470Q55	47 +20%, -20%	100	7	-25 to 85
DSS9NC52A101Q55	100 +20%, -20%	100	7	-25 to 85
DSS9NC52A271Q55	270 +20%, -20%	100	7	-25 to 85
DSS9NC52A222Q55	2200 +20%, -20%	100	7	-25 to 85
DSS9NP32A222Q55	2200 +20%, -20%	100	7	-25 to 85
DSS9NC51H223Q55	22000 +50%, -20%	50	7	-25 to 85
DSS9NT31H223Q55	22000 +50%, -20%	50	7	-25 to 85

Rated current is 6A for taping type.

● With Ferrite Beads DST9 Series



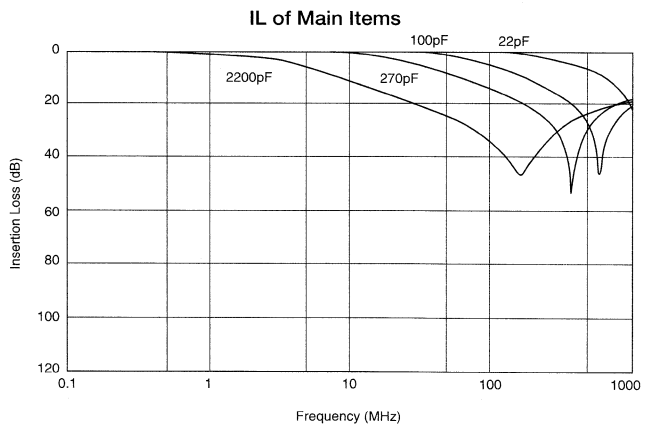
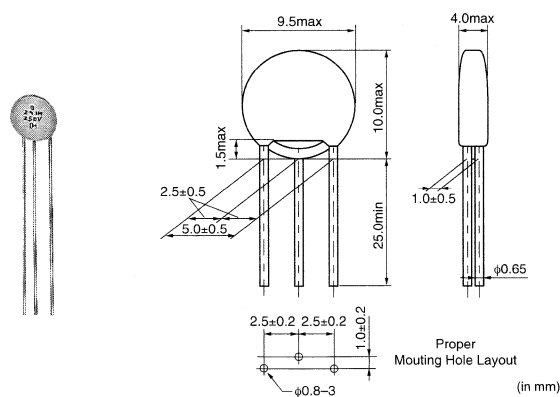
Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DST9NC52A271Q55	270 +20%,-20%	100	7	-25 to 85
DST9NC52A222Q55	2200 +20%,-20%	100	7	-25 to 85
DST9NC51H223Q55	22000 +50%,-20%	50	7	-25 to 85

Rated current is 6A for taping type.

Lead EMIFIL® Capacitor Type

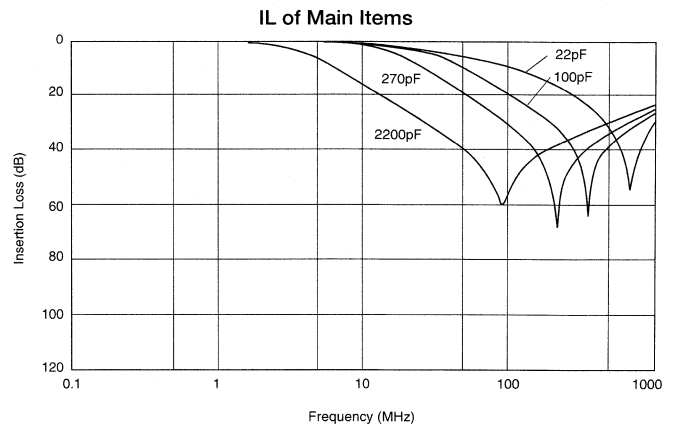
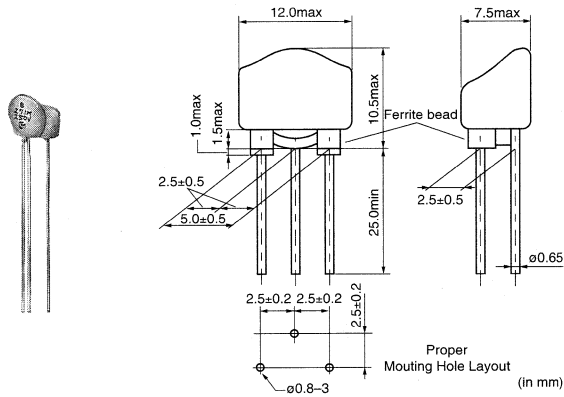
Heavy-duty Type

● DSN9H Series



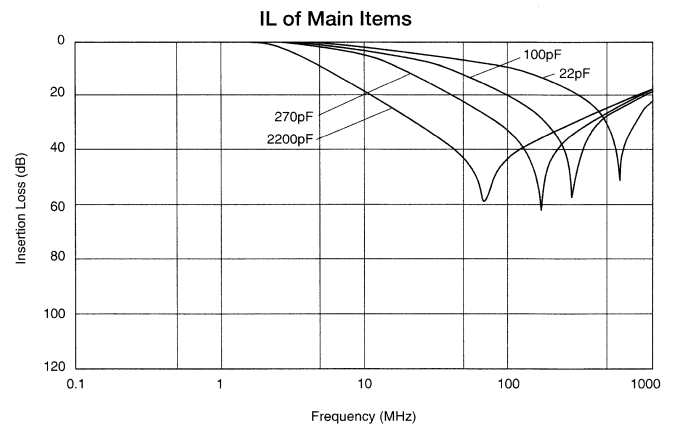
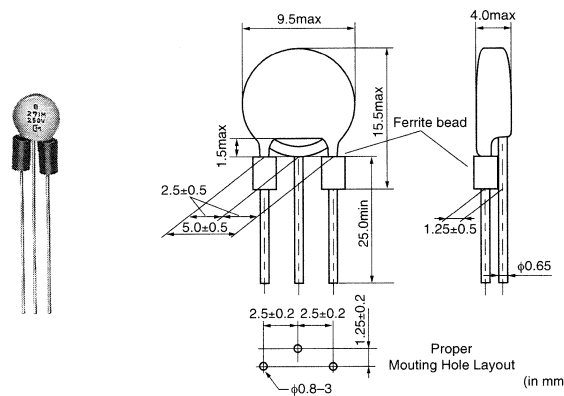
Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DSN9HB32E220Q55	22 +20%,-20%	250	6	-40 to 105
DSN9HB32E101Q55	100 +20%,-20%	250	6	-40 to 105
DSN9HB32E271Q55	270 +20%,-20%	250	6	-40 to 105
DSN9HB32E222Q55	2200 +20%,-20%	250	6	-40 to 105

● Built-in Ferrite Beads DSS9H Series



Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DSS9HB32E220Q55	22 +20%, -20%	250	6	-40 to 105
DSS9HB32E101Q55	100 +20%, -20%	250	6	-40 to 105
DSS9HB32E271Q55	270 +20%, -20%	250	6	-40 to 105
DSS9HB32E222Q55	2200 +20%, -20%	250	6	-40 to 105

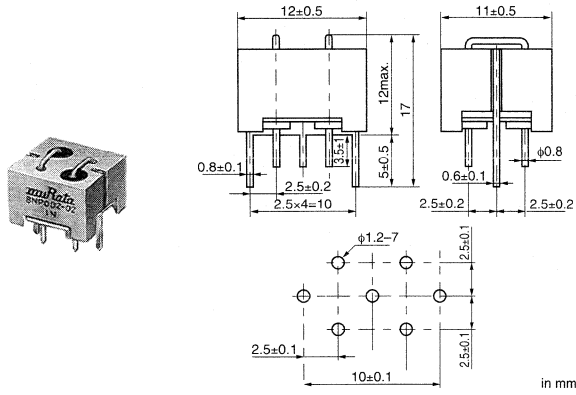
● With Ferrite Beads DST9H Series



Part Number	Capacitance (pF)	Rated Voltage (Vdc)	Rated Current (A)	Operating Temperature Range (°C)
DST9HB32E220Q55	22 +20%, -20%	250	6	-40 to 105
DST9HB32E101Q55	100 +20%, -20%	250	6	-40 to 105
DST9HB32E271Q55	270 +20%, -20%	250	6	-40 to 105
DST9HB32E222Q55	2200 +20%, -20%	250	6	-40 to 105

Lead EMIFIL® LC Combined Type

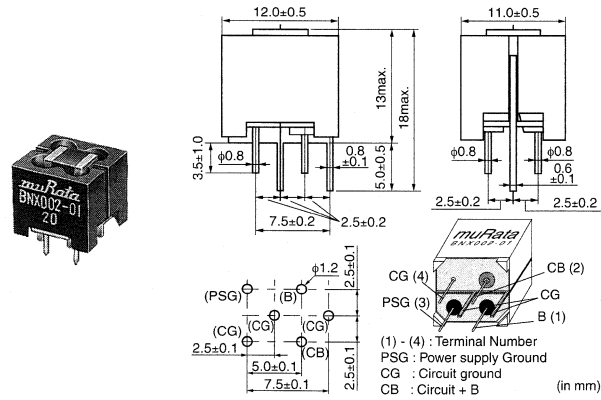
● For Signal Line BNP Series



Part Number	Rated Voltage (Vdc)	Withstand Voltage (Vdc)	Rated Current (A)	Insulation Resistance(min.) (M ohm)	DC Resistance(max.) (ohm)	Insertion Loss	Number of Circuit
BNP002-02	50	300	10	1000	0.05 (20 to 25°C)	20MHz to 500MHz:40dB min.(20 to 25°C)	2
BNP002-03	50	300	10	1000	0.05 (20 to 25°C)	20MHz to 500MHz:40dB min.(20 to 25°C)	3
BNP004-02	50	125	10	1000	0.05 (20 to 25°C)	300MHz to 1000MHz:40dB min.(20 to 25°C)	2

Operating Temperature Range : -40°C to 100°C

● For DC Power Supplies BNX Series

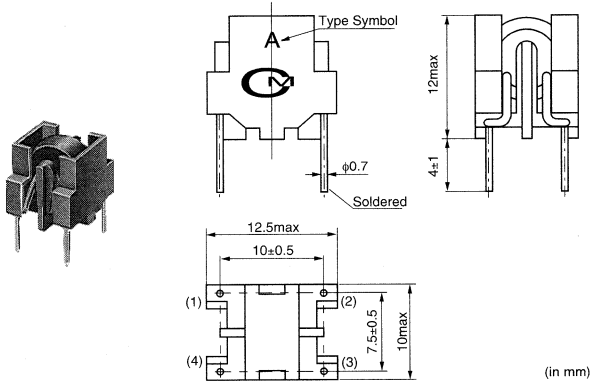


Part Number	Rated Voltage (Vdc)	Withstand Voltage (Vdc)	Rated Current (A)	Insulation Resistance(min.) (M ohm)	Insertion Loss
BNX002-01	50	125	10	100	1MHz to 1GHz:40dB min.(20 to 25°C line impedance=50 ohm)
BNX003-01	150	375	10	100	5MHz to 1GHz:40dB min.(20 to 25°C line impedance=50 ohm)
BNX005-01	50	125	15	100	1MHz to 1GHz:40dB min.(20 to 25°C line impedance=50 ohm)

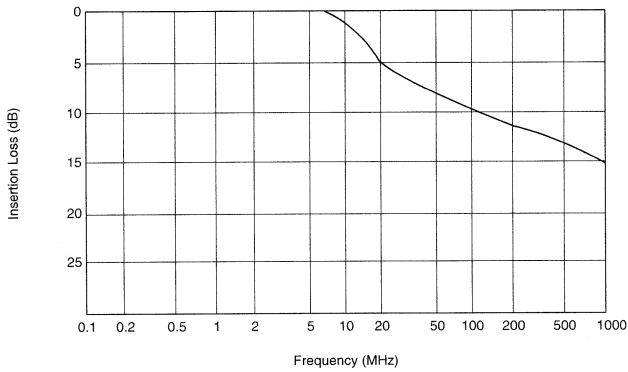
Operating Temperature Range : -30°C to 85°C

Lead Common Mode Choke Coils

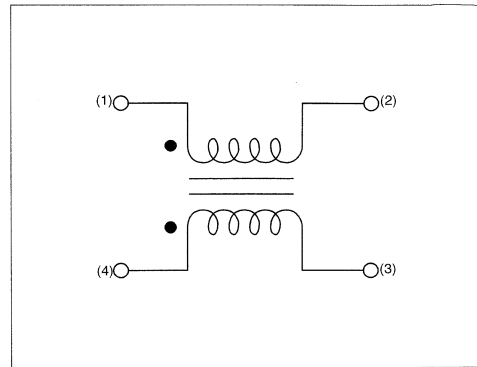
● PLT08C Series



Insertion Loss(Typ.)



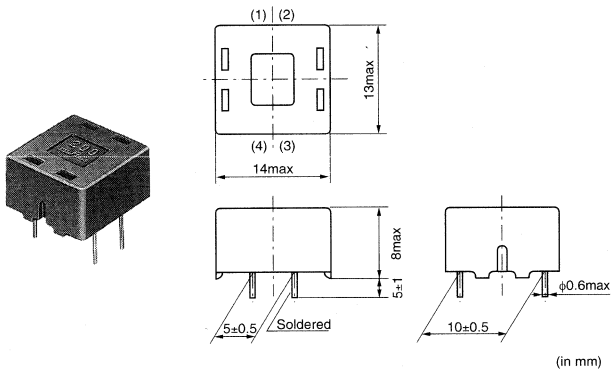
Equivalent Circuit



Part Number	Common Mode Inductance (μH)	Rated Current (A)	Rated Voltage (Vdc)	Withstand Voltage (Vdc)
PLT08CN0R53R0T0	0.5 min.	3	50	125
PLT08CN1R53R0T0	1.5 min.	3	50	125
PLT08CN2003R0T0	20 min.	3	50	125

Operating Temperature Range : -25°C to 60°C

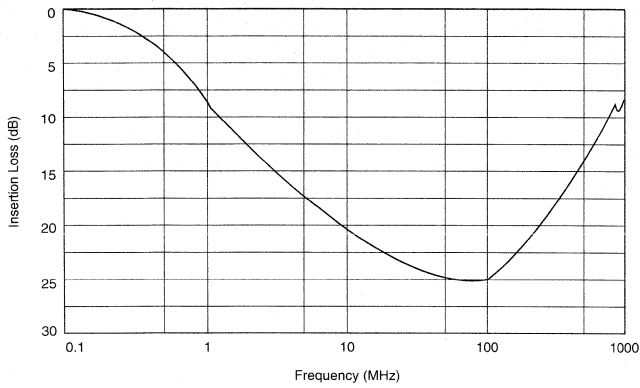
● PLT09H Series



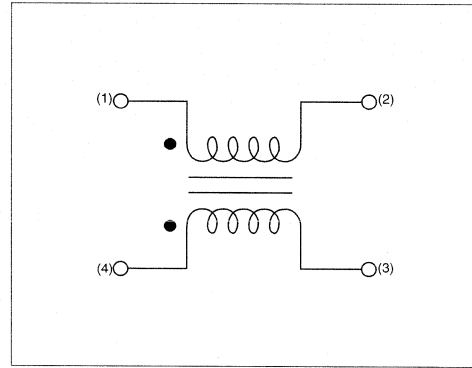
Continued on the following page.

Continued from the preceding page.

Insertion Loss(Typ.)



Equivalent Circuit

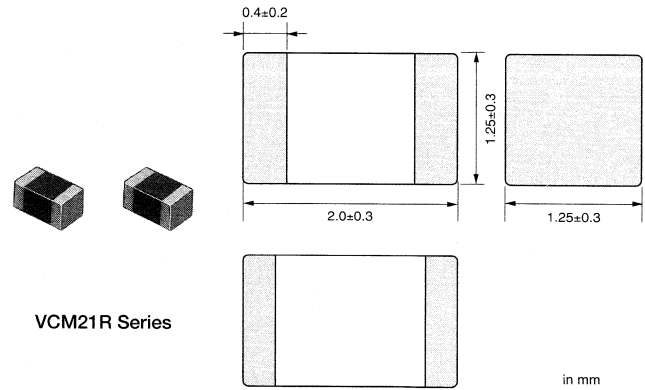
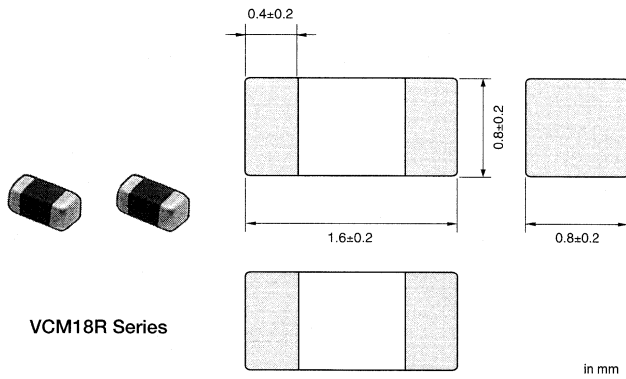


Part Number	Common Mode Inductance (μH)	Rated Current (A)	Rated Voltage (Vdc)	Withstand Voltage (Vdc)
PLT09HN2003R0P1	20 min.	3	50	125

Operating Temperature Range : -40°C to 85°C

Chip Varistors

● VCM18R(0603)/VCM21R (0805) Series

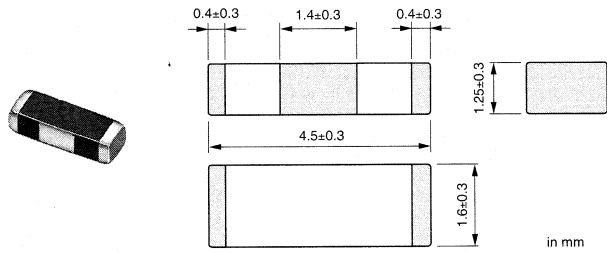


Part Number	Rated Voltage (Vdc)	Varistor Voltage (V)	Clamping Voltage (max.)	Capacitance (pF)	Peak Pulse Current (A)	Operating Temperature Range (°C)
VCM18RN180DS1	18	29 V1mA +5V,-5V	50V(V1A)	100 +30%,-30%	30 8/20μs	-40 to 125
VCM18RN260DS1	26	38 V1mA +5V,-5V	58V(V1A)	95 +30%,-30%	30 8/20μs	-40 to 125
VCM21RN180DS1	18	25 V1mA +5V,-5V	45V(V10A)	1000 +30%,-30%	150 8/20μs	-40 to 125

EMIGUARD® (EMIFIL® with Varistor Function)

Chip EMIGUARD®

● VFM41R Series (1806)



4

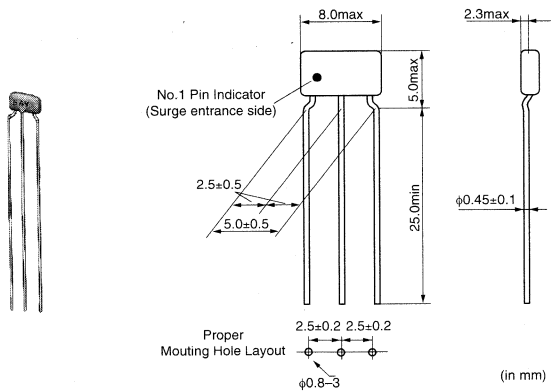
Noise Suppression Products/(EMIFIL®)

Part Number	Rated Voltage (Vdc)	Varistor Voltage (V)	Clamping Voltage (max.)	Capacitance (pF)	Rated Current (mA)	Peak Pulse Current (A)	Operating Temperature Range (°C)
VFM41RN222N1C	16	27 +5%,-5%	50V	2200 +30%,-30%	200	50	-40 to 125

EMIGUARD® (EMIFIL® with Varistor Function)

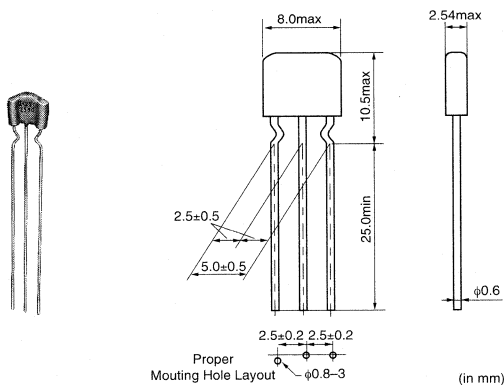
Lead Type EMIGUARD®

● For Semiconductor Protection VFR3V Series



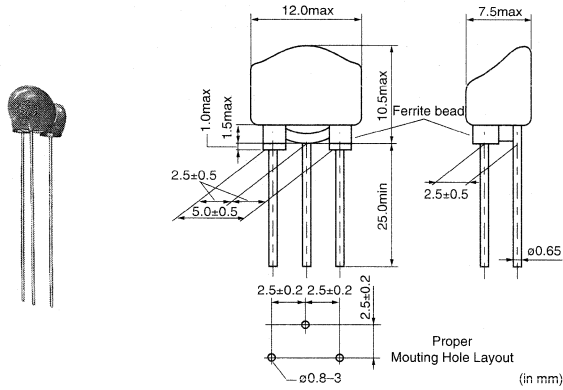
Part Number	Rated Voltage (Vdc)	Varistor Voltage (Vdc)	Capacitance (pF)	Rated Current (mA)	Peak Pulse Current (A)	Operating Temperature Range (°C)
VFR3VD31E131T51	25	50 +20%,-20%	130 +20%,-20%	20	15	-25 to 85

● For Signal-Line VFS6V Series



Part Number	Rated Voltage (Vdc)	Varistor Voltage (Vdc)	Capacitance (pF)	Rated Current (A)	Peak Pulse Current (A)	Operating Temperature Range (°C)
VFS6VD81E221T51	25	50 +20%,-20%	220 +20%,-20%	6	100	-40 to 105

● For Large-Current VFS9V Series

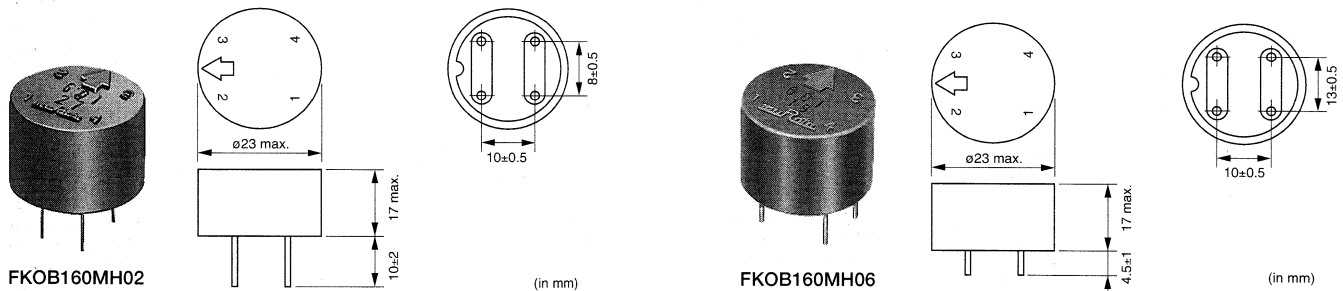


Part Number	Rated Voltage (Vdc)	Varistor Voltage (Vdc)	Capacitance (pF)	Rated Current (A)	Operating Temperature Range (°C)
VFS9VD31B223Q55	12	22 +20%,-20%	22000 +50%,-20%	7	-40 to 100

AC Line Filters

Common Mode Choke Coil

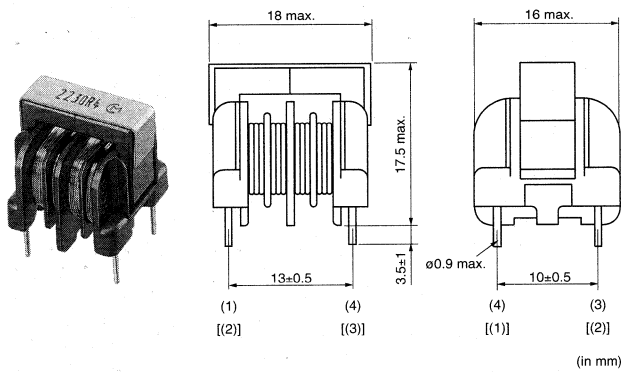
● FKOB Series



Part Number	Common Mode Inductance (μH)	Rated Current (A)	Rated Voltage (V)	Insulation Resistance (M ohm)	Lead Pitch A/B (mm)	Lead Length I (mm)
FKOB160MH02	250 min.	2.5	250	100 min.	8/10	10
FKOB160MH06	250 min.	2.5	250	100 min.	13/10	4.5
FKOB160MH13	600 min.	2.5	250	100 min.	13/10	4.5
FKOB160MH14	800 min.	2.5	250	100 min.	13/10	4.5
FKOB160MH15	1500 min.	1.5	250	100 min.	13/10	4.5
FKOB160MH16	1000 min.	1.5	250	100 min.	13/10	4.5
FKOB160MH23	800 min.	2.5	250	100 min.	8/10	4.5
FKOB160MH24	1500 min.	1.5	250	100 min.	8/10	10
FKOB160MH25	600 min.	2.5	250	100 min.	8/10	10
FKOB160MH26	1000 min.	1.5	250	100 min.	8/10	10

Operating Temperature Range(Ambient Temperature Range+Winding Temperature Rise) : -20°C to 95°C Winding Temperature Rise(at Rated Current) : 35K max.

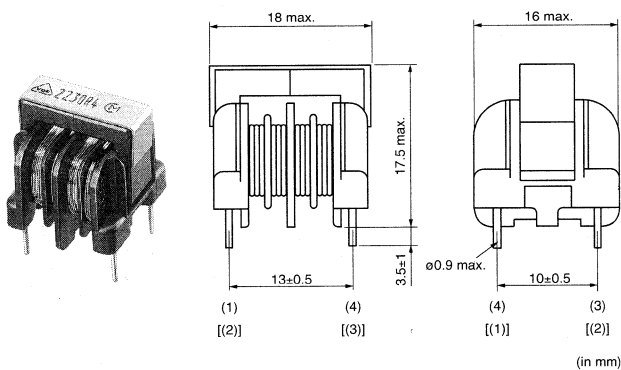
● PLA10 Series Sectional Winding Type



Part Number	Common Mode Inductance (mH)	Rated Current (A)	Rated Voltage (V)	Insulation Resistance (M ohm)
PLA10AN9012R0D2	0.9 min.	2.0	300	100 min.
PLA10AN1321R7D2	1.3 min.	1.7	300	100 min.
PLA10AN1821R5D2	1.8 min.	1.5	300	100 min.
PLA10AN2021R3D2	2.0 min.	1.3	300	100 min.
PLA10AN3621R0D2	3.6 min.	1.0	300	100 min.
PLA10AN7720R7D2	7.7 min.	0.7	300	100 min.
PLA10AN1330R5D2	13.0 min.	0.5	300	100 min.
PLA10AN2230R4D2	22.0 min.	0.4	300	100 min.
PLA10AN3630R3D2	36.0 min.	0.3	300	100 min.

Operating Temperature Range(Ambient Temperature Range + Winding Temperature Rise) : -25°C to 120°C Winding Temperature Rise(at Rated Current) : 60K max.

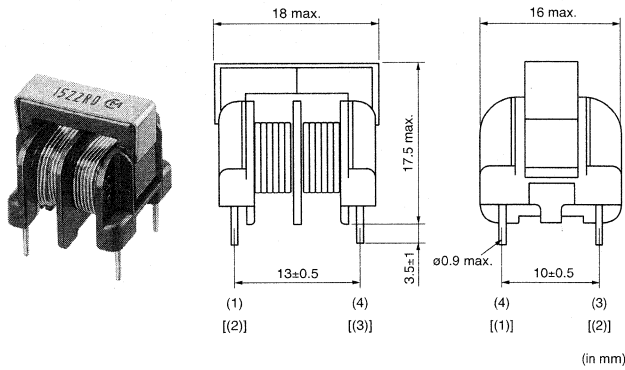
● PLA10 Series Sectional Winding Type (Safety Standard Recognized)



Part Number	Common Mode Inductance (mH)	Rated Current (A)	Rated Voltage (V)	Insulation Resistance (M ohm)
PLA10AS9012R0D2	0.9 min.	2.0	250	100 min.
PLA10AS1321R7D2	1.3 min.	1.7	250	100 min.
PLA10AS1821R5D2	1.8 min.	1.5	250	100 min.
PLA10AS2021R3D2	2.0 min.	1.3	250	100 min.
PLA10AS3621R0D2	3.6 min.	1.0	250	100 min.
PLA10AS7720R7D2	7.7 min.	0.7	250	100 min.
PLA10AS1330R5D2	13.0 min.	0.5	250	100 min.
PLA10AS2230R4D2	22.0 min.	0.4	250	100 min.
PLA10AS3630R3D2	36.0 min.	0.3	250	100 min.

Operating Temperature Range : -25°C to 60°C Winding Temperature Rise(at Rated Current) : 60K max.

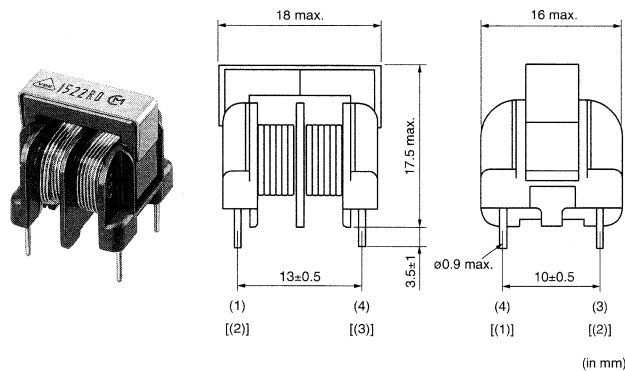
● PLA10 Series Standard Type



Part Number	Common Mode Inductance (mH)	Rated Current (A)	Rated Voltage (V)	Insulation Resistance (M ohm)
PLA10AN1522R0R2	1.5 min.	2.0	300	100 min.
PLA10AN1821R7R2	1.8 min.	1.7	300	100 min.
PLA10AN2221R5R2	2.2 min.	1.5	300	100 min.
PLA10AN3021R3R2	3.0 min.	1.3	300	100 min.
PLA10AN3521R2R2	3.5 min.	1.2	300	100 min.
PLA10AN5521R0R2	5.5 min.	1.0	300	100 min.
PLA10AN7420R8R2	7.4 min.	0.8	300	100 min.
PLA10AN1030R7R2	10.0 min.	0.7	300	100 min.
PLA10AN1230R6R2	12.0 min.	0.6	300	100 min.
PLA10AN2030R5R2	20.0 min.	0.5	300	100 min.
PLA10AN3030R4R2	30.0 min.	0.4	300	100 min.
PLA10AN4330R3R2	43.0 min.	0.3	300	100 min.

Operating Temperature Range(Ambient Temperature Range + Winding Temperature Rise) : -25°C to 120°C Winding Temperature Rise(at Rated Current) : 60K max.

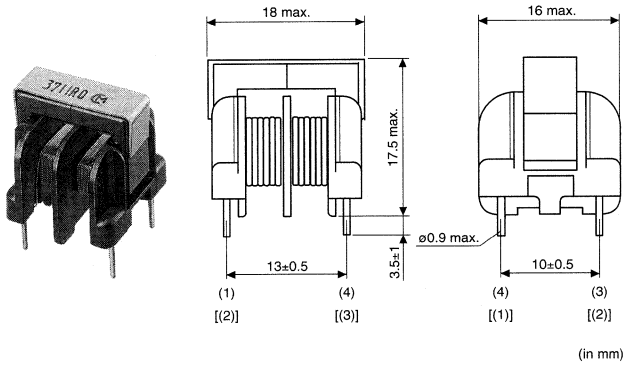
● PLA10 Series Standard Type (Safety Standard Recognized)



Part Number	Common Mode Inductance (mH)	Rated Current (A)	Rated Voltage (V)	Insulation Resistance (M ohm)
PLA10AS1522R0R2	1.5 min.	2.0	250	100 min.
PLA10AS1821R7R2	1.8 min.	1.7	250	100 min.
PLA10AS2221R5R2	2.2 min.	1.5	250	100 min.
PLA10AS3021R3R2	3.0 min.	1.3	250	100 min.
PLA10AS3521R2R2	3.5 min.	1.2	250	100 min.
PLA10AS5521R0R2	5.5 min.	1.0	250	100 min.
PLA10AS7420R8R2	7.4 min.	0.8	250	100 min.
PLA10AS1030R7R2	10.0 min.	0.7	250	100 min.
PLA10AS1230R6R2	12.0 min.	0.6	250	100 min.
PLA10AS2030R5R2	20.0 min.	0.5	250	100 min.
PLA10AS3030R4R2	30.0 min.	0.4	250	100 min.
PLA10AS4330R3R2	43.0 min.	0.3	250	100 min.

Operating Temperature Range : -25°C to 60°C Winding Temperature Rise(at Rated Current) : 60K max.

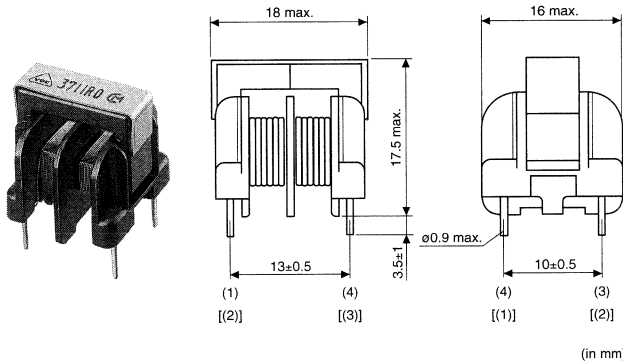
● For High-Frequency PLH Series



Part Number	Common Mode Inductance (μH)	Rated Current (A)	Rated Voltage (V)	Insulation Resistance (M ohm)
PLH10AN7003R6P2	70 min.	3.6	300	100 min.
PLH10AN1112R6P2	110 min.	2.6	300	100 min.
PLH10AN1612R1P2	160 min.	2.1	300	100 min.
PLH10AN2211R5P2	220 min.	1.5	300	100 min.
PLH10AN2911R2P2	290 min.	1.2	300	100 min.
PLH10AN3711R0P2	370 min.	1.0	300	100 min.

Operating Temperature Range(Ambient Temperature Range + Winding Temperature Rise) : -25°C to 120°C Winding Temperature Rise(at Rated Current) : 60K max.

● For High-Frequency PLH Series (Safety Standard Recognized)



Part Number	Common Mode Inductance (μH)	Rated Current (A)	Rated Voltage (V)	Insulation Resistance (M ohm)
PLH10AS7003R6P2	70 min.	3.6	250	100 min.
PLH10AS1112R6P2	110 min.	2.6	250	100 min.
PLH10AS1612R1P2	160 min.	2.1	250	100 min.
PLH10AS2211R5P2	220 min.	1.5	250	100 min.
PLH10AS2911R2P2	290 min.	1.2	250	100 min.
PLH10AS3711R0P2	370 min.	1.0	250	100 min.

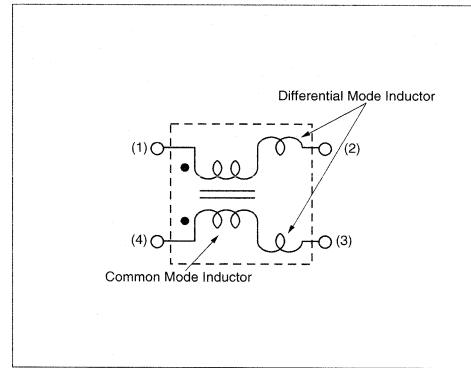
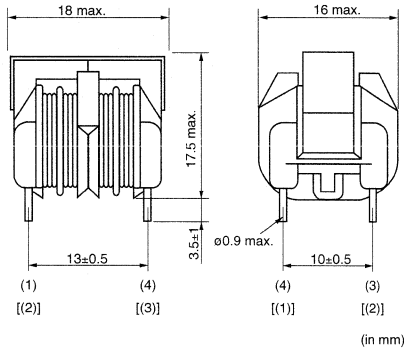
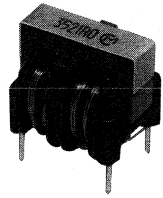
Operating Temperature Range : -25°C to 60°C Winding Temperature Rise(at Rated Current) : 60K max.

AC Line Filters

Hybrid Choke Coils

● PLY10 Series Sectional Winding Type

Equivalent Circuit

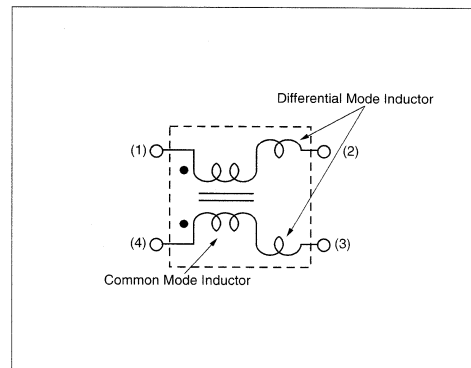
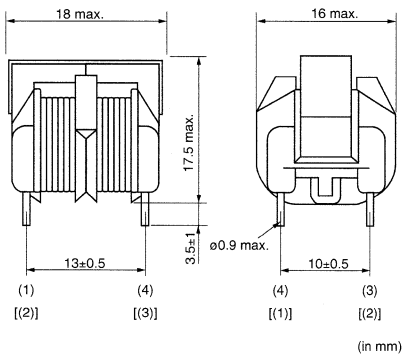
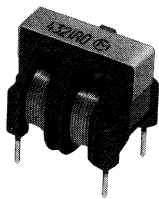


Part Number	Common Mode Inductance (mH)	Normal Mode Inductance (mH)	Rated Current (A)	Rated Voltage (Vac)
PLY10AN1130R5D2	11.0 min.	0.84 min.	0.5	300
PLY10AN9720R6D2	9.7 min.	0.67 min.	0.6	300
PLY10AN8720R7D2	8.7 min.	0.50 min.	0.7	300
PLY10AN4420R8D2	4.4 min.	0.32 min.	0.8	300
PLY10AN3521R0D2	3.5 min.	0.24 min.	1.0	300
PLY10AN2321R2D2	2.3 min.	0.16 min.	1.2	300
PLY10AN1421R4D2	1.4 min.	0.11 min.	1.4	300
PLY10AN1121R7D2	1.1 min.	0.065 min.	1.7	300
PLY10AN7012R0D2	0.7 min.	0.050 min.	2.0	300

Minimum Operating Temperature(Ambient Temperature Range+Winding Temperature Rise) : -25°C to 120°C Winding Temperature Rise (at Rated Current) : 60K max.

● PLY10 Series Standard Type

Equivalent Circuit



Part Number	Common Mode Inductance (mH)	Normal Mode Inductance (mH)	Rated Current (A)	Rated Voltage (Vac)
PLY10AN1430R5R2	14.0 min.	1.0 min.	0.5	300
PLY10AN9920R6R2	9.9 min.	0.69 min.	0.6	300
PLY10AN8720R7R2	8.7 min.	0.53 min.	0.7	300
PLY10AN6220R8R2	6.2 min.	0.40 min.	0.8	300
PLY10AN4321R0R2	4.3 min.	0.30 min.	1.0	300
PLY10AN2821R2R2	2.8 min.	0.19 min.	1.2	300
PLY10AN2121R4R2	2.1 min.	0.15 min.	1.4	300
PLY10AN1521R6R2	1.5 min.	0.11 min.	1.6	300
PLY10AN1121R8R2	1.1 min.	0.09 min.	1.8	300
PLY10AN9012R0R2	0.9 min.	0.065 min.	2.0	300

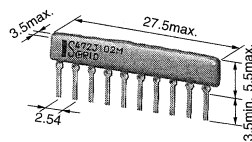
Minimum Operating Temperature(Ambient Temperature Range+Winding Temperature Rise) : -25°C to 120°C Winding Temperature Rise (at Rated Current) : 60K max.

RC/C Modules

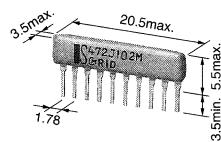
RC Modules

ARCL Series

[2.54mm pitch] ARCL10S472102

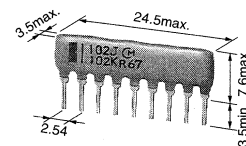


[1.78mm pitch] ARCL10SS472102



ARC Series

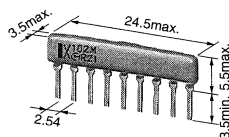
ARC9I102102



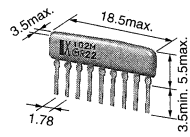
C Modules

CNTL Series

[2.54mm pitch] CNTL9XW102M



[1.78mm pitch] CNTL9XS102M



in mm

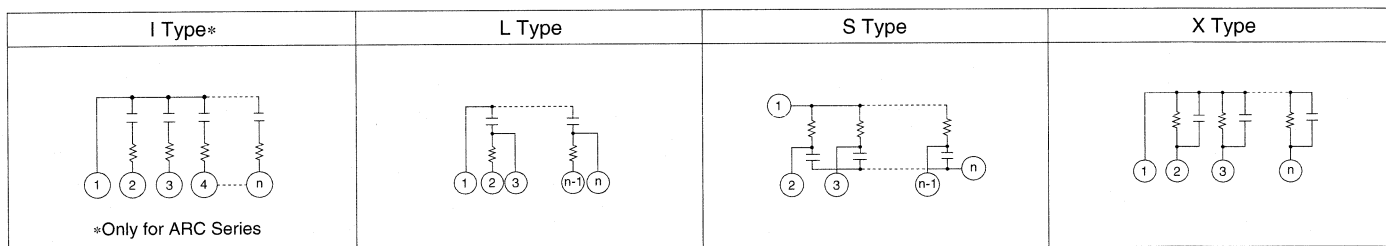
4

Noise Suppression Products/(EMIFIL®)

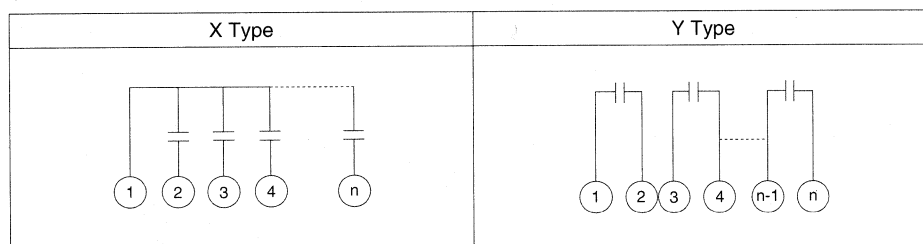
		RC Module		C Module
		ARCL Series	ARC Series	CNTL Series
Dimensions	Height	5.5mm max.	7.6mm max.	5.5mm max.
	Lead Pitch	2.54/1.78mm		2.54/1.78mm
Resistor	Resistance(Ω)	10 to 1M(E12 Series)		—
	Tolerance(%)	±5		—
	Temp. Char.(ppm/ °C)	±250		—
Capacitor	Capacitance (pF) Temp. Char.	22pF to 470pF : C0G (E12 Series) 560pF to 15000pF : X7R (E12 Series) 22000pF, 33000pF : Y5V 47000pF, 68000pF, 0.1μF : Y5V		—
	Tolerance	C0G : ±10% X7R : ±20% Y5V : +80%/-20%		—
Number of Pins		5 to 12		

Standard Circuits

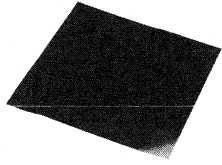
RC Modules



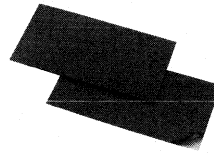
C Modules



Microwave Absorbers



EA10 Series

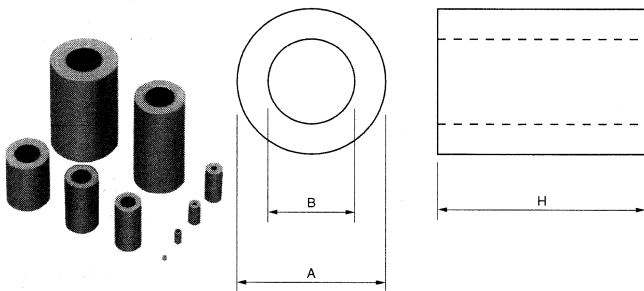


EA20/21 Series

Part Number	Applicable Frequency	Thickness (mm)	Flame Resisting	Halogen	Operating Temperature Range
EA1026A100	20.0 GHz (Typ.)	1.0 (Typ.)	-	Halogen Free	-40 to +80 °C
EA1026A160	11.5 GHz (Typ.)	1.6 (Typ.)	-	Halogen Free	-40 to +80 °C
EA1026A180	10.0 GHz (Typ.)	1.8 (Typ.)	-	Halogen Free	-40 to +80 °C
EA1046A180	5.8 GHz (Typ.)	1.8 (Typ.)	UL94V-0	Halogen Free	-40 to +80 °C
EA1075A270	2.5 GHz (Typ.)	2.7 (Typ.)	UL94V-0	Halogen Free	-40 to +80 °C
EA2070A050	0.1 - 3.0 GHz (Typ.)	0.5 (Typ.)	-	Halogen Free	-40 to +105 °C
EA2070A100	0.1 - 3.0 GHz (Typ.)	1.0 (Typ.)	-	Halogen Free	-40 to +105 °C
EA2070B020	0.1 - 3.0 GHz (Typ.)	0.2 (Typ.)	-	Halogen Free	-40 to +105 °C
EA2100A050	0.1 - 3.0 GHz (Typ.)	0.5 (Typ.)	UL94V-0	-	-40 to +105 °C
EA2100A100	0.1 - 3.0 GHz (Typ.)	1.0 (Typ.)	UL94V-0	-	-40 to +105 °C
EA2100B020	0.1 - 3.0 GHz (Typ.)	0.2 (Typ.)	UL94V-0	-	-40 to +105 °C

Ferrite Cores for EMI Suppression

Beads Core



Part Number	Fai A:Outer Dimension (mm)	Fai B:Inner Dimension (mm)	H:Length Dimension (mm)	Impedance at 100MHz(1 turn) (ohm)
FSRH021049RN000B	1.95	1.02	4.9	34
FSRH030060RN000B	3.36	1.1	6.0	74
FSRH041D85RN000B	3.6	1.0	4.85	66
FSRH050050RN000B	4.7	1.4	5.0	64
FSRH050100RN000B	4.7	1.4	10.0	120
FSRH060080RN000B	5.5	2.7	8.0	64
FSRH070080RN000B	7.0	4.0	8.0	59
FSRH070140RN000B	7.0	4.0	14.0	82
FSRH090100RN000B	9.0	5.0	10.0	72

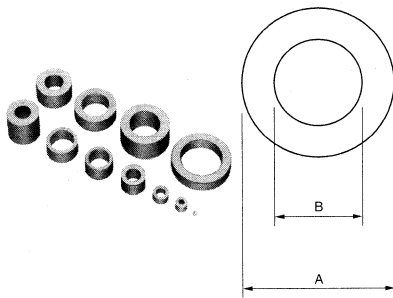
Continued on the following page.

Continued from the preceding page.

Part Number	Fai A:Outer Dimension (mm)	Fai B:Inner Dimension (mm)	H:Length Dimension (mm)	Impedance at 100MHz(1 turn) (ohm)
FSRH090160RN000B	9.0	5.0	16.0	100
FSRH090200RN000T	9.0	5.0	20.0	135
FSRH091100RN000B	9.0	4.3	10.0	94
FSRH091160RN000B	9.0	4.3	16.0	145
FSRH100150RTB00T	10.0	6.0	15.0	92
FSRH120150RT000T	12.0	7.0	15.0	90
FSRH120200RT000T	12.0	7.0	20.0	120
FSRH120285RT000T	12.0	7.0	28.5	175
FSRH121150RT000T	12.0	5.6	15.0	130
FSRH121200RT000T	12.0	5.6	20.0	170
FSRH121250RT000T	12.0	5.6	25.0	223
FSRH142150RX000T	14.0	8.0	15.0	97
FSRH142200RX000T	14.0	8.0	20.0	127
FSRH142280RX000T	14.0	8.0	28.0	170
FSRH162200RN000T	16.3	8.3	20.0	162
FSRH162280RN000T	16.3	8.3	28.0	225
FSRH190285RT000T	19.0	10.0	28.5	200

Ferrite Cores for EMI Suppression

Ring Core



Part Number	Fai A:Outer Dimension (mm)	Fai B:Inner Dimension (mm)	H:Length Dimension (mm)	Impedance at 100MHz(3 turns) (ohm)
FSRB060040RNB00B	5.5	2.7	4.0	290
FSRB071040RNB00B	7.0	4.0	4.0	222
FSRB090060RNB00B	9.0	5.0	6.0	356
FSRB090080RNB00B	9.0	5.0	8.0	466
FSRB091060RNB00B	9.0	4.3	6.0	451
FSRB091080RNB00B	9.0	4.3	8.0	582
FSRB100030RTB00B	10.0	6.0	3.0	170
FSRB100060RTB00B	10.0	6.0	6.0	316
FSRB100080RTB00B	10.0	6.0	8.0	388
FSRB100100RTB00B	10.0	6.0	10.0	475
FSRB120050RTB00T	12.0	7.0	5.0	264
FSRB120060RTB00T	12.0	7.0	6.0	310
FSRB120080RTB00T	12.0	7.0	8.0	400
FSRB120100RTB00T	12.0	7.0	10.0	450
FSRB121060RTB00T	12.0	5.6	6.0	406
FSRB121080RTB00T	12.0	5.6	8.0	490
FSRB121100RTB00T	12.0	5.6	10.0	535
FSRB140080RNB00T	14.0	10.0	8.0	340

Continued on the following page.

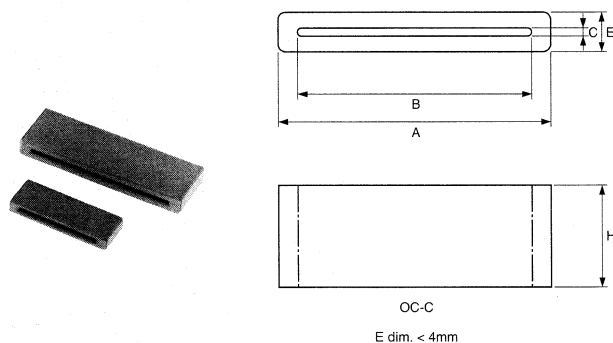
Continued from the preceding page.

Part Number	Fai A:Outer Dimension (mm)	Fai B:Inner Dimension (mm)	H:Length Dimension (mm)	Impedance at 100MHz(3 turns) (ohm)
FSRB140140RNB00T	14.0	10.0	14.0	450
FSRB142060RXB00T	14.0	8.0	6.0	325
FSRB142080RXB00T	14.0	8.0	8.0	415
FSRB142100RXB00T	14.0	8.0	10.0	492
FSRB143140RNB00T	14.0	11.0	14.0	364
FSRB160G75RN000T	16.0	12.0	7.75	247
FSRB162030RNB00T	16.3	8.3	3.0	230
FSRB162050RN000T	16.3	8.3	5.0	310
FSRB162100RNB00T	16.3	8.3	10.0	557
FSRB162160RN000T	16.3	8.3	16.0	640
FSRB190060RTB00T	19.0	10.0	6.0	360
FSRB190100RT000T	19.0	10.0	10.0	480
FSRB190180RT000T	19.0	10.0	18.0	619
FSRB220080RN000T	22.0	14.0	8.0	360
FSRB250120RT000T	25.0	15.0	12.0	470
FSRB300080RT000T	30.0	20.0	8.0	300

Ferrite Cores for EMI Suppression

Flat Cables

● Thin Type



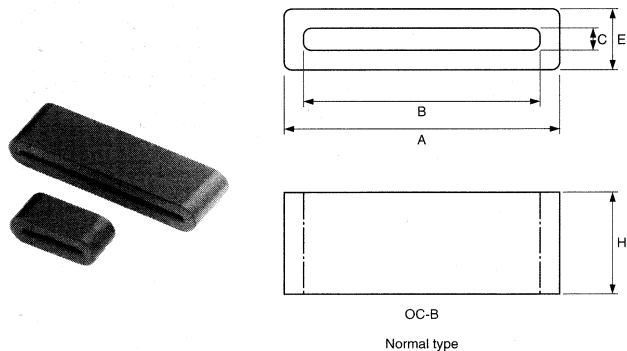
Part Number	A:Outer Dimension (mm)	B:Inner Dimension (mm)	H:Length Dimension (mm)	E:Width Dimension (mm)	C:Gap Dimension (mm)	Impedance at 100MHz (ohm)	Number of Turn
FSRC120020RXB00B	11.5	8.0	2.0	3.0	0.7	24	1
FSRC120060RXB00B	11.5	8.0	6.0	3.0	0.7	36	1
FSRC120090RXB00B	11.5	8.0	9.0	3.0	0.7	48	1
FSRC120120RXB00B	11.5	8.0	12.0	3.0	0.7	59	1
FSRC160040RTB00T	15.6	13.6	4.0	2.8	0.7	26	1
FSRC171030RTB00T	17.0	13.6	3.0	2.8	0.7	26	1
FSRC171060RTB00T	17.0	13.6	6.0	2.8	0.7	37	1
FSRC171090RTB00T	17.0	13.6	9.0	2.8	0.7	44	1
FSRC171120RTB00T	17.0	13.6	12.0	2.8	0.7	53	1
FSRC221150RTF10T	22.8	18.8	15.0	2.8	0.55	73	1
FSRC222060RX000T	22.8	18.7	6.0	2.8	0.7	37	1
FSRC222090RX000T	22.8	18.7	9.0	2.8	0.7	46	1
FSRC222120RX000T	22.8	18.7	12.0	2.8	0.7	53	1
FSRC253060RT000T	25.0	21.0	6.0	3.0	0.8	41	1
FSRC253090RT000T	25.0	21.0	9.0	3.0	0.8	48	1
FSRC253120RT000T	25.0	21.0	12.0	3.0	0.8	56	1
FSRC280060RX000T	28.0	24.0	6.0	3.5	0.8	39	1
FSRC280090RX000T	28.0	24.0	9.0	3.5	0.8	46	1

Continued on the following page.

Continued from the preceding page.

Part Number	A:Outer Dimension (mm)	B:Inner Dimension (mm)	H:Length Dimension (mm)	E:Width Dimension (mm)	C:Gap Dimension (mm)	Impedance at 100MHz (ohm)	Number of Turn
FSRC280120RX000T	28.0	24.0	12.0	3.5	0.8	56	1
FSRC360060RX000T	36.0	32.0	6.0	3.5	0.8	40	1
FSRC360090RX000T	36.0	32.0	9.0	3.5	0.8	47	1
FSRC360120RX000T	36.0	32.0	12.0	3.5	0.8	56	1
FSRC420060RX000T	42.0	38.0	6.0	2.8	0.7	42	1
FSRC420090RX000T	42.0	38.0	9.0	2.8	0.7	48	1
RSRC420120RX000T	42.0	38.0	12.0	2.8	0.7	57	1

● Standard Type



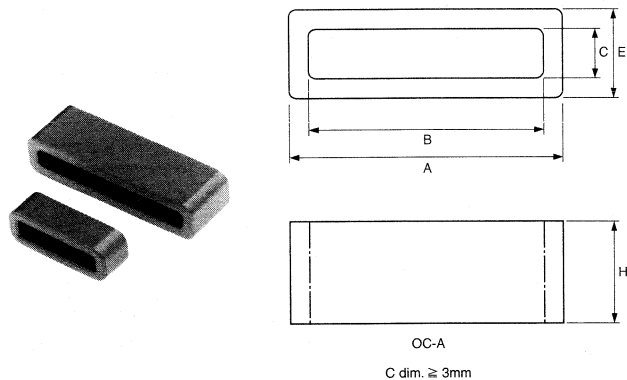
Part Number	A:Outer Dimension (mm)	B:Inner Dimension (mm)	H:Length Dimension (mm)	E:Width Dimension (mm)	C:Gap Dimension (mm)	Impedance at 100MHz (ohm)	Number of Turn
FSRC140030RXB00T	13.8	9.6	3.0	5.0	0.8	30	1
FSRC140040RXB00T	13.8	9.6	4.0	5.0	0.8	36	1
FSRC140060RXB00T	13.8	9.6	6.0	5.0	0.8	44	1
FSRC140090RXB00T	13.8	9.6	9.0	5.0	0.8	66	1
FSRC140120RXB00T	13.8	9.6	12.0	5.0	0.8	78	1
FSRC140200RXB00T	13.8	9.6	20.0	5.0	0.8	126	1
FSRC141060RXB00T	13.8	9.6	6.0	5.0	1.3	39	1
FSRC141120RXB00T	13.8	9.6	12.0	5.0	1.3	62	1
FSRC170030RTB00T	17.0	13.0	3.0	5.0	0.8	26	1
FSRC170060RTB00T	17.0	13.0	6.0	5.0	0.8	37	1
FSRC170070RT000T	17.0	13.0	7.0	5.0	0.8	45	1
FSRC170090RTB00T	17.0	13.0	9.0	5.0	0.8	53	1
FSRC170120RT000T	17.0	13.0	12.0	5.0	0.8	75	1
FSRC170200RT000T	17.0	13.0	20.0	5.0	0.8	107	1
FSRC240150RX000T	23.8	18.8	15.0	6.3	1.1	76	1
FSRC250070RT000T	25.0	21.0	7.0	5.0	0.8	45	1
FSRC250120RT000T	25.0	21.0	12.0	5.0	0.8	70	1
FSRC252050RT000T	25.0	21.0	5.0	5.0	1.2	35	1
FSRC252060RT000T	25.0	21.0	6.0	5.0	1.2	39	1
FSRC252090RT000T	25.0	21.0	9.0	5.0	1.2	47	1
FSRC252120RT000T	25.0	21.0	12.0	5.0	1.2	55	1
FSRC271113RN000T	27.0	22.25	11.3	8.05	2.15	60	1
FSRC310060RN000T	31.0	27.0	6.0	5.0	0.8	47	1
FSRC310090RN000T	31.0	27.0	9.0	5.0	0.8	58	1
FSRC310120RN000T	31.0	27.0	12.0	5.0	0.8	70	1
FSRC310200RN000T	31.0	27.0	20.0	5.0	0.8	102	1
FSRC320080RT000T	32.0	27.8	8.0	6.5	1.3	45	1
FSRC320120RT000T	32.0	27.8	12.0	6.5	1.3	60	1
FSRC400120RTF10T	40.0	35.0	12.0	4.0	0.5	80	1
FSRC401120RT000T	40.0	35.0	12.0	4.5	1.0	65	1
FSRC410150RN000T	41.2	35.0	15.0	7.7	1.5	70	1

Continued on the following page. ↗

Continued from the preceding page.

Part Number	A:Outer Dimension (mm)	B:Inner Dimension (mm)	H:Length Dimension (mm)	E:Width Dimension (mm)	C:Gap Dimension (mm)	Impedance at 100MHz (ohm)	Number of Turn
FSRC560120RT000T	56.2	52.2	12.0	4.8	0.9	70	1
FSRC580060RT000T	58.0	52.8	6.0	6.7	1.5	46	1
FSRC580120RT000T	58.0	52.8	12.0	6.7	1.5	62	1
FSRC580180RT000T	58.0	52.8	18.0	6.7	1.5	82	1
FSRC580180RTF00T	58.0	52.8	18.0	5.9	0.7	95	1
FSRC600100RN000T	60.0	48.0	10.0	12.0	1.9	69	1
FSRC600127RN000T	60.0	48.0	12.7	12.0	1.9	72	1
FSRC800127RTF30T	80.0	68.6	12.7	10.0	2.6	71	1

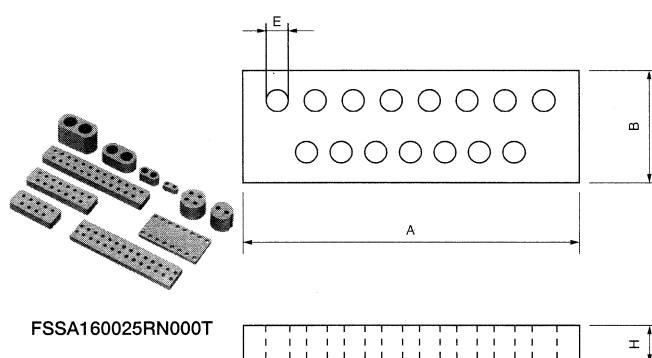
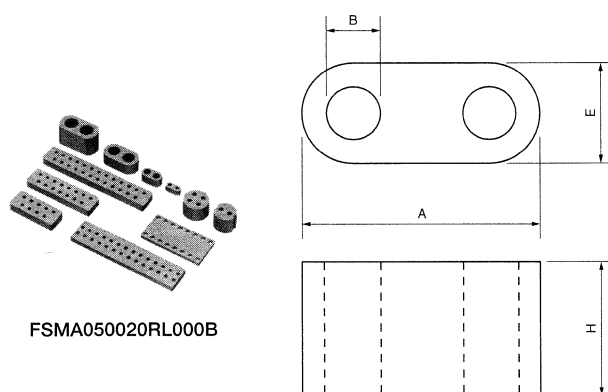
Wide Type



Part Number	A:Outer Dimension (mm)	B:Inner Dimension (mm)	H:Length Dimension (mm)	E:Width Dimension (mm)	C:Gap Dimension (mm)	Impedance at 100MHz (ohm)	Number of Turn
FSRC142150RTB00T	14.0	9.0	15.0	9.0	4.0	90	1
FSRC190060RTB00T	19.0	15.0	6.0	7.0	3.5	34	1
FSRC321100RN000T	32.0	28.0	10.0	7.5	3.5	35	1
FSRC321150RN000T	32.0	28.0	15.0	7.5	3.5	47	1
FSRC440100RN000T	44.0	40.0	10.0	7.5	3.8	34	1

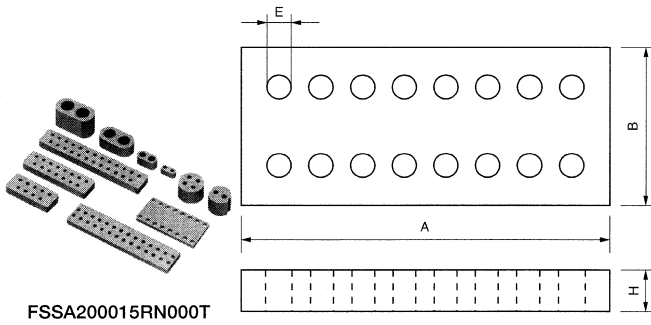
Ferrite Cores for EMI Suppression

Multi-hole Cores



Continued on the following page. ↗

Continued from the preceding page.

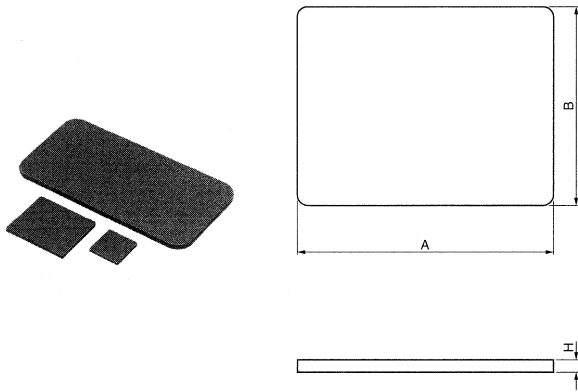


FSSA200015RN000T

Part Number	A:Outer Dimension (mm)	B, E:Hole Dimension (mm)	H:Length Dimension (mm)	B, E:Width Dimension (mm)	Impedance at 100MHz (ohm)
FSMA050020RLB00B	5.20	1.30	2.00	2.50	21
FSMA050020RTB00B	5.20	1.30	2.00	2.50	20
FSMA070100RL000B	6.50	1.00	10.00	3.00	100
FSMA072020RL000B	6.50	1.10	2.00	3.00	23
FSSA160025RN000T	16.0	1.15	2.5	6.40	43
FSSA200015RN000T	20.32	1.10	1.5	10.2	29
FSSA240025RN000T	24.0	1.15	2.5	6.4	45
FSSA381025RN000T	38.0	1.15	2.5	6.4	45

Ferrite Cores for EMI Suppression

Plate Cores



Part Number	A:Outer Dimension (mm)	B:Width Dimension (mm)	H:Thickness Dimension (mm)
FSSA100008RN000T	10.0	10.0	0.8
FSSA100010RN000T	10.0	10.0	1.0
FSSA100Z55RN000T	10.0	10.0	0.55
FSSA202010RN000T	20.0	16.5	1.0
FSSA202015RN000T	20.0	16.5	1.5
FSSA203010RN000T	20.0	20.0	1.0
FSSA222011RT000T	22.8	16.5	1.1
FSSA270010RN000T	27.0	20.0	1.0
FSSA271010RN000T	27.0	27.0	1.0
FSSA271020RN000T	27.0	27.0	2.0
FSSA271050RN000T	27.0	27.0	5.0
FSSA300010RN000T	30.0	30.0	1.0
FSSA450015RT000T	45.0	10.0	1.5
FSSA530015RT000T	52.8	28.5	1.5
FSSA600020RN000T	60.5	30.6	2.0

5

Resonators

Ceramic Resonators (CERALOCK®)(MHz)

Ceramic Resonators (CERALOCK®)(kHz)

SAW Resonators

BGS Resonators

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
 If you have any questions about details, inquire at your usual Murata sales office or distributor.

CERALOCK® (MHz)

(Global Part Number)

CS	T	CV	16M0	X53	***	-R0
1	2	3	4	5	6	7

① Product ID

Product ID	
CS	Ceramic Resonators

② Frequency/Capacitance

Code	Frequency/Capacitance
A	MHz No capacitance built-in
T	MHz Built-in Capacitance

③ Structure/Size

Code	Structure/Size
LA	Lead Type
LS	Round Lead Type
CC	Cap Chip Type
CR/CE/CG	Small-cap Chip Type
CV	Monolithic Chip Type
CW	Small Monolithic Chip Type

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Design

Code	Design
G□□	Thickness Shear mode
T/V□□	Thickness Expander mode
X□□	Thickness Expander mode (3rd overtone)

□□ indicates initial frequency tolerance and load capacity.

CERALOCK® (kHz)

(Global Part Number)

CS	B	FB	1M00	J58	***	-R1
1	2	3	4	5	6	7

① Product ID

Product ID	
CS	Ceramic Resonators

② Frequency/Capacitance

Code	Frequency/Capacitance
B	kHz No capacitance built-in

③ Structure/Size

Code	Structure/Size
LA	Two-Terminal Lead Type
FB	SMD Type

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz).
 Capital letter "K" following three figures expresses the unit of "kHz".

⑥ Individual Specification

Code	Individual Specification
***	Three-digit alphanumerics express "Individual Specification".

With standard products, "⑥ Individual Specification" is omitted, and "⑦ Package Specification Code" is carried up.

⑦ Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H ₀ =18mm
-A1	Radial Taping H ₀ =16mm
-R0	Plastic Taping ø=180mm
-R1	Plastic Taping ø=330mm

Radial taping is applied to lead type and plastic taping to chip type.

⑤ Design

Code	Design
E□□	Area Expansion mode
J□□	Area Expansion mode (Closed Type)

□□ indicates initial frequency tolerance and load capacitance.

⑥ Individual Specification

Code	Individual Specification
***	Three-digit alphanumerics express "Individual Specification".

With standard products, "⑥ Individual Specification" is omitted, and "⑦ Package Specification Code" is carried up.

⑦ Packaging

Code	Packaging
-B0	Bulk
-R1	Plastic Taping ø=330mm

SAW Resonators

(Global Part Number) **SA R UK 433M92 B X M 0 R11**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
SA	SAW

② Function

Code	Function
R	Resonator

③ Structure/Size

Code	Structure/Size
UK	Package

④ Resonant Frequency

Expressed by six-digit alphanumerics. The unit is in hertz (Hz). A decimal point is expressed by the capital letter "M".

⑤ Design

Code	Design
B	1 port

⑥ Board

Code	Board
X	Crystal

⑦ Resonant Frequency Tolerance

Code	Resonant Frequency Tolerance
L	±50kHz
M	±75kHz
P	±100kHz

⑧ Customer Code

Expressed by a figure.

⑨ Packaging

Code	Packaging
R11	1000pcs. /ø178mm Reel
R04	4000pcs. /ø330mm Reel

BGS Resonators

(Global Part Number) **MK R KA 81M0 AB0 P 00 R11**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
MK	BGS

② Function

Code	Function
R	Resonator

③ Structure/Size

Code	Structure/Size
KA	Chip Type
GA	Lead Type

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). A decimal point is expressed by the capital letter "M".

⑤ Standard Specification Code

Code	Standard Specification Code
AB0	Three-digit alphanumerics express product specifications.

⑥ Piezoelectric Board

Code	Piezoelectric Board
P	An alphabet expresses a piezoelectric substrate material.

⑦ Individual Specification Code

Code	Individual Specification Code
00	Standard Type

⑧ Packaging

Code	Packaging
R11	Plastic Taping ø=180mm
B05	Bulk

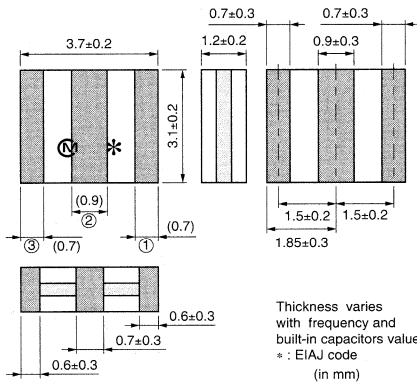
Plastic taping is only for chip type.

CERALOCK® (MHz)

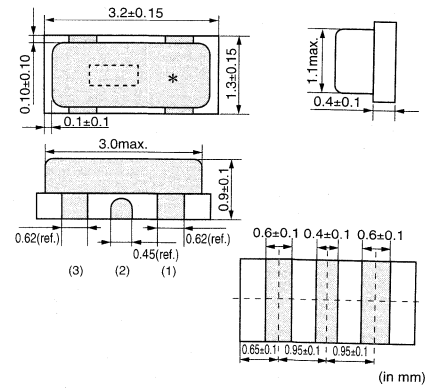
● Chip Type Three-Terminals CSTCC/E/G/R/V/W Series



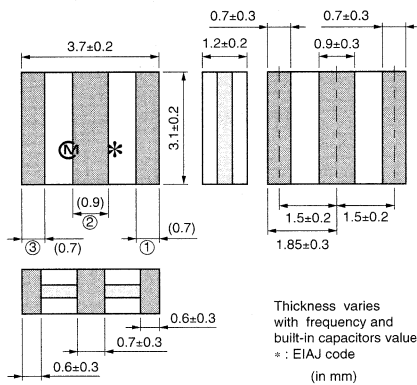
CSTCV_T_J
(10.01 to 13.49MHz)



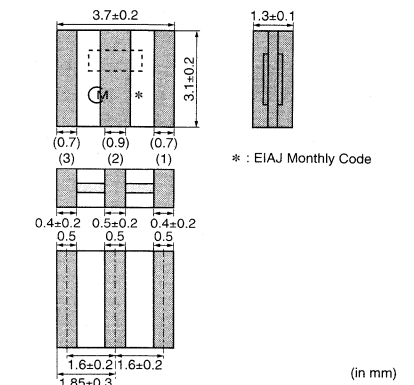
CSTCE_V
(12.01 to 19.99MHz)



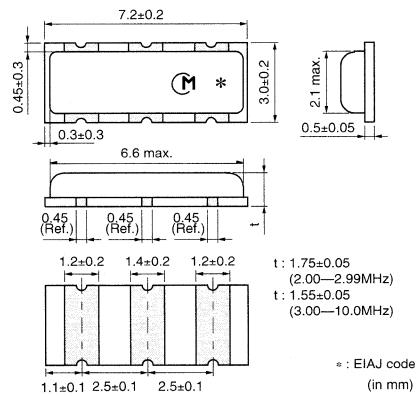
CSTCV_X_J
(13.50 to 19.99MHz)



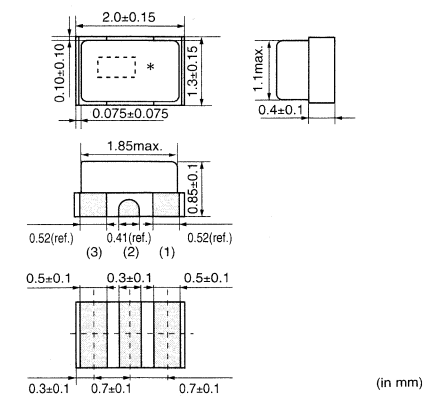
CSTCV_X_Q
(14.70 to 70.00MHz)



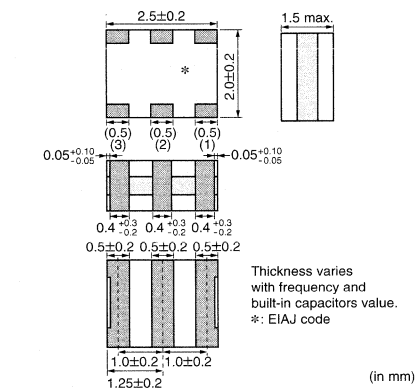
CSTCC_G(A)



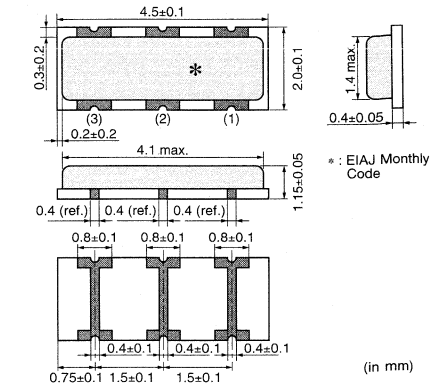
CSTCG_V
(20.00 to 33.86MHz)



CSTCW_X
(20.00 to 70.00MHz)



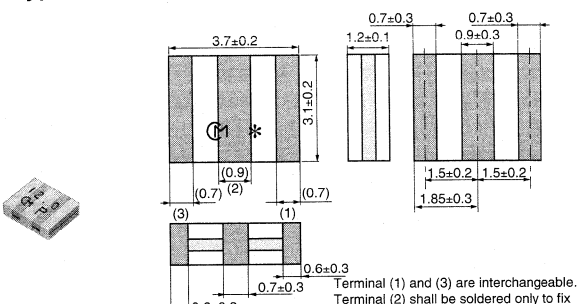
CSTCR_G(A)
(4.00 to 7.99MHz)



Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)	Use
CSTCV_T_J	10.01 to 13.49	±0.5	±0.4	-20 to 80	±0.3	-
CSTCE_V	12.01 to 19.99	±0.5	±0.3	-20 to 80	±0.3	-
CSTCV_X_J	13.50 to 19.99	±0.5	±0.3	-20 to 80	±0.3	-
CSTCV_X_Q	14.70 to 70.00	±0.5	±0.3	-40 to 125	±0.1	for automotive electronics
CSTCC_G	2.00 to 3.99, 8.00 to 10.0	±0.5	±0.3	-20 to 80	±0.3	-
CSTCC_G_A	2.00 to 3.99, 8.00 to 10.0	±0.5	±0.4	-40 to 125	±0.3	for automotive electronics
CSTCG_V	20.00 to 33.86	±0.5	±0.3	-20 to 80	±0.3	-
CSTCW_X	20.00 to 70.00	±0.5	±0.2	-20 to 80	±0.1	-
CSTCR_G	4.00 to 7.99	±0.5	±0.2	-20 to 80	±0.1	-
CSTCR_G_A	4.00 to 7.99	±0.5	±0.3	-40 to 125	±0.1	for automotive electronics

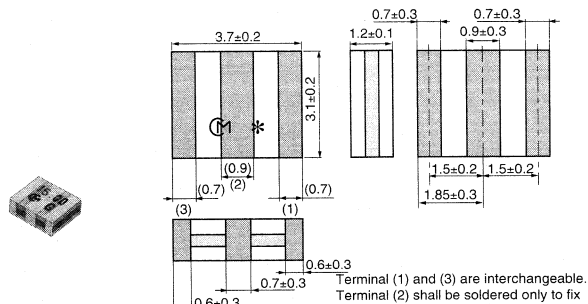
Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

● Chip Type Two-Terminals CSACV/W Series



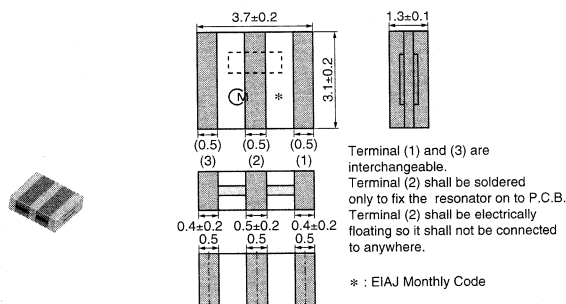
CSACV_T_J
(10.01 to 13.49MHz)

Terminal (1) and (3) are interchangeable.
Terminal (2) shall be soldered only to fix the resonator or to P.C.B.
Terminal (2) shall be electrically floating so it shall not be connected to anywhere.
Thickness varies with frequency.
*: EIAJ code (in mm)



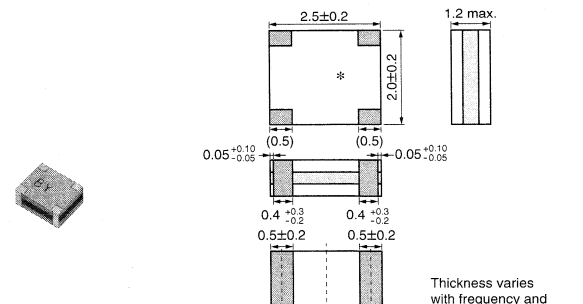
CSACV_X_J
(13.50 to 19.99MHz)

Terminal (1) and (3) are interchangeable.
Terminal (2) shall be soldered only to fix the resonator or to P.C.B.
Terminal (2) shall be electrically floating so it shall not be connected to anywhere.
Thickness varies with frequency.
*: EIAJ code (in mm)



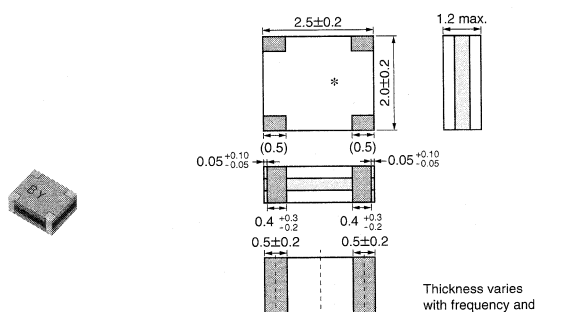
CSACV_X_Q
(14.70 to 70.00MHz)

Terminal (1) and (3) are interchangeable.
Terminal (2) shall be soldered only to fix the resonator on to P.C.B.
Terminal (2) shall be electrically floating so it shall not be connected to anywhere.
*: EIAJ Monthly Code (in mm)



CSACW_X_53
(20.00 to 24.99MHz)

Thickness varies with frequency and built-in capacitors value.
*: EIAJ code (in mm)



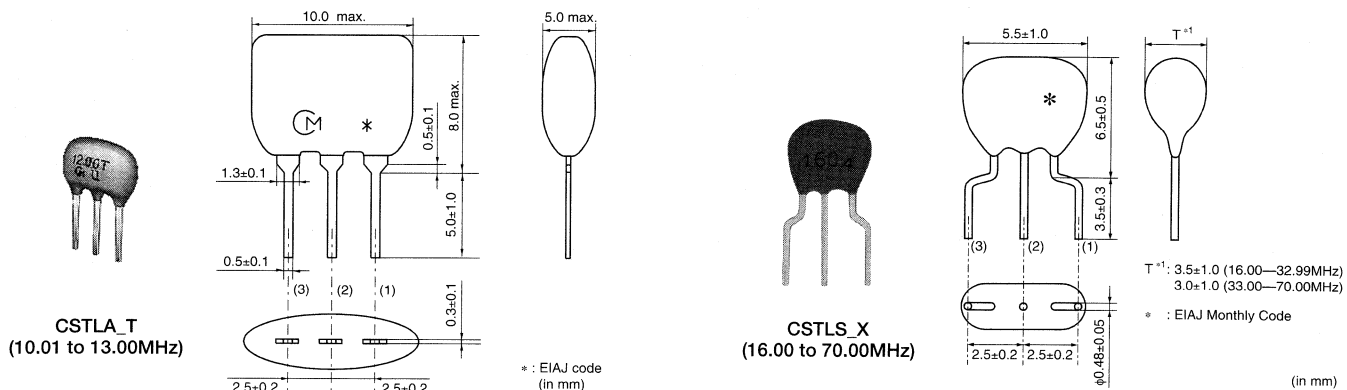
CSACW_X_51
(25.00 to 70.00MHz)

Thickness varies with frequency and built-in capacitors value.
*: EIAJ code (in mm)

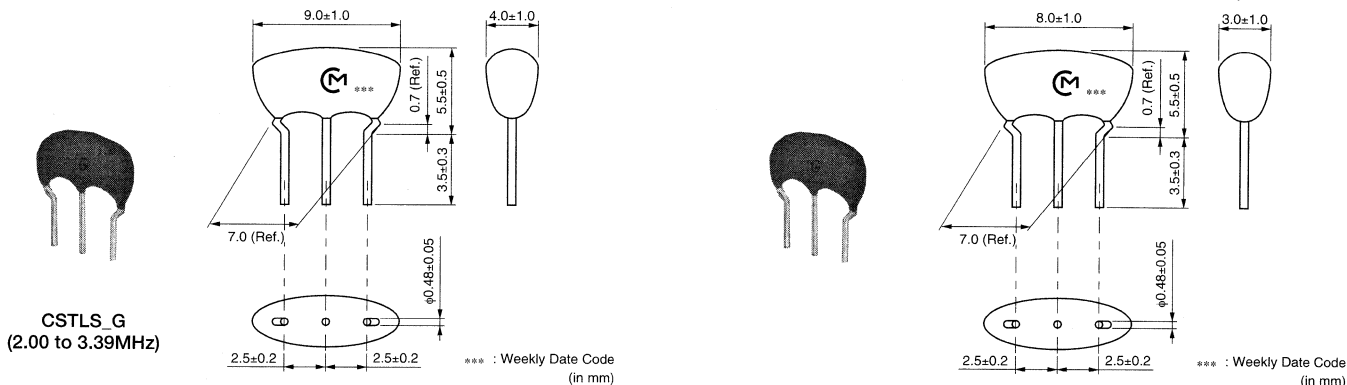
Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)	Use
CSACV_T_J	10.01 to 13.49	±0.5	±0.5	-20 to 80	±0.5	-
CSACV_X_J	13.50 to 19.99	±0.5	±0.3	-20 to 80	±0.3	-
CSACV_X_Q	14.70 to 70.00	±0.5	±0.3	-40 to 125	±0.1	for automotive electronics
CSACW_X_53	20.00 to 24.99	±0.5	±0.2	-20 to 80	±0.1	-
CSACW_X_51	25.00 to 70.00	±0.5	±0.2	-20 to 80	±0.1	-

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

● Lead Type Three-Terminals Built-in Capacitor CSTLA/CSTLS Series



Appearance/Dimensions 2(3.40 to 10.00MHz)

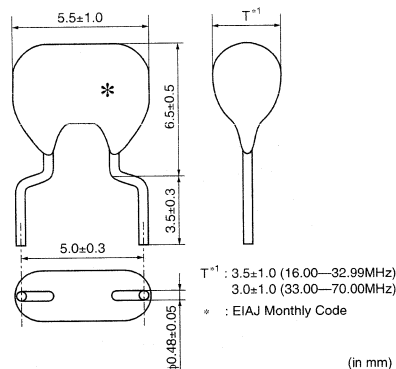
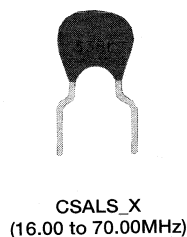
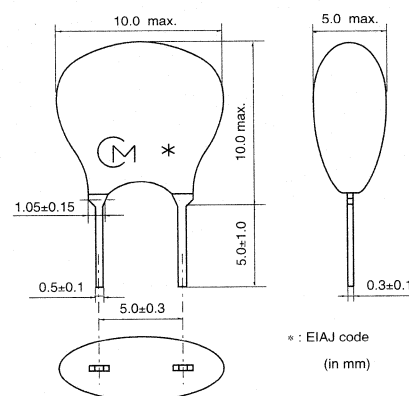
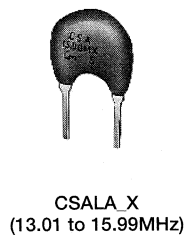
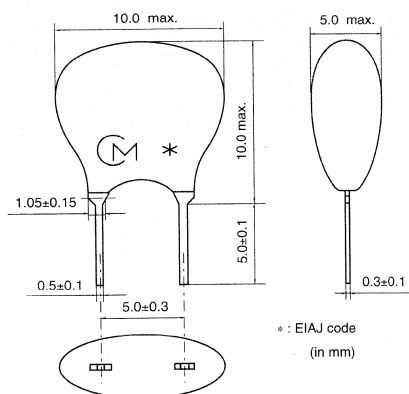
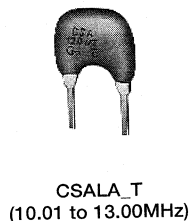


Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)
CSTLA_T	10.01 to 13.00	±0.5	±0.4	-20 to 80	±0.3
CSTLA_X	13.01 to 15.99	±0.5	±0.3	-20 to 80	±0.3
CSTLS_X	16.00 to 70.00	±0.5	±0.2	-20 to 80	±0.2
CSTLS_G	2.00 to 10.00	±0.5	±0.2	-20 to 80	±0.2

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● Lead Type Two-Terminals Built-in Capacitor CSALA/CSALS Series



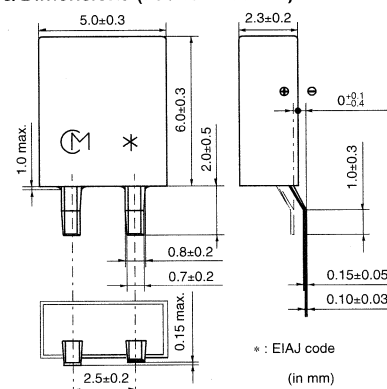
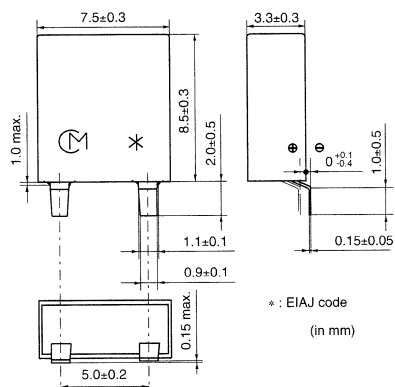
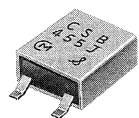
Part Number	Oscillating Frequency (MHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)
CSALA_T	10.01 to 13.00	±0.5	±0.5	-20 to 80	±0.5
CSALA_X	13.01 to 15.99	±0.5	±0.3	-20 to 80	±0.3
CSALS_X	16.00 to 70.00	±0.5	±0.2	-20 to 80	±0.2

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.
 The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

CERALOCK® (kHz)

● Chip Type Two-Terminals CSBFB Series

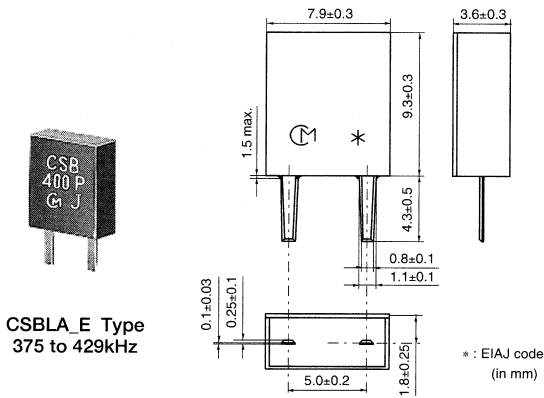
Appearance/Dimensions (700 to 1250kHz)



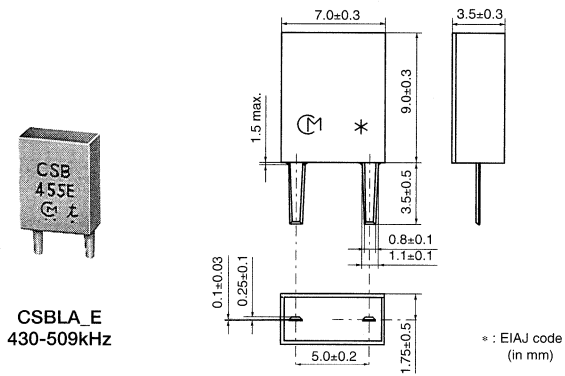
Part Number	Oscillating Frequency (kHz)	Initial Tolerance (%)	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)
CSBFB_J	430 to 519, 700 to 1250	±0.5	±0.3	-20 to 80	±0.3

Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.

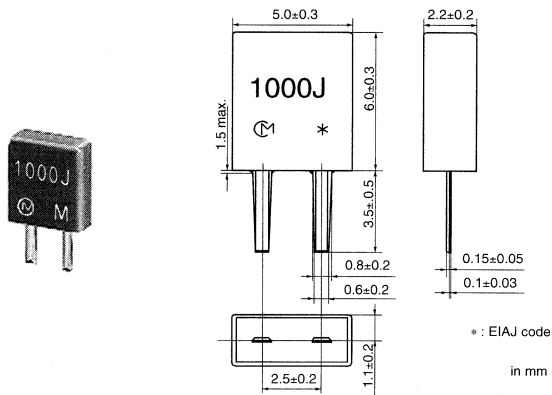
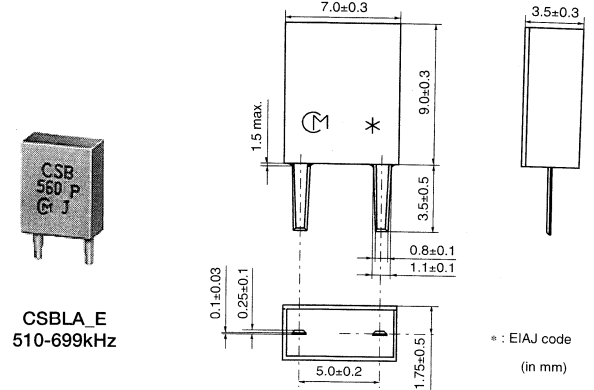
● Lead Type Two-Terminals CSBLA Series



Appearance/Dimensions (430 to 509kHz)



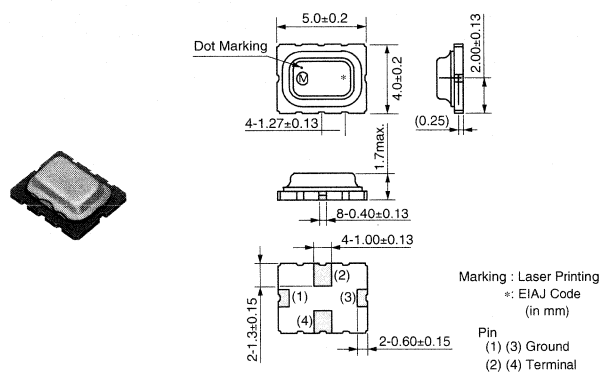
Appearance/Dimensions (510 to 699kHz)



Part Number	Oscillating Frequency (kHz)	Initial Tolerance	Temp.Stability (%)	Temperature Range (°C)	Aging (10 years) (%)
CSBLA_E	375 to 699	±2kHz	±0.3	-20 to 80	±0.3
CSBLA_J	700 to 1250	±0.5%	±0.3	-20 to 80	±0.3

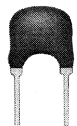
Irregular or stop oscillation may occur under unmatched circuit conditions. Please check the actual conditions prior to use.
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

SAW Resonators

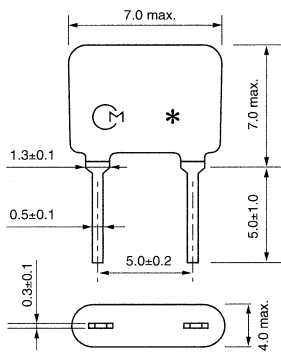


Part Number	Resonant Loss (dB)	Resonant Frequency (MHz)	Parallel Capacitance(at 1MHz) (pF)
SARUK308M04BXL0	2.2 max.	308.040	2.6
SARUK308M04BXM0	2.2 max.	308.040	2.6
SARUK308M04BXP0	2.2 max.	308.040	2.6
SARUK314M35BXL0	2.2 max.	314.350	2.7
SARUK314M35BXM0	2.2 max.	314.350	2.7
SARUK314M35BXP0	2.2 max.	314.350	2.7
SARUK314M95BXL0	2.2 max.	314.950	2.7
SARUK314M95BXM0	2.2 max.	314.950	2.7
SARUK314M95BXP0	2.2 max.	314.950	2.7
SARUK315M00BXL0	2.2 max.	315.000	2.7
SARUK315M00BXM0	2.2 max.	315.000	2.7
SARUK315M00BXP0	2.2 max.	315.000	2.7
SARUK417M95BXL0	2.5 max.	417.950	2.5
SARUK417M95BXM0	2.5 max.	417.950	2.5
SARUK417M95BXP0	2.5 max.	417.950	2.5
SARUK423M17BXL0	2.5 max.	423.170	2.5
SARUK423M17BXM0	2.5 max.	423.170	2.5
SARUK423M17BXP0	2.5 max.	423.170	2.5
SARUK433M37BXL0	2.5 max.	433.370	2.5
SARUK433M37BXM0	2.5 max.	433.370	2.5
SARUK433M37BXP0	2.5 max.	433.370	2.5
SARUK433M87BXL0	2.5 max.	433.870	2.5
SARUK433M87BXM0	2.5 max.	433.870	2.5
SARUK433M87BXP0	2.5 max.	433.870	2.5
SARUL433M87BXL0	2.5 max.	433.870	2.5
SARUL433M87BXM0	2.5 max.	433.870	2.5
SARUL433M87BXP0	2.5 max.	433.870	2.5
SARUK433M92BXL0	2.5 max.	433.920	2.5
SARUK433M92BXM0	2.5 max.	433.920	2.5
SARUK433M92BXP0	2.5 max.	433.920	2.5
SARUL433M92BXL0	2.5 max.	433.920	2.5
SARUL433M92BXM0	2.5 max.	433.920	2.5
SARUL433M92BXP0	2.5 max.	433.920	2.5
SARUK479M45BXP0	2.5 max.	479.450	2.5

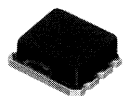
BGS Resonators



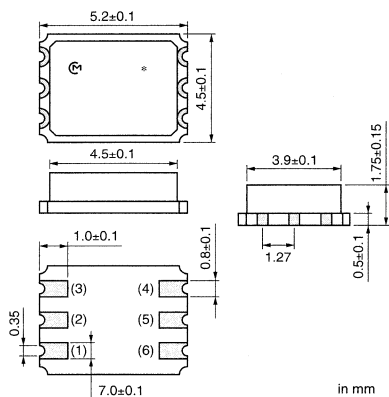
MKRGA



*: EIAJ Monthly code (in mm)

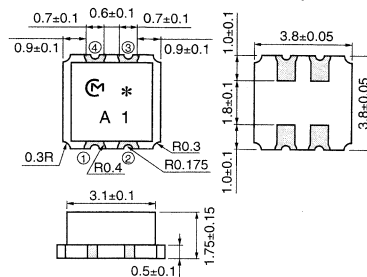


MKRKA Series (10 to 32.2MHz)



in mm

Appearance/Dimensions 2(32.3 to 100MHz)



* EIAJ Code
 ① Input (or Output)
 ② Ground
 ③ Output (or Input)
 ④ Ground
 (in mm)

Part Number	Oscillating Frequency (MHz)	Initial Tolerance	Temperature Stability	Temperature Range	Aging(10 years)
MKRGA	10 to 100	±0.5%	±0.1%	-20 to 80°C	±0.1%
MKRKA	10 to 100	±0.5%	±0.1%	-20 to 80°C	±0.1%

Frequency accuracy of ±0.3% and ±0.2% are also available.

6

Piezoelectric Sound Components

Piezoelectric Speakers (CERAMITONE®)

Piezoelectric Diaphragms

Piezoelectric Buzzers

Piezoelectric Sounders

Piezoelectric Ringers (PIEZORINGER®)

● Part Numbering (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
 (If you have any questions about details, inquire at your usual Murata sales office or distributor.)

Piezoelectric Speakers (CERAMITONE®)

(Global Part Number)

VS	B	35	E	W	-07	01	B
①	②	③	④	⑤	⑥	⑦	⑧

① Product ID

Product ID	
VS	Piezoelectric Speakers

② Product

Code	Product
B	Piezoelectric Diaphragms

③ Outer Dimensions

Code	Outer Dimensions
35	ø35mm
50	ø50mm

④ Drive

Code	Drive
E	External Drive

⑤ Outer Electrode Style

Code	Outer Electrode Style
W	Lead Wire Type

⑥ Resonant Frequency Type

Code	Resonant Frequency
-03	1st Resonant Frequency : 300Hz
-07	1st Resonant Frequency : 700Hz

⑦ Individual Specification Code

Code	Individual Specification Code
01	Characteristics, Style, others

⑧ Numbers of Ceramic

Code	Numbers of Ceramic
B	Two Elements (The code is omitted when element is one.)

Piezoelectric Diaphragms

(Global Part Number)

7	N	B	-31R2	DM	-1R5		A	10
①	②	③	④	⑤	⑥	⑦	⑧	⑨

① Product ID(1)

Product ID(1)	Ceramic Material
7	A2

② Product(2)

Product ID(2)	Metal Plate Material
B	Brass
N	Nickel Alloy
M	Ni Plated Iron
S	SUS

③ Product

Code	Product
B	Piezoelectric Diaphragms

④ Metal Plate Diameter

Code	Metal Plate Diameter
-31R2	A hyphen (-) plus four-digit alphanumerics express metal plate outer dimensions. A decimal point is expressed by the capital letter "R".

If there is no decimal point, the decimal point code is omitted.

⑤ Form of Piezoelectric Style

Code	Form of Piezoelectric Style
DM	Two digits express shape of ceramics.

For an Ag electrode, this digit remains blank, the corresponding code is omitted.

⑥ Resonant Frequency Type

Code	Resonant Frequency (kHz)
-1R5	A hyphen (-) and three-digit alphanumerics express resonant frequency. A decimal point is expressed by the capital letter "R".

If there is no decimal point, the decimal point is omitted.

⑦ With Feedback Electrode

Code	With Feedback Electrode
C	With Feedback Electrode
-	without Feedback Electrode

⑧ Product Specification

Code	Product Specification
A	With lead
-	No lead (omitted)

⑨ Individual Specification Code

Code	Individual Specification Code
10	These digits express a lead length, lead number, and presence/absence of a connector.

If the product has no individual specification, the corresponding code is omitted.

Piezoelectric Sounders/Piezoelectric Buzzers/Piezoelectric Ringers(PIEZORINGER®)

(Global Part Number) **PK M 13 E P Y -40 00 P -A0**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Product ID

Product ID	
PK	Piezoelectric Sound Components

② Product

Code	Product
M	Sounder, Ringer
B	Buzzer

③ Outer Dimensions

Expressed by two figures in mm.

Ex.)

Code	Outer Dimensions
13	φ12.6mm

④ Drive

Code	Drive
E	External-Drive
S	Self-Drive

⑤ Outer Electrode Style

Code	Outer Electrode Style
P	Pin Type
W	Lead Wire Type

⑥ Structure

Code	Structure
T	Standing Type
P	Flat Type Auto-assemble
Y	Flat Type/Available for Taping
C	Flat Type/Semi-auto-assemble

SMD Piezoelectric Sounder

(Global Part Number) **PK LCS 1212 E 40 01 -R1**
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
PK	Piezoelectric Sound Components

② Product

Code	Product
LCS	SMD Sounder

③ Dimensions

Code	Outer Dimensions
1212	□12mm

④ Drive

Code	
E	External Drive

⑦ Oscillating Frequency Type

Code	Oscillating Frequency Type
-40	A hyphen (-) plus two-digit figures express Oscillating Frequency type.

If there is no decimal point, the decimal point is omitted.

⑧ Individual Specification Code

Code	Individual Specification Code
00	Two digits express specific specification in characteristics.

⑨ Special Quality Guarantee

Code	Special Quality Guarantee
P	Post Plated Terminal
-	Omitted

⑩ Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping
-M0	Magazine

Radial taping or magazine are not available for all types. Please contact us.

⑤ Oscillating Frequency Type

Code	
40	A hyphen (-) plus two-digit figures express Oscillating Frequency type.

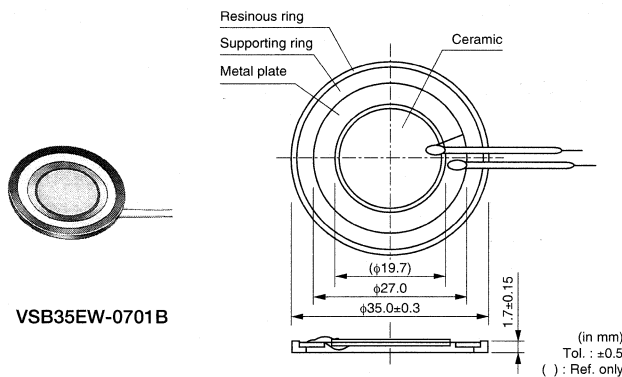
⑥ Individual Specification Code

Code	Individual Specification Code
01	Two digit express specific specification in characteristics.

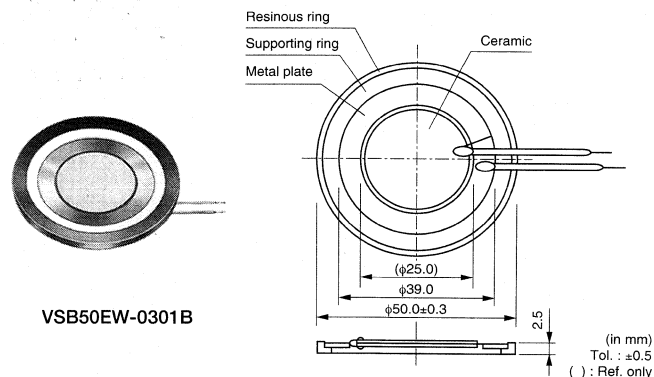
⑦ Packaging

Code	Packaging
-B0	Bulk
-R1	Plastic taping

Piezoelectric Speakers (CERAMITONE®)



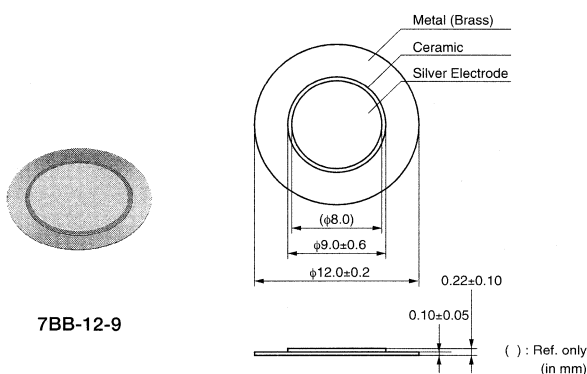
VSB35EW-0701B



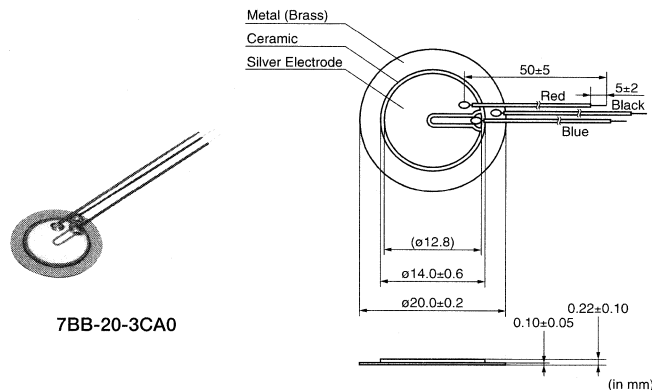
VSB50EW-0301B

Part Number	Oscillating Frequency Range	Capacitance (nF)	Maximum Input (mW)	Operating Temperature Range
VSB35EW-0701B	600Hz to 20kHz	340 ±35%[120Hz]	75	-20 to +70°C
VSB50EW-0301B	250Hz to 20kHz	600 ±35%[120Hz]	150	-20 to +70°C

Piezoelectric Diaphragms



7BB-12-9



7BB-20-3CA0

Part Number	Resonant Frequency (kHz)	Plate Size (dia)	Thickness	Plate Material	Drive Type
7BB-12-9	9.0 ±1.0kHz	12.0	0.22	Brass	External Drive
7BB-12-9A0	9.5 ±1.5kHz	12.0	0.22	Brass(with Lead Wire)	External Drive
7BB-15-6	6.0 ±1.0kHz	15.0	0.22	Brass	External Drive
7BB-15-6A0	6.0 ±1.0kHz	15.0	0.22	Brass(with Lead Wire)	External Drive
7BB-20-3	3.6 ±0.6kHz	20.0	0.22	Brass	External Drive
7BB-20-3CA0	3.7 ±0.6kHz	20.0	0.22	Brass(with Lead Wire)	Self Drive
7BB-20-4	4.0 ±0.5kHz	20.0	0.27	Brass	External Drive
7BB-20-6	6.3 ±0.6kHz	20.0	0.42	Brass	External Drive
7BB-20-6A0	6.3 ±0.6kHz	20.0	0.42	Brass(with Lead Wire)	External Drive
7BB-20-6C	6.3 ±0.6kHz	20.0	0.42	Brass	Self Drive
7BB-20-6CA0	6.3 ±0.6kHz	20.0	0.42	Brass(with Lead Wire)	Self Drive
7BB-22R5-5	5.2 ±0.5kHz	22.5	0.42	Brass	External Drive
7BB-27-3A0	3.6 ±0.5kHz	27.0	0.52	Brass(with Lead Wire)	External Drive
7BB-27-3C	3.0 ±0.5kHz	27.0	0.27	Brass	Self Drive
7BB-27-4	4.6 ±0.5kHz	27.0	0.54	Brass	External Drive
7BB-27-4A0	4.6 ±0.5kHz	27.0	0.54	Brass(with Lead Wire)	External Drive
7BB-27-4C	4.6 ±0.5kHz	27.0	0.54	Brass	Self Drive
7BB-27-4CA0	4.6 ±0.5kHz	27.0	0.54	Brass(with Lead Wire)	Self Drive

Continued on the following page.

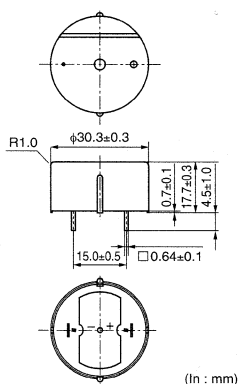
Continued from the preceding page.

Part Number	Resonant Frequency (kHz)	Plate Size (dia)	Thickness	Plate Material	Drive Type
7BB-35-3	2.8 ±0.5kHz	35.0	0.53	Brass	External Drive
7BB-35-3A0	2.8 ±0.5kHz	35.0	0.53	Brass(with Lead Wire)	External Drive
7BB-35-3C	2.8 ±0.5kHz	35.0	0.53	Brass	Self Drive
7BB-35-3CA0	2.8 ±0.5kHz	35.0	0.53	Brass(with Lead Wire)	Self Drive
7BB-41-2	2.2 ±0.3kHz	41.0	0.63	Brass	External Drive
7BB-41-2A0	2.2 ±0.3kHz	41.0	0.63	Brass(with Lead Wire)	External Drive
7BB-41-2C	2.2 ±0.3kHz	41.0	0.63	Brass	Self Drive
7BB-41-2CA0	2.2 ±0.3kHz	41.0	0.63	Brass(with Lead Wire)	Self Drive
7BB-50M-1	1.0 ±0.3kHz	50.0	0.44	Nickel-Plated Brass	External Drive
7MB-20-5R5	5.5 ±1.5kHz	20.0	0.37	Nickel Plated Iron	External Drive
7NB-27-2	2.2 ±0.4kHz	27.0	0.22	Iron Nickel Alloy	External Drive
7NB-27-2C	2.2 ±0.5kHz	27.0	0.22	Iron Nickel Alloy	Self Drive
7NB-27-3C	3.0 ±0.5kHz	27.0	0.32	Iron Nickel Alloy	Self Drive
7NB-27-4C	3.8 ±0.5kHz	27.0	0.42	Iron Nickel Alloy	Self Drive
7NB-31R2-1	1.3 ±0.5kHz	31.2	0.22	Iron Nickel Alloy	External Drive
7NB-35-1	1.16 ±0.2kHz	35.0	0.27	Iron Nickel Alloy	External Drive
7NB-35-1A0	1.16 ±0.2kHz	35.0	0.27	Iron Nickel Alloy(with Lead Wire)	External Drive
7NB-41-1	0.8 ±0.3kHz	41.0	0.21	Iron Nickel Alloy	External Drive
7SB-20-7	7.2 ±0.8kHz	20.0	0.42	Stainless	External Drive
7SB-34R7-3C	3.1 ±0.3kHz	34.7	0.50	Stainless	Self Drive

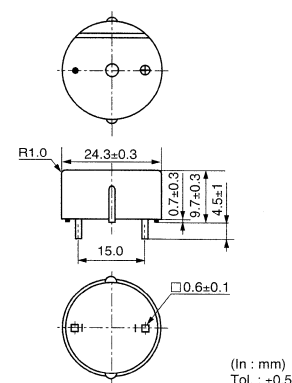
Piezoelectric Buzzers



PKB30SPC-2001-B0



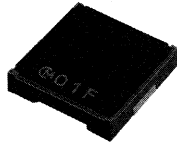
PKB24SPC-3601-B0



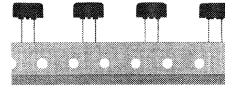
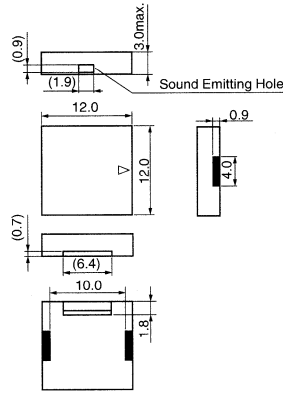
Part Number	Sound Pressure Level (dB)	Oscillating Frequency (kHz)	Current Consumption (mA)	Operating Voltage Range (Vdc)
PKB30SPC-2001-B0	92 min.[12Vdc,10cm]	2.0 ±0.4kHz	15 max.	3.0 to 15.0
PKB30SPC-3001-B0	92 min.[12Vdc,10cm]	2.7 ±0.4kHz	15 max.	3.0 to 15.0
PKB24SW-3301	80 min.[12Vdc,10cm]	3.3 ±0.5kHz	12 max.	3.0 to 20.0
PKB24SPC-3601-B0	90 min.[12Vdc,10cm]	3.6 ±0.5kHz	16 max.	3.0 to 15.0

Piezoelectric Sounders

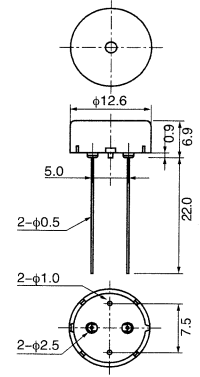
External-Drive



PKLCS1212E4001-R1



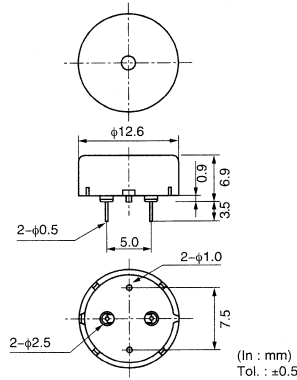
PKM13EPY-4000-A0



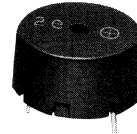
(In : mm)
Tol. : ±0.5



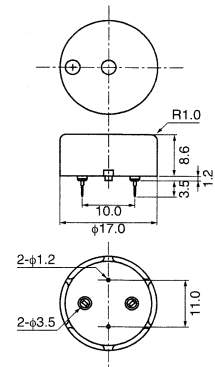
PKM13EPY-4002-B0



(In : mm)
Tol. : ±0.5



PKM17EPP-2002-B0

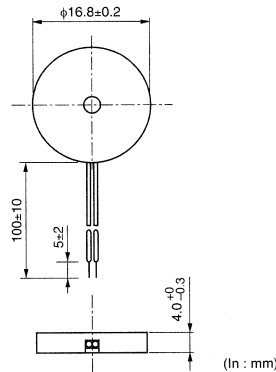


Terminal of ⊕ marking side should be connected to hot side of D.C.

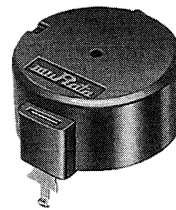
(in mm)
Tol. : ±0.5



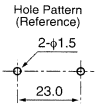
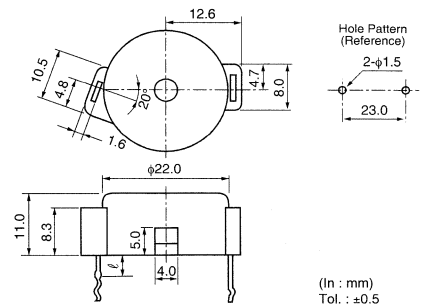
PKM17EW-4000



(In : mm)



PKM22EP-2001



(In : mm)
Tol. : ±0.5

Part Number	ℓ
PKM22EP-2001	4.0
PKM22EP-2002	8.0
PKM22EP-2003	12.0

Piezoelectric Sound Components

6

Part Number	Sound Pressure Level (dB)	Operating Voltage Range (Vp-p)
PKLCS1212E4001-R1	75 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM13EPY-4000-A0	70 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM13EPY-4002-B0	70 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM17EPP-2002-B0	70 min.[3Vo-p,2kHz,square wave,10cm]	25 Vo-p max.[with polarity]
PKM17EPP-4001-B0	72 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM17EPP-4002-B0	72 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM17EPT-4001-B0	75 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM17EPT-4001-M0	75 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM17EW-2001	72 min.[3Vp-p,2kHz,square wave,10cm]	7 max.
PKM17EW-4000	75 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM22EP-2001	75 min.[3Vp-p,2kHz,square wave,10cm]	25 max.
PKM22EP-2002	75 min.[3Vp-p,2kHz,square wave,10cm]	25 max.
PKM22EP-2003	75 min.[3Vp-p,2kHz,square wave,10cm]	25 max.
PKM22EPP-2001-B0	70 min.[3Vp-p,2kHz,square wave,10cm]	25 max.
PKM22EPP-2002-B0	70 min.[3Vp-p,2kHz,square wave,10cm]	25 max.

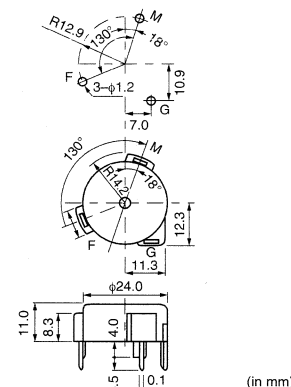
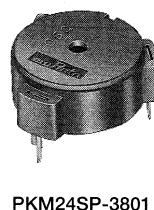
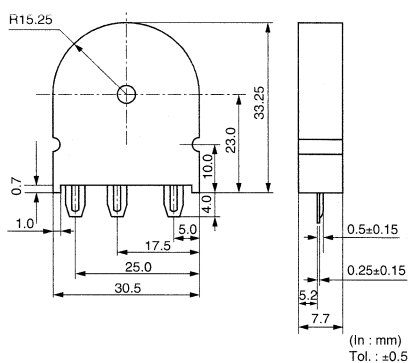
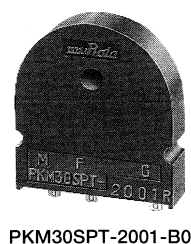
Continued on the following page.

Continued from the preceding page.

Part Number	Sound Pressure Level (dB)	Operating Voltage Range (Vp-p)
PKM22EPP-4001-B0	75 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM22EPP-4002-B0	75 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM22EPP-4005-B0	75 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM22EPP-4007-B0	85 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM22EPP-4012-B0	85 min.[3Vp-p,4kHz,square wave,10cm]	25 max.
PKM22EPT-2001-B0	70 min.[3Vp-p,2kHz,square wave,10cm]	25 max.
PKM22EPT-2001-M0	70 min.[3Vp-p,2kHz,square wave,10cm]	25 max.
PKM22EPT-4001-B0	85 min.[3Vp-p,4kHz,square wave,10cm]	25 max.

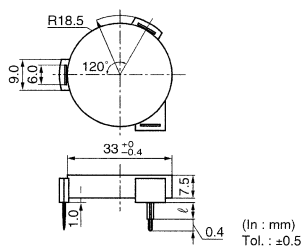
Piezoelectric Sounders

Self-Drive

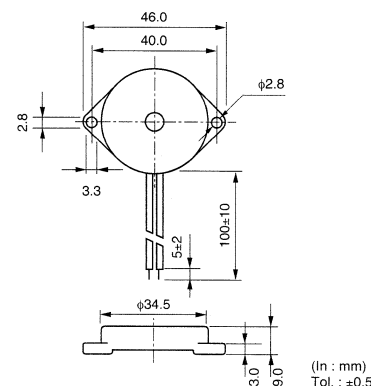


Part Number	Sound Pressure Level (dB)	Oscillating Frequency (kHz)	Current Consumption (mA)	Operating Voltage Range (Vdc)
PKM30SPT-2001-B0	75 min.[12Vdc,10cm]	2.0 ±0.3kHz	20 max.	3.0 to 20.0
PKM30SPT-2501-B0	75 min.[12Vdc,10cm]	2.5 ±0.3kHz	20 max.	3.0 to 20.0
PKM24SP-3801	90 min.[12Vdc,10cm]	3.8 ±0.4kHz	12 max.	3.0 to 20.0
PKM24SP-3805	90 min.[12Vdc,10cm]	3.8 ±0.4kHz	12 max.	3.0 to 20.0
PKM24SP-3807	90 min.[12Vdc,10cm]	3.8 ±0.4kHz	12 max.	3.0 to 20.0
PKM24SP-3810	90 min.[12Vdc,10cm]	3.8 ±0.4kHz	12 max.	3.0 to 20.0

Piezoelectric Ringer (PIEZORINGER®)



Part Number	ℓ
PKM33EP-1201C	5.0
PKM33EP-1202C	0

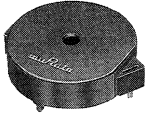


PKM33EP-1201C

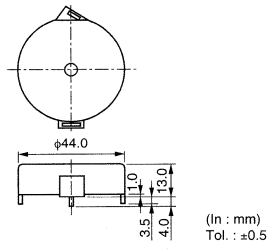
PKM34EW-1101C

Continued on the following page.

Continued from the preceding page.



PKM44EP-0901



Part Number	Sound Pressure Level (dB)	Operating Voltage Range (Vp-p)	Capacitance (nF)
PKM33EP-1201C	68 min.[30Vp-p,1.2kHz,square wave,1m]	40 max.	40 ±30%[120Hz]
PKM33EP-1202C	68 min.[30Vp-p,1.2kHz,square wave,1m]	40 max.	40 ±30%[120Hz]
PKM34EW-1101C	70 min.[30Vp-p,1.1kHz,square wave,1m]	40 max.	40 ±30%[120Hz]
PKM34EW-1201C	70 min.[30Vp-p,1.2kHz,square wave,1m]	60 max.	32 ±30%[120Hz]
PKM44EP-0901	70 min.[30Vp-p,1kHz,square wave,1m]	40 max.	68 ±30%[120Hz]
PKM44EW-1001C	75 min.[30Vp-p,1kHz,square wave,1m]	30 max.	68 ±30%[120Hz]

7

Filters for Communication Equipment

**Antennas/Duplexers
for RF/Local
for IF**

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
 (If you have any questions about details, inquire at your usual Murata sales office or distributor.)

Antenna/Duplexer Dielectric Filters (GIGAFIL®)
for RF/Local Dielectric Filters (GIGAFIL®)

(Global Part Number)

DF	YK6	1G95	LBNBB-	TT1
----	-----	------	--------	-----

① Product ID

Product ID	
DF	Microwave Filters (GIGAFIL®)

② Series

Two capital letters and an alphabet express the series name.

③ Nominal Center Frequency

Expressed by four-digit alphanumerics. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

④ Individual Specification Code

Expressed by five alphabets plus a hyphen.

⑤ Packaging

Code	Packaging
T**	Tray
R**	Reel

Packaging varies on each product type. Please contact us for details.

Chip Multilayer LC Filters for RF/Local and IF

(Global Part Number)

LF	B	32	836M	SA	1	-747
----	---	----	------	----	---	------

① Product ID

Product ID	
LF	Chip Multilayer LC Filters

② Function

Code	Function
B	Band-pass Filters
L	Low-pass Filters
D	Multi-function Filters
E	Trap

③ Dimensions (L×W)

Code	Dimensions (L×W)
18	1.60×0.80mm
21	2.00×1.25mm
31	3.20×1.60mm
32	3.20×2.50mm
43	4.50×3.20mm
55	5.70×5.00mm

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Series

Code	Series
SA	Two capital letters express the series name.

⑥ Design

Code	Design
1	A figure expresses identification of the series design type.

⑦ Individual Specification Code

Code	Individual Specification Code
-747	Specification, Characteristics, others

SAW Filters for RF/Local and IF

(Global Part Number) **SA F CC 942M VM0 T 00 R05**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
SA	SAW

② Function

Code	Function
F	Single Filter
W	Dual Filter

③ Structure/Size

Code	Structure/Size
CC	Package Type

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Character Design

Code	Character Design
VM0	A serial number expresses the design version.

⑥ Board

Code	Board
T	Expresses the substrate being used.

⑦ Individual Specification

Code	Individual Specification
00	—

⑧ Packaging

Code	Packaging
R00	10000 pcs./ø330mm Reel
R05	5000 pcs./ø330mm Reel
R11	1000 pcs./ø180mm Reel

Ceramic Filters (CERAFIL[®]) for IF

(Global Part Number) **CF X CA 450K CFA 001 -R0**
SF P CA 455K D4A -R0
SF E CS 10M8 PF00 00 -R0
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

② Oscillating/Element

Product ID	Oscillating/Element
CF	U 4 Elements Area Expansion mode
	W 6 Elements Area Expansion mode
	X 4 Elements Length mode
SF	P 4 Elements Area Expansion mode
	E 2 Elements Thickness Expansion mode
	S 2 Elements Thickness Shear mode
	J 4 Elements Thickness Shear mode

CERAFIL[®] for Communication Equipment

③ Structure/Size

Code	Structure/Size
C□	Chip Type
L□	Lead Type

□ is "A" or subsequent code, which indicates the size. It varies depending on vibration mode and number of elements.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "kHz", it is expressed by three figures plus "K". If the unit is "MHz", a decimal point is expressed by the capital letter "M".

⑤ Product Specification

Code	Product Specification
CFA	Three alphabets express pass band width, center frequency tolerance and design type.

⑥ Individual Specification

Code	Individual Specification Code
001	Expressed by three-digit alphanumerics.

⑦ Packaging

Code	Packaging
-B0	Bulk
-R0	Plastic Taping ø=180mm
-R1	Plastic Taping ø=330mm
-M0	Magazine

Magazine cassette is applied to lead type and plastic taping to chip type.

BGS Filter for IF

(Global Part Number)

MK	F	KB	51M7	JA0	P	00	R11
1	2	3	4	5	6	7	8

1 Product ID

Product ID	
MK	BGS

2 Function

Code	Function
F	Filter

3 Structure/Size

Code	Structure/Size
KB	Chip Type

4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is hertz (Hz). If the unit is "MHz", it is expressed by three figures plus "M".

5 Product Specification

Code	Product Specification
JA0	Expressed by three figures.

6 Piezoelectric Board Material

Code	Piezoelectric Board Material
P	Expressed by an alphabet.

7 Individual Specification Code

Code	Individual Specification Code
00	Standard

8 Packaging

Code	Packaging
R11	Plastic Taping $\phi=180\text{mm}$

Ceramic Discriminators for IF

(Global Part Number)

CD	B	LB	450K	C	A	X	16	-B0
1	2	3	4	5	6	7	8	9

1 Product ID

Product ID	
CD	Ceramic Discriminators

2 Oscillating

Code	Oscillating
B	Area Expansion mode

3 Structure/Size

Code	Structure/Size
C□	Chip Type
L□	Lead Type

□ is "A" or subsequent code, which indicates the size. It varies depending on vibration mode and number of elements.

4 Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). Capital letter "K" following three figures expresses the unit of "kHz".

5 Detection

Code	Detection
C	Quadrature Detection

6 Application

Code	Application
A	Standard
L	Application with coil

7 Element Type

Code	Element Type
X	Low-capacitance
Y	High-capacitance

8 IC

Code	IC
16	Applicable IC Control code

9 Packaging

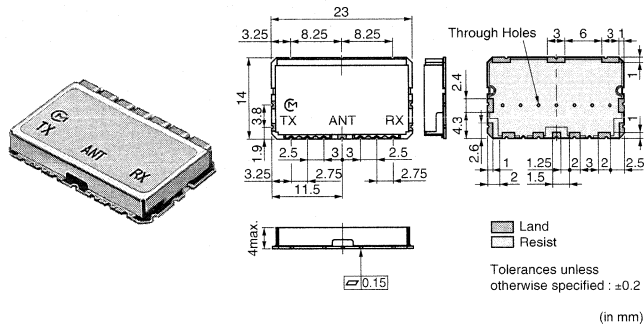
Code	Packaging
-B0	Bulk
-R0	Plastic Taping $\phi=180\text{mm}$
-R1	Plastic Taping $\phi=330\text{mm}$
-M0	Magazine

Magazine cassette is applied to lead type and plastic taping to chip type. With non-standard products, one alphabet indicating "Individual Specification" is added between "8 Applicable IC" and "9 Package Specification code".

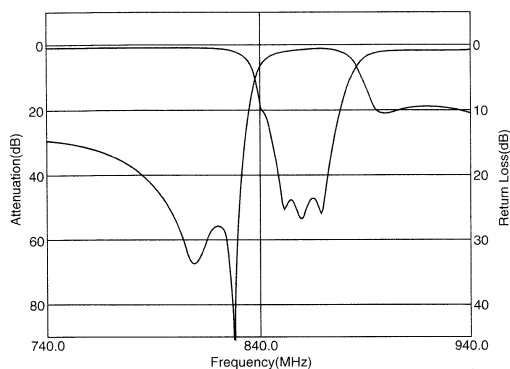
Antennas/Duplexers

Dielectric Duplexers

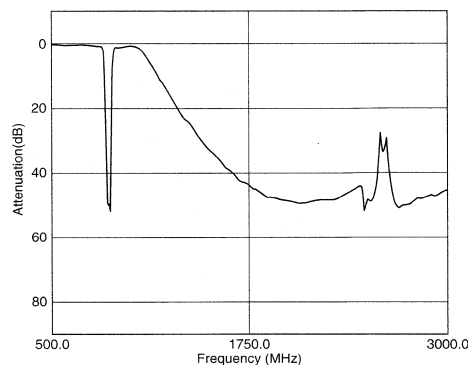
● 800/900MHz



Pass Band(Tx)



Spurious(Tx)



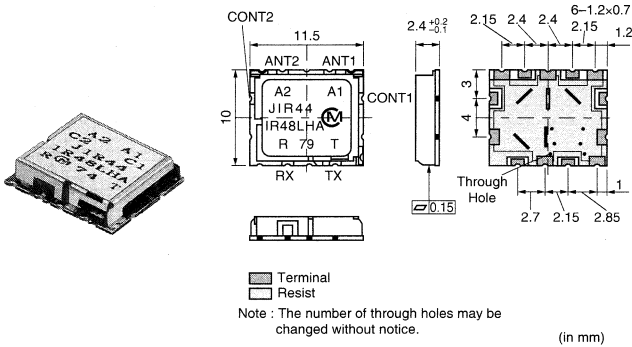
Part Number	Ft (MHz)	Bandwidth (Tx) (MHz)	Operation Temperature Range(°C)	IL at BW (dB)	Attenuation (dB min.)	Fr (MHz)	Bandwidth (Rx) (MHz)	Operation Temperature Range(°C)	IL at BW (dB)	Attenuation (dB min.)
DFYH7815MHDJAA	815.0 (Ft)	20.0	-30~+85	2.0 max.	40 (850~870MHz)	860.0 (Fr)	20.0	-30~+85	4.0 max.	57 (805~825MHz)
DFYG7836MLEJAA	836.5 (Ft)	25.0	-30~+85	2.6 max.	42 (869~894MHz)	881.5 (Fr)	25.0	-30~+85	4.1 max.	50 (824~849MHz)
DFYG7836MLEJAB	836.5 (Ft)	25.0	-30~+85	2.6 max.	42 (869~894MHz)	881.5 (Fr)	25.0	-30~+85	4.5 max.	56 (824~849MHz)
DFYH7836MHCJAA	836.5 (Ft)	25.0	-30~+85	2.4 max.	36 (869~894MHz)	881.5 (Fr)	25.0	-30~+85	4.3 max.	50 (824~849MHz)
DFYH7836MHDJAA	836.5 (Ft)	25.0	+30~+85	2.6 max.	43 (869~894MHz)	881.5 (Fr)	25.0	+30~+85	3.3 max.	50 (824~849MHz)
DFYH7836MHDJAB	836.5 (Ft)	25.0	+30~+85	2.6 max.	43 (869~894MHz)	881.5 (Fr)	25.0	+30~+85	4.0	56 (824~849MHz)
DFYK7836MLDJAC	836.5 (Ft)	25.0	-35 to +85	2.9 max.	38 (869~894MHz)	881.5 (Fr)	25.0	-35~+85	4.0 max.	56 (824~849MHz)
DFYK7836MLEJAA	836.5 (Ft)	25.0	-35~+85	2.6 max.	42 (869~894MHz) +10~+35°C	881.5 (Fr)	25.0	-35~+85	3.3 max.	56 (824~849MHz) +10~+35°C
DFYH7836MHDJAC	881.5 (Ft)	25.0	-30~+85	3.0 max.	35 (824~849MHz)	836.5 (Fr)	25.0	-30~+85	4.0 max.	45 (869~894MHz)
DFYH9888MHDJAA	888.5 (Ft)	33.0	-30~+85	3.4 max.	36 (917~950MHz)	933.5 (Fr)	33.0	-30~+85	5.1 max.	49 (872~905MHz)
DFYH9888MHDJBA	888.5 (Ft)	33.0	-30~+85	3.5 max.	37 (917MHz)	933.5 (Fr)	33.0	-30~+85	4.6 max.	44 (872~905MHz)
DFYH5897MHDJAA	897.5 (Ft)	35.0	-30~+85	2.0 max.	8 (925~935MHz)	942.5 (Fr)	35.0	-30~+85	4.3 max.	25 (0.3~880MHz)
DFYG5902MLEJAA	902.5 (Ft)	25.0	-30~+85	1.3 max.	14 (935~960MHz)	947.5 (Fr)	25.0	-30~+85	3.5 max.	29 (890~915MHz)

Continued on the following page.

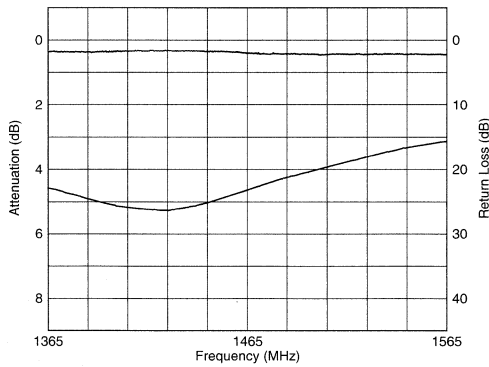
Continued from the preceding page.

Part Number	Ft (MHz)	Bandwidth (Tx) (MHz)	Operation Temperature Range(°C)	IL at BW (dB)	Attenuation (dB min.)	Fr (MHz)	Bandwidth (Rx) (MHz)	Operation Temperature Range(°C)	IL at BW (dB)	Attenuation (dB min.)
DFYG5902MLEJAB	902.5 (Ft)	25.0	-20~+75	1.8 max.	8 (925~935MHz)	947.5 (Fr)	25.0	-20~+75	3.2 max.	35 (0.3~800MHz)
DFYG6902MLEJAA	902.5 (Ft)	25.0	-20~+75	2.2 max.	10 (925~935MHz)	947.5 (Fr)	25.0	-20~+75	3.2 max.	30 (0.3~890MHz)
DFYH6902MHDJAA	902.5 (Ft)	25.0	-30~+85	1.8 max.	30 (935~960MHz)	947.5 (Fr)	25.0	-30~+85	3.2 max.	30 (0.1~890MHz)
DFYH7856MHDJAA	911.5 (Ft)	27.0	-30~+85	2.1 max.	49 (843~870MHz)	856.5 (Fr)	27.0	-30~+85	3.8 max.	52 (898~925MHz)
DFYJ2847MMBJAA	942.5 (Ft)	35.0	-30~+85	0.8 max.	30 (1850~1920MHz)	847.5 (Fr)	75.0	-30~+85	2.2 max.	32 (550~570MHz)

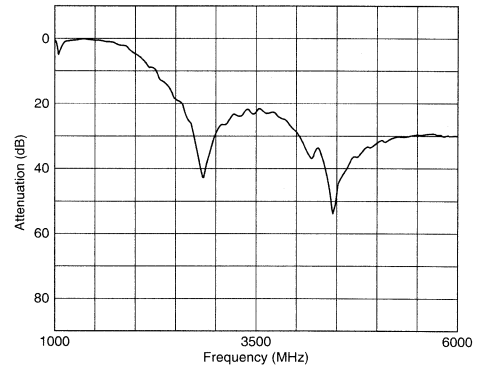
● 1.5GHz-2.5GHz



Pass Band(Tx)



Spurious(Tx)



Part Number	Ft (MHz)	Bandwidth (Tx) (MHz)	Operation Temperature Range(°C)	IL at BW (dB)	Attenuation (dB min.)	Fr (MHz)	Bandwidth (Rx) (MHz)	Operation Temperature Range(°C)	IL at BW (dB)	Attenuation (dB min.)
DFYJ21G44MBJAA	1441.0 (Ft)	24.0	-30~+85	0.8 max.	28 (2858~2906MHz)	1489.0 (Fr)	24.0	-30~+85	2.4 max.	10 (1607~1631MHz)
DFYFB1G54THHAA	1643.5 (Ft)	34.0	0~+35	1.0 max.	60 (1525~1559MHz)	1542.0 (Fr)	34.0	0~+35	1.0 max.	65 (1626.5~1660.5MHz)
DFYH61G74HDHAA	1747.5 (Ft)	75.0	-30~+85	2.3 max.	20 (1805~1880MHz)	1842.5 (Fr)	75.0	-30~+85	2.7 max.	20 (1710~1785MHz)
DFYH61G74HDHAB	1747.5 (Ft)	75.0	-30~+85	2.0 max.	15 (1805~1880MHz)	1842.5 (Fr)	75.0	-30~+85	3.0 max.	20 (1710~1785MHz)
DFYK61G76LBNAA	1765.0 (Ft)	30.0	-35~+85	2.3 max.	40 (1840~1870MHz)	1855.0 (Fr)	30.0	-35~+85	3.3 max.	53 (1750~1780MHz)
DFYK61G76LBNAD	1765.0 (Ft)	30.0	-35~+85	2.3 max.	40 (1840~1870MHz)	1855.0 (Fr)	30.0	-35~+85	3.3 max.	53 (1750~1780MHz)
DFYH61G88HDHAA	1880.0 (Ft)	60.0	-30~+85	2.0 max.	17 (1930~1990MHz)	1960.0 (Fr)	60.0	-30~+85	3.0 max.	20 (1850~1910MHz)

Continued on the following page.

Continued from the preceding page.

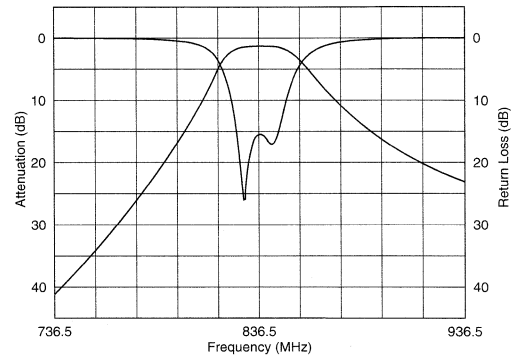
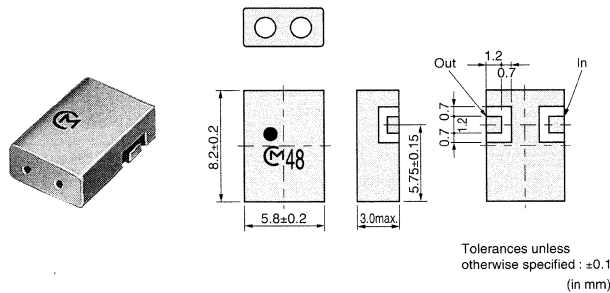
Part Number	Ft (MHz)	Bandwidth (Tx) (MHz)	Operation Temperature Range(°C)	IL at BW (dB)	Attenuation (dB min.)	Fr (MHz)	Bandwidth (Rx) (MHz)	Operation Temperature Range(°C)	IL at BW (dB)	Attenuation (dB min.)
DFYH61G88HDHAB	1880.0 (Ft)	60.0	-30~+85	2.3 max.	20 (1930~1990MHz)	1960.0 (Fr)	60.0	-30~+85	3.2 max.	30 (0.3~1800MHz)
DFYK91G88LEHAB	1880.0 (Ft)	60.0	-35~+85	3.4 max.	40 (1930~1990MHz)	1960.0 (Fr)	60.0	-35~+85	4.1 max.	50 (1850~1910MHz) 0~+35°C
DFYK91G88LEHAC	1880.0 (Ft)	60.0	-35~+85	3.4 max.	12 (0.3~1780MHz)	1960.0 (Fr)	60.0	-35~+85	4.6 max.	44 (1510~1780MHz)
DFYK61G95LBNAC	1950.0 (Ft)	60.0	-35~+85	1.4 max.	41 (2110~2170MHz)	2140.0 (Fr)	60.0	-35~+85	2.2 max.	20 (2025~2050MHz)
DFYK61G95LBNBA	1950.0 (Ft)	60.0	-35~+85	1.65 max.	45 (2110~2170MHz)	2140.0 (Fr)	60.0	-35~+85	2.0 max.	50 (1920~1980MHz)
DFYK61G95LBNBB	1950.0 (Ft)	60.0	-35~+85	1.5 max.	14 (0.3~1770MHz)	2140.0 (Fr)	60.0	-35~+85	2.4 max.	49 (1920~1980MHz)
DFYK61G95LBNCB	1950.0 (Ft)	60.0	-35 to +85	1.4 max.	15 (0.3~1770MHz)	2140.0 (Fr)	60.0	-35~+85	2.2 max.	25 (0.3~2050MHz)

for RF/Local

Dielectric Filters(GIGAFIL®)

● DFCB Series 800/900MHz

Pass Band



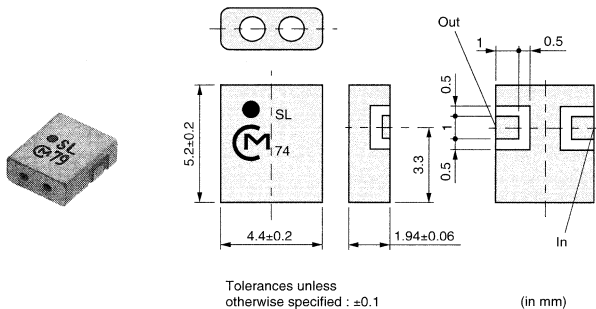
Part Number	Fo (MHz)	Bandwidth (MHz)	Operation Temperature Range (°C)	IL at BW (dB)	Attenuation (dB min.)
DFCB3815MLDJAA	815.5	19	-30 to +85	2.5 max.	12 (Fo±35.5MHz)
DFCB2836MLDJAA	836.5	25	-30 to +85	2.6 max.	6.5 (869 to 894MHz)
DFCB3836MLDJAA	836.5	25	-30 to +85	3.0 max.	12 (869 to 894MHz)
DFCB2841MLEJAA	841.0	4	-30 to +85	3.0 max.	38 (Fo-150MHz)
DFCB3841MLEJAA	841.0	4	-30 to +85	5.3 max.	60 (Fo-150MHz)
DFCB3860MLDJAA	860.5	19	-30 to +85	2.5 max.	13 (Fo+35.5MHz)
DFCB2866MLEJAA	866.0	4	-30 to +85	3.0 max.	38 (Fo-150MHz)
DFCB3866MLEJAA	866.0	4	-30 to +85	5.3 max.	60 (Fo-150MHz)
DFCB2881MLDJAA	881.5	25	-30 to +85	2.6 max.	9 (824 to 849MHz)
DFCB3881MLDJAA	881.5	25	-30 to +85	3.0 max.	15 (824 to 849MHz)
DFCB2886MLEJAA	886.0	2	-30 to +85	3.0 max.	24 (Fo-44MHz)
DFCB3886MLEJAA	886.0	2	-30 to +85	5.3 max.	45 (Fo-44MHz)
DFCB2902MLDJAA	902.5	25	-30 to +85	2.6 max.	27 (Fo-77.5MHz)
DFCB3902MLDJAA	902.5	25	-30 to +85	3.0 max.	45 (Fo-77.5MHz)
DFCB2903MLEJAA	903	2	-30 to +85	3.0 max.	20 (Fo+22MHz)
DFCB3903MLEJAA	903.0	2	-30 to +85	5.3 max.	29 (Fo-22MHz)
DFCB2912MLDJAA	912.0	4	-30 to +85	2.0 max.	50 (Fo-150MHz)
DFCB2912MLEJAA	912.0	4	-30 to +85	3.0 max.	38 (Fo-150MHz)
DFCB3912MLEJAA	912.0	4	-30 to +85	5.3 max.	60 (Fo-150MHz)
DFCB2914MLEJAA	914.5	1	-30 to +85	3.0 max.	24 (Fo-44MHz)

Continued on the following page.

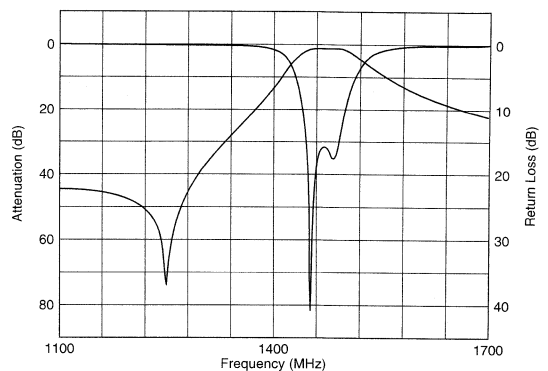
Continued from the preceding page.

Part Number	Fo (MHz)	Bandwidth (MHz)	Operation Temperature Range (°C)	IL at BW (dB)	Attenuation (dB min.)
DFCB3914MLEJAA	914.5	1	-30 to +85	5.3 max.	45 (Fo-44MHz)
DFCB2915MLDJAA	915.0	26	-35 to +85	2.5 max.	27 (837.5MHz)
DFCB3915MLDJAA	915.0	26	-30 to +85	3.0 max.	15 (Fo-32.5MHz)
DFCB2926MLEJAA	926.25	2.7	-30 to +85	2.8 max.	21 (902.4 to 905.1MHz)
DFCB2927MLEJAA	927.0	2	-30 to +85	3.0 max.	15 (Fo-22MHz)
DFCB3927MLEJAA	927.0	2	-30 to +85	5.3 max.	29 (Fo-22MHz)
DFCB2931MLEJAA	931.0	2	-30 to +85	3.0 max.	24 (Fo-44MHz)
DFCB3931MLEJAA	931.0	2	-30 to +85	5.3 max.	45 (Fo-44MHz)
DFCB2947MLDJAA	947.5	25	-30 to +85	2.6 max.	27 (Fo-77.5MHz)
DFCB3947MLDJAA	947.5	25	-30 to +85	3.0 max.	45 (Fo-77.5MHz)
DFCB2959MLEJAA	959.5	1	-30 to +85	3.0 max.	30 (Fo+44MHz)
DFCB3959MLEJAA	959.5	1	-30 to +85	5.3 max.	45 (Fo-44MHz)

DFCB Series 1.5-2.5GHz



Pass Band



7

Filters for Communication Equipment

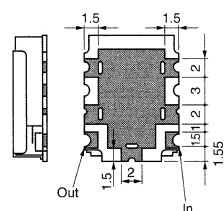
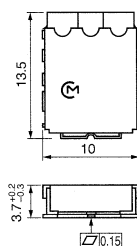
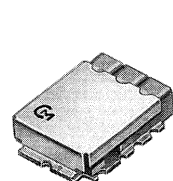
Part Number	Fo (MHz)	Bandwidth (MHz)	Operation Temperature Range (°C)	IL at BW (dB)	Attenuation (dB min.)
DFCB21G47LBJAA	1472	40	-30 to +85	2.0 max.	38 (1122MHz)
DFCB31G47LBJAA	1472.0	40	-35 to +85	3.0 max.	45 (1100MHz)
DFCB21G48LBJAA	1489.0	24	-30 to +85	1.4 max.	10 (1607 to 1631MHz)
DFCB21G57LBJAB	1575.42	3	-35 to +85	1.3 max.	36 (824 to 850MHz)
DFCB21G57LCJAA	1575.42	2	-30 to +85	3.5 max.	15 (Fo±50MHz)
DFCB21G57LDJAB	1575.42	2	-30 to +85	3.15 max.	10 (Fo±30MHz)
DFCB31G74LBJAA	1747.5	75	-30 to +85	3.5 max.	45 (1464 to 1539MHz)
DFCB21G84LDJAA	1842.5	75	-35 to +85	2.0 max.	20 (FO-160MHz)
DFCB31G84LBJAA	1842.5	75	-30 to +85	3.5 max.	45 (1559 to 1634MHz)
DFCB31G84LBJAB	1842.5	75	-30 to +85	2.75 max.	45 (0.3 to 1388MHz)
DFCB21G88LDJAA	1880	60	-30 to +85	1.5 max.	4 (1780MHz)
DFCB31G88LBJAA	1880.0	60	-30 to +85	3.7 max.	43 (1640 to 1664MHz)
DFCB31G88LBJAB	1880.0	60	-30 to +85	4.0 max.	41 (2043 to 2103MHz)
DFCB21G89LBJAA	1890.0	20	-30 to +85	2.0 max.	40 (1660 to 1680MHz)
DFCB21G89LBJAB	1890.0	20	-30 to +85	1.7 max.	35 (1660 to 1680MHz)
DFCB21G89LDHAA	1890.0	20	-10 to +55	0.9 max.	27 (1655 to 1679MHz)
DFCB21G89LDJAA	1890.0	20	-30 to +85	2.0 max.	45 (1660 to 1680MHz)
DFCB21G90LBJAA	1907.5	25	-15 to +55	1.0 max.	20 (1655 to 1680MHz)
DFCB21G90LBJAB	1907.5	25	-15 to +55	1.6 max.	35 (1655 to 1680MHz)
DFCB21G90LBJAC	1907.5	25	-15 to +55	1.9 max.	45 (1655 to 1680MHz)
DFCB21G91LBJAA	1910	20	-30 to +85	1.7 max.	34 (1675 to 1700MHz)
DFCB21G91LDJAA	1910	20	-30 to +85	1.8 max.	40 (1675 to 1700MHz)
DFCB21G92LBJAA	1920.0	20	-30 to +85	1.2 max.	30 (1400 to 1450MHz)
DFCB21G92LDJAA	1920.0	20	-30 to +85	1.9 max.	37 (1690 to 1710MHz)
DFCB31G95LBJAA	1950.0	60	-30 to +85	3.5 max.	35 (2110 to 2170MHz)
DFCB21G96LDJAA	1960	60	-30 to +85	1.5 max.	4 (1860MHz)

Continued on the following page.

Continued from the preceding page.

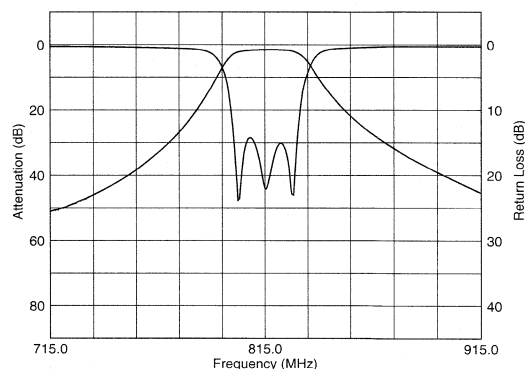
Part Number	Fo (MHz)	Bandwidth (MHz)	Operation Temperature Range (°C)	IL at BW (dB)	Attenuation (dB min.)
DFCB31G96LBJAA	1960.0	60	-30 to +85	3.7 max.	43 (1684 to 1744MHz)
DFCB31G96LBJAB	1960.0	60	-30 to +85	3.0 max.	45 (0.3 to 1498MHz)
DFCB31G96LBJAC	1960.0	60	-30 to +85	2.8 max.	45 (1498MHz)
DFCB31G96LBJAE	1960.0	60	-35 to +85	3.7 max.	9 (2027 to 2030MHz) 0 to +35 degree C
DFCB22G01LBJAA	2017.5	15	-35 to +85	1.5 max.	35 (1270MHz)
DFCB22G14LBJAA	2140.0	60	-30 to +85	2.7 max.	26 (1920 to 1980MHz)
DFCB32G14LBJAA	2140.0	60	-30 to +85	3.7 max.	30 (0.3 to 1920MHz)
DFCB22G44LBJAA	2442.0	84	-30 to +85	2.0 max.	16 (Fo-250MHz)
DFCB32G44LBJAA	2442.0	84	-30 to +85	3.2 max.	30 (Fo-250MHz)
DFCB22G45LBJAA	2450.0	100	-30 to +85	2.0 max.	15 (Fo-250MHz)
DFCB32G45LBJAA	2450.0	100	-30 to +85	3.2 max.	30 (Fo-250MHz)
DFCB22G48LBJAA	2484.0	26	-30 to +85	2.0 max.	13 (2360MHz)
DFCB22G50LBJAA	2500	4	-30 to +85	4.5 max.	30 (2410MHz)
DFCB25G25LBHAA	5250.0	200	-30 to +85	2.0 max.	15 (F0-375MHz)
DFCB35G25LBHAB	5250.0	200	-35 to +85	3.0 max.	7 (F0-175MHz)
DFCB25G77LBHAA	5775	100	-35 to +85	2.0 max.	25 (F0-375MHz)
DFCB35G77LBHAA	5775	100	-35 to +85	3.0 max.	10 (F0-175MHz)
DFCB25G80LBHAA	5800.0	100	-30 to +85	2.0 max.	25 (F0-375MHz)
DFCB25G80LBHAB	5800.0	150	-30 to +85	2.0 max.	15 (F0-375MHz)
DFCB35G80LBHAA	5800.0	150	-35 to +85	3.4 max.	10 (F0-175MHz)

DFCH Series 800/900MHz



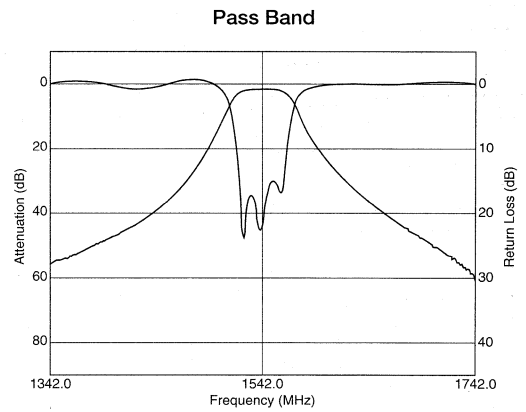
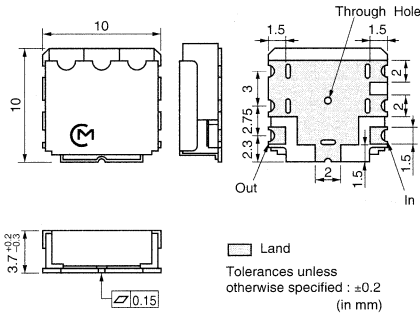
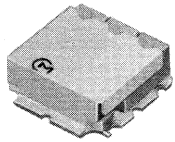
Land
Tolerances unless otherwise specified : ±0.2 (in mm)

Pass Band



Part Number	Fo (MHz)	Bandwidth (MHz)	Operation Temperature Range (°C)	IL at BW (dB)	Attenuation (dB min.)
DFCH3815MHDJAA	815.0	20	-30 to +85	2.8 max.	36 (Fo±80MHz)
DFCH3836MHDJAA	836.5	25	-30 to +85	2.6 max.	12 (Fo±32.5MHz)
DFCH3860MHDJAA	860.0	20	-30 to +85	2.8 max.	36 (Fo±80MHz)
DFCH3881MHDJAA	881.5	25	-30 to +85	2.6 max.	12 (Fo±32.5MHz)
DFCH3888MHDJAA	888.5	33	-30 to +85	3.0 max.	7 (Fo±28.5MHz)
DFCH4888MHDJAA	888.5	33	-30~+85	4.6 max.	15 (Fo±28.5MHz)
DFCH3897MHDJAA	897.5	35	-30 to +85	3.0 max.	6 (Fo±27.5MHz)
DFCH4897MHDJAA	897.5	35	-30~+85	4.6 max.	13 (Fo±27.5MHz)
DFCH3902MHDJAA	902.5	25	-30~+85	2.6 max.	12 (Fo±32.5MHz)
DFCH3933MHDJAA	933.5	33	-30~+85	3.0 max.	7 (Fo±28.5MHz)
DFCH4933MHDJAA	933.5	33	-30~+85	4.6 max.	15 (Fo±28.5MHz)
DFCH3942MHDJAA	942.5	35	-30~+85	3.0 max.	6 (Fo±27.5MHz)
DFCH4942MHDJAA	942.5	35	-30~+85	4.6 max.	13 (Fo±27.5MHz)
DFCH3947MHDJAA	947.5	25	-30~+85	2.6 max.	12 (Fo±32.5MHz)

● DFCH Series 1.5-2.5GHz

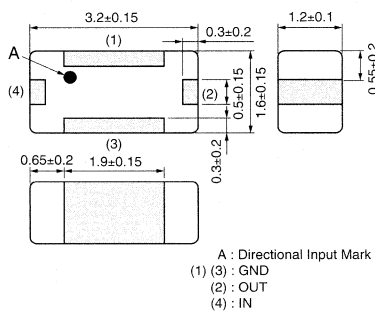


Part Number	Fo (MHz)	Bandwidth (MHz)	Operation Temperature Range (°C)	IL at BW (dB)	Attenuation (dB min.)
DFCH31G54HDJAA	1542.0	34	-30 to +85	3.0 max.	30 (1626.5 to 1660.5MHz)
DFCH21G57HDHAA	1575.5	2	-30 to +85	0.9 max.	16 (Fo-140MHz)
DFCH31G64HDJAA	1643.5	34	-30 to +85	3.0 max.	30 (1525 to 1559MHz)
DFCH31G74HDJAA	1747.5	75	-30 to +85	2.0 max.	8 (Fo±80MHz)
DFCH41G74HDJAA	1747.5	75	-30~+85	3.6 max.	10 (Fo±57.5MHz)
DFCH31G84HDJAA	1842.5	75	-30 to +85	2.0 max.	8 (Fo±80MHz)
DFCH41G84HDJAA	1842.5	75	-30~+85	3.6 max.	10 (Fo±57.5MHz)
DFCH31G88HDJAA	1880.0	60	-30 to +85	2.2 max.	15 (Fo±100MHz)
DFCH41G88HDJAA	1880	60	-30~+85	4.5 max.	12 (Fo±50MHz)
DFCH21G90HDJAA	1907.5	25	-30 to +85	0.7 max.	35 (Fo-227.5MHz)
DFCH31G96HDJAA	1960.0	60	-30 to +85	2.2 max.	15 (Fo±100MHz)
DFCH41G96HDJAA	1960	60	-30~+85	4.5 max.	12 (Fo±50MHz)
DFCH32G15HDHAA	2156.0	20	-30 to +85	3.0 max.	36 (2050MHz)
DFCH22G44HDHAA	2442.0	84	-30 to +85	1.2 max.	15 (Fo±250MHz)
DFCH32G44HDHAA	2442.0	84	-30 to +85	2.4 max.	6 (Fo±80MHz)
DFCH22G45HDHAA	2450.0	100	-30 to +85	1.0 max.	16 (Fo-250MHz)
DFCH32G45HDHAA	2450.0	100	-30 to +85	2.3 max.	36 (Fo-250MHz)
DFCH22G48HDHAA	2484.0	26	-30 to +85	2.5 max.	20 (Fo-90MHz)
DFCH32G48HDHAA	2484.0	26	-30 to +85	3.0 max.	32 (Fo-90MHz)
DFCH22G50HDHAA	2500.0	4	-30 to +85	2.4 max.	10 (Fo±60MHz)
DFCH42G59HDHAA	2593.0	186	-30~+85	1.8 max.	50 (Fo-400MHz)

for RF/Local

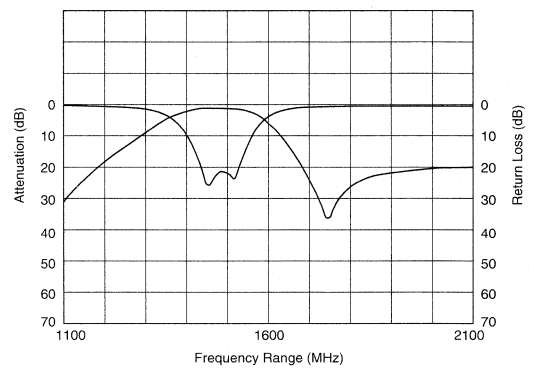
Chip Multilayer LC Filters (BPF)

● LFB31_SG Series (1206)



All the technical data and information contained herein are subject to change without prior notice. (in mm)

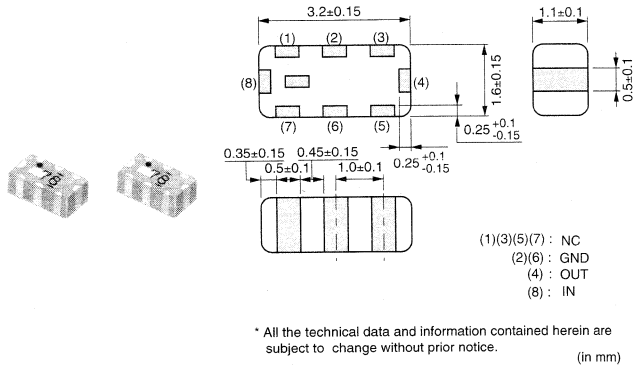
Frequency Characteristics



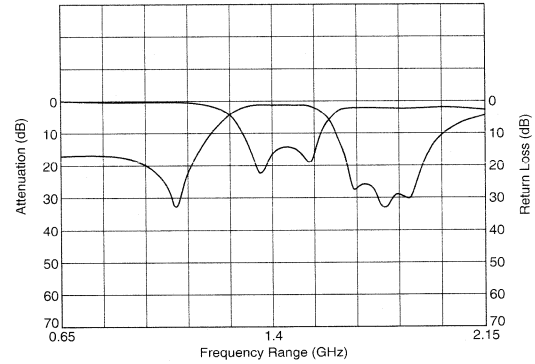
Filters for Communication Equipment

Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB311G48SG1-985	1489.0	fo±12.0	1.5 max. (at 25°C)	25.0 min. at (fo±12.0)+260MHz	28.0 min. at 1749MHz
LFB311G90SG1-799	1906.5	fo +24.5/-13.5MHz	2.5 max. (at 25°C)	40.0 min. at 1397.05~1422.85MHz	35.0 min. at 1645.5~1671.3MHz
LFB311G90SG2-797	1906.5	fo±13.5	2.7 max. (at 25°C)	40.0 min. at 1427~1454MHz	35.0 min. at 1660~1687MHz
LFB311G95SG3A564	1950.0	fo±30.0	3.5 max. (at 25°C)	20.0 min. at 2110~2170MHz	25.0 min. at 2490~2550MHz
LFB312G45SG2A509	2450.0	fo±50.0	2.0 max. (at 25°C)	38.0 min. at 902~928MHz	15.0 min. at 2100~2200MHz
LFB312G45SG7A572	2450.0	fo±50.0	2.5 max. (at 25°C)	37.0 min. at 902~928MHz	20.0 min. at 2100~2200MHz

● LFB31_SL Series (1206)

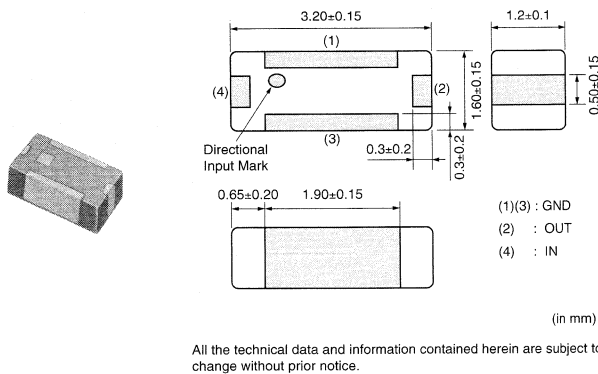


Frequency Characteristics

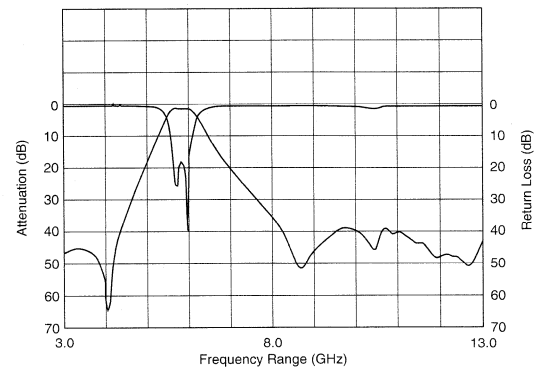


Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB311G40SL1A562	1402.5	fo±77.5	3.0 max. (at 25°C)	20.0 min. at 1005~1080MHz	20.0 min. at 1725~1760MHz

● LFB31_SN Series (1206)



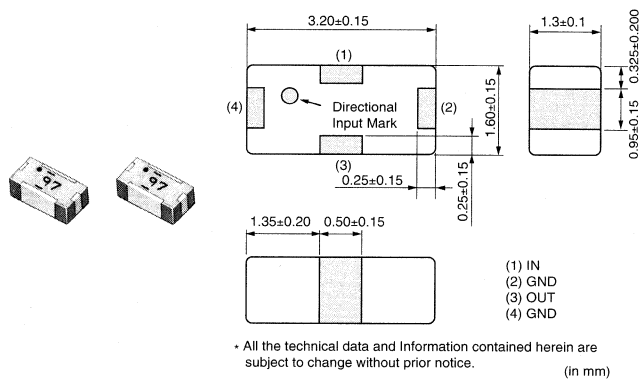
Frequency Characteristics



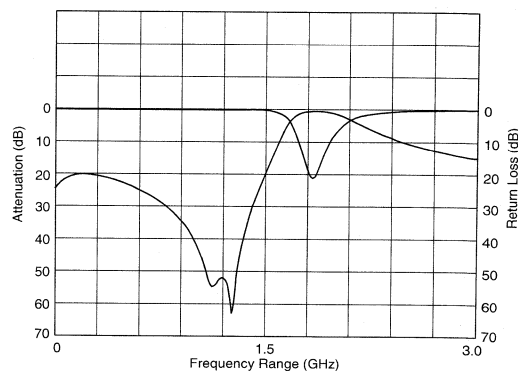
Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB315G82SN5-996	5820.0	fo±30.0	2.0 max. (at 25°C)	35.0 min. at 2000MHz	30.0 min. at 3000MHz

Filters for Communication Equipment

● LFB31_SP Series (1206)

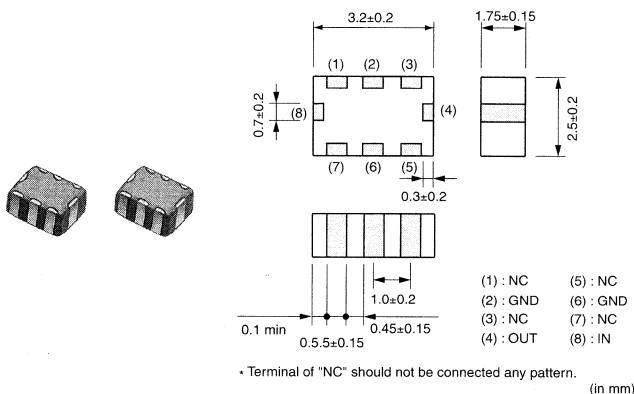


Frequency Characteristics

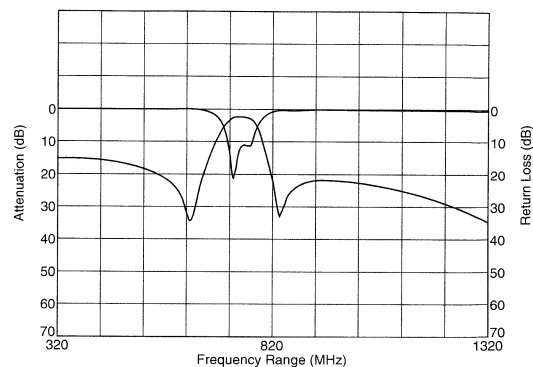


Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB311G89SP1A542	1890.0	$f_o \pm 10.0$	0.85 max. (at 25°C)	29.0 min. at 1416.9~1436.9Hz	22.0 min. at 900MHz
LFB311G90SP1-798	1906.5	$f_o \pm 13.5$	1.0 max. (at 25°C)	38.0 min. at 1405~1440MHz	12.0 min. at 1649~1680MHz
LFB312G45SP1A502	2450.0	$f_o \pm 50.0$	1.4 max. (at 25°C)	20.0 min. at 902~928MHz	35.0 min. at 1500~1550MHz

● LFB32_SA Series (1210)

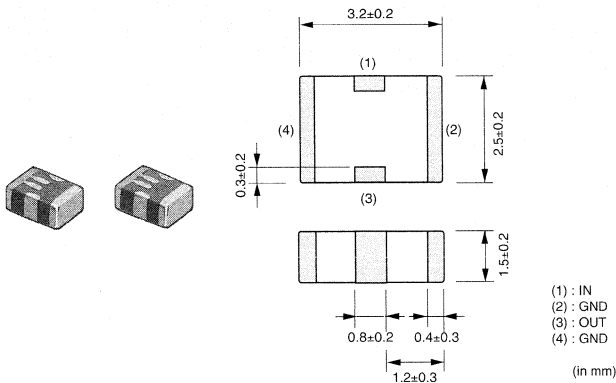


Frequency Characteristics

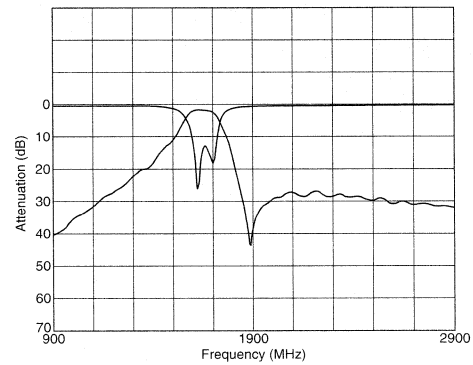


Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB32741MSA1-744	741.5	$f_o \pm 19.5$	3.5 max. (at 25°C)	20.0 min. at 612~650MHz	20.0 min. at 832~870MHz
LFB32836MSA1-747	836.5	$f_o \pm 12.5$	3.0 max. (at 25°C)	19.5 min. at $f_o \pm 77.5$ MHz	-
LFB32851MSA1A540	851.0	$f_o \pm 19.0$	3.5 max. (at 25°C)	20.0 min. at $f_o - 90.0$ MHz	18.0 min. at $f_o + 90.0$ MHz
LFB32881MSA1-781	881.5	$f_o \pm 12.5$	4.8 max. (at 25°C)	11.0 min. at 824~837MHz	5.0 min. at 846~849MHz
LFB32881MSA1A556	881.5	$f_o \pm 12.5$	3.2 max. (at 25°C)	20.0 min. at $f_o \pm 77.5$ MHz	-
LFB32902MSA1A536	902.5	$f_o \pm 12.5$	3.0 max. (at 25°C)	15.0 min. at 802~827MHz	15.0 min. at 978~1003MHz
LFB32906MSA1A539	906.0	$f_o \pm 19.0$	3.5 max. (at 25°C)	20.0 min. at $f_o - 90.0$ MHz	18.0 min. at $f_o + 90.0$ MHz
LFB32947MSA1A537	947.0	$f_o \pm 12.5$	3.0 max. (at 25°C)	9.0 min. at D.C.~835MHz	6.0 min. at 1000~1394MHz
LFB32991MSA1-762	991.15	$f_o \pm 12.5$	3.0 max. (at 25°C)	20.0 min. at 869~894MHz	20.0 min. at 1088.3~1113.3MHz
LFB321G44SA1A538	1441.0	$f_o \pm 12.0$	3.0 max. (at 25°C)	25.0 min. at 1607~1631MHz	-
LFB321G61SA1A555	1619.0	$f_o \pm 12.0$	2.8 max. (at 25°C)	20.0 min. at 1477~1501MHz	16.0 min. at 1429~1453MHz

● LFB32_SB Series (1210)

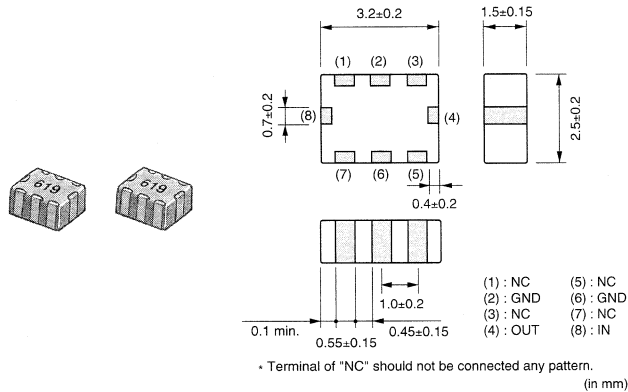


Frequency Characteristics

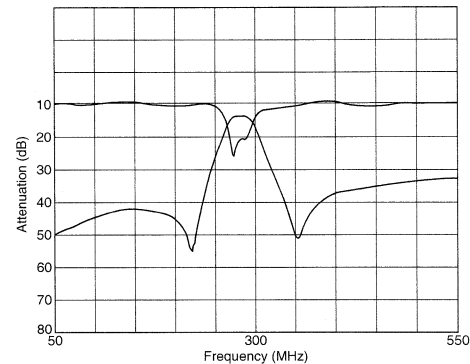


Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB321G66SB1-560	1662.0	fo±12.5	2.0 max. (at 25°C)	27.0 min. at 1895~1918MHz	20.0 min. at 2xfo MHz
LFB321G89SB1-591	1890.0	fo±10.0	1.2 max. (at 25°C)	21.0 min. at 1655~1675MHz	15.0 min. at 2xfo MHz
LFB321G90SB1-559	1907.5	fo±12.5	1.0 max. (at 25°C)	35.0 min. at 1397.5~1440MHz	20.0 min. at 1646~1680MHz

● LFB32_SC Series (1210)

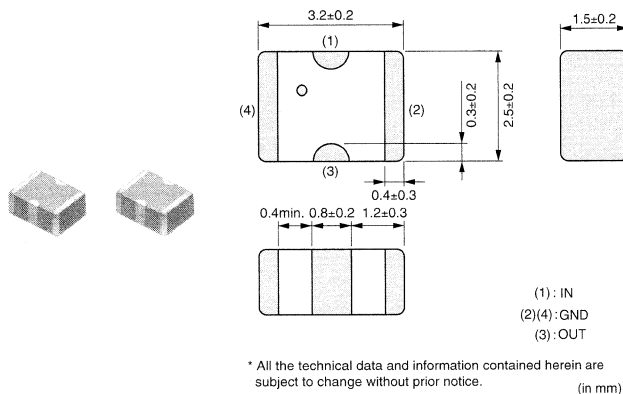


Frequency Characteristics

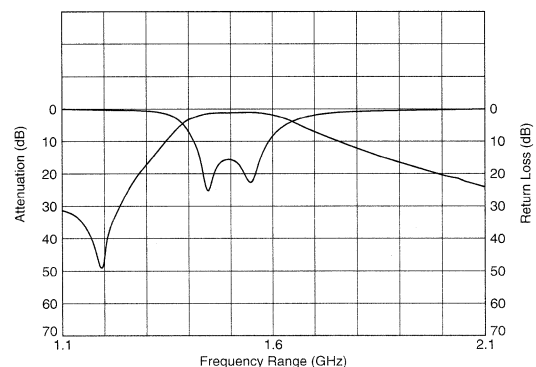


Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB32284MSC1-596	284.0	fo±4.0	3.8 max. (at 25°C)	31.0 min. at 220~228MHz	23.0 min. at 340~348MHz
LFB32312MSC1-597	312.25	fo±1.0	3.5 max. (at 25°C)	26.0 min. at 249.8MHz	26.0 min. at 374.7MHz
LFB32315MSC1-604	315.0	fo±0.5	3.5 max. (at 25°C)	45.0 min. at 180MHz	29.0 min. at 470MHz
LFB32315MSC1-619	315.0	fo±0	3.5 max. (at 25°C)	30.0 min. at 235MHz	30.0 min. at 395MHz
LFB32426MSC1-603	426.5	fo±0.5	3.6 max. (at 25°C)	25.0 min. at 366.5MHz	20.0 min. at 486.5MHz
LFB32820MSC2-749	820.0	fo±10.0	1.3 max. (at 25°C)	22.0 min. at 1070~1090MHz	-
LFB32847MSC2-766	847.5	fo±37.5	1.5 max. (at 25°C)	16.0 min. at 550~625MHz	15.0 min. at 1070~1145MHz

● LFB32_SJ Series (1210)



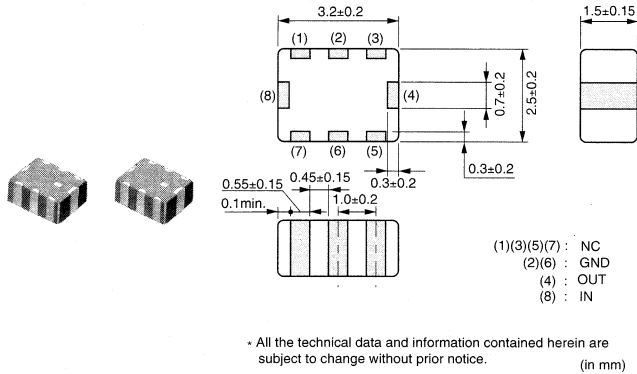
Frequency Characteristics



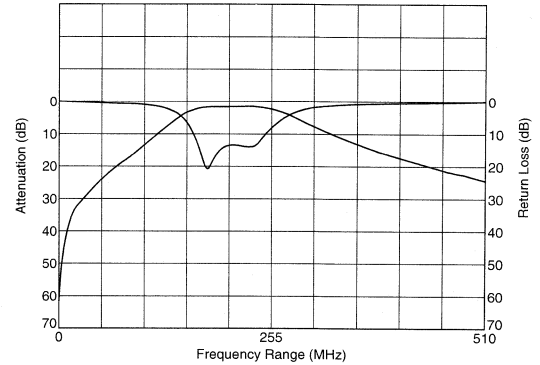
Filters for Communication Equipment

Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II)
LFB321G47SJ1-794	1472.0	fo±20.0	1.3 max. (at 25°C)	30.0 min. at 1172MHz	-

● LFB32_SK Series (1210)

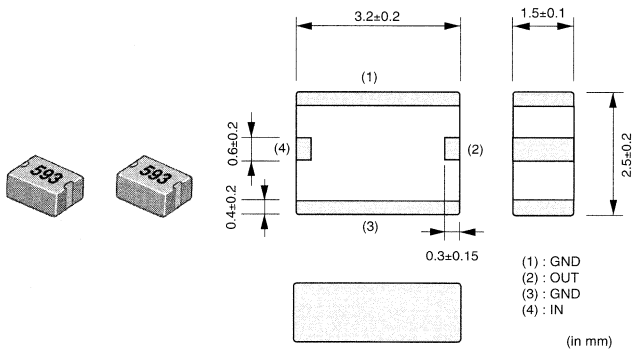


Frequency Characteristics

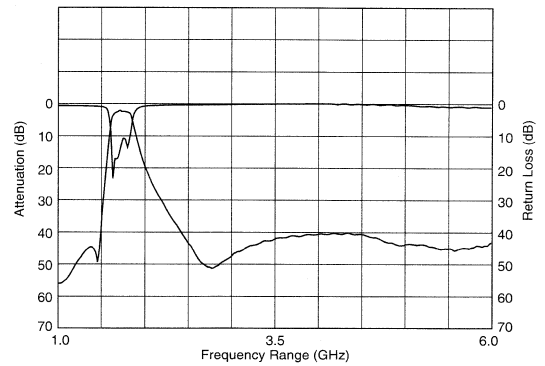


Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB32205MSK1-948	205.5	fo±31.5	1.5 max. (at 25°C)	10.0 min. at 100MHz	20.0 min. at 500MHz

● LFB32_SN Series (1210)



Frequency Characteristics



Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFB321G74SN1-770	1747.5	fo±37.5	2.5 max. (at 25°C)	20.0 min. at D.C.~1350MHz	30.0 min. at 1350~1425MHz
LFB321G84SN1-796	1842.5	fo±37.5	2.5 max. (at 25°C)	48.0 min. at 500~1450MHz	40.0 min. at 1450~1480MHz
LFB321G90SN1-593	1907.5	fo±12.5	2.5 max. (at 25°C)	40.0 min. at 1406.5~1440MHz	35.0 min. at 1655~1680MHz
LFB322G45SN1-947	2450.0	fo±50.0	2.5 max. (at 25°C)	40.0 min. at 1950MHz	16.0 min. at 2200MHz
LFB322G45SN1A504	2450.0	fo±50.0	1.8 max. (at 25°C)	48.0 min. at 902~928MHz	50.0 min. at 1500~1550MHz
LFB322G45SN5A515	2450.0	fo±50.0	2.5 max. (at 25°C)	40.0 min. at 880~1250MHz	20.0 min. at 1250~1710MHz

for RF/Local

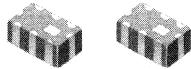
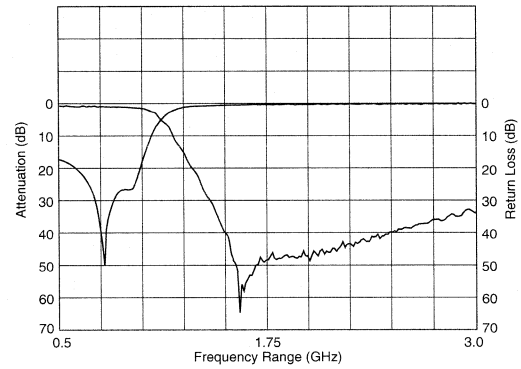
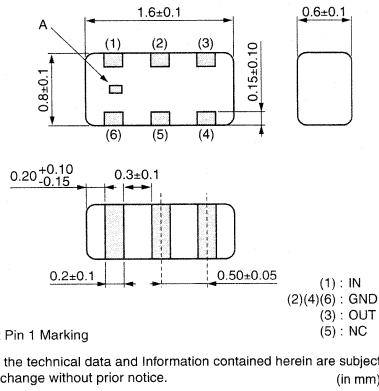
Chip Multilayer LC Filters (LPF)

● LFL18_TC (0603) /LFL21_TC (0805) Series

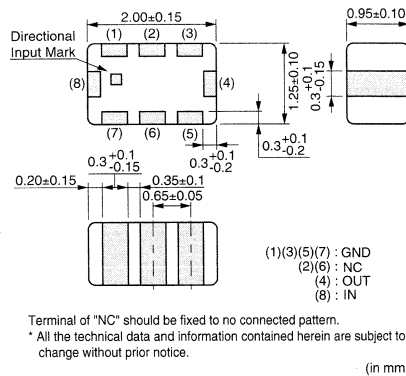
Frequency Characteristics



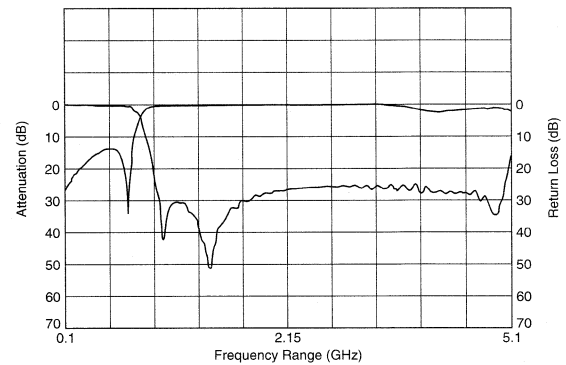
LFL18 Series



LFL21 Series



Frequency Characteristics



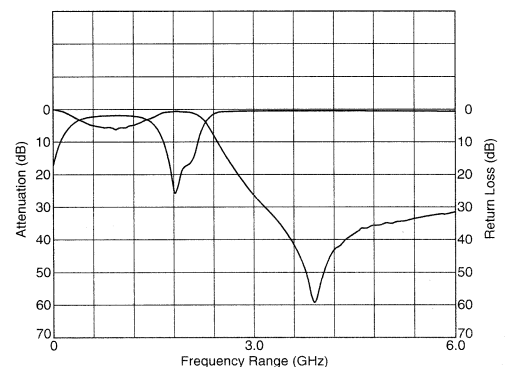
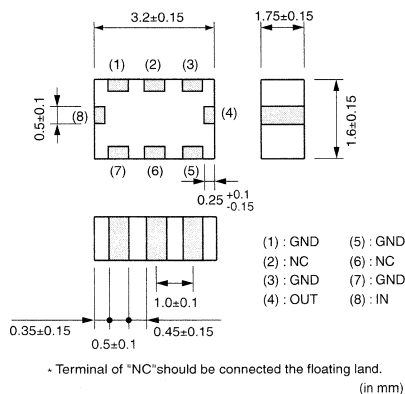
Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFL18815MTC2A072	815.5	fo±9.5	0.80 max. (at 25°C)	35.0 min. at 2x(fo±9.5)MHz	30.0 min. at 3x(fo±9.5)MHz
LFL18924MTC1A052	924.5	fo±35.0	0.40 max. (at 25°C)	20.0 min. at 2x(fo±35.0)MHz	15.0 min. at 3x(fo±35.0)MHz
LFL21600MTC2A002	600.0	fo±250.0	1.37 max. (at 25°C)	20.0 min. at 1550~4250MHz	9.0 min. at 1100MHz
LFL21847MTC1A006	847.5	fo±37.5	0.75 max. (at 25°C)	30.0 min. at 2x(fo±37.5)MHz	30.0 min. at 3x(fo±37.5)MHz
LFL21902MTC1A018	902.5	fo±12.5	0.6 max. (at 25°C)	30.0 min. at 2x(fo±12.5)MHz	30.0 min. at 3x(fo±12.5)MHz
LFL211G35TC2A001	1350.0	fo±250.0	0.92 max. (at 25°C)	25.0 min. at 2300~5000MHz	-
LFL211G44TC1A014	1441.0	fo±12.0	0.47 max. (at 25°C)	31.0 min. at 2xfoMHz	26.0 min. at 3xfoMHz
LFL211G79TC1A011	1795.0	fo±85.0	0.47 max. (at 25°C)	30.0 min. at 2x(1747.5±37.5)MHz	25.0 min. at 2x(1842.5±37.5)MHz
LFL211G89TC1A015	1890.0	fo±10.0	0.47 max. (at 25°C)	30.0 min. at 2x(fo±10.0)MHz	26.0 min. at 3x(fo±10.0)MHz
LFL211G90TC1A008	1907.5	fo±12.5	0.47 max. (at 25°C)	30.0 min. at 2x(fo±12.5)MHz	25.0 min. at 3x(fo±12.5)MHz
LFL211G92TC1A060	1920.0	fo±70.0	0.6 max. (at 25°C)	24.0 min. at 3335~3700MHz	30.0 min. at 3700~3820MHz
LFL212G45TC1A007	2450.0	fo±50.0	0.50 max. (at 25°C)	27.0 min. at 2x(fo±50.0)MHz	30.0 min. at 3x(fo±50.0)MHz

● LFL31_TB (1206) /LFL32_TB (1210) Series

Frequency Characteristics

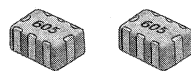


LFL31 Series

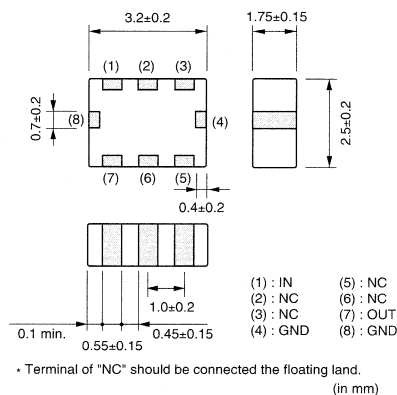


Continued on the following page.

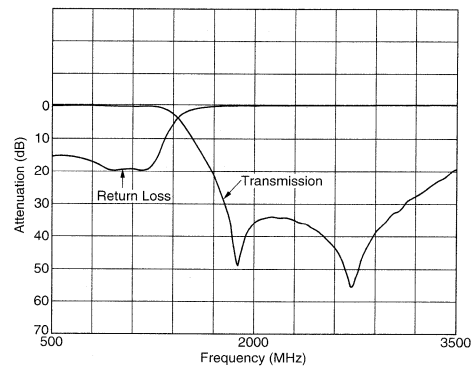
Continued from the preceding page.



LFL32 Series

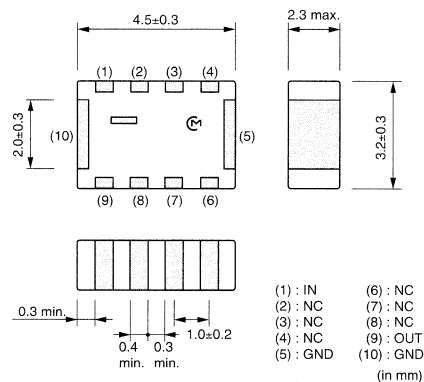


Frequency Characteristics

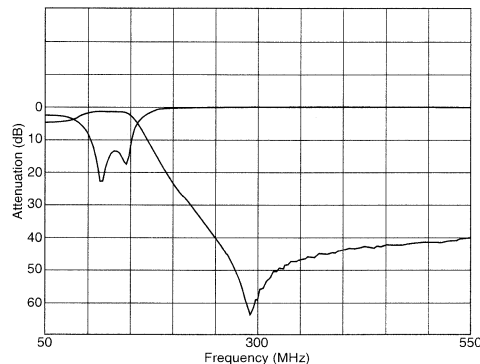


Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFL311G92TB2-678	1920.0	fo±70.0	0.8 max. (at 25°C)	25.0 min. at 3296~3700MHz	30.0 min. at 3700~3820MHz
LFL32902MTB1-606	902.5	fo±12.5	0.50 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz
LFL32942MTB1-605	942.5	fo±17.5	0.50 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz

● LFL43_AK Series (1812)



Frequency Characteristics

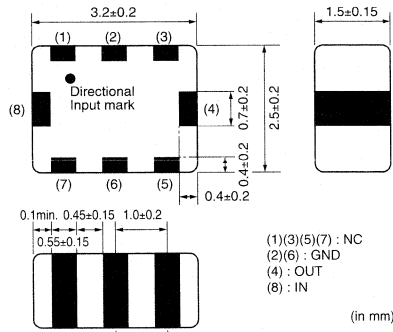
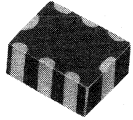


Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFL43130MAK1-494	130.0	fo±0.5	1.5 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz
LFL43178MAK1-480	178.0	fo±0.5	1.5 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz
LFL43240MAK1-664	240.0	fo±0.5	1.5 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz
LFL43248MAK1-864	248.45	fo±0.5	1.5 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz
LFL43310MAK1A330	310.0	fo±1.0	1.5 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz
LFL43435MAK1-860	435.0	fo±5.0	1.5 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz
LFL43445MAK1A332	445.0	fo±5.0	1.2 max. (at 25°C)	30.0 min. at 2xfo MHz	25.0 min. at 3xfo MHz

for RF/Local

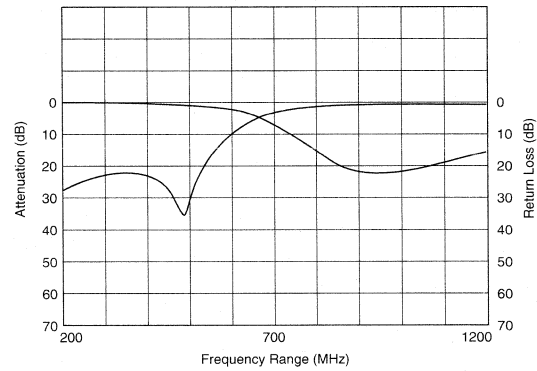
Chip Multilayer LC Filters (HPF)

● LFH32_RA Series (1210)



Terminal of "NC" should not be fixed any pattern.
 All the technical data and Information contained herein are subject to change without prior notice.

Frequency Characteristics



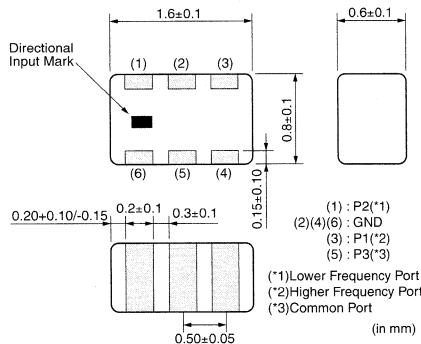
Part Number	Nominal Center Frequency (fo) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) I) (dB)	Attenuation (Absolute Value) II) (dB)
LFH32942MRA1A517	942.5	fo±17.5	0.5 max. (at 25°C)	4.5 min. at 480~600MHz	25.0 min. at 480MHz

for RF/Local

Chip Multilayer Diplexers



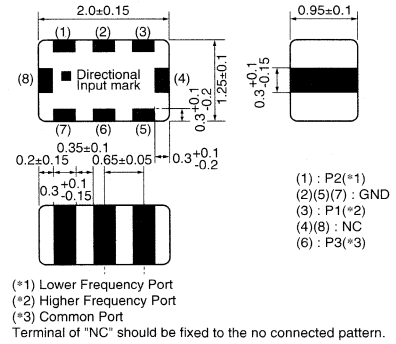
LFD18 Series



All the technical data and information contained herein are subject to change without prior notice.



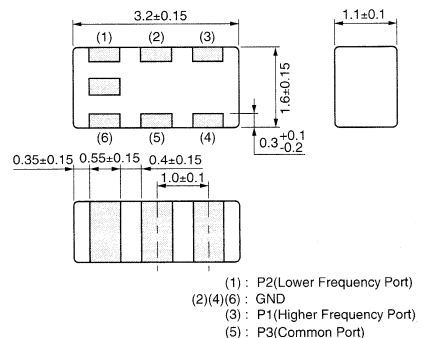
LFD21 Series



All the technical data and information contained herein are subject to change without prior notice.



LFD31 Series



All the technical data and information contained herein are subject to change without prior notice.

Part Number	Frequency Range[P1](f1) (MHz)	Frequency Range[P2](f2) (MHz)	Insertion Loss [P1-P3](in f1) (dB)	Insertion Loss [P2-P3](in f2) (dB)	Attenuation [P1-P3](in f2) (dB)	Attenuation [P2-P3](in f1) (dB)
LFD18859MDP1A102	1920.0 ±70.0MHz	859.0 ±35.0MHz	0.45 max. (at 25°C)	0.40 max. (at 25°C)	19.0 min.	20.0 min.
LFD21859MDP1A049	1920.0 ±70.0MHz	859.0 ±35.0MHz	0.45 max. (at 25°C)	0.40 max. (at 25°C)	19.0 min.	20.0 min.
LFD21884MDP1A062	1906.5 ±13.0MHz	884.0 ±74.0MHz	0.45 max. (at 25°C)	0.50 max. (at 25°C)	20.0 min.	20.0 min.
LFD21920MDP1A048	1795.0 ±85.0MHz	920.0 ±40.0MHz	0.55 max. (at 25°C)	0.50 max. (at 25°C)	20.0 min.	16.0 min.
LFD31859MDP1A009	1920.0 ±70.0MHz	859.0 ±35.0MHz	0.45 max. (at 25°C)	0.40 max. (at 25°C)	20.0 min.	20.0 min.

Continued on the following page.

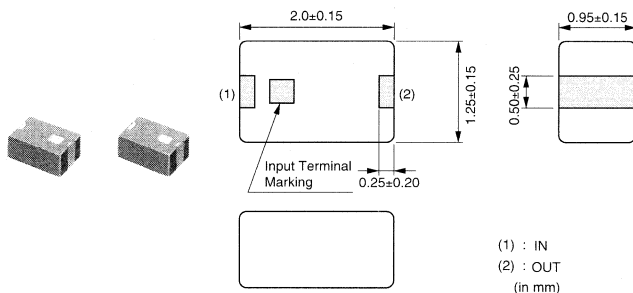
Filters for Communication Equipment

Continued from the preceding page.

Part Number	Frequency Range[P1](f1) (MHz)	Frequency Range[P2](f2) (MHz)	Insertion Loss [P1-P3](in f1) (dB)	Insertion Loss [P2-P3](in f2) (dB)	Attenuation [P1-P3](in f2) (dB)	Attenuation [P2-P3](in f1) (dB)
LFD31884MDP1A030	1906.5 ±13.0MHz	884.0 ±74.0MHz	0.45 max. (at 25°C)	0.50 max. (at 25°C)	19.0 min.	19.0 min.
LFD31897MDP1A010	1810.0 ±100.0MHz	897.5 ±17.5MHz	0.6 max. (at 25°C)	0.5 max. (at 25°C)	20.0 min.	17.0 min.
LFD31920MDP1A003	1795.0 ±85.0MHz	920.0 ±40.0MHz	0.55 max. (at 25°C)	0.50 max. (at 25°C)	20.0 min.	16.0 min.
LFD31920MDP1A040	1850.0 ±140.0MHz	920.0 ±40.0MHz	0.65 max. (at 25°C)	0.50 max. (at 25°C)	20.0 min.	15.0 min.
LFD31993MDP1A032	2072.34 ±30.0MHz	993.84 ±12.5MHz	0.4 max. (at 25°C)	0.4 max. (at 25°C)	20.0 min.	20.0 min.

for RF/Local

Chip Multilayer LC Filters(Trap)

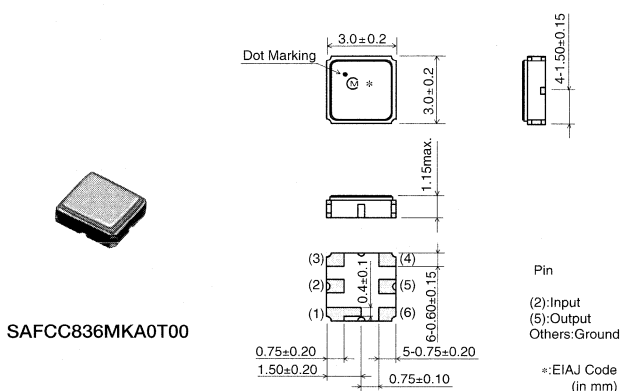


Part Number	Center Frequency of Rejection Band (MHz)	Pass Bandwidth(BW) (MHz)	Insertion Loss in BW (dB)	Attenuation (Absolute Value) (dB)
LFE21560MFA1A004	560.0	810~885	0.7 max. (at 25°C)	10.0 min. at 550~570MHz

for RF/Local

SAW Filters

● AMPS/ADC



Part Number	Center Frequency (MHz)	Insertion Loss(dB min.) (dB)	Ripple(dB max.)	VSWR	Input/Output Impedance
SAFCC836MKA0T00	836.5	3.5 max.(824MHz~849MHz)	2.0(824MHz~849MHz)	2.0(824MHz~849MHz)	50ohm
SAFCE836MAM0T00	836.5	3.8 max.(824MHz~849MHz)	1.8(824MHz~849MHz)	2.0(824MHz~849MHz)	50ohm
SAFCE881MAM0T00	881.5	3.5 max.(869MHz~894MHz)	1.5(869MHz~894MHz)	2.0(869MHz~894MHz)	50ohm

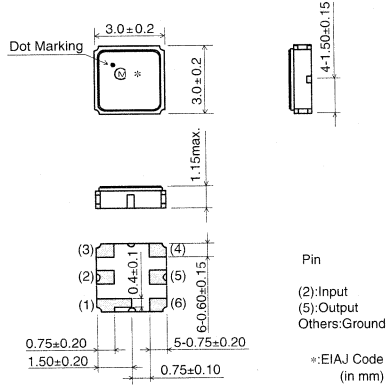
Continued on the following page.

Continued from the preceding page.

Part Number	Center Frequency (MHz)	Insertion Loss(dB min.) (dB)	Ripple(dB max.)	VSWR	Input/Output Impedance
SAFSG881MAL0T00	881.5	3.5 max.(869MHz~894MHz)	2.0(869MHz~894MHz)	2.2(869MHz~894MHz)	50ohm

● DSC1800

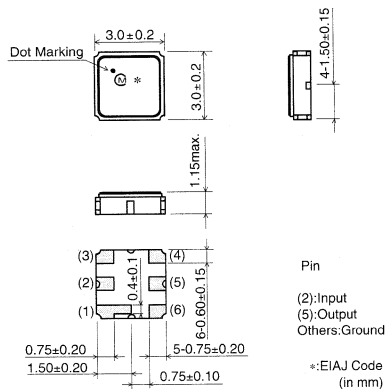
SAFCC1G74KA0T00



Part Number	Center Frequency (MHz)	Insertion Loss(dB min.) (dB)	Ripple(dB max.)	VSWR	Input/Output Impedance
SAFCC1G74KA0T00	1747.5	4.2 max.(1710MHz~1785MHz)	2.6(1710MHz~1785MHz)	2.5(1710MHz~1785MHz)	50ohm
SAFCC1G84KA0T00	1842.5	4.2 max.(1805~1880MHz)	2.8(1805MHz~1880MHz)	2.8(1805MHz~1880MHz)	50ohm
SAFSE1G84KA0T00	1842.5	3.2 max.(1805~1880MHz)	2.2(1805MHz~1880MHz)	2.8(1805MHz~1880MHz)	50ohm

● GSM

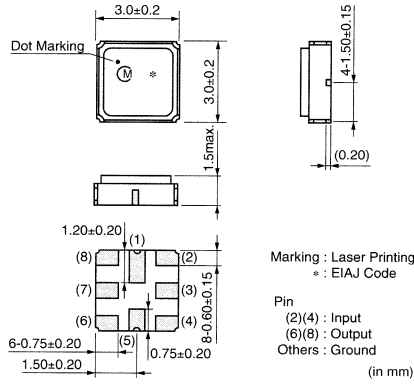
SAFCC897MKA0T00



Part Number	Center Frequency (MHz)	Insertion Loss(dB min.) (dB)	Ripple(dB max.)	VSWR	Input/Output Impedance
SAFCC897MKA0T00	897.5	3.2 max.(880MHz~915MHz)	1.8(880MHz~915MHz)	2.2(880MHz~915MHz)	50ohm
SAFCC942MAM0T00	942.5	4.2 max.(925MHz~960MHz)	2.5(925MHz~960MHz)	2.4(925MHz~960MHz)	50ohm
SAFCC942MCM0T00	942.5	4.2 max.(925MHz~960MHz)	2.4(925MHz~960MHz)	2.6(925MHz~960MHz)	50ohm
SAFCC942MFN0T00	942.5	3.5 max.(925MHz~960MHz)	2.0(925MHz~960MHz)	2.3(925MHz~960MHz)	50ohm
SAFCE902MAM0T00	902.5	3.5 max.(890MHz~915MHz)	1.5(890MHz~915MHz)	2.1(890MHz~915MHz)	50ohm
SAFCE947MAM0T00	947.5	3.5 max.(935MHz~960MHz)	1.5(935MHz~960MHz)	2.3(935MHz~960MHz)	50ohm

● GSM/DCS Dual-band

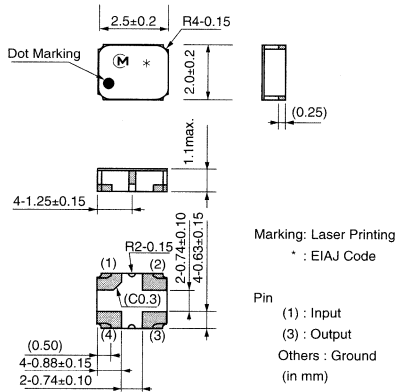
SAWCD942MLB0T05
(1842.5)



Part Number	Center Frequency (MHz)	Insertion Loss(dB min.) (dB)	Ripple(dB max.)	VSWR	Input/Output Impedance
SAWCD942MLB0T05(1842.5)	1842.5	3.2 max.(1805MHz~1880MHz)	2.2(1805MHz~1880MHz)	2.5(1805MHz~1880MHz)	50ohm
SAWCD942MLB0T05(942.5)	942.5	3.0 max.(925MHz~960MHz)	2.5(925MHz~960MHz)	2.5(925MHz~960MHz)	50ohm

● J-CDMA

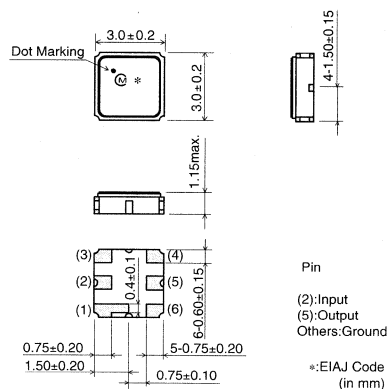
SAFSE851MKB0T00



Part Number	Center Frequency (MHz)	Insertion Loss(dB min.) (dB)	Ripple(dB max.)	VSWR	Input/Output Impedance
SAFCC906MKA0T00	906	4.5 max.(887MHz~925MHz)	2.8(887MHz~925MHz)	2.8(887MHz~925MHz)	50ohm
SAFSE851MKB0T00	851	3.4 max.(832MHz~870MHz)	2.5(832MHz~870MHz)	2.2(832MHz~870MHz)	50ohm

● PCS(CDMA)

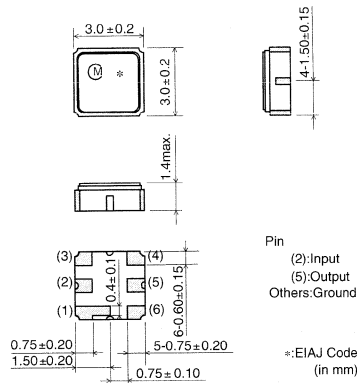
SAFCC1G88KA0T00



Part Number	Center Frequency (MHz)	Insertion Loss(dB min.) (dB)	Ripple(dB max.)	VSWR	Input/Output Impedance
SAFCC1G88KA0T00	1880	4.5 max.(1850MHz~1910MHz)	3.0(1850MHz~1910MHz)	2.5(1850MHz~1910MHz)	50ohm
SAFCC1G96KA0T00	1960	4.5 max.(1930MHz~1990MHz)	3.0(1930MHz~1990MHz)	2.5(1930MHz~1990MHz)	50ohm
SAWCD1G86LA0T00(1867.5)	1867.5	3.2 max.(1850MHz~1885MHz)	2.0(1850MHz~1885MHz)	2.0(1850MHz~1885MHz)	50ohm
SAWCD1G86LA0T00(1897.5)	1897.5	3.2 max.(1885MHz~1910MHz)	2.0(1885MHz~1910MHz)	2.0(1885MHz~1910MHz)	50ohm

● PDC

SAFCE1G48AA0S00



Part Number	Center Frequency (MHz)	Insertion Loss(dB min.) (dB)	Ripple(dB max.)	VSWR	Input/Output Impedance
SAFCE1G48AA0S00	1489.0	2.0 max.(1477MHz~1501MHz)	1.2(1477MHz~1501MHz)	2.7(1477MHz~1501MHz)	50ohm
SAFCE820MAA0N00	820.0	2.5 max.(810MHz~830MHz)	1.5(810MHz~830MHz)	2.5(810MHz~830MHz)	50ohm
SAFCE820MAB0T00	820.0	2.2 max.(810MHz~830MHz)	1.3(810MHz~830MHz)	2.5(810MHz~830MHz)	50ohm
SAFCE950MAL0N00	950.0	3.8 max.(940MHz~960MHz)	1.7(940MHz~960MHz)	2.3(940MHz~960MHz)	50ohm
SAFCE950MAM0T00	950.0	3.5 max.(940MHz~960MHz)	1.5(940MHz~960MHz)	2.5(940MHz~960MHz)	50ohm
SAFSF1G44AA0T00	1441	2.7 max.(1429MHz~1453MHz)	1.5(1429MHz~1453MHz)	2.3(1429MHz~1453MHz)	50ohm
SAFSF1G48AB0T00	1489	2.7 max.(1477MHz~1501MHz)	1.5(1477MHz~1501MHz)	2.3(1477MHz~1501MHz)	50ohm
SAFSF1G48AC0T00	1489	2.5 max.(1477MHz~1501MHz)	1.5(1477MHz~1501MHz)	2.3(1477MHz~1501MHz)	50ohm
SAWSG895MAD0T00(895.5)	895.5	3.8 max.(893MHz~898MHz)	2.3(893MHz~898MHz)	2.5(893MHz~898MHz)	50ohm
SAWSG895MAD0T00(942.5)	942.5	3.5 max.(925MHz~960MHz)	2.5(925MHz~960MHz)	3.2(925MHz~960MHz)	50ohm
SAWSL826MBM0T00	826.5 (877.5MHz)	3.7 max.(810~843MHz), 4.2dB max.(870~885MHz)	2.6(810MHz~843MHz), 2.3(870MHz~885MHz)	2.5(810MHz~843MHz), 2.5(870MHz~885MHz)	50ohm

Filters for Communication Equipment

Ceramic Filters (CERAFIL®)

●SMD Type (MHz)

Type	Series	Features	Application
Ceramic Package	SFECS10M8□	<ul style="list-style-type: none"> •Single type. •3dB bandwidth is available in $\pm 110\text{kHz}$, $\pm 135\text{kHz}$ and $\pm 150\text{kHz}$. •Types with 10.8MHz of center frequencies is available. 	PHS

●SMD Type (kHz)

Type	Applications	General Use											Attenuation (dB) min.	
		AMPS	PDC	PAGER CORDLESS	TACS CORDLESS	AM	6dB Bandwidth (kHz) min.							
		A	B	C	D	E	F	G	H	J	K	L		
		± 17.5	± 15	± 12.5	± 10	± 7.5	± 6	± 4.5	± 3	± 2	± 1.5	± 1		
High Selectivity Series (Plastic Case Type)	SFPCA455K□ (4 Elements)	-	-	-	●	●	●	●	●	-	-	-	27 (G to H ; 25)	
	CFUCG455K□ (4 Elements)	-	-	-	●	●	●	●	●	-	-	-	27 (G ; 25)	
Narrow Bandwidth GDT Flat Type Miniature Series (Plastic Case Type)	CFUCG455K□X (4 Elements)	-	-	-	●	●	●	●	●	-	-	-	27 (G to H ; 25)	
GDT Flat Type Miniature Series (Plastic Case Type)	CFUCF455K□ (4 Elements)	●	●	●	●	●	-	-	-	-	-	-	25 (D to E ; 23)	
GDT Flat Type High Selectivity SMD Series (Plastic Case Type)	CFWCA450KBFY (6 Elements)	-	●	-	-	-	-	-	-	-	-	-	45	
High Selectivity SMD Series (Plastic Case Type)	CFWCA450K□ (6 Elements)	-	●	-	●	●	●	●	-	-	-	-	50	
Ultra Small Package Series (Cap Package)	CFXCA (4 Elements)	-	●	●	-	-	-	-	-	-	-	-	47	
	CFXCD (4 Elements)	-	-	●	-	-	-	-	-	-	-	-	47	

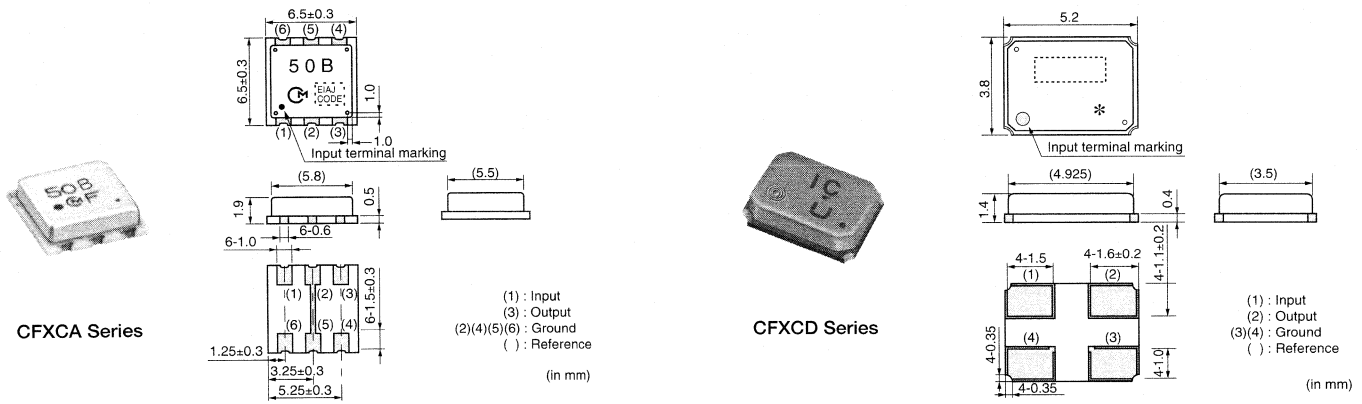
●Lead Type

Type	Applications	General Use											Attenuation (dB) min.	
		AMPS	PDC	PAGER CORDLESS	TACS CORDLESS	AM	6dB Bandwidth (kHz) min.							
		A	B	C	D	E	F	G	H	J	K	L		
		± 17.5	± 15	± 12.5	± 10	± 7.5	± 6	± 4.5	± 3	± 2	± 1.5	± 1		
High Selectivity Low Profile Series	CFULA455K□ (4 Elements)	-	●	●	●	●	●	●	●	●	-	-	27 (G ; 25) (H, J ; 35)	
	CFWLA455K□ (6 Elements)	-	●	●	●	●	●	●	●	●	●	-	35 (H, J ; 60)	
High Selectivity Miniature Series	CFULB455K□ (4 Elements)	-	●	●	●	●	●	●	●	●	●	-	27 (G ; 25) (H, J ; 35)	
	CFWL455K□ (6 Elements)	-	●	●	●	●	●	●	●	●	●	-	35 (H, J ; 65)	
GDT Flat Type Series	CFULA455K□Y (4 Elements)	-	●	●	●	●	●	●	-	-	-	-	25 (D to F ; 23) (G ; 20)	
	CFWLA455K□Y (6 Elements)	●	●	●	●	●	●	●	-	-	-	-	35	
GDT Flat Type Miniature Series	CFULB455K□Y (4 Elements)	-	●	●	●	●	●	●	-	-	-	-	25 (D to F ; 23) (G ; 20)	
	CFWL455K□Y (6 Elements)	●	●	●	●	●	●	●	-	-	-	-	35	

for IF

Ceramic Filters CERAFIL®

● kHz SMD Type CFXC_Series



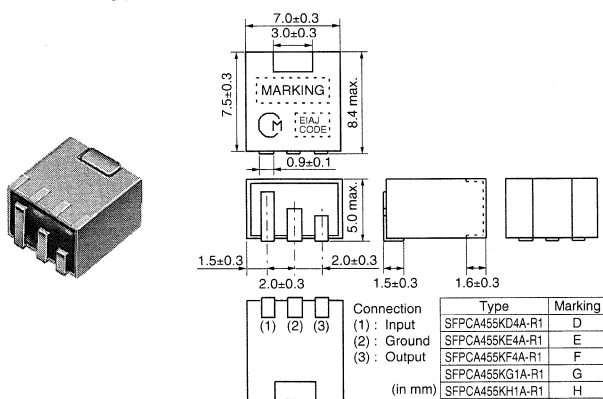
Part Number	Nominal Center Frequency (fn) (kHz)	3dB Bandwidth (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Stop Band Att.(2) (dB)	Stop Band Att.(3) (dB)	Insertion Loss (dB)	Ripple (dB)	GDT Deviation (μs)
CFXCA450KBFA-R1	450	-	fn±15.0 min.	fn±50.0 max. [within 50dB]	47 min. [within fn±100 kHz]	-	-	6.0 max. [at fn]	0.5 max. [within fn±10.0 kHz]	15 max. [within fn±10.0 kHz]
CFXCD450KCFA-R1	450	fn±9.0 to ±12.0kHz max.	-	fn±35.0 max. [within 50dB]	30 min. [within fn ± 25kHz]	55 min. [within fn ± 40kHz to ± 50kHz]	47 min. [within fn ± 100kHz]	6.0 max. [at fn]	0.5 max. [within fn ± 10.5kHz]	27 max. [within fn ± 10.5kHz]

Spurious:40dB [within 0.1 to 1.0MHz]

Input/Output Impedance:2000 ohm

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

● kHz SMD Type SFPCA Series

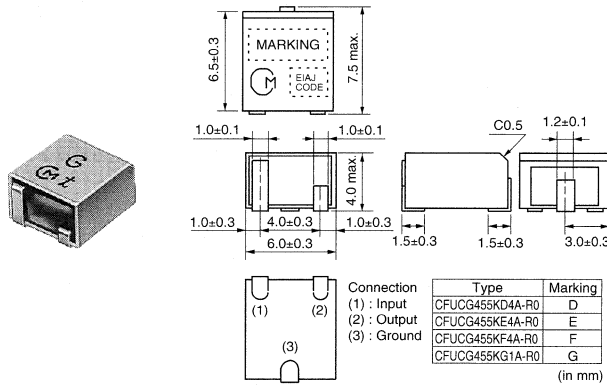


Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
SFPCA455KD4A-R1	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	2.0 max. [within fn±7kHz]	1500
SFPCA455KE4A-R1	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±5kHz]	1500
SFPCA455KF4A-R1	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±4kHz]	1500
SFPCA455KG1A-R1	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±3kHz]	1500
SFPCA455KH1A-R1	455.0 ±1.0kHz	fn±3.0 min.	fn±9.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±2kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

fn means nominal center frequency 455kHz.

● kHz SMD Type CFUCG Series



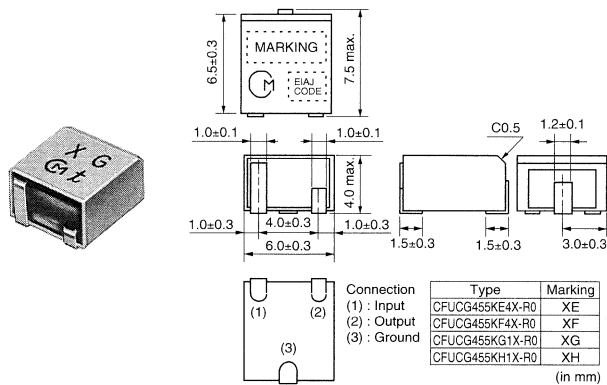
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
CFUCG455KD4A-R0	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	2.0 max. [within fn±7kHz]	1500
CFUCG455KE4A-R0	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±5kHz]	1500
CFUCG455KF4A-R0	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±4kHz]	1500
CFUCG455KG1A-R0	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.5 max. [within fn±3kHz]	1500

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
fn means nominal center frequency 455kHz.

7

Filters for Communication Equipment

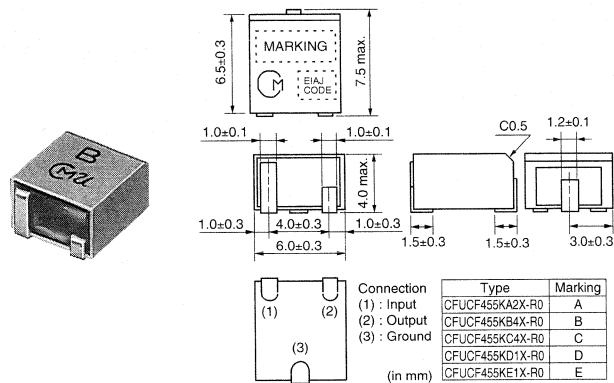
● kHz SMD Type CFUCG_X Series



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFUCG455KE4X-R0	455.0 ±1.5kHz	fn±7.5 min.	fn±17.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.0 max. [within fn±5kHz]	25.0 max. [within fn±5kHz]	1500
CFUCG455KF4X-R0	455.0 ±1.5kHz	fn±6.0 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.0 max. [within fn±4kHz]	25.0 max. [within fn±4kHz]	1500
CFUCG455KG1X-R0	455.0 ±1.0kHz	fn±4.5 min.	fn±12.5 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.0 max. [within fn±3kHz]	25.0 max. [within fn±3kHz]	1500
CFUCG455KH1X-R0	455.0 ±1.0kHz	fn±3.0 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	1.0 max. [within fn±2kHz]	25.0 max. [within fn±2kHz]	1500

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
fn means nominal center frequency 455kHz.

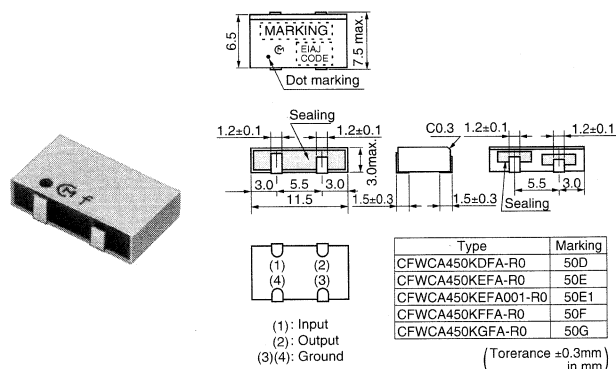
● kHz SMD Type CFUCF Series



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFUCF455KA2X-R0	455.0 ±2.0kHz	fn±17.5 min.	fn±40.0 max. [within 40dB]	25 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1.0 max. [within fn±12kHz]	15.0 max. [within fn±12kHz]	1000
CFUCF455KB4X-R0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 40dB]	25 min. [within fn±100kHz]	5.0 max. [at minimum loss point]	1.0 max. [within fn±10kHz]	15.0 max. [within fn±10kHz]	1000
CFUCF455KC4X-R0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1.0 max. [within fn±8kHz]	15.0 max. [within fn±8kHz]	1000
CFUCF455KD1X-R0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 40dB]	23 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	1.0 max. [within fn±7kHz]	20.0 max. [within fn±7kHz]	1500
CFUCF455KE1X-R0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 40dB]	23 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	1.0 max. [within fn±5kHz]	20.0 max. [within fn±5kHz]	1500

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
fn means nominal center frequency 455kHz.

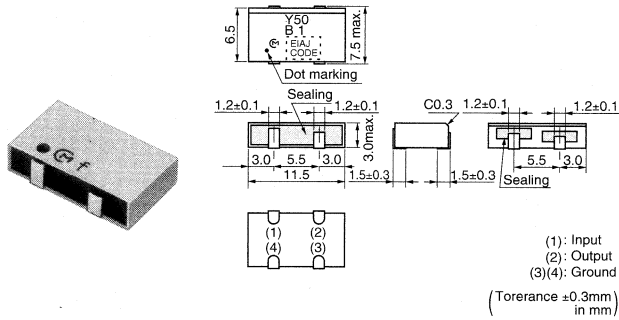
● kHz SMD Type CFWCA Series



Part Number	Nominal Center Frequency (fn) (kHz)	3dB Bandwidth (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Stop Band Att.(2) (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
CFWCA450KDFA-R0	450	-	fn±10.0 min.	fn±20.0 max. [within 50dB]	50 min. [within fn±100kHz]	-	4.0 max. [at minimum loss point]	3.0 max. [within fn±7.0kHz]	1500
CFWCA450KEFA-R0	450	-	fn±7.5 min.	fn±15.0 max. [within 50dB]	50 min. [within fn±200kHz]	-	6.0 max. [at minimum loss point]	3.0 max. [within fn±5.0kHz]	1500
CFWCA450KEFA001-R0	450	fn±6.5 min.	-	fn±15.0 max. [within 50dB]	55 min. [fn±18 to ±33kHz]	50 min. [within fn±100kHz]	4.0 max. [at fn]	3.0 max. [within fn±6.5kHz]	1500
CFWCA450KFFA-R0	450	-	fn±6.0 min.	fn±12.5 min. [within 50dB]	50 min. [within fn±100kHz]	-	6.0 max. [at minimum loss point]	3.0 max. [within fn±4.0kHz]	1500
CFWCA450KGFA-R0	450	-	fn±4.5 min.	fn±11.0 max. [within 50dB]	50 min. [within fn±100kHz]	-	6.0 max. [at minimum loss point]	2.0 max. [within fn±3.0kHz]	1500

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

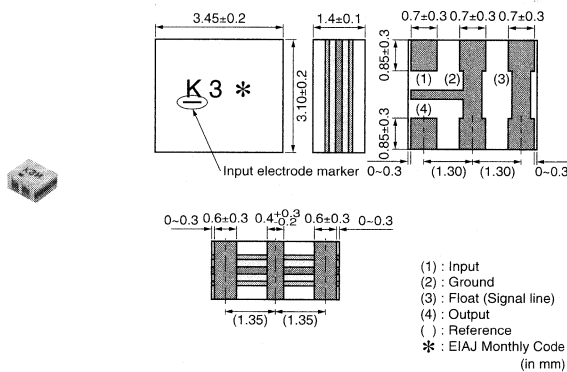
● kHz SMD Type CFWCA_Y Series



Part Number	Nominal Center Frequency (fn) (kHz)	3dB Bandwidth (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Spurious Response (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWCA450KBFY001-R0	450	fn±11.5 min.	fn±13.0 min.	fn±30.0 max. [within 50dB]	45 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	20 min. [within 0.1 to 1.0MHz]	30.0 max. [within fn±10.0kHz]	1000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

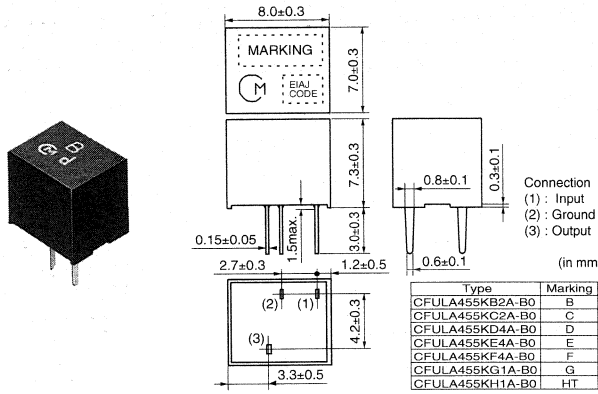
● MHz SMD Type SF ECS10M8 Series



Part Number	Nominal Center Frequency (fn) (MHz)	3dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Insertion Loss (dB)	Ripple (dB)	Spurious Response (dB)	GDT Deviation (μs)	Absolute GDT (μs)	Input/Output Impedance (ohm)
SF ECS10M8PF00-R0	10.800	fn±110 min.	fn±310 max. [within 20dB]	6.0 max. [at fn]	0.5 max. [fn±100kHz]	-	1.5 max. [fn±100kHz]	within 2.8±1.0 [at fn]	330
SF ECS10M8RF00-R0	10.800	fn±135 min.	fn±350 max. [within 20dB]	6.0 max. [at fn]	0.5 max. [within fn±100kHz]	-	1.2 max. [within fn±100kHz]	2.6±1.0 [at fn]	330
SF ECS10M8SF00-R0	10.800	fn±150 min.	fn±420 max. [within 20dB]	5.0 max. [at fn]	1.0 max. [within fn±110kHz]	25 min. [within 9 to 12 MHz]	1.5 max. [within fn±110kHz]	-	330

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. Types with 10.75, 10.8MHz of nominal center frequency are available.

Plastic Case General Use CFULA_A Series



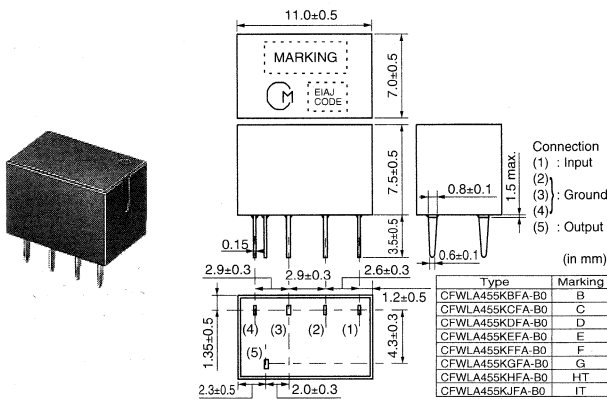
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFULA455KB2A-B0	455.0 ±2.0kHz	fn±15.0 min.	fn±30.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KC2A-B0	455.0 ±2.0kHz	fn±12.5 min.	fn±24.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KD4A-B0	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn ± 100kHz]	4.0 max. [at minimum loss point]	1500
CFULA455KE4A-B0	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 min. [at minimum loss point]	1500
CFULA455KF4A-B0	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULA455KG1A-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn ± 100kHz]	6.0 max. [at minimum loss point]	2000
CFULA455KH1A-B0	455.0 ±1.0kHz	fn±3.0 min.	fn±9.0 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

fn means nominal center frequency 455kHz.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

Plastic Case Miniaturized Type CFWLA_A Series



Part Number	Nominal Center Frequency (fn) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
CFWLA455KBFA-B0	455	fn±15.0 min.	fn±30.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±10kHz]	1500
CFWLA455KCFA-B0	455	fn±12.5 min.	fn±24.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±8kHz]	1500
CFWLA455KDFA-B0	455	fn±10.0 min.	fn±20.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	3.0 max. [within fn±7kHz]	1500
CFWLA455KEFA-B0	455	fn±7.5 min.	fn±15.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	3.0 max. [within fn±5kHz]	1500

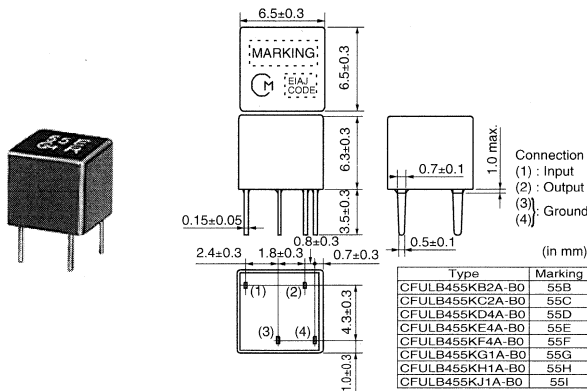
Continued on the following page.

Continued from the preceding page.

Part Number	Nominal Center Frequency (fn) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	Input/Output Impedance (ohm)
CFWLA455KFFA-B0	455	fn±6.0 min.	fn±12.5 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	3.0 max. [within fn±4kHz]	2000
CFWLA455KGFA-B0	455	fn±4.5 min.	fn±10.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2.0 max. [within fn±3kHz]	2000
CFWLA455KHFA-B0	455	fn±3.0 min.	fn±9.0 max. [within 50dB]	60 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2.0 max. [within fn±2kHz]	2000
CFWLA455KJFA-B0	455	fn±2.0 min.	fn±7.5 max. [within 50dB]	60 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	2.0 max. [within fn±1.5kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

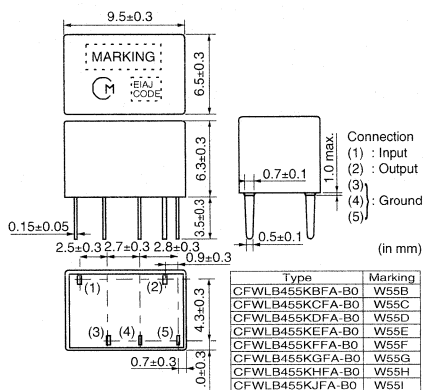
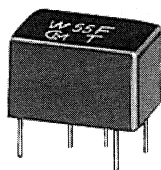
● Plastic Case Miniaturized Type CFULB_A Series



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFULB455KB2A-B0	455.0 ±2.0kHz	fn±15.0 min.	fn±30.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KC2A-B0	455.0 ±2.0kHz	fn±12.5 min.	fn±24.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KD4A-B0	455.0 ±1.5kHz	fn±10.0 min.	fn±20.0 max. [within 40dB]	27 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFULB455KE4A-B0	455.0 ±1.5kHz	fn±7.5 min.	fn±15.0 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1500
CFULB455KF4A-B0	455.0 ±1.5kHz	fn±6.0 min.	fn±12.5 max. [within 40dB]	27 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KG1A-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±10.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KH1A-B0	455.0 ±1.0kHz	fn±3.0 min.	fn±9.0 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFULB455KJ1A-B0	455.0 ±1.0kHz	fn±2.0 min.	fn±7.5 max. [within 40dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters. fn means nominal center frequency 455kHz. The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● Plastic Case General Use CFWLB_A Series



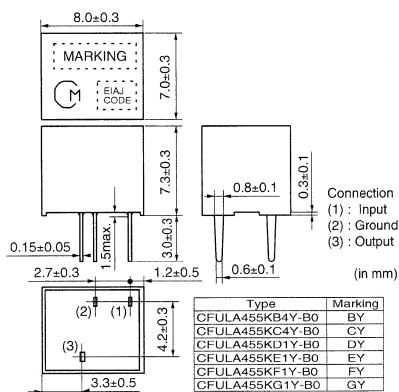
Part Number	Nominal Center Frequency (fn) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Input/Output Impedance (ohm)
CFWLB455KBFA-B0	455	fn±15.0 min.	fn±30.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KCFA-B0	455	fn±12.5 min.	fn±24.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KDFA-B0	455	fn±10.0 min.	fn±20.0 max. [within 50dB]	35 min. [within fn±100kHz]	4.0 max. [at minimum loss point]	1500
CFWLB455KEFA-B0	455	fn±7.5 min.	fn±15.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	1500
CFWLB455KEFA004-B0	455	fn±7.5 min.	fn±15.0 max. [within 60dB]	60 min. [within fn±15kHz to 30kHz]	5.0 max. [at fn]	1500
CFWLB455KFFA-B0	455	fn±6.0 min.	fn±12.5 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KGFA-B0	455	fn±4.5 min.	fn±10.0 max. [within 50dB]	35 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KHFA-B0	455	fn±3.0 min.	fn±9.0 max. [within 50dB]	55 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	2000
CFWLB455KJFA-B0	455	fn±2.0 min.	fn±7.0 max. [within 50dB]	55 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

CFWLB455K_ series filters are 4-element ceramic filters and miniature versions of CFWLA455K_ series.

● Plastic Case Group Delay Flat Type CFULA_Y Series



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFULA455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 40dB]	25 min. [within fn±100kHz]	5.0 max. [at minimum loss point]	15.0 max. [within fn±10kHz]	1500
CFULA455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	15.0 max. [within fn±8kHz]	1500

Continued on the following page.

Continued from the preceding page.

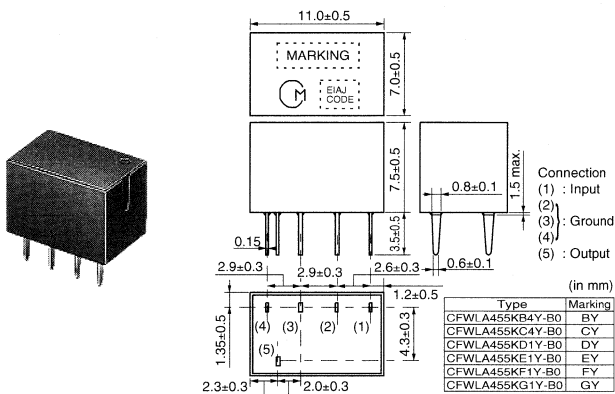
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFULA455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 40dB]	23 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	20.0 max. [within fn±7kHz]	1500
CFULA455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 40dB]	23 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	20.0 max. [within fn±5kHz]	1500
CFULA455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 40dB]	23 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	20.0 max. [within fn±4kHz]	2000
CFULA455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 40dB]	23 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	20.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

fn means nominal center frequency 455kHz.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● Plastic Case Group Delay Flat Type CFWLA_Y Series



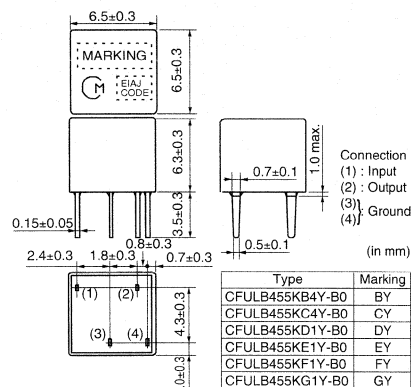
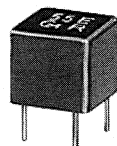
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWLA455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 50dB]	40 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	30.0 max. [within fn±10kHz]	1500
CFWLA455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 50dB]	40 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	30.0 max. [within fn±8kHz]	1500
CFWLA455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 50dB]	40 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	30.0 max. [within fn±7kHz]	1500
CFWLA455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 50dB]	40 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	30.0 max. [within fn±5kHz]	1500
CFWLA455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 50dB]	40 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	40.0 max. [within fn±4kHz]	2000
CFWLA455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 50dB]	40 min. [within fn±100kHz]	11.0 max. [at minimum loss point]	40.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

fn means nominal center frequency 455kHz.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● Plastic Case Group Delay Flat Type Miniaturized Type CFULB_Y Series



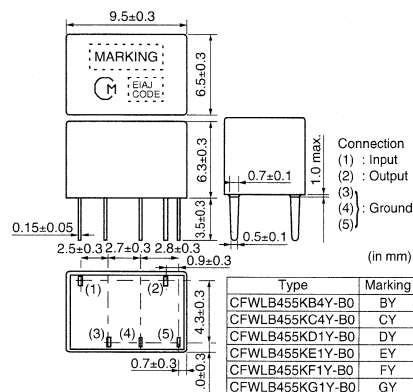
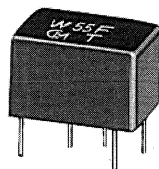
Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFULB455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 40dB]	25 min. [within fn±100kHz]	5.0 max. [at minimum loss point]	15.0 max. [within fn±10kHz]	1500
CFULB455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 40dB]	25 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	15.0 max. [within fn±8kHz]	1500
CFULB455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 40dB]	23 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	20.0 max. [within fn±7kHz]	1500
CFULB455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 40dB]	23 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	20.0 max. [within fn±5kHz]	1500
CFULB455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 40dB]	23 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	20.0 max. [within fn±4kHz]	2000
CFULB455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 40dB]	23 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	20.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
fn means nominal center frequency 455kHz.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

CFULB455K_Y series filters are 4-element ceramic filters and miniature versions of CFULA455K_Y series.

● Plastic Case Group Delay Flat Type CFWL_B_Y Series



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWL455KB4Y-B0	455.0 ±1.5kHz	fn±15.0 min.	fn±35.0 max. [within 50dB]	40 min. [within fn±100kHz]	6.0 max. [at minimum loss point]	30.0 max. [within fn±10kHz]	1500
CFWL455KC4Y-B0	455.0 ±1.5kHz	fn±12.5 min.	fn±30.0 max. [within 50dB]	40 min. [within fn±100kHz]	7.0 max. [at minimum loss point]	30.0 max. [within fn±8kHz]	1500
CFWL455KD1Y-B0	455.0 ±1.0kHz	fn±10.0 min.	fn±25.0 max. [within 50dB]	40 min. [within fn±100kHz]	8.0 max. [at minimum loss point]	30.0 max. [within fn±7kHz]	1500
CFWL455KE1Y-B0	455.0 ±1.0kHz	fn±7.5 min.	fn±20.0 max. [within 50dB]	40 min. [within fn±100kHz]	9.0 max. [at minimum loss point]	30.0 max. [within fn±5kHz]	1500

Continued on the following page. ↗

Continued from the preceding page.

Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Stop Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
CFWLB455KF1Y-B0	455.0 ±1.0kHz	fn±6.0 min.	fn±17.5 max. [within 50dB]	40 min. [within fn±100kHz]	10.0 max. [at minimum loss point]	40.0 max. [within fn±4kHz]	2000
CFWLB455KG1Y-B0	455.0 ±1.0kHz	fn±4.5 min.	fn±15.0 max. [within 50dB]	40 min. [within fn±100kHz]	11.0 max. [at minimum loss point]	40.0 max. [within fn±3kHz]	2000

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.
fn means nominal center frequency 455kHz.

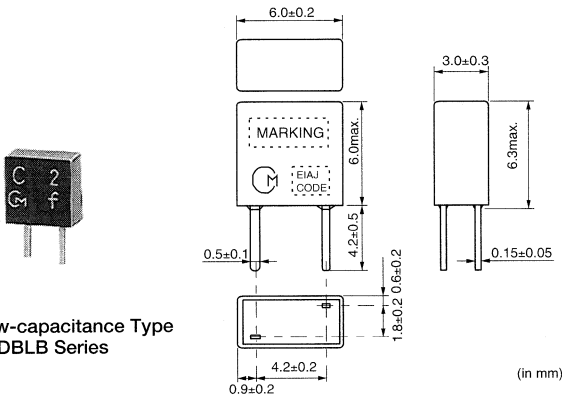
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

CFWLB455K_Y series filters are 4-element ceramic filters and miniature versions of CFWLA455K_Y series.

for IF

Ceramic Discriminators

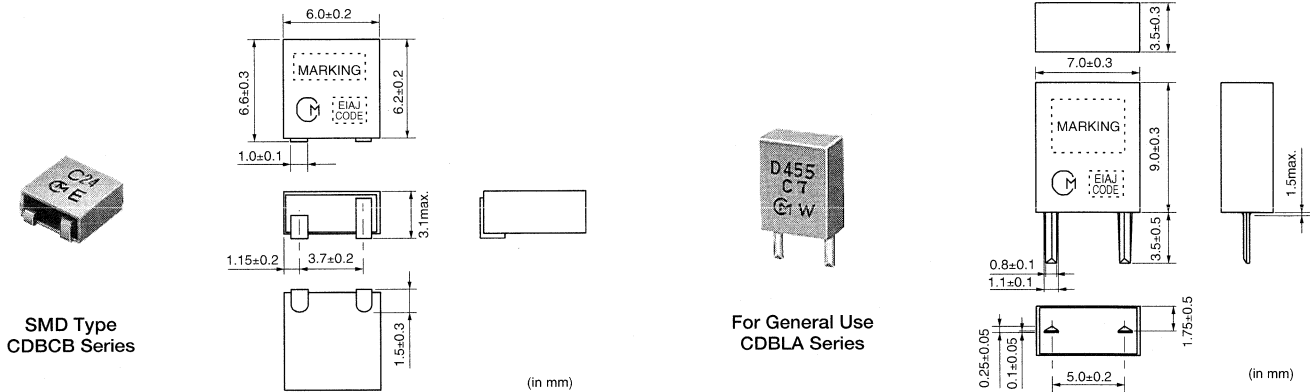
Specified by Impedance Characteristics 1



Small Low-capacitance Type CDBLB Series

Part Number	Center Frequency (fn) (kHz)	Inclination of Impedance Curve(1)	Inclination of Impedance Curve(2)	Capacitance (C)	IC
CDBLB455KCAX02-B0	455	447.0±1.5kHz(at Z =2.05kohm)	463.0±1.5kHz(at Z =10.0kohm)	140pF±20%	TA8104F
CDBLB455KCAX31-B0	455	447.0±1.5kHz(at Z =2.05kohm)	463.0±1.5kHz(at Z =10.0kohm)	140pF±20%	TA31141

Specified by Impedance Characteristics 2

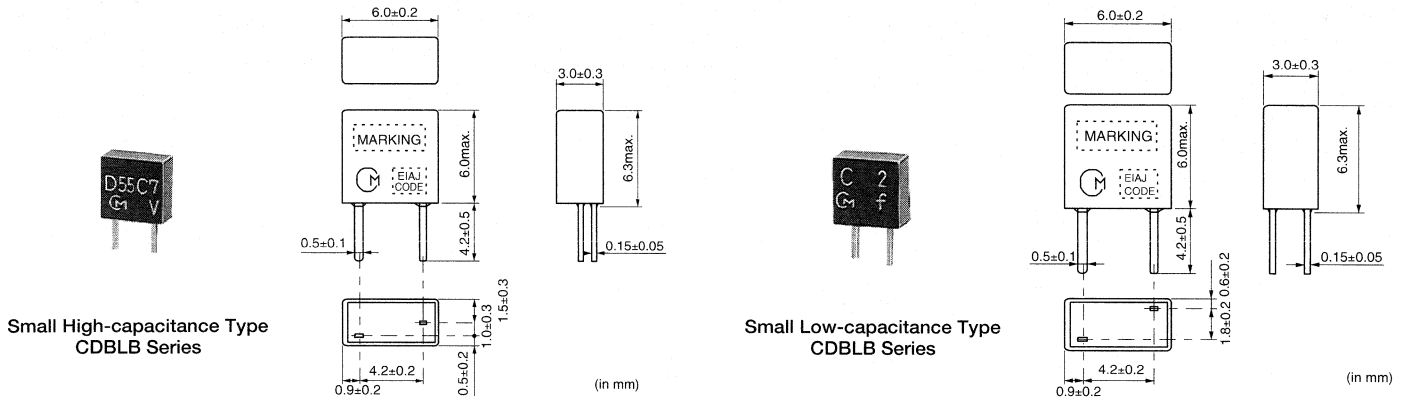


SMD Type CDBCB Series

For General Use CDBLA Series

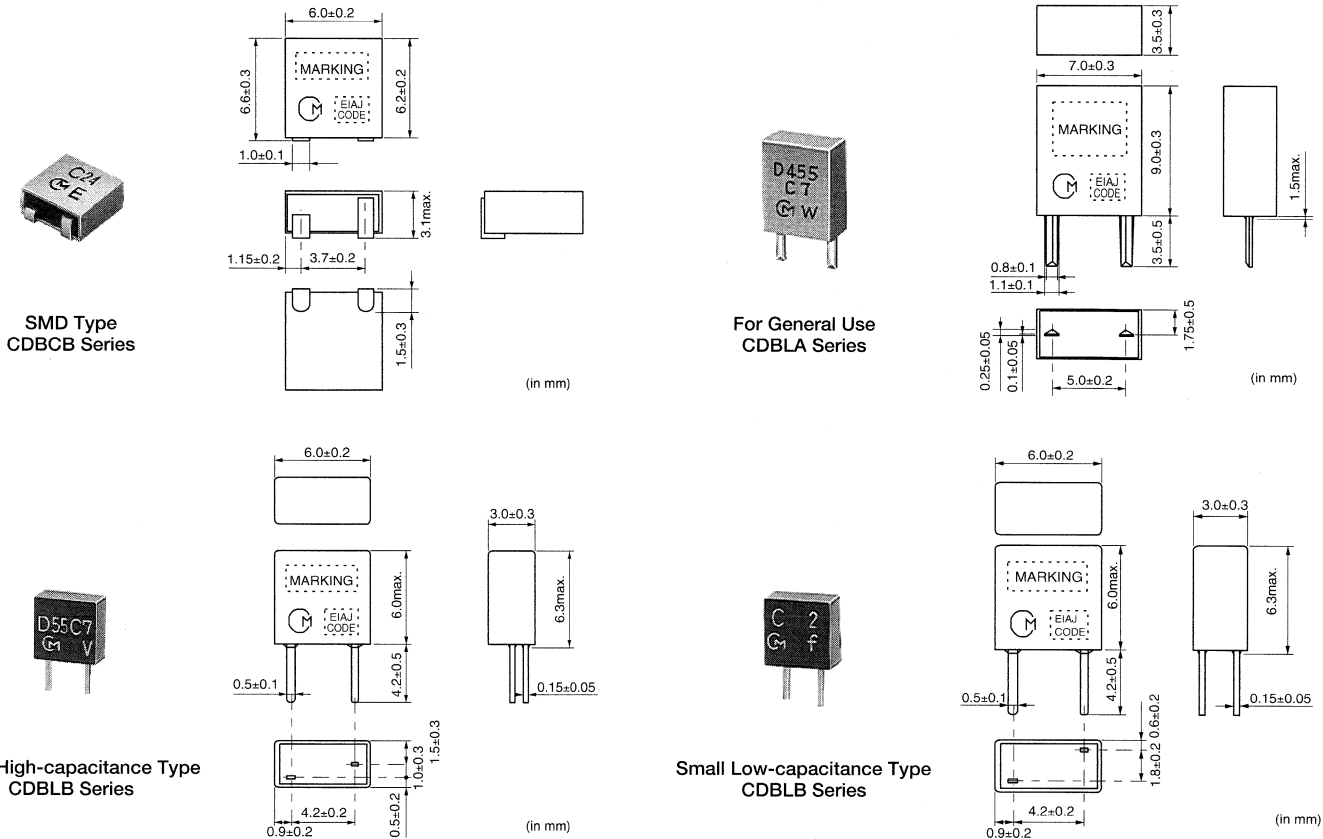
Continued on the following page.

Continued from the preceding page.



Part Number	Center Frequency (fn) (kHz)	Anti-resonant Frequency (Fa)	Delta F (Fa-Fr)	Resonant Resistance (R)	Capacitance (C)	IC
CDBC4455KCAX33-R0	455	458.0±1.5kHz	42±4.0kHz	300ohm max.	280pF±20%	CXA1474
CDBLA455KCAY03-B0	-	455.0±1.5kHz	48±5.0kHz	70ohm max.	600pF±20%	CXA1184
CDBLB455KCAY03-B0	-	455.0±1.5kHz	46±5.0kHz	70ohm max.	550pF±20%	CXA1184M
CDBLB455KCAX15-B0	455	463.5±1.0kHz	43±2.0kHz	300ohm max.	140pF±20%	CXA1183M
CDBLB455KCAX25-B0	455	465.0±1.5kHz	45±4.0kHz	300ohm max.	135pF±20%	CXA1484
CDBLB455KCAX33-B0	455	465.0±1.5kHz	45±4.0kHz	300ohm max.	135pF±20%	CXA1474

Specified by Recovered Audio Characteristics



Part Number	Center Frequency (fn) (kHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (at fn) (%)	Distortion (fn±8kHz) (%)	IC
CDBC4455KCAY07-R0	455	fn±4.0 min.	350 ±60 mV	3.0 max.	-	MC3357
CDBC4455KCAY09-R0	455	fn±4.0 min.	120 ±40 mV	1.5 max.	-	NE604N
CDBC4455KCAY13-R0	455	fn±4.0 min.	330 ±50 mV	4.0 max.	-	CXA1003BM
CDBC4455KCAY16-R0	455	fn±4.0 min.	175 ±40 mV	2.0 max.	-	MC3372
CDBC4455KCAY21-R0	455	fn±4.0 min.	55 ±20 mV	2.0 max.	-	TA31132

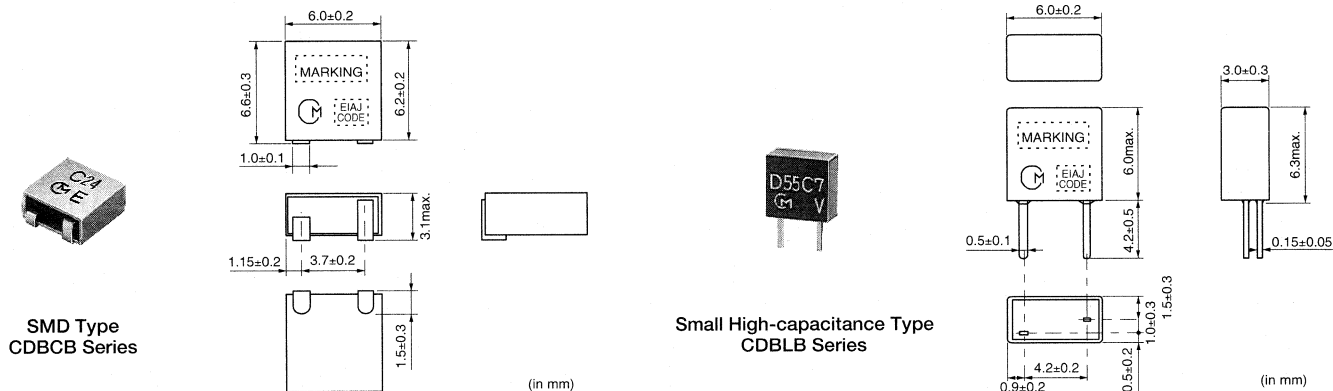
Continued on the following page.

Filters for Communication Equipment

Continued from the preceding page.

Part Number	Center Frequency (fn) (kHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (at fn) (%)	Distortion (fn±8kHz) (%)	IC
CDBC455KCAY24-R0	455	fn±4.0 min.	100 ±40 mV	2.0 max.	-	TA31136
CDBC455KCAY27-R0	455	fn±4.0 min.	90 ±30 mV	2.0 max.	-	TK10487
CDBC455KCAY28-R0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31142F
CDBC455KCAY29-R0	455	fn±4.0 min.	100 ±30 mV	2.5 max.	-	NE605
CDBC455KCAY32-R0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31143
CDBC455KCAY35-R0	455	fn±4.0 min.	100 ±40 mV	2.5 max.	-	TK10930
CDBC455KCAY40-R0	455	fn±4.0 min.	40 ±20 mV	3.5 max.	-	TA31145
CDBC455KCAY49-R0	455	fn±4.0 min.	45 ±10 mV	3.0 max.	-	MC3361
CDBC455KCAY50-R0	455	fn±4.0 min.	64 ±6.4 mV	4.0 max.	-	CXA3117N
CDBC455KCLX36-R0	455	fn±13.0 min.	90 ±30 mV	2.5 max.	5.0 max.	NE(SA)606/NE(SA)616
CDBC455KCLX39-R0	455	fn±11.0 min.	130 ±20 mV	2.5 max.	7.0 max.	NE607/NE617
CDBC455KCLY13-R0	455	fn±13.0 min.	120 ±30 mV	1.5 max.	5.0 max.	CXA1003BM
CDBC455KCLY21-R0	455	fn±11.0 min.	75 ±25 mV	2.5 max.	5.0 max.	TA31132
CDBLA455KCAY07-B0	455	fn±4.0 min.	340 ±60 mV	2.5 max.	-	MC3357
CDBLA455KCAY09-B0	455	fn±5.0 min.	100 min.	1.5 max.	-	NE604N
CDBLA455KCAY13A-B0	455	fn±4.0 min.	350 ±50 mV	3.0 max.	-	CXA1003BM
CDBLA455KCAY16-B0	455	fn±4.0 min.	185 ±40 mV	2.0 max.	-	MC3372
CDBLA455KCAY24-B0	455	fn±4.0 min.	100 ±40 mV	2.0 max.	-	TA31136
CDBLA455KCAY28-B0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31142
CDBLA455KCAY34-B0	455	fn±4.0 min.	65 ±20 mV	2.5 max.	-	MC13136
CDBLA455KCAY42-B0	455	fn±4.0 min.	40 ±15 mV	3.0 max.	-	TK14590/TK14591
CDBLA455KCLY09-B0	455	fn±15.0 min.	70 ±20 mV	1.5 max.	3.5 max.	NE604N
CDBLA455KCLY13-B0	455	fn±15.0 min.	110 ±30 mV	1.5 max.	5.0 max.	CXA1003BM
CDBLB455KCAY07-B0	455	fn±4.0 min.	340 ±60 mV	3.0 max.	-	MC3357
CDBLB455KCAY13A-B0	455	fn±4.0 min.	350 ±50 mV	3.0 max.	-	CXA1003BM
CDBLB455KCAY21-B0	455	fn±4.0 min.	55 ±20 mV	2.0 max.	-	TA31132
CDBLB455KCAY24-B0	455	fn±4.0 min.	100 ±40 mV	2.0 max.	-	TA31136
CDBLB455KCAY28-B0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31142FN
CDBLB455KCAY32-B0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31143
CDBLB455KCAY34-B0	455	fn±4.0 min.	65 ±20 mV	2.5 max.	-	MC13136
CDBLB455KCAY40-B0	455	fn±4.0 min.	40 ±20 mV	3.0 max.	-	TA31145
CDBLB455KCAY42-B0	455	fn±4.0 min.	40 ±15 mV	3.0 max.	-	TK14590/TK14591
CDBLB455KCAY49-B0	455	fn±4.0 min.	45 ±10 mV	3.0 max.	-	MC3361
CDBLB455KCAY50-B0	455	fn±4.0 min.	64 ±6.4 mV	4.0 max.	-	CXA3117N
CDBLB455KCLY09-B0	455	fn±15.0 min.	70 ±20 mV	1.5 max.	3.5 max.	NE604N
CDBLB455KCLY13-B0	455	fn±15.0 min.	110 ±30 mV	1.5 max.	5.0 max.	CXA1003BM
CDBLB455KCLY21-B0	455	fn±13.0 min.	65 ±20 mV	2.5 max.	5.0 max.	TA31132
CDBLB455KCAX16-B0	455	fn±4.0 min.	185 ±40 mV	2.0 max.	-	MC3372
CDBLB455KCAX18-B0	455	fn±3.0 min.	180 ±40 mV	2.0 max.	-	MC3371
CDBLB455KCAX36-B0	455	fn±3.5 min.	100 ±25 mV	3.5 max.	-	NE606/616

● Specified by S Curve Characteristics



Part Number	Center Frequency (fn) (kHz)	S Curve(1) Output Volt.at fn (mV)	S Curve(2) at fn±4.8kHz and fn-4.8kHz (mV)	IC
CDBC455KCAY47-R0	455	130 ±20mV	150 ±15mV	MC3361
CDBC455KCAY54-R0	455	165 ±20mV	170 ±20mV	TA31149
CDBLB455KCAY47-B0	455	140 ±20mV	150 ±15mV	TA31147

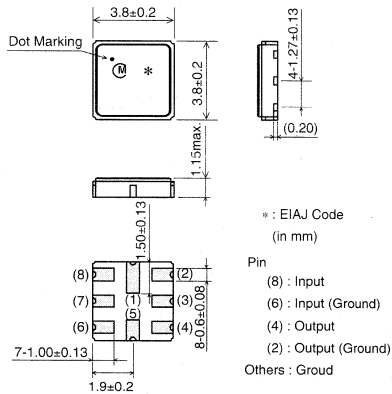
for IF

SAW Filters

● AMPS/ADC



SAFCG130MCA0T00

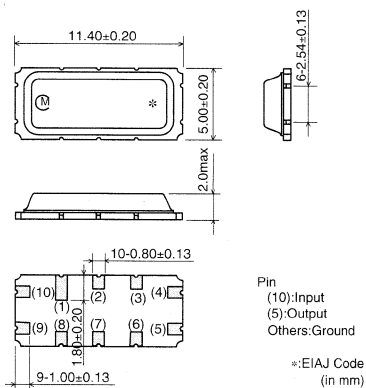


Part Number	Center Frequency (MHz)	3dB Bandwidth (kHz)	Insertion Loss (dB max./at Minimum Loss Point) (dB)	Ripple (dB max.)	Input/Output Impedance
SAFCG130MCA0T00	130.380	±630 min.	5.5 max. (at fo point)	-	310ohm//1.6μH
SAFCT85M3JB0X00	85.380	±12 min.	5.5 max. (at min. loss point)	1.5 (fo±12kHz)	870ohm// -1.8pF
SAFCT85M3JB0X05	85.380	±12 min.	5.5 max. (at min. loss point)	1.5 (fo±12kHz)	870ohm// -1.8pF
SAFCU85M3JC0X05	85.380	±13 min.	5.5 max. (at min. loss point)	1.5 (fo±13kHz)	870ohm// -1.7pF
SAFCV83M1JA0X00	83.160	±15 min.	5.0 max. (at min. loss point)	1.5 (fo±15kHz)	850ohm// -2.0pF
SAFCV83M1JB0X00	83.160	±15 min.	5.0 max. (at min. loss point)	1.5 (fo±12.5kHz)	850ohm// -2pF

● DECT



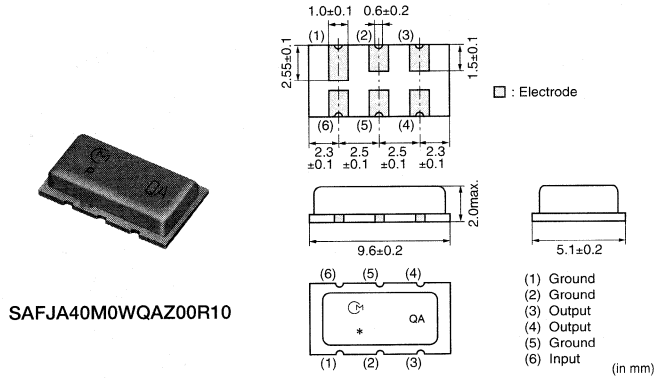
SAFUW110MCA0T00



Filters for Communication Equipment

Part Number	Center Frequency (MHz)	3dB Bandwidth (kHz)	Insertion Loss (dB max./at Minimum Loss Point) (dB)	Ripple (dB max.)	Input/Output Impedance
SAFUW110MCA0T00	110.592	±576 min.	4.5 max. (at min. loss point)	-	300ohm// -1.2μH

ETCS



SAFJA40M0WQAZ00R10

Dimensions (in mm):

- Top view: 1.0±0.1, 0.6±0.2, 2.55±0.1, 1.5±0.1, 2.3±0.1, 2.5±0.1, 2.5±0.1, 2.3±0.1
- Side view: 2.0max., 9.6±0.2
- Bottom view: 5.1±0.2
- Pin spacing: 1.8±0.13

Legend: □ : Electrode

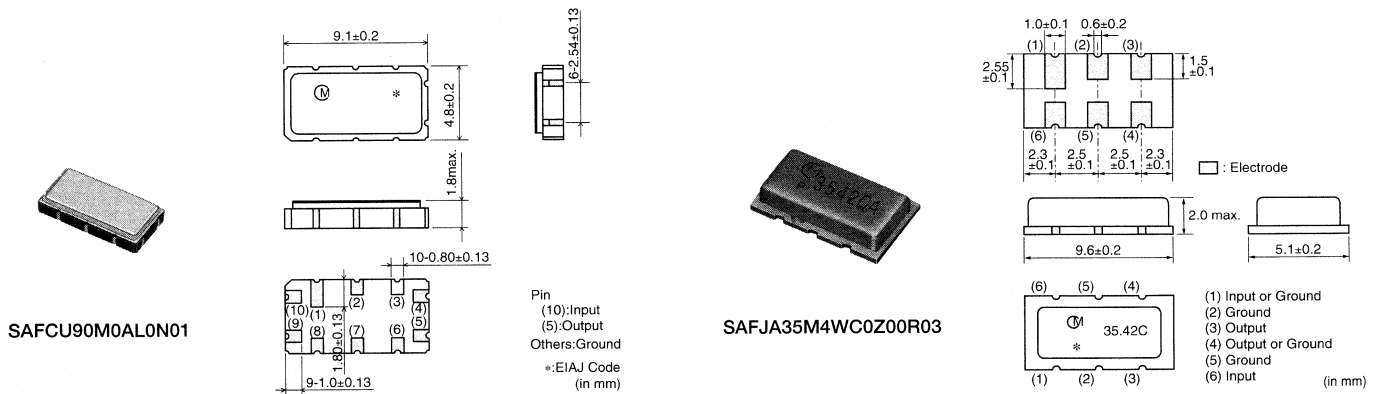
Pin Legend:

- (1) Ground
- (2) Ground
- (3) Output
- (4) Output
- (5) Ground
- (6) Input

Part Number	Center Frequency (MHz)	3dB Bandwidth (MHz)	Insertion Loss (dB max./at Minimum Loss Point) (dB)	Ripple (dB max.)	Input/Output Impedance
SAFJA40M0WQAZ00R10	40.000	±2.5 min.	21.5 max. (at min. loss point)	-	-

7

GPS



SAFCU90M0AL0N01

SAFJA35M4WC0Z00R03

Dimensions (in mm):

- SAFCU90M0AL0N01: 9.1±0.2, 4.8±0.2, 1.8max., 10-0.80±0.13, 9-1.0±0.13
- SAFJA35M4WC0Z00R03: 1.0±0.1, 0.6±0.2, 2.55±0.1, 1.5±0.1, 2.3±0.1, 2.5±0.1, 2.5±0.1, 2.3±0.1, 2.0max., 9.6±0.2, 5.1±0.2

Legend: □ : Electrode

Pin Legend:

- (1) Input or Ground
- (2) Ground
- (3) Output
- (4) Output or Ground
- (5) Ground
- (6) Input

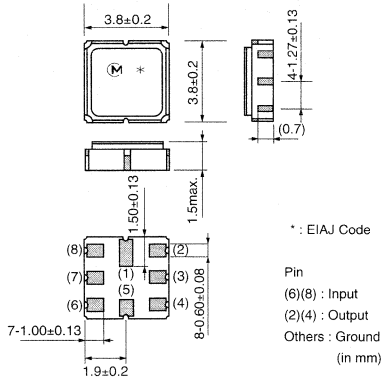
Pin Legend:

- Pin (10): Input
- Pin (5): Output
- Others: Ground
- *: EIAJ Code (in mm)

Part Number	Center Frequency (MHz)	3dB Bandwidth (MHz)	Insertion Loss (dB max./at Minimum Loss Point) (dB)	Ripple (dB max.)	Input/Output Impedance (pF)
SAFCU90M0AL0N01	90.0	±1.0 min.	6.5 max. (at fo point)	2.0 (fo±1MHz)	365ohm// -0.7pF
SAFCU96M0AL0N01	95.7	±1.0 min.	6.5 max. (at fo point)	2.0 (fo±1MHz)	365ohm// -1.2pF
SAFJA35M4WC0Z00R03	35.42 (fn)	1.90 min. (1dB Bandwidth)	20.5 max. (at fn)	1.6 (within 34.62 to 36.22MHz)	5.1 // 14.3k ohm

● GSM

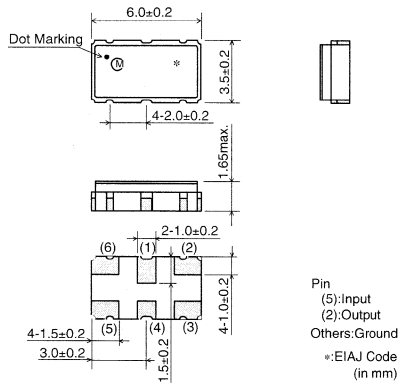
SAFCJ225MRA0X01



Part Number	Center Frequency (MHz)	3dB Bandwidth (kHz)	Insertion Loss (dB max./at Minimum Loss Point) (dB)	Ripple (dB max.)	Input/Output Impedance
SAFCJ225MRA0X01	225.000	±80 min.	9.0 max. (at min. loss point)	1.5 (fo±80kHz)	700ohm// -1.3pF
SAFCJ236MRA6X01	236.600	±80 min.	8.0 max. (at min. loss point)	1.5 (fo±80kHz)	1.1kohm// -0.45pF
SAFCJ241MRA0X01	241.000	±80 min.	10.0 max. (at min. loss point)	1.5 (fo±80kHz)	850ohm// -0.5pF

● PDC

SAFCQ130MJA0X00

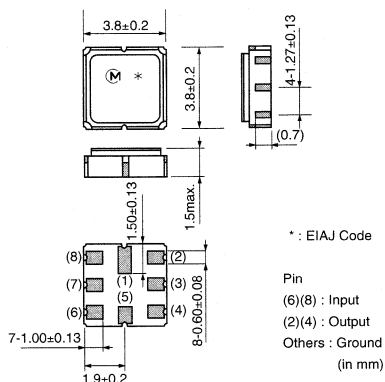


Part Number	Center Frequency (MHz)	3dB Bandwidth (kHz)	Insertion Loss (dB max./at Minimum Loss Point) (dB)	Ripple (dB max.)	Input/Output Impedance
SAFCQ130MJA0X00	130.000	±16 min.	5.5 max. (at min. loss point)	0.5 (fo±10.5kHz)	740ohm// -1.5pF
SAFCQ130MJA1X00	130.050	±16 min.	5.5 max. (at min. loss point)	0.5 (fo±10.5kHz)	740ohm// -1.5pF
SAFCQ130MJC0X00	130.000	±12 min.	6.0 max. (at min. loss point)	0.5 (fo±10.5kHz)	740ohm// -1.0pF
SAFCQ130MJC1X00	130.050	±12 min.	6.0 max. (at min. loss point)	0.5 (fo±10.5kHz)	740ohm// -1.0pF

● PHS

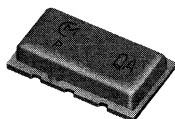


SAFCJ243MRA9X01

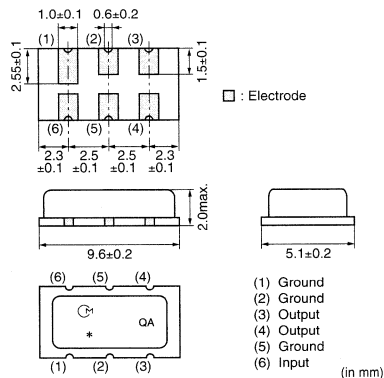


Part Number	Center Frequency (MHz)	3dB Bandwidth (kHz)	Insertion Loss (dB max./at Minimum Loss Point) (dB)	Ripple (dB max.)	Input/Output Impedance
SAFCJ243MRA9X01	243.950	± 130 min.	8.0 max. (at min. loss point)	1.0 (fo \pm 100kHz)	920ohm// $-0.6\mu\text{F}$

● Wireless LAN



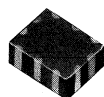
SAFJA43M0WC0Z00R03



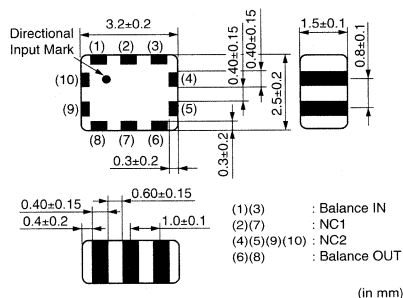
Part Number	Center Frequency (MHz)	3dB Bandwidth (MHz)	Insertion Loss (dB max./at Minimum Loss Point) (dB)	Ripple (dB max.)	Input/Output Impedance
SAFJA43M0WC0Z00R03	43.00 ± 0.1 MHz (fo)	1.25 min.	21.0 max. (at fo point)	-	-

for IF

Chip LC Filters(Balance-balance Type)



LFB32130MSH3A569

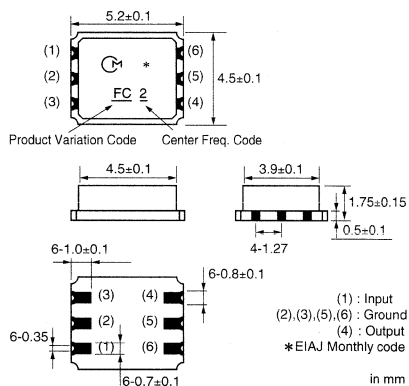


*Terminal of "NC1" should be fixed to the no connected pattern.
 Terminal of "NC2" should not be fixed any pattern.
 All the technical and Information contained herein are subject to change without prior notice.

Part Number	Nominal Center Frequency(f_0) (MHz)	Bandwidth(BW) (MHz)	Insertion Loss in BW (dB)	Input Balance Impedance (Differential) (ohm)	Output Balance Impedance (Differential) (ohm)
LFB32130MSH3A569	130.38	$f_0 \pm 0.7$	5.0 max. (at 25°C)	1000 (Nominal)	250 (Nominal)
LFB32166MSH2A570	166.85	$f_0 \pm 0.65$	5.0 max. (at 25°C)	300 (Nominal)	300 (Nominal)

for IF

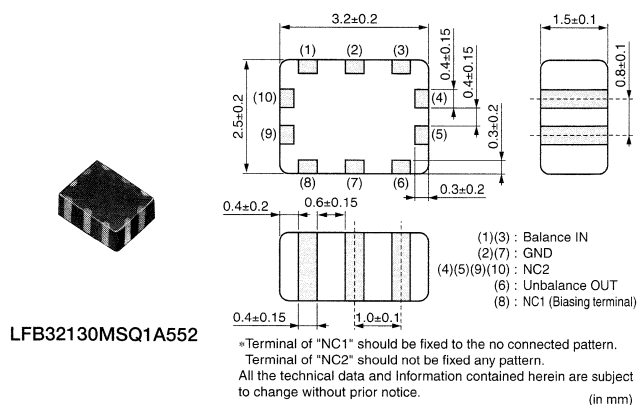
BGS Filters



Part Number	Nominal Center Frequency(f_n) (MHz)	3dB Bandwidth (kHz)	Stop Band Attenuation (dB)	Insertion Loss (dB)	Ripple (dB)	GDT Deviation (μs)	Input/Output Impedance (ohm)
MKFKB51M7JA0P00R11	51.760	$f_n \pm 85$ min.	25 min. [at $f_n \pm 720$ kHz]	8.0 max. [at f_n]	0.5 max. [within $f_n \pm 75$ kHz]	1.0 max. [within $f_n \pm 75$ kHz]	50 / -0 pF

for IF

Chip LC Filters(Balance-unbalance Type)



LFB32130MSQ1A552

Part Number	Nominal Center Frequency(f_0) (MHz)	Bandwidth (BW) (MHz)	Insertion Loss in BW (dB)	Balance Impedance (Differential) (ohm)	Unbalance Impedance (ohm)
LFB32130MSQ1A552	130.38	$f_0 \pm 0.65$	5.5 max. (at 25°C)	1000 (Nominal)	50 (Nominal)
LFB32166MSQ1A527	166.85	$f_0 \pm 0.7$	4.0 max. (at 25°C)	200 (Nominal)	50 (Nominal)

8

Microwave Components

Isolators

Chip Multilayer Hybrid Couplers

Chip Multilayer Hybrid Baluns

Field-Effect Transistors (MESFET)

Chip Multilayer Antennas

Chip Dielectric Antennas

Dielectric Resonators (RESOMICS®)

High-Frequency Monolithic Ceramic Capacitors

High-Frequency Microchip Capacitors

Coaxial Connectors

Coaxial Connectors with Switches

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
(If you have any questions about details, inquire at your usual Murata sales office or distributor.)

Isolators

(Global Part Number)

CE	040	1G95	DCB000	RAB
----	-----	------	--------	-----

① ② ③ ④ ⑤

① Product ID

Product ID	
CE	Isolators

② Series

Code	Series
053	5×5×2mm
073	7×7×2mm
040	4×4×2mm
041	4×4×1.7mm

③ Nominal Center Frequency

Expressed by four-digits alphanumeric. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

④ Individual Specification Code

Expressed by three alphabets and three digits serial number.

⑤ Packaging

Code	Packaging
TT1	Bulk
RCA	250 pcs. /Reel (CE053, CE073)
RD1	1000 pcs. /Reel (CE053, CE073)
RAB	500 pcs. /Reel (CE040, CE041)
RB2	2000 pcs. /Reel (CE040, CE041)

Chip Multilayer Hybrid Couplers/Chip Multilayer Hybrid Dividers

(Global Part Number)

LD	C	21	897M	20	B	-027
----	---	----	------	----	---	------

① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
LD	Chip Multilayer Devices

② Function

Code	Function
C	Couplers
D	Dividers

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
18	1.60×0.80mm	0603
21	2.00×1.25mm	0805
31	3.20×1.60mm	1206
32	3.20×2.50mm	1210
43	4.50×3.20mm	1812
55	5.70×5.00mm	2220

④ Nominal Center Frequency

Expressed by four figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Coupling

Expressed by two figures.

Ex.)

Code	Coupling
03	3dB
14	14dB
20	20dB

⑥ Design

Code	Design
B	Couplers Single Type
H	with Integrated LPF
L	with Integrated LPF
A	Dividers Standard Type

⑦ Individual Specification Code

Code	Individual Specification Code
-027	Spcification, Characteristics, others

Chip Multilayer Hybrid Baluns

(Global Part Number) **LD B 21 836M 20 C -001**
① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
LD	Chip Multilayer Devices

② Function

Code	Function
B	Baluns

③ Dimension (L×W)

Code	Dimension (L×W)	EIA
21	2.00×1.25mm	0805
31	3.20×1.60mm	1206

④ Nominal Center Frequency

Expressed by four figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Balanceport Impedance

Code	Balanceport Impedance
05	50Ω
10	100Ω
20	200Ω

⑥ Design

Code	Design
C	Standard

⑦ Individual Specification Code

Code	Individual Specification Code
-001	Spfication, Characteristics, others

Chip Dielectric Antennas

(Global Part Number) **AN C G1 1G48 SAA003 R F 1**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
AN	Dielectric Antennas

② Function

Code	Function
C	Chip Dielectric Antennas

③ Series

Expressed by an alphabet and a figure.

⑥ Package Product ID

⑦ Package Detail(1)

⑧ Package Detail(2)

Code	Package Product ID	Code	Package Detail(1)	Code	Package Detail(2)
R	Reel	F	Tape Width 24mm ø330mm	1	Package Quantity per Reel (Ex: 1=1000pcs/reel)
		D	Tape Width 16mm ø330mm		
T	Tray	T	Tray Specification	1	Tray Specification

④ Nominal Center Frequency

Expressed by four figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑤ Individual Specification Code

Expressed by three alphabets and a three-digit serial number.

Dielectric Resonators (RESOMICS®) TE Mode

(Global Part Number) **DR D 055 0244 M 20 B 00 R**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
DR	Dielectric Resonators(RESOMICS®)

② Product

Code	Product
D	TE Mode (Disc Type)
T	TE Mode (Tube Type)

③ Outer Diameter

Code	Outer Diameter
055	Expressed by three figures. The unit is 1/10mm.

④ Thickness

Code	Thickness
0244	Expressed by four figures. The unit is 1/100mm.

⑤ Materials

Code	Materials
U	U Series
M	M Series
V	V Series
R	R Series
B	B Series
E	E Series
F	F Series

⑥ Resonant Frequency Temperature Characteristics(Tf)

Expressed by two figures or combination of an alphabet and a figure.

Ex.)

Code	Resonant Frequency Temperature Characteristics(Tf) Tolerance
C0	-2.0 ppm/°C
20	2.0 ppm/°C

⑦ Resonant Frequency Temperature Characteristics(Tf) Tolerance

Code	Resonant Frequency Temperature Characteristics(Tf) Tolerance
Z	±2 ppm/°C
A	±1 ppm/°C
B	±0.5ppm/°C

⑧ Individual Specification Code (Serial)

Code	Individual Specification Code (Serial)
00	Standard Type

⑨ Packaging

Code	Packaging
T	Bulk
R	Taping

Dielectric Resonators (RESOMICS®) TEM Mode

(Global Part Number) **DR** **R** **020** **1G590** **K** **T** **C** **00** **R**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
DR	Dielectric Resonators(RESOMICS®)

② Product

Code	Product
R	TEM Mode

③ Outer Diameter

Code	Outer Diameter
020	2.0×2.0mm
030	3.0×3.0mm
040	4.0×4.0mm
060	6.0×6.0mm

④ Nominal Center Frequency

Expressed by five figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

Ex.)

Code	Nominal Center Frequency
900M0	900MHz
1G200	1200MHz

⑤ Materials

Code	Materials
U	U Series
K	K Series
P	P Series

⑥ Wave Length

Code	Wave Length
T	$\lambda/4$
P	$\lambda/2$

⑦ Electrode

Code	Electrode
C	Copper
S	Silver

⑧ Individual Specification Code (Serial)

Code	Individual Specification Code (Serial)
00	Standard

⑨ Packaging

Code	Packaging
T	Bulk
R	Taping

High-Frequency Microchip Capacitors

(Global Part Number) **CL B 05 B5 390 K 1 000 TC1**
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Product ID

Product ID	
CL	High-Frequency Microchip Capacitors

② Series

Code	Series
B	with Border on Both Sides

③ Size

Code	Size
0A	0.25×0.25mm
0B	0.30×0.25mm
0C	0.35×0.25mm
0D	0.38×0.38mm
0E	0.55×0.38mm
0H	0.71×0.38mm
05	0.50×0.50mm
0G	0.70×0.50mm
0K	0.90×0.50mm
0F	0.64×0.64mm
1A	1.00×0.64mm
0J	0.76×0.76mm
1B	1.09×0.76mm
09	0.90×0.90mm
1E	1.49×0.90mm
1C	1.27×1.27mm
1G	1.73×1.27mm
2C	2.19×1.27mm
1H	1.78×1.78mm
2L	2.95×1.78mm
2E	2.29×2.29mm
3G	3.71×2.29mm

④ Temperature Characteristics

Code	Temperature Range	Capacitance Change
5C	-25 to 85°C	0±30ppm/°C
6U	-25 to 85°C	-750±60ppm/°C
7K	-25 to 85°C	-2200±500ppm/°C
B5	-25 to 85°C	±10%
F9	-25 to 85°C	+30,-80%
W1	-25 to 85°C	+30,-90%

⑤ Capacitance

Expressed by three figures. The unit is pico-farad (pF). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two numbers. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

⑥ Capacitance Tolerance

Code	Capacitance Tolerance
B	±0.1pF
K	±10%
M	±20%
Z	+80%, -20%

⑦ Numbers of Electrode

Code	Number of Electrode
1	1
3	3
4	4
5	5

⑧ Individual Specification Code

Code	Individual Specification Code
000	Standard

⑨ Packaging

Code	Packaging
TC1	Tray

Coaxial Connectors (Chip Type Receptacle)

(Global Part Number) **MM** **7329** **-27** **00** **R** **A1**
① ② ③ ④ ⑤ ⑥

① Product ID

Product ID	
MM	Microwave Coaxial Connectors (Chip Type Receptacle)

② Series

Code	Series
3325	BFA Type Straight
3326	BFA Type Right Angle
7329	FSC Type
8430	SWD Type
9329	GSC Type

③ Individual Specification Code(1)

Code	Individual Specification Code(1)
-25	Discrete Terminal
-26	Switch Connector SMD Type
-27	Connector SMD Type

④ Individual Specification Code(2)

Code	Individual Specification Code(2)
00	Serial

⑤ Package Product ID

Code	Package Product ID
B	Bulk
R	Reel

⑥ Package Detail

Code	Package Detail
A1	FSC,SWD,GSC Type 1000pcs. /Reel (ø178mm)
B3	SWD Type, 3000pcs. /Reel (ø330mm)
B4	FSC Type, 4000pcs. /Reel (ø330mm)
B5	GSC Type, 5000pcs. /Reel (ø330mm)

Coaxial Connectors (with Cable)

(Global Part Number) **MX** **FG** **76**
① ② ③ ④ ⑤ ⑥

① Product ID

Product ID	
MX	Coaxial Connectors (with Cable)

② Connector (1)

Code	Connector (1)
FG	FSC Type for 76 Cable
FK	FSC Type for 81 Cable
TK	GSC Type
YH	BFA Type

③ Cable

Code	Cable
62	0.8D,PE, Double Shield Line
63	0.8D,PE, Single Shield Line
75	0.8D,FEP, Double Shield Line
76	0.8D,FEP, Single Shield Line
81	0.4D,FEP, Single Shield Line
88	0.4D,PFA, Single Shield Line, Single Line
92	0.4D,PFA, Single Shield Line, Spiral

④ Connector (2)

Code	Connector (2)
FG	FSC Type for 76 Cable
FK	FSC Type for 81 Cable
TK	GSC Type
YH	BFA Type
XX	None Connector

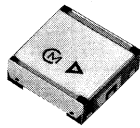
⑤ Length

Expressed by four figures.

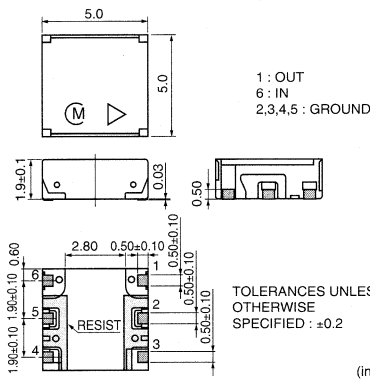
⑥ Individual Specification Code

Expressed by two figures.

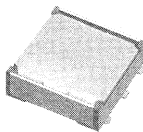
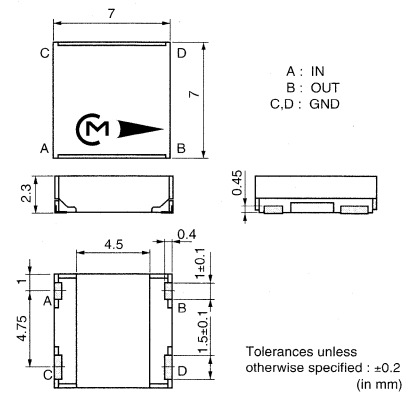
Isolators



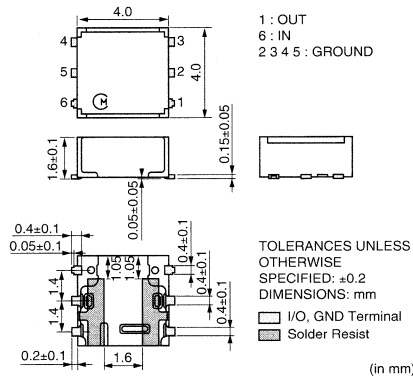
CE053 Series



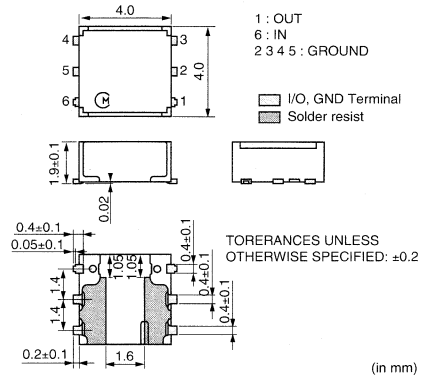
CE073 Series



CE041 Series



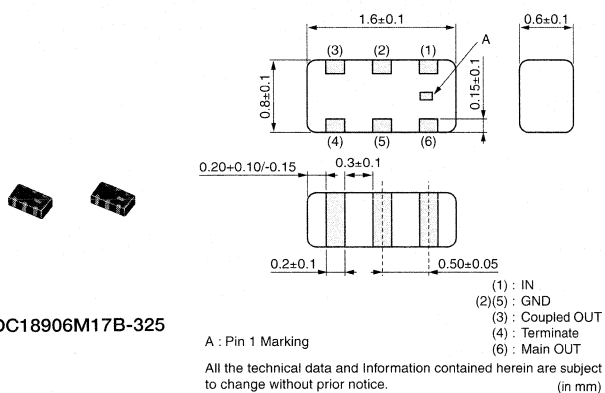
CE040 Series



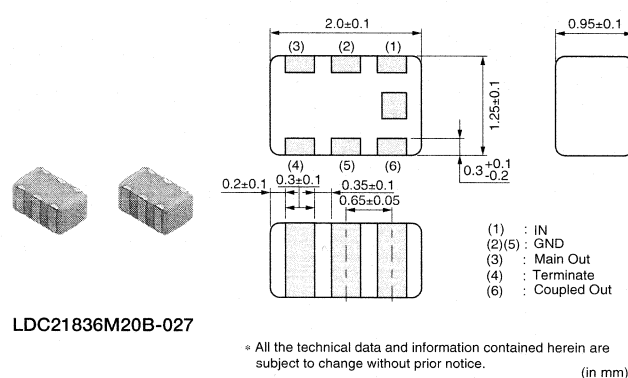
Part Number	Fo (MHz)	IL at BW (dB)	Isolation (dB)	Rating Power (W)
CE053836MDCB000	836.5	0.65 max.	13 min.	2.5 max.
CE073836MDCB000	836.5	0.65 max.	13 min.	2.5 max.
CE053906MDCB000	906	0.70 max.	11 min.	2.5 max.
CE073906MDCB000	906	0.65 max.	13 min.	2.5 max.
CE073942MDCB000	942.5	0.7 max.	13 min.	2.5 max.
CE0401G44CCB000	1441	0.50 max.	12 min.	2.5 max.
CE0411G44CCB000	1441	0.55 max.	12.0 min.	2.5 max.
CE0731G44CCB000	1441.0	0.6 max.	15 min.	2.5 max.
CE0731G74DCB000	1745	0.7 max.	13 min.	2.5 max.
CE0401G74DCB000	1747.5	0.7 max.	13 min.	2.5 max.
CE0401G76CCB000	1765.0	0.6 max.	15 min.	2.5 max.
CE0401G88DCB000	1880	0.6 max.	14 min.	2.5 max.
CE0411G88DCB000	1880	0.60 max.	13 min.	2.5 max.
CE0731G88DCB000	1880.0	0.6 max.	15 min.	2.5 max.
CE0731G89CCB000	1890	0.6 max.	15 min.	2.5 max.
CE0731G90CCB000	1907.5	0.6 max.	15 min.	2.5 max.
CE0401G95DCB000	1950	0.55 max.	14 min.	2.5 max.
CE0411G95DCB000	1950	0.60 max.	13 min.	2.5 max.
CE0731G95DCB000	1950	0.6 max.	15 min.	2.5 max.
CE0731G96DCB000	1960	0.6 max.	15 min.	2.5 max.

Chip Multilayer Hybrid Couplers

Directional Coupler



LDC18906M17B-325



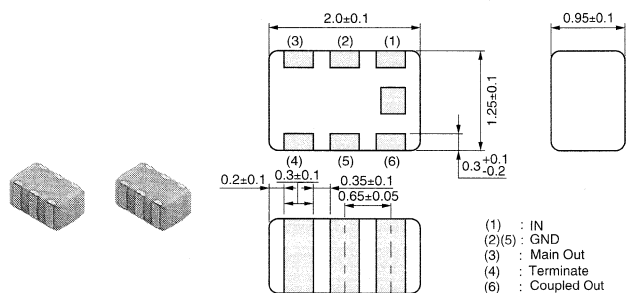
LDC21836M20B-027

Part Number	Frequency Range (MHz)	Coupling (dB)	Insertion Loss (dB)	Isolation (dB)	VSWR	Characteristic Impedance (ohm)	Power Capacity (W)
LDC18906M17B-325	906.0 ±19.0MHz	17.9 ±1.0dB	0.25 max. (at 25°C)	26.0 min.	1.4 max.	50 (Nominal)	3 max. (50ohm Load)
LDC181G4414B-325	1441.0 ±12.0MHz	14.1 ±1.0dB	0.42 max. (at 25°C)	23.0 min.	1.4 max.	50 (Nominal)	3 max. (50ohm Load)
LDC181G7420B-327	1747.5 ±37.5MHz	20.0 ±1.0dB	0.26 max. (at 25°C)	26.0 min.	1.4 max.	50 (Nominal)	3 max. (50ohm Load)
LDC182G4510B-325	2450.0 ±50.0MHz	10.0 ±1.0dB	0.74 max. (at 25°C)	23.0 min.	1.4 max.	50 (Nominal)	3 max. (50ohm Load)
LDC21836M20B-027	836.5 ±12.5MHz	20.6 ±1.0dB	0.15 max. (at 25°C)	28.0 min.	1.4 max.	50 (Nominal)	3 max. (50ohm Load)
LDC21897M20B-027	897.5 ±17.5MHz	20.0 ±1.0dB	0.16 max. (at 25°C)	27.5 min.	1.4 max.	50 (Nominal)	3 max. (50ohm Load)
LDC21924M19B-027	924.5 ±35.5MHz	19.8 ±1.2dB	0.17 max. (at 25°C)	26.5 min.	1.4 max.	50 (Nominal)	3 max. (50ohm Load)
LDC21950M19B-027	950.0 ±10.0MHz	19.6 ±1.0dB	0.17 max. (at 25°C)	26.5 min.	1.4 max.	50 (Nominal)	3 max. (50ohm Load)
LDC211G4416B-027	1441.0 ±12.0MHz	16.2 ±1.0dB	0.24 max. (at 25°C)	24.5 min.	1.4 max.	50 (Nominal)	1 max. (50ohm Load)
LDC211G7412B-032	1747.5 ±37.5MHz	12.8 ±1.0dB	0.50 max. (at 25°C)	20.3 min.	1.4 max.	50 (Nominal)	1 max. (50ohm Load)
LDC211G8820B-042	1880.0 ±30.0MHz	20.0 ±1.0dB	0.23 max. (at 25°C)	26.0 min.	1.4 max.	50 (Nominal)	1 max. (50ohm Load)
LDC211G9014B-027	1907.5 ±12.5MHz	14.0 ±1.0dB	0.33 max. (at 25°C)	22.5 min.	1.4 max.	50 (Nominal)	1 max. (50ohm Load)
LDC211G9517B-031	1950.0 ±30.0MHz	17.3 ±1.0dB	0.27 max. (at 25°C)	21.0 min.	1.4 max.	50 (Nominal)	1 max. (50ohm Load)
LDC212G4518B-041	2450.0 ±50.0MHz	18.8 ±1.0dB	0.30 max. (at 25°C)	22.5 min.	1.4 max.	50 (Nominal)	1 max. (50ohm Load)

Operating Temperature Range : -40°C to +85°C

Chip Multilayer Hybrid Couplers

Couplers with Integrated LPF



LDC211G4417L-053

* All the technical data and information contained herein are subject to change without prior notice. (in mm)

Part Number	Frequency Range (MHz)	Coupling (dB)	Insertion Loss (dB)	Attenuation (Absolute Value) (dB)	Isolation (dB)	Characteristic Impedance (ohm)	Power Capacity (W)
LDC211G4417L-053	1441.0 ±12.0MHz	17.0 ±1.0dB	0.32 max. (at 25°C)	22.0 min. at 2858~2906MHz	27.0 min.	50 (Nominal)	3 max. (50ohm Load)
LDC211G7410H-057	1747.5 ±37.5MHz	10.0 ±1.5dB	0.95 max. (at 25°C)	22.0 min. at 3420~3570MHz	21.0 min.	50 (Nominal)	1 max. (50ohm Load)
LDC211G7420H-055	1747.5 ±37.5MHz	20.0 ±1.0dB	0.45 max. (at 25°C)	22.0 min. at 2x(fo±37.5)MHz	29.0 min.	50 (Nominal)	1 max. (50ohm Load)
LDC211G9518H-073	1950.0 ±30.0MHz	18.0 ±1.0dB	0.45 max. (at 25°C)	24.0 min. at 2x(fo±30.0)MHz	30.0 min.	50 (Nominal)	1 max. (50ohm Load)
LDC212G4520H-151	2450.0 ±50.0MHz	20.0 ±1.0dB	0.30 max. (at 25°C)	25.0 min. at 2xfoMHz	29.0 min.	50 (Nominal)	1 max. (50ohm Load)

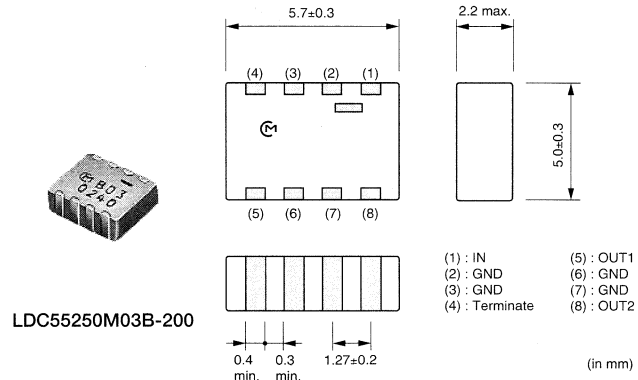
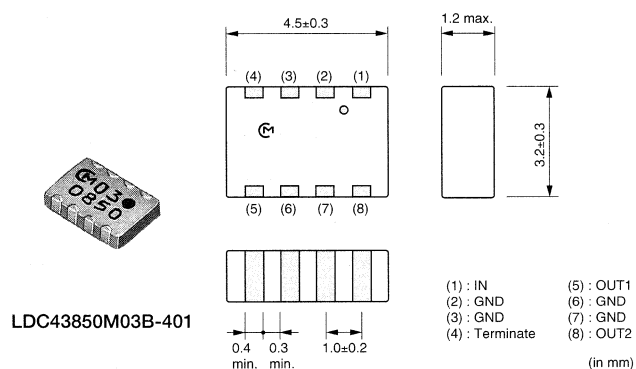
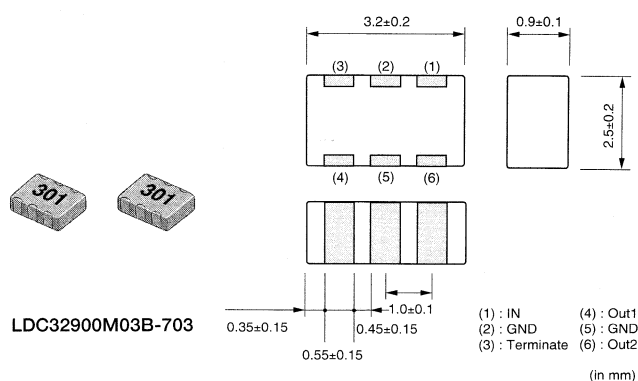
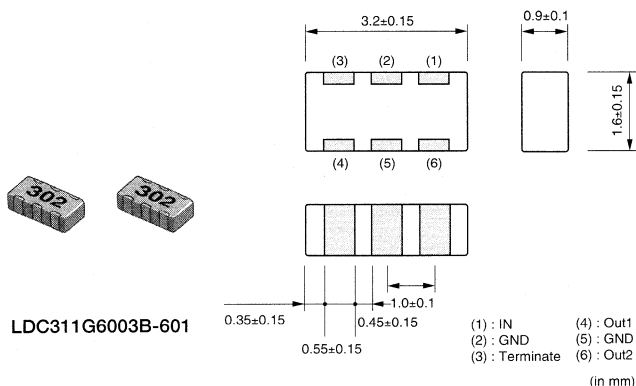
Continued on the following page.

Continued from the preceding page.

Part Number	Frequency Range (MHz)	Coupling (dB)	Insertion Loss (dB)	Attenuation (Absolute Value) (dB)	Isolation (dB)	Characteristic Impedance (ohm)	Power Capacity (W)
LDC21897M14H-058	897.5 ±17.5MHz	14.2 ±1.2dB	0.58 max. (at 25°C)	20.0 min. at 1760~1830MHz	25.0 min.	50 (Nominal)	3 max. (50ohm Load)
LDC21897M20H-056	897.0 ±17.5MHz	20.0 ±1.0dB	0.45 max. (at 25°C)	22.0 min. at 2x(fo±37.5)MHz	29.0 min.	50 (Nominal)	3 max. (50ohm Load)
LDC21926M19H-094	926.5 ±33.5MHz	19.3 ±1.3dB	0.45 max. (at 25°C)	23.0 min. at 2x(fo±33.5)MHz	29.0 min.	50 (Nominal)	3 max. (50ohm Load)

Chip Multilayer Hybrid Couplers

3dB Hybrid

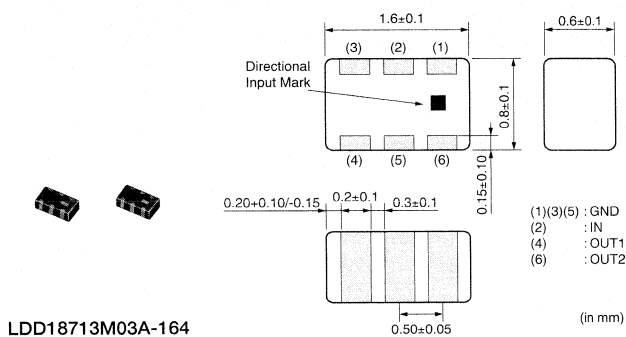


Part Number	Frequency Range (MHz)	Insertion Loss (dB)	Amplitude Balance (dB)	Phase Deviation (°)	Isolation (dB)	VSWR	Power Capacity (W)
LDC311G6003B-601	1500 to 1700	3.3 ±0.5dB	1.0 max.	90 ±3.0°	20.0 min.	1.5 max.	3 max. (50ohm Load)
LDC32900M03B-703	800 to 1000	3.3 ±0.5dB	1.0 max.	90 ±3.0°	20.0 min.	1.5 max.	3 max. (50ohm Load)
LDC43850M03B-401	750 to 950	3.0 +0.6/-0.2dB	0.8 max.	90 ±3.0°	20.0 min.	1.4 max.	3 max. (50ohm Load)
LDC55250M03B-200	220 to 280	3.0 +0.6/-0.2dB	0.8 max.	90 ±3.0°	20.0 min.	1.4 max.	3 max. (50ohm Load)

Characteristic Impedance : 50ohm (Nominal) Operating Temperature Range : -25°C to +85°C

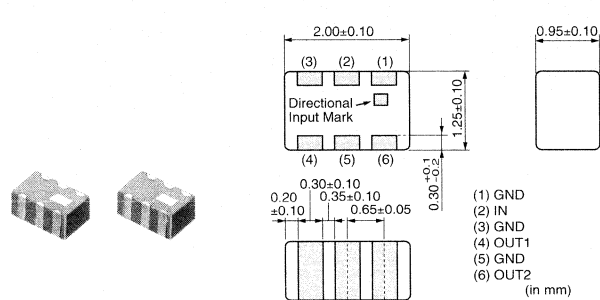
Chip Multilayer Hybrid Couplers

Hybrid Dividers



LDD18713M03A-164

100Ω external resistor is required between OUT1 and OUT2
All the technical data and information contained herein are subject to change without prior notice.



LDD211G6103A-095

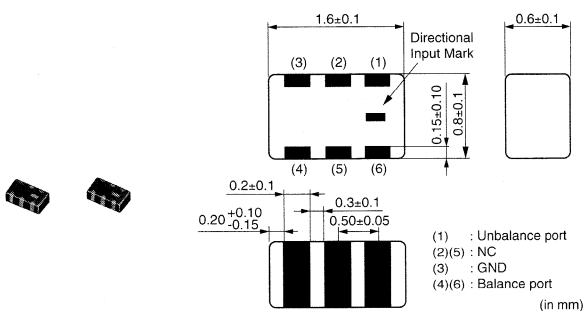
100ohm external resistor is required between Out 1 and Out 2.
All the technical data and information contained herein are subject to change without prior notice.

Part Number	Frequency Range (MHz)	Insertion Loss (OUT1,OUT2) (dB)	Isolation (dB)	VSWR
LDD18713M03A-164	713.0 ±38.0MHz	3.5 ±0.4dB	17.0 min.	1.6 max.
LDD211G6103A-095	1619.0 ±12.0MHz	3.4 ±0.4dB	17.0 min.	1.5 max.
LDD211G6603A-096	1660.0 ±13.5MHz	3.4 ±0.4dB	20.0 min.	1.5 max.
LDD211G7503A-067	1750.0 ±30.0MHz	3.4 ±0.4dB	20.0 min.	1.5 max.
LDD212G1403A-075	2140.0 ±30.0MHz	3.4 ±0.4dB	22.0 min.	1.5 max.
LDD21718M03A-060	718.5 ±38.0MHz	3.4 ±0.4dB	17.0 min.	1.5 max.
LDD21740M03A-077	740.0 ±19.0MHz	3.4 ±0.4dB	20.0 min.	1.5 max.
LDD21967M03A-068	967.0 ±13.0MHz	3.4 ±0.4dB	20.0 min.	1.5 max.

Characteristics Impedance : 50ohm (Nominal) Operating Temperature Range : -40°C to +85°C

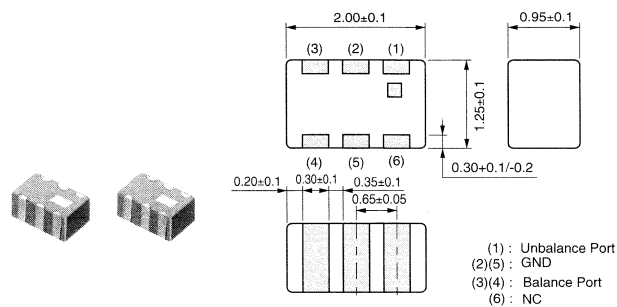
Chip Multilayer Hybrid Baluns

Chip Multilayer Hybrid Baluns



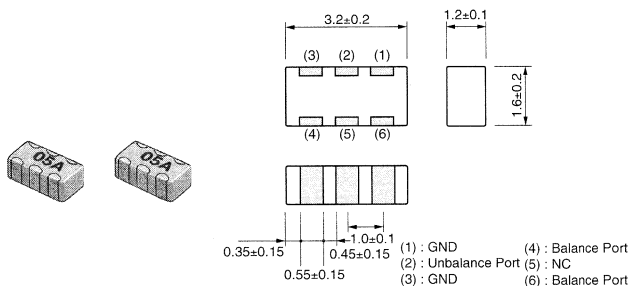
LDB18 Series

*Terminal of "NC" should be fixed to the no connected pattern.
All the technical and Information contained herein are subject to change without prior notice.



LDB21 Series

* Terminal of "NC" should be connected the floating land.
* All the technical data and information contained herein are subject to change without prior notice.



LDB31 Series

* Terminal of "NC" should be connected the floating land.
(in mm)

Microwave Components

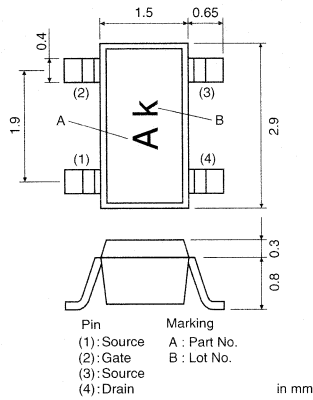
Part Number	Frequency Range (MHz)	Insertion Loss I) (dB)	Insertion Loss II) (dB)	Unbalance Impedance (ohm)	Balance Impedance (Differential) (ohm)
LDB181G8405C-110	1842.5 ±37.5MHz	1.2 max. (at 25°C)	1.3 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB211G6005C-001	1600 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB211G6010C-001	1600 ±100MHz	0.9 max. (at 25°C)	1.0 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB211G6020C-001	1600 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB211G8005C-001	1800 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB211G8010C-001	1800 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB211G8020C-001	1800 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB211G9005C-001	1900 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB211G9010C-001	1900 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB211G9020C-001	1900 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB212G4005C-001	2400 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB212G4010C-001	2400 ±100MHz	0.9 max. (at 25°C)	1.0 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB212G4020C-001	2400 ±100MHz	1.0 max. (at 25°C)	1.1 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB21836M20C-001	836.5 ±12.5MHz	1.0 max. (at 25°C)	1.1 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB21881M05C-001	881.5 ±12.5MHz	1.4 max. (at 25°C)	1.5 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB21881M20C-001	881.5 ±12.5MHz	1.4 max. (at 25°C)	1.5 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB21897M05C-001	897.5 ±17.5MHz	1.4 max. (at 25°C)	1.5 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB21906M05C-001	906.0 ±19.0MHz	1.4 max. (at 25°C)	1.5 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB21906M20C-001	906.0 ±19.0MHz	1.3 max. (at 25°C)	1.4 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB21924M05C-001	924.5 ±35.5MHz	1.3 max. (at 25°C)	1.4 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB21924M20C-001	924.5 ±35.5MHz	1.3 max. (at 25°C)	1.4 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB21942M05C-001	942.5 ±17.5MHz	1.4 max. (at 25°C)	1.5 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB21942M20C-001	942.5 ±17.5MHz	1.3 max. (at 25°C)	1.4 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB311G5005C-300	1500 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB311G5010C-300	1500 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB311G5020C-420	1500 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB311G6005C-300	1600 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB311G6010C-300	1600 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB311G6020C-300	1600 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB311G7005C-300	1700 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB311G7010C-300	1700 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB311G7020C-300	1700 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB311G8005C-300	1800 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB311G8010C-451	1800 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB311G8020C-300	1800 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB311G9005C-300	1900 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB311G9010C-440	1900 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB311G9020C-452	1900 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB312G4005C-300	2400 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB312G4010C-418	2400 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	100 (Nominal)
LDB312G4020C-301	2400 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)
LDB31900M05C-417	900 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	50 (Nominal)
LDB31900M20C-416	900 ±100MHz	0.8 max. (at 25°C)	0.9 max. (-25~+85°C)	50 (Nominal)	200 (Nominal)

Field-Effect Transistor (MESFET)

Low Noise Transistor



XMFS2-M1



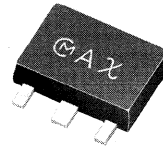
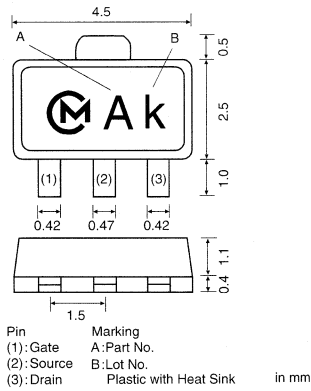
Part Number	Type	Application	Gain (dB)	Minimum Noise Figure (dB)	Output Power
XMFS2-M1	Low Noise Transistor	GPS Receiver, DBS Tuner, Wireless LAN	12 typ.	0.4 typ.	-
XMFS3-M1	Low Noise Transistor	GPS Receiver, DBS Tuner, Wireless LAN	15 typ.	0.4 typ.	-

Field-Effect Transistor (MESFET)

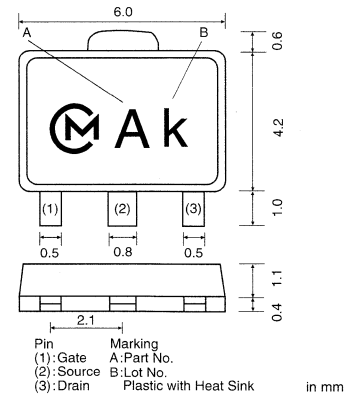
Power Transistor



XMFP1-M3

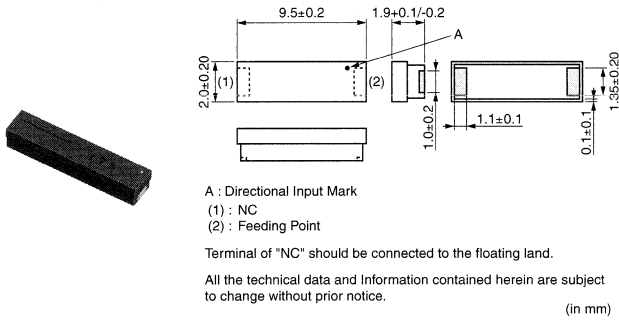


XMFP4-M4



Part Number	Type	Application	Gain (dB)	Minimum Noise Figure	Output Power (dBm)
XMFP1-M3	Power Transistor	GSM, DCS, DECT, PHS, PDC, PCS	16 typ.	-	23 typ.
XMFP2-M3	Power Transistor	GSM, DCS, DECT, PHS, PDC, PCS	15 typ.	-	26 typ.
XMFP3-M3	Power Transistor	GSM, DCS, DECT, PHS, PDC, PCS	12 typ.	-	30 typ.
XMFP4-M4	Power Transistor	GSM, DCS, DECT, PHS, PDC, PCS	15 typ.	-	35 typ.

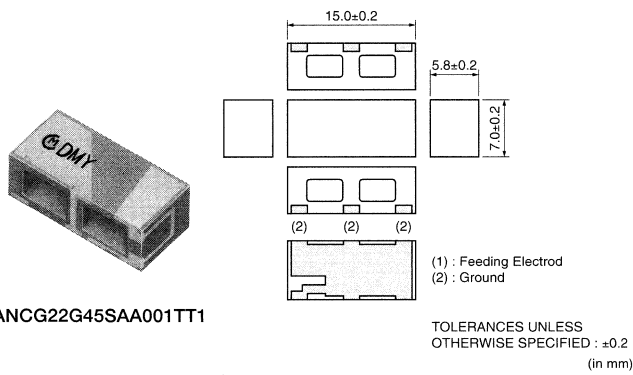
Chip Multilayer Antennas



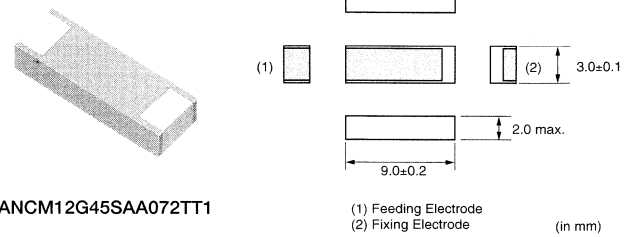
Part Number	Frequency Range
LDA92****20 TYPE	1.0GHz~2.5GHz

Specification : Please contact us for details.

Chip Dielectric Antennas



ANCG22G45SAA001TT1



ANCM12G45SAA072TT1

Part Number	Fo (MHz)	Bandwidth (MHz)	VSWR
ANCG22G45SAA001TT1	2450.0	100	2.0 max.
ANCM12G45SAA072TT1	2450.0	100	2.0 max.

Dielectric Resonators (RESOMICS®)

TE_{01δ} Mode Resonators



DRD Type



DRT Type

● Available Range by Every Material

Material	ϵ_r	Q min at Measured Freq.	Available Range of τf (ppm/°C)	τf Tolerance (ppm/°C)	Available Range of Freq. (GHz)
F Series	24	30,000 (10GHz)	0 to +4	$\pm 2, \pm 1$	10.0 to 25.1
E Series	24	20,000 (10GHz)	0 to +6	$\pm 2, \pm 1$	8.4 to 25.1
B Series	28	15,000 (10GHz)	0 to +6	$\pm 2, \pm 1, \pm 0.5$	4.8 to 25.9
R Series	30	12,000 (10GHz)	0 to +6	$\pm 2, \pm 1, \pm 0.5$	4.6 to 24.2
V Series	34	10,000 (10GHz)	0 to +8	$\pm 2, \pm 1, \pm 0.5$	2.9 to 13.2
M Series	38	7,000 (7GHz)	0 to +6	$\pm 2, \pm 1, \pm 0.5$	1.5 to 12.4
U Series	38	6,000 (7GHz)	-4 to +10	$\pm 2, \pm 1, \pm 0.5$	1.5 to 12.4
K Series	92	1,500 (3GHz)	+3	± 3	0.6 to 3.0

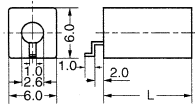
TE mode resonator with support and frequency-adjusted resonators are available.

Dielectric Resonators (RESOMICS®)

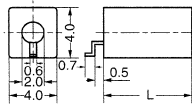
TEM Mode Resonators



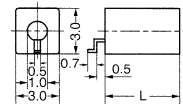
DRR060 Type
Copper



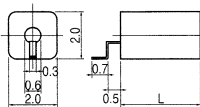
DRR040 Type
Copper



DRR030 Type
Copper



DRR020 Type
Copper



L : Depends on frequency.
in mm

Microwave Components

● Available Range of TEM Mode Resonators

Electrode	Material	ϵr	$\tau f^{(1)}$ (ppm/°C)	Type	Characteristic Impedance	Resonant Wave Length	Frequency Range ²⁾ (MHz)	Qu min ³⁾			
Copper	P	21.4±0.2	4±2	DRR060	6Ω	λ/4	1,000 to 1,190	550			
							1,200 to 1,790	600			
							1,800 to 2,700	650			
						λ/2	2,000 to 2,490	800			
							2,500 to 3,000	850			
				DRR040	10Ω	λ/4	1,300 to 1,490	350			
							1,500 to 1,990	400			
							2,000 to 3,000	450			
						λ/2	2,500 to 3,000	550			
							DRR030	15Ω	λ/4	1,900 to 2,490	380
	DRR020	15Ω	λ/4	2,500 to 3,000	400						
				2,800 to 3,500	250						
				3,510 to 5,000	300						
				K	92±1	3±2	DRR060	6Ω	λ/4	440 to 490	330
										500 to 790	350
	800 to 1,300	400									
	λ/2	1,000 to 1,690	470								
		1,700 to 2,200	510								
	DRR040	5Ω	λ/4				500 to 540	200			
							550 to 640	220			
650 to 790							240				
800 to 890							260				
900 to 1,490							270				
DRR030	7Ω	λ/4	1,500 to 1,800	290							
			1,000 to 1,390	300							
			1,400 to 1,890	340							
			1,900 to 3,000	370							
			900 to 1,490	230							
DRR020	8Ω	λ/4	1,500 to 1,600	250							
			900 to 1,590	150							
			1,600 to 2,600	190							
			U	38±1	3±2	DRR060	8Ω	λ/4	680 to 1,540	450	
									1,550 to 1,800	550	
λ/2	1,600 to 2,390	700									
DRR040	7Ω	λ/4						2,400 to 3,500	800		
								1,000 to 1,990	360		
DRR030	7Ω	λ/4	2,000 to 2,700	400							
			λ/2	2,000 to 2,990	480						
				3,000 to 4,800	520						

1) Frequency temperature coefficient.

2) Tolerance of resonant frequency (P : ±0.7%max., U : ±0.5%max., K : ±0.7%max.).

3) Qu value depends on lower limit of frequency range.

High-Frequency Monolithic Ceramic Capacitors

High Frequency for Flow/Reflow Soldering


Part Number	GQM18		GQM21	
L x W	1.60x0.80		2.00x1.25	
TC	COG (5C)		COG (5C)	
Rated Volt.	50 (1H)	100 (2A)	50 (1H)	100 (2A)
Capacitance and T Dimension				
0.5pF(R50)		0.80(8)		0.85(9)
0.75pF(R75)		0.80(8)		0.85(9)
1.0pF(1R0)		0.80(8)		0.85(9)
1.1pF(1R1)		0.80(8)		0.85(9)
1.2pF(1R2)		0.80(8)		0.85(9)
1.3pF(1R3)		0.80(8)		0.85(9)
1.5pF(1R5)		0.80(8)		0.85(9)
1.6pF(1R6)		0.80(8)		0.85(9)
1.8pF(1R8)		0.80(8)		0.85(9)
2.0pF(2R0)		0.80(8)		0.85(9)
2.2pF(2R2)		0.80(8)		0.85(9)
2.4pF(2R4)		0.80(8)		0.85(9)
2.7pF(2R7)		0.80(8)		0.85(9)
3.0pF(3R0)		0.80(8)		0.85(9)
3.3pF(3R3)		0.80(8)		0.85(9)
3.6pF(3R6)		0.80(8)		0.85(9)
3.9pF(3R9)		0.80(8)		0.85(9)
4.0pF(4R0)		0.80(8)		0.85(9)
4.3pF(4R3)		0.80(8)		0.85(9)
4.7pF(4R7)		0.80(8)		0.85(9)
5.0pF(5R0)		0.80(8)		0.85(9)
5.1pF(5R1)		0.80(8)		0.85(9)
5.6pF(5R6)		0.80(8)		0.85(9)
6.0pF(6R0)		0.80(8)		0.85(9)
6.2pF(6R2)		0.80(8)		0.85(9)
6.8pF(6R8)		0.80(8)		0.85(9)
7.0pF(7R0)	0.80(8)			0.85(9)
7.5pF(7R5)	0.80(8)			0.85(9)
8.0pF(8R0)	0.80(8)			0.85(9)
8.2pF(8R2)	0.80(8)			0.85(9)
9.0pF(9R0)	0.80(8)			0.85(9)
9.1pF(9R1)	0.80(8)			0.85(9)
10.0pF(100)	0.80(8)			0.85(9)
11pF(110)	0.80(8)			0.85(9)
12pF(120)	0.80(8)			0.85(9)
13pF(130)	0.80(8)			0.85(9)
15pF(150)	0.80(8)			0.85(9)
16pF(160)	0.80(8)			0.85(9)
18pF(180)	0.80(8)			0.85(9)
20pF(200)	0.80(8)		0.85(9)	
22pF(220)	0.80(8)		0.85(9)	
24pF(240)	0.80(8)		0.85(9)	
27pF(270)			0.85(9)	
30pF(300)			0.85(9)	
33pF(330)			0.85(9)	
36pF(360)			0.85(9)	
39pF(390)			0.85(9)	
43pF(430)			0.85(9)	
47pF(470)			0.85(9)	

The part numbering code is shown in (). Dimensions are shown in mm and Rated Voltage in Vdc.

High-Frequency Monolithic Ceramic Capacitors

High-Q & High Power Type

Part Number	ERF1D	ERF22					ERH1X	ERH3X				
L x W	1.40x1.40	2.80x2.80					1.60x1.40	3.20x2.80				
TC	C0G (5C)	C0G (5C)					C0G (5C)	C0G (5C)				
Rated Volt.	50 (1H)	50 (1H)	100 (2A)	200 (2D)	300 (YD)	500 (2H)	50 (1H)	50 (1H)	100 (2A)	200 (2D)	300 (YD)	500 (2H)
Capacitance and T Dimension												
0.5pF(R50)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
0.6pF(R60)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
0.7pF(R70)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
0.8pF(R80)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
0.9pF(R90)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.0pF(1R0)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.1pF(1R1)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.2pF(1R2)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.3pF(1R3)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.4pF(1R4)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.5pF(1R5)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.6pF(1R6)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.7pF(1R7)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.8pF(1R8)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
1.9pF(1R9)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
2.0pF(2R0)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
2.1pF(2R1)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
2.2pF(2R2)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
2.4pF(2R4)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
2.7pF(2R7)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
3.0pF(3R0)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
3.3pF(3R3)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
3.6pF(3R6)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
3.9pF(3R9)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
4.3pF(4R3)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
4.7pF(4R7)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
5.1pF(5R1)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
5.6pF(5R6)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
6.2pF(6R2)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
6.8pF(6R8)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
7.5pF(7R5)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
8.2pF(8R2)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
9.1pF(9R1)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
10.0pF(100)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
11pF(110)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
12pF(120)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
13pF(130)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
15pF(150)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
16pF(160)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
18pF(180)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
20pF(200)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
22pF(220)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
24pF(240)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
27pF(270)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
30pF(300)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
33pF(330)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
36pF(360)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
39pF(390)	1.15(M)					2.30(X)	1.60(C)					3.00(X)
43pF(430)	1.15(M)					2.30(X)	1.60(C)					3.00(X)

Continued on the following page. 

Continued from the preceding page.

Part Number	ERF1D		ERF22					ERH1X		ERH3X				
L x W	1.40x1.40		2.80x2.80					1.60x1.40		3.20x2.80				
TC	C0G (5C)		C0G (5C)					C0G (5C)		C0G (5C)				
Rated Volt.	50 (1H)	50 (1H)	100 (2A)	200 (2D)	300 (YD)	500 (2H)	50 (1H)	50 (1H)	100 (2A)	200 (2D)	300 (YD)	500 (2H)		
Capacitance and T Dimension														
47pF(470)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
51pF(510)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
56pF(560)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
62pF(620)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
68pF(680)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
75pF(750)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
82pF(820)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
91pF(910)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
100pF(101)	1.15(M)					2.30(X)	1.60(C)					3.00(X)		
110pF(111)					2.30(X)							3.00(X)		
120pF(121)					2.30(X)							3.00(X)		
130pF(131)					2.30(X)							3.00(X)		
150pF(151)					2.30(X)							3.00(X)		
160pF(161)					2.30(X)							3.00(X)		
180pF(181)					2.30(X)							3.00(X)		
200pF(201)					2.30(X)							3.00(X)		
220pF(221)				2.30(X)						3.00(X)				
240pF(241)				2.30(X)						3.00(X)				
270pF(271)				2.30(X)						3.00(X)				
300pF(301)				2.30(X)						3.00(X)				
330pF(331)				2.30(X)						3.00(X)				
360pF(361)				2.30(X)						3.00(X)				
390pF(391)				2.30(X)						3.00(X)				
430pF(431)				2.30(X)						3.00(X)				
470pF(471)				2.30(X)						3.00(X)				
510pF(511)			2.30(X)						3.00(X)					
560pF(561)			2.30(X)						3.00(X)					
620pF(621)			2.30(X)						3.00(X)					
680pF(681)			2.30(X)						3.00(X)					
750pF(751)		2.30(X)							3.00(X)					
820pF(821)		2.30(X)							3.00(X)					
910pF(911)		2.30(X)							3.00(X)					
1000pF(102)		2.30(X)							3.00(X)					

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

High-Frequency Monolithic Ceramic Capacitors

High Frequency Type

Part Number	ERA11			ERA21			ERA32			ERD32		
L x W	1.25x1.00			2.00x1.25			3.20x2.50			4.00x3.00		
TC	C0G (5C)			C0G (5C)			C0G (5C)			C0G (5C)		
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)
Capacitance and T Dimension												
0.5pF(R50)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
0.6pF(R60)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
0.7pF(R70)			1.00(A)			1.00(A)			1.70(X)			2.30(D)

Continued on the following page. ↗

Microwave Components

Continued from the preceding page.

Part Number	ERA11			ERA21			ERA32			ERD32		
L x W	1.25x1.00			2.00x1.25			3.20x2.50			4.00x3.00		
TC	C0G (5C)			C0G (5C)			C0G (5C)			C0G (5C)		
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)
Capacitance and T Dimension												
0.8pF(R80)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
0.9pF(R90)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.0pF(1R0)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.1pF(1R1)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.2pF(1R2)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.3pF(1R3)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.4pF(1R4)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.5pF(1R5)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.6pF(1R6)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.7pF(1R7)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.8pF(1R8)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
1.9pF(1R9)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
2.0pF(2R0)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
2.1pF(2R1)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
2.2pF(2R2)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
2.4pF(2R4)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
2.7pF(2R7)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
3.0pF(3R0)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
3.3pF(3R3)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
3.6pF(3R6)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
3.9pF(3R9)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
4.3pF(4R3)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
4.7pF(4R7)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
5.1pF(5R1)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
5.6pF(5R6)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
6.2pF(6R2)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
6.8pF(6R8)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
7.5pF(7R5)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
8.2pF(8R2)			1.00(A)			1.00(A)			1.70(X)			2.30(D)
9.1pF(9R1)			1.00(A)			1.25(B)			1.70(X)			2.30(D)
10pF(100)			1.00(A)			1.25(B)			1.70(X)			2.30(D)
11pF(110)			1.00(A)			1.25(B)			1.70(X)			2.30(D)
12pF(120)			1.00(A)			1.25(B)			1.70(X)			2.30(D)
13pF(130)			1.00(A)			1.25(B)			1.70(X)			2.30(D)
15pF(150)		1.00(A)				1.25(B)			1.70(X)			2.30(D)
16pF(160)		1.00(A)				1.25(B)			1.00(X)			2.30(D)
18pF(180)		1.00(A)				1.25(B)			1.70(X)			2.30(D)
20pF(200)		1.00(A)				1.25(B)			1.70(X)			2.30(D)
22pF(220)		1.00(A)				1.25(B)			1.70(X)			2.30(D)
24pF(240)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
27pF(270)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
30pF(300)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
33pF(330)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
36pF(360)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
39pF(390)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
43pF(430)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
47pF(470)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
51pF(510)	1.00(A)					1.25(B)			1.70(X)			2.30(D)
56pF(560)						1.25(B)			1.70(X)			2.30(D)
62pF(620)						1.25(B)			1.70(X)			2.30(D)
68pF(680)						1.25(B)			1.70(X)			2.30(D)

Continued on the following page. ↗

Continued from the preceding page.

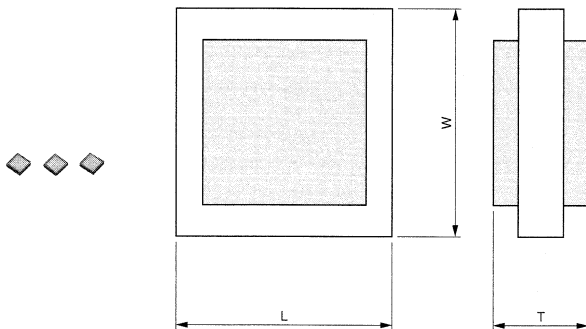
Part Number	ERA11			ERA21			ERA32			ERD32		
L x W	1.25x1.00			2.00x1.25			3.20x2.50			4.00x3.00		
TC	C0G (5C)			C0G (5C)			C0G (5C)			C0G (5C)		
Rated Volt.	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)	50 (1H)	100 (2A)	200 (2D)
Capacitance and T Dimension												
75pF(750)					1.25(B)					1.70(X)		2.30(D)
82pF(820)					1.25(B)					1.70(X)		2.30(D)
91pF(910)					1.25(B)					1.70(X)		2.30(D)
100pF(101)				1.00(A)						1.70(X)		2.30(D)
110pF(111)				1.25(B)						1.70(X)		2.30(D)
120pF(121)				1.25(B)						1.70(X)		2.30(D)
130pF(131)				1.25(B)						1.70(X)		2.30(D)
150pF(151)				1.25(B)						1.70(X)		2.30(D)
160pF(161)				1.25(B)						1.70(X)		2.30(D)
180pF(181)									1.70(X)		2.30(D)	
200pF(201)									1.70(X)		2.30(D)	
220pF(221)									1.70(X)		2.30(D)	
240pF(241)									1.70(X)		2.30(D)	
270pF(271)									1.70(X)		2.30(D)	
300pF(301)									1.70(X)		2.30(D)	
330pF(331)									1.70(X)		2.30(D)	
360pF(361)									1.70(X)		2.30(D)	
390pF(391)									1.70(X)		2.30(D)	
430pF(431)									1.70(X)		2.30(D)	
470pF(471)									1.70(X)		2.30(D)	
510pF(511)									1.70(X)		2.30(D)	
560pF(561)								1.70(X)			2.30(D)	
620pF(621)								1.70(X)			2.30(D)	
680pF(681)								1.70(X)			2.30(D)	
750pF(751)								1.70(X)			2.30(D)	
820pF(821)								1.70(X)			2.30(D)	
910pF(911)								1.70(X)			2.30(D)	
1000pF(102)								1.70(X)			2.30(D)	

The part numbering code is shown in ().

Dimensions are shown in mm and Rated Voltage in Vdc.

High-Frequency Microchip Capacitors

● Temperature Compensating Type



Part Number	Capacitance at 25C°	Temperature Coefficient (ppm/°C)	Rated Voltage (Vdc)
CLB0A	0.1pF	0±30ppm/°C	100
CLB0C	0.2pF	0±30ppm/°C	100
CLB0D	0.2pF	0±30ppm/°C	100
CLB0E	0.5pF	0±30ppm/°C	100
CLB0H	0.7pF	0±30ppm/°C	100
CLB05	0.3pF	0±30ppm/°C	100
CLB0G	0.7pF to 1.0pF	0±30ppm/°C	100
CLB0F	0.3pF to 1.0pF	0±30ppm/°C	100
CLB1A	1.1pF	0±30ppm/°C	100
CLB0J	0.4pF to 1.0pF	0±30ppm/°C	100
CLB1B	1.5pF to 2.0pF	0±30ppm/°C	100
CLB09	0.5pF to 1.0pF	0±30ppm/°C	100
CLB1E	2.0pF	0±30ppm/°C	100
CLB1C	1.0pF to 3.0pF	0±30ppm/°C	100
CLB1G	3.9pF to 4.3pF	0±30ppm/°C	100
CLB2C	5.1pF	0±30ppm/°C	100
CLB1H	1.8pF to 6.2pF	0±30ppm/°C	100
CLB2L	7.5pF to 10pF	0±30ppm/°C	100
CLB2E	3.0pF	0±30ppm/°C	100
CLB2E	3.3pF	0±30ppm/°C	100
CLB2E	3.6pF	0±30ppm/°C	100
CLB2E	3.9pF to 10pF	0±30ppm/°C	100
CLB3G	11pF to 16pF	0±30ppm/°C	100
CLB0A	0.3pF	-750±60ppm/°C	100
CLB0B	0.8pF	-750±60ppm/°C	100
CLB0C	0.9pF	-750±60ppm/°C	100
CLB0D	0.9pF to 1.0pF	-750±60ppm/°C	100
CLB0E	1.8pF to 2.0pF	-750±60ppm/°C	100
CLB0H	2.7pF	-750±60ppm/°C	100
CLB05	0.7pF	-750±60	100
CLB05	1.0pF to 2.0pF	-750±60ppm/°C	100
CLB0G	2.7pF to 3.0pF	-750±60ppm/°C	100
CLB0F	2.0pF to 4.3pF	-750±60ppm/°C	100
CLB1A	4.7pF to 6.2pF	-750±60ppm/°C	100
CLB0J	3.0pF to 6.2pF	-750±60ppm/°C	100
CLB1B	6.8pF to 7.5pF	-750±60ppm/°C	100
CLB0K	1.5pF	-750±60	100
CLB09	3.0pF	-750±60	100
CLB09	3.3pF to 6.2pF	-750±60ppm/°C	100
CLB1E	7.5pF to 9.1pF	-750±60ppm/°C	100
CLB1C	7.5pF	-750±60ppm/°C	100
CLB1C	8.2pF to 15pF	-750±60ppm/°C	100
CLB1G	16pF to 20pF	-750±60ppm/°C	100
CLB1H	13pF to 27pF	-750±60ppm/°C	100
CLB2L	30pF to 39pF	-750±60ppm/°C	100
CLB2E	20pF to 24pF	-750±60ppm/°C	100
CLB2E	27pF	-750±60ppm/°C	100
CLB2E	30pF to 39pF	-750±60ppm/°C	100
CLB2E	43pF	-750±60ppm/°C	100
CLB3G	47pF to 56pF	-750±60ppm/°C	100
CLB0A	0.8pF to 1.0pF	-2200±500ppm/°C	100
CLB0B	1.5pF	-2200±500ppm/°C	100
CLB0C	1.8pF	-2200±500ppm/°C	100
CLB0D	1.8pF to 3.0pF	-2200±500ppm/°C	100
CLB0E	3.3pF to 4.3pF	-2200±500ppm/°C	100
CLB0H	4.7pF to 5.1pF	-2200±500ppm/°C	100

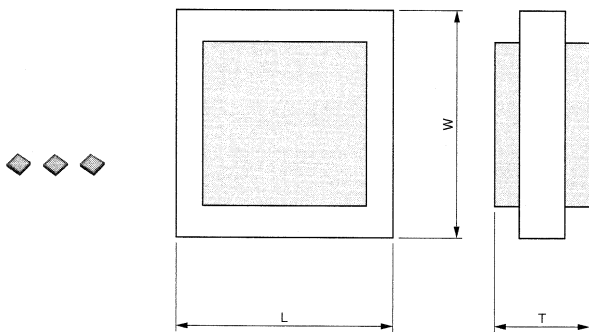
Continued on the following page.

Continued from the preceding page.

Part Number	Capacitance at 25C°	Temperature Coefficient (ppm/°C)	Rated Voltage (Vdc)
CLB05	1.5pF	-2200±500	100
CLB05	2.2pF to 4.3pF	-2200±500ppm/°C	100
CLB0G	5.1pF	-2200±500ppm/°C	100
CLB0F	3.6pF to 7.5pF	-2200±500ppm/°C	100
CLB1A	8.2pF to 11pF	-2200±500ppm/°C	100
CLB0J	5.6pF to 11pF	-2200±500ppm/°C	100
CLB1B	12pF to 15pF	-2200±500ppm/°C	100
CLB0K	3.0pF	-2200±500	100
CLB09	5.9pF	-2200±500	100
CLB09	6.2pF to 13pF	-2200±500ppm/°C	100
CLB1E	15pF to 18pF	-2200±500ppm/°C	100
CLB1C	15pF to 27pF	-2200±500ppm/°C	100
CLB1G	30pF to 36pF	-2200±500ppm/°C	100
CLB1H	27pF to 47pF	-2200±500ppm/°C	100
CLB2L	51pF to 75pF	-2200±500ppm/°C	100
CLB2E	39pF	-2200±500ppm/°C	100
CLB2E	43pF to 62pF	-2200±500ppm/°C	100
CLB2E	68pF to 75pF	-2200±500ppm/°C	100
CLB3G	82pF to 91pF	-2200±500ppm/°C	100
CLB3G	100pF to 110pF	-2200±500ppm/°C	100

Capacitance value steps are in accordance with EIA E24 steps. However, capacitance values below 1pF are treated as belonging to 0.1pF step. Please refer to LxW size in "Global Part Numbering" guidance page.

● High Dielectric Constant Type



Part Number	Capacitance at 25C° (pF)	Temperature Coefficient	Rated Voltage (Vdc)
CLB0A	2.0 to 12	±10%	100
CLB0B	3.3 to 15	±10%	100
CLB0C	3.9 to 18	±10%	100
CLB0D	5.1 to 30	±10%	100
CLB0E	8.2 to 43	±10%	100
CLB0H	47 to 56	±10%	100
CLB05	5.6 to 43	±10%	100
CLB0G	47 to 68	±10%	100
CLB0F	10 to 75	±10%	100
CLB1A	82 to 120	±10%	100
CLB0J	15 to 110	±10%	100
CLB1B	120 to 130	±10%	100
CLB09	16 to 130	±10%	100
CLB1E	150 to 180	±10%	100
CLB1C	33 to 270	±10%	100
CLB1G	68 to 360	±10%	100

Continued on the following page. ↗

Microwave Components

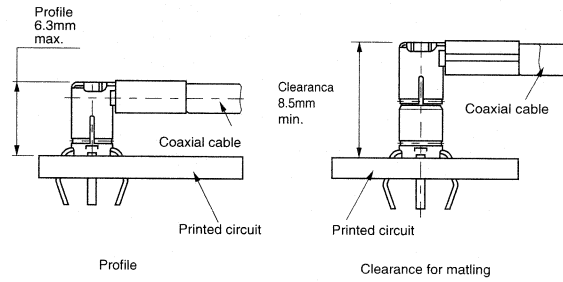
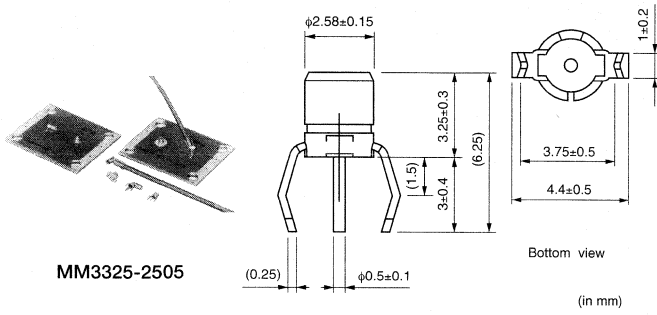
Continued from the preceding page.

Part Number	Capacitance at 25C° (pF)	Temperature Coefficient	Rated Voltage (Vdc)
CLB2C	390	±10%	100
CLB1H	62 to 470	±10%	100
CLB2L	510 to 750	±10%	100
CLB2E	91	±10%	100
CLB2E	100 to 150	±10%	100
CLB2E	160 to 220	±10%	100
CLB2E	240	±10%	100
CLB2E	270 to 300	±10%	100
CLB2E	330	±10%	100
CLB2E	360	±10%	100
CLB2E	390	±10%	100
CLB2E	430 to 680	±10%	100
CLB2E	750	±10%	100
CLB3G	820 to 910	±10%	100
CLB3G	1000 to 1200	±10%	100
CLB0A	27 to 33	+30,-80%	100
CLB0B	36 to 39	+30,-80%	100
CLB0C	43 to 51	+30,-80%	100
CLB0D	62 to 82	+30,-80%	100
CLB0E	91 to 120	+30,-80%	100
CLB0H	130 to 150	+30,-80%	100
CLB05	75 to 130	+30,-80%	100
CLB0G	150 to 200	+30,-80%	100
CLB0F	130 to 220	+30,-80%	100
CLB1A	240 to 360	+30,-80%	100
CLB0J	200 to 300	+30,-80%	100
CLB1B	330 to 390	+30,-80%	100
CLB09	200 to 390	+30,-80%	100
CLB1E	430 to 560	+30,-80%	100
CLB1C	430 to 750	+30,-80%	100
CLB1G	820 to 1000	+30,-80%	100
CLB2C	1100 to 1300	+30,-80%	100
CLB1H	750 to 1300	+30,-80%	100
CLB2L	1500 to 1800	+30,-80%	100
CLB2E	1200	+30,-80%	100
CLB2E	1300 to 1500	+30,-80%	100
CLB2E	1600 to 2200	+30,-80%	100
CLB3G	2400 to 3000	+30,-80%	100
CLB0A	36 to 56	+30,-90%	100
CLB0D	91 to 150	+30,-90%	100
CLB05	130 to 220	+30,-90%	100
CLB0F	220 to 390	+30,-90%	100
CLB0J	330 to 560	+30,-90%	100
CLB09	390 to 680	+30,-90%	100
CLB1C	820 to 1300	+30,-90%	100
CLB1H	1500 to 2700	+30,-90%	100
CLB2E	2400 to 4300	+30,-90%	100

Capacitance value steps are in accordance with EIA E24 steps.
Please refer to LxW size in "Global Part Numbering" guidance page.

Coaxial Connectors

Dimensions

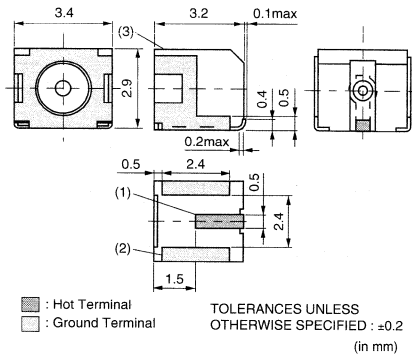


MM3325-2505

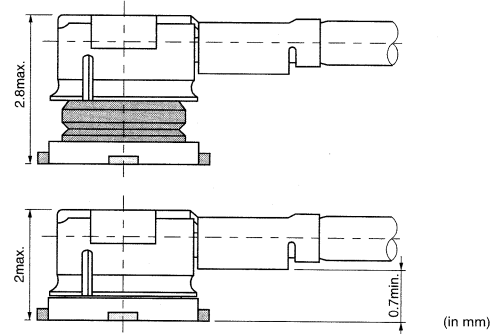
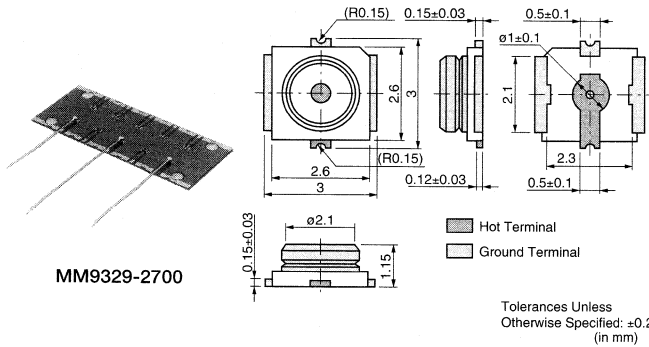
(in mm)



MM7329-2702



Dimension

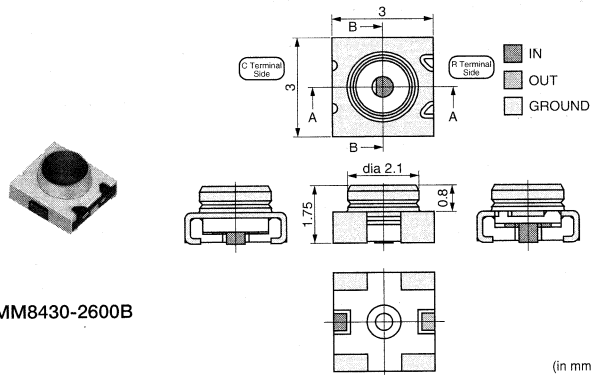


MM9329-2700

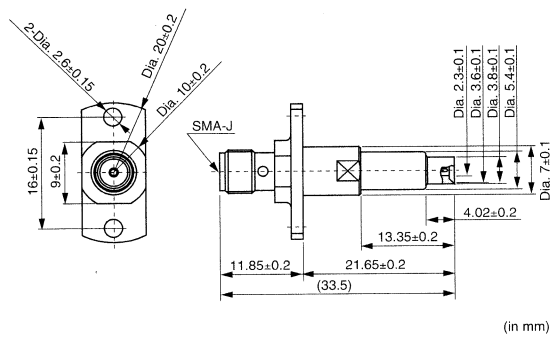
Part Number	Rated Voltage (V)	Frequency Rating (GHz)	Temperature Range	VSWR
MM3325-2505	250	DC - 4.0	-40~+90 degree C	1.2 max.
MM3325-2507	250	DC - 4.0	-40~+90 degree C	1.2 max.
MM3326-2506	250	DC - 2.0	-40~+90 degree C	1.2 max.
MM7329-2700B	250	DC - 3.0	-40~+90 degree C	1.3 max.
MM7329-2702B	250	DC - 3.0	-40~+90 degree C	1.3 max.
MM9329-2700B	250	DC - 6.0	-40~+90 degree C	1.2 max.(DC~3GHz)
MXFG76 TYPE	250	DC - 3.0	-40 to +90 degree C	1.3 max.
MXFK81 TYPE	250	DC - 3.0	-40 to +90 degree C	1.3 max.
MXTK88 TYPE	250	DC - 6.0	-40 to +90 degree C	1.2 max. (DC to 3GHz)
MXTK92 TYPE	250	DC - 6.0	-40 to +90 degree C	1.2 max. (DC to 3GHz)
MXYP62 TYPE	250	DC - 4.0	-40 to +90 degree C	1.2 max.
MXYP63 TYPE	250	DC - 4.0	-40 to +90 degree C	1.2 max.
MXYP75 TYPE	250	DC - 4.0	-40 to +90 degree C	1.2 max.

Impedance : 50 ohm

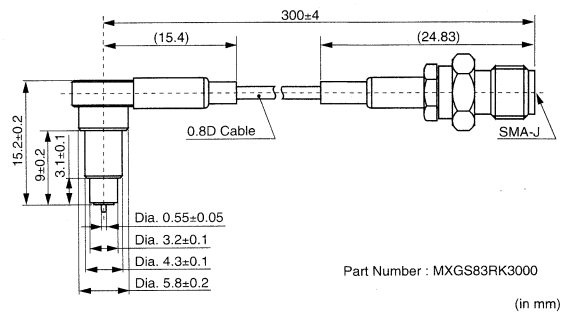
Coaxial Connectors with Switches



Measurement Probe (P/N:MM126036)



Measurement Probe (P/N:MXGS83RK3000)



Part Number	Rated Voltage (Vrms)	Frequency Rating (GHz)	Temperature Range	VSWR
MM8430-2600B	250 max.	DC to 6	-40 to +90 degree C	1.2 max.

Impedance : 50 ohm

9

Microwave Modules

RF Diode Switches

VCOs

PLL Modules

Part Numbering (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
If you have any questions about details, inquire at your usual Murata sales office or distributor.

RF Diode Switches

(Global Part Number) **LM SW 43 KA -207**
① ② ③ ④ ⑤

① Product ID

Product ID	
LM	Multilayer Modules

② Function

Code	Function
SW	RF Diode Switches
SP	Switchplexer®

③ Dimension (L×W)

Code	Dimension (L×W)
43	4.50×3.20mm
65	6.30×5.00mm

④ Design

Two capital letters express identification of design type for each function.

⑤ Individual Specification Code

Specifications, Characteristics, others

VCO

(Global Part Number) **MQ W 11 2B 897M R 5**
① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
MQ	VCO

② Series

Code	Series
W	Dual VCO
E	7.6×5.8mm min.
K	5.5×4.8mm min.
L	5.0×4.0mm min.

③ Dimension/Application

Code	Dimension/Application
11	Pin Layout, Type

④ Serial Number

Expressed by an alphabet and a figure.

⑤ Nominal Center Frequency

Expressed by four figures. If the unit is "MHz", it is expressed by three figures plus "M". If the unit is "GHz", a decimal point is expressed by capital letter "G".

⑥ Package Product ID

Code	Package Product ID
R	Taping

⑦ Package Detail

Code	Package Detail
5	Quantity, direction of reel

PLL Modules

(Global Part Number) **HF Q D31P15A 01 A R 5**
① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
HF	Module Products

② Series

Code	Series
Q	PLL Modules

③ Dimension/Application

Code	Dimension/Application
D31P15A	Size, System

④ Serial Number

Expressed by two figures.

⑤ Others

Code	Others
A	Specification Change Code

⑥ Package Product ID

Code	Package Product ID
R	Taping

⑦ Package Detail

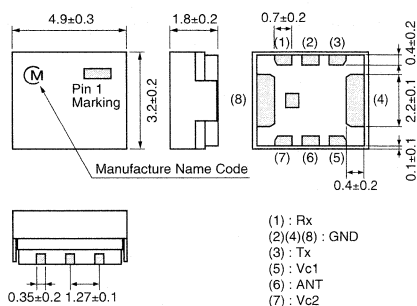
Code	Package Detail
5	Quantity, direction of reel

RF Diode Switches

RF Diode SW with Integrated LPF



LMSW43LA-215

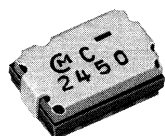


All the technical data and information contained herein are subject to change without prior notice. (in mm)

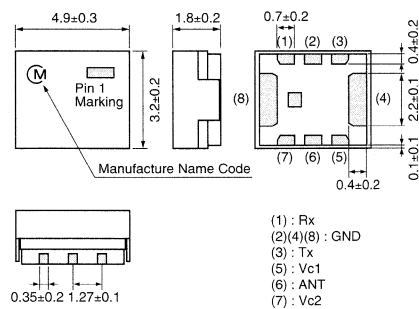
Part Number	Frequency Range (Tx) (MHz)	Frequency Range (Rx) (MHz)	Insertion Loss (Tx->ANT) (dB)	Insertion Loss (ANT->Rx) (dB)	Attenuation (Tx->ANT) (Absolute Value) (dB)	Isolation (Tx->Rx) (dB)	Power Capacity (dBm)
LMSW43LA-215	815.5 (ft) ±9.5MHz	860.5 ±9.5MHz	0.80 max. (at 25°C)	0.80 max. (at 25°C)	20.0 min. at (ftx2)±(BW/2x2)MHz, 15.0dB min. at (ftx3)±(BW/2x3)MHz	20.0 min.	35
LMSW43LA-206	897.5 (ft) ±17.5MHz	942.5 ±17.5MHz	0.90 max. (at 25°C)	1.00 max. (at 25°C)	25.0 min. at (ftx2)±(BW/2x2)MHz, (ftx3)±(BW/2x3)MHz	20.0 min.	35
LMSW43KA-207	1747.5 (ft) ±37.5MHz	1842.5 ±37.5MHz	0.85 max. (at 25°C)	1.10 max. (at 25°C)	20.0 min. at (ftx2)±(BW/2x2)MHz, (ftx3)±(BW/2x3)MHz	20.0 min.	35
LMSW43KB-207	1880.0 (ft) ±30.0MHz	1960.0 ±30.0MHz	0.85 max. (at 25°C)	1.10 max. (at 25°C)	20.0 min. at (ftx2)±(BW/2x2)MHz, (ftx3)±(BW/2x3)MHz	20.0 min.	35

RF Diode Switches

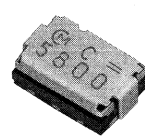
RF Diode Switches



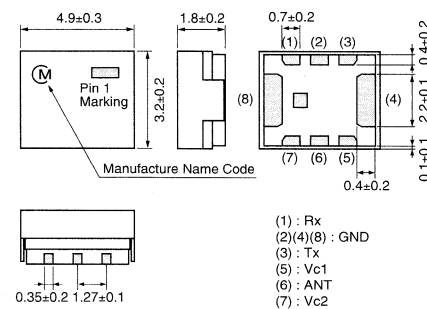
LMSW43CA-209



All the technical data and information contained herein are subject to change without prior notice. (in mm)



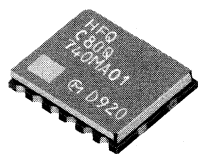
LMSW43CA-218



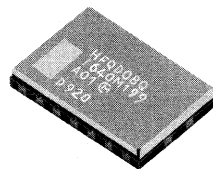
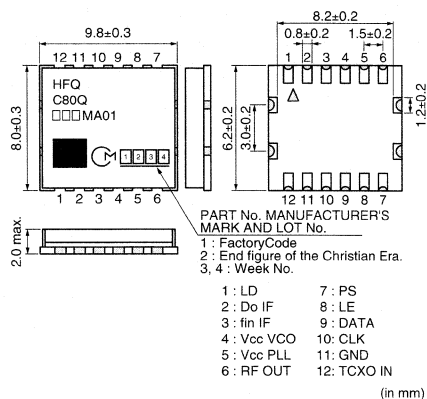
All the technical data and information contained herein are subject to change without prior notice. (in mm)

Part Number	Frequency Range (ft) (MHz)	Frequency Range (fr) (MHz)	Insertion Loss (Tx->ANT) (dB)	Insertion Loss (ANT->Rx) (dB)	Isolation (Tx->Rx) (dB)	Power Capacity (dBm)
LMSW43CA-209	2450.0 ±50.0MHz	2450.0 ±50.0MHz	0.85 max. (at 25°C)	1.20 max. (at 25°C)	20.0 min.	27
LMSW43CA-218	5840.0 ±10.0MHz	5800.0 ±10.0MHz	1.5 max. (at 25°C)	1.5 max. (at 25°C)	13.0 min.	27

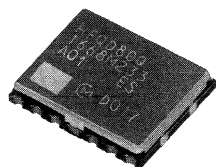
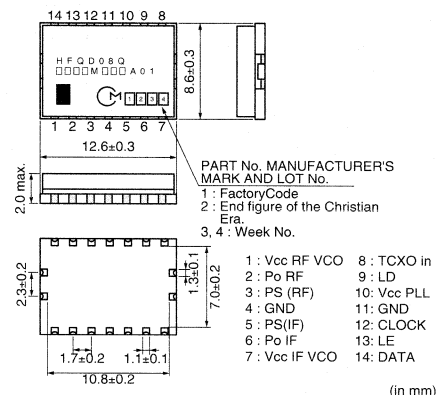
PLL Modules



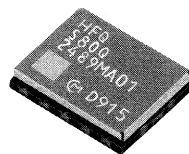
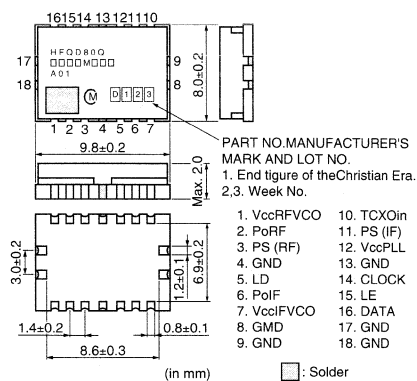
HFQC80 Series



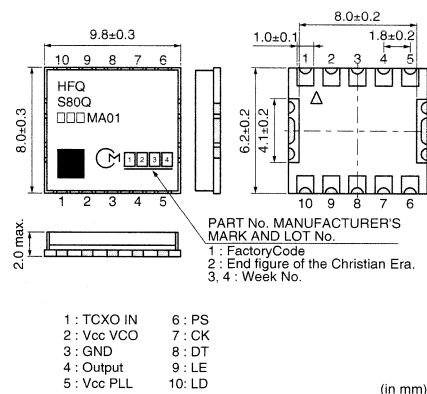
HFQD08 Series



HFQD80 Series



HFQS80 Series



Series	RF/Local Frequency Limits	IF/Local Frequency Limits	Module Structure	Size (mm)
HFQC80 SERIES	700 to 2000MHz	Only IF Port	RFVCO+DualPLLIC(for CDMA)	9.8 X 8.0 X 1.85
HFQD08 SERIES	700 to 2000MHz	100 to 350MHz	RFVCO+IFVCO+DualPLLIC	12.6 X 8.6 X 1.85
HFQD80 SERIES	700 to 2600MHz	100 to 760MHz	RFVCO+IFVCO+DualPLLIC	9.8 X 8.0 X 1.85
HFQS80 SERIES	700 to 2500MHz	-	RFVCO+PLLIC	9.8 X 8.0 X 1.85

10

Filters for Audio Visual Equipment

CERAFIL® for AM

CERAFIL® for Search-stop Signal Detection

CERAFIL® for FM

Discriminators for FM

CERAFIL® for TV/VCR

Discriminators for TV/VCR

Traps for TV/VCR

SAW Filters for TV/VCR

SAW Filters for Digital Broadcasting

SAW Filters for TV/VCR Dual Type

BGS Filters

● **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
 (If you have any questions about details, inquire at your usual Murata sales office or distributor.)

CERAFIL® for AM

(Global Part Number)

PF	W	LA	450K	P2A	-B0
----	---	----	------	-----	-----

① ② ③ ④ ⑤ ⑥

① Product ID

Product ID	
PF	Ceramic Filters
SF	Ceramic Filters
CF	Ceramic Filters

② Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
S	1 Element Length mode
W	2 Elements Length mode
U	1 Element Area Expansion mode
Z	2 Elements Area Expansion mode
P	4 Elements Area Expansion mode

③ Structure/Size

Code	Structure/Size
L□	Lead Type
C□	Chip Type

□ is "A" or subsequent code, which indicates the size. It varies depending on vibration mode and number of elements.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (Hz). Capital letter "K" following three figures expresses the unit of "kHz".

CERAFIL® for Search-stop Signal Detection

(Global Part Number)

BF	U	LA	450K	C	-B0
----	---	----	------	---	-----

① ② ③ ④ ⑤ ⑥

① Product ID

Product ID	
BF	Resonator

② Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
U	1 Element Area Expansion mode

③ Structure/Size

Code	Structure/Size
LA	Lead Type Standard

④ Nominal Center Frequency

Code	Nominal Center Frequency
450K	450kHz

⑤ Product Specification

Code	Product Specification
P2A	Standard Type

□□A indicates standard type.

⑥ Packaging

Code	Packaging
-B0	Bulk
-R0	Plastic Taping (ø180mm)
-R1	Plastic Taping (ø330mm)
-A0	Radial Taping H ₀ =18mm
-M0	Magazine Cassette

Radial taping is applied to lead type and plastic taping to chip type. With non-standard products, three-digit alphanumerics indicating "Individual Specification" is added between "⑤ Product Specification" and "⑥ Packaging".

⑤ Product Specification

Code	Product Specification
C□	Bandwidth

With standard type, □ is omitted.

⑥ Packaging

Code	Packaging
-B0	Bulk

Radial taping is applied to lead type and plastic taping to chip type. With non-standard products, "Individual Specification (serial number)" and "Lead Shape (Lead Bend : B)" are added between "⑤ Product Specification" and "⑥ Package Specification Code" upon specification.

CERAFIL[®] for FM

(Global Part Number) **SF** **E** **LA** **10M7** **FAA0** **-R0**
 ① ② ③ ④ ⑤ ⑥

① Product ID

Product ID	
SF	Ceramic Filters

② Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
E	2 Elements Thickness Expander mode
T	3 Elements Thickness Expander mode
K	2 Elements Thickness Expander mode (2nd Harmonic)
V	2 Elements Thickness Expander mode (3rd Over Tone)

③ Structure/Size

Code	Structure/Size
L□	Lead Type
C□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

Discriminators for FM

(Global Part Number) **CD** **A** **LA** **10M7** **GA** **001** **-R0**
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
CD	Discriminators

② Oscillation

Code	Oscillation
A	Thickness Expander mode

③ Structure/Size

Code	Structure/Size
L□	Lead Type
C□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Product Specification

Code	Product Specification
FAA0	Four-digit alphanumerics express pass-bandwidth, center frequency tolerance, rank, series, others.

⑥ Packaging

Code	Packaging
-B0	Bulk
-R0	Plastic Taping ø180mm
-R1	Plastic Taping ø330mm
-A0	1500pcs. /Radial Taping H ₀ =18mm
-A1	1000pcs. /Radial Taping H ₀ =18mm

Radial taping is applied to lead type and plastic taping to chip type.
 With non-standard products, two-digit alphanumerics indicating "Individual Specification" is added between "⑤ Product Specification" and "⑥ Packaging".

⑤ Product Specification

Code	Product Specification
GA	Two-digit alphanumerics express type, center frequency, rank, others

⑥ IC

Code	IC
001	Applicable IC Control Code

⑦ Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H ₀ =18mm
-R0	Plastic Taping (ø180mm)
-R1	Plastic Taping (ø330mm)

Radial taping is applied to lead type and plastic taping to chip type.
 With non-standard products, an alphanumerics indicating "Individual Specification" is added between "⑥ IC" and "⑦ Packaging".

CERAFIL[®] for TV/VCR

(Global Part Number) **SF** **S** **RA** **4M50** **CF** **00** **-B0**
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
SF	Ceramic Filters

② Oscillation/Numbers of Element

Code	Oscillation/Numbers of Element
S	2 Elements Thickness Shear mode
T	3 Elements Thickness Expander mode

③ Structure/Size

Code	Structure/Size
R□	Lead Type
K□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Product Specification Code (1)

Code	Product Specification Code (1)
AF	Standard Bandwidth Type
BF	Tight Bandwidth Type
CF	Standard Bandwidth Type
DF	Broad Bandwidth Type
EF	Ultra-broad Bandwidth Type

The code AF is only applied to SFT series.

⑥ Product Specification Code (2)

Code	Product Specification Code (2)
00	Standard Type

⑦ Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H ₀ =18mm
-R1	Plastic Taping ø=330mm

Radial taping is applied to lead type and plastic taping to chip type.
 With non-standard products, two-digit alphanumerics indicating "Individual Specification" is added between "⑤ Product Specification Code (1)" and "⑥ Product Specification Code (2)".

Discriminators for TV/VCR

(Global Part Number) **CD** **S** **RH** **4M50** **E** **K** **048** **-A0**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
CD	Discriminators

② Oscillation

Code	Oscillation
S	Thickness Shear mode

③ Structure/Size

Code	Structure/Size
RH	Standard Type
RL	Low-profile

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Product Specification Code (1)

Code	Product Specification Code (1)
C	Three-terminals
E	Two-terminals

⑥ Product Specification Code (2)

Code	Product Specification Code (2)
K	Specification

⑦ IC

Code	IC
048	Applicable IC control code

⑧ Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H ₀ =18mm

With non-standard products, an alphabet indicating "Individual Specification" is added between "⑦ IC" and "⑧ Packaging".

Ceramic Traps

(Global Part Number) **TP** **S** **RA** **4M50** **B** **00** **-B0**
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
TP	Ceramic Traps

② Function

Code	Function
S	Single Traps
T	Triple Traps
W	Double Traps

③ Structure/Size

Code	Structure/Size
R□	Lead Type
K□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Product Specification Code (1)

Code	Product Specification (1)
B	Broad-bandwidth Type
C	Low-capacitance Type

⑥ Product Specification Code (2)

Code	Product Specification Code (2)
00	Standard Type

⑦ Packaging

Code	Packaging
-B0	Bulk
-A0	Radial Taping H ₀ =18mm
-R1	Plastic Taping ø=330mm

Radial taping is applied to lead type and plastic taping to chip type.
 With non-standard products, three-digit alphanumerics indicating "Individual Specification" is added between "⑥ Product Specification Code (2)" and "⑦ Packaging".

BGS Traps

(Global Part Number) **MK** **T** **GA** **47M2** **CAH** **P** **00** **B05**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
MK	BGS

② Function

Code	Function
T	Traps

③ Structure/Size

Code	Structure/Size
GA	Lead Type

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Product Specification (1)

Code	Product Specification (1)
AA	Standard Bandwidth
CA	Narrow-bandwidth

⑤ Product Specification (2)

Code	Product Specification (2)
H	High-frequency side Traps
L	Low-frequency side Traps

⑥ Piezoelectric Board Material

Code	Piezoelectric Board Material
P	Expressed by an alphabet.

⑦ Individual Specification Code

Code	Individual Specification Code
00	Standard

⑧ Packaging

Code	Packaging
B05	Bulk
A03	Radial Taping H ₀ =18mm

SAW Filters for TV/VCR/Digital Broadcasting

(Global Part Number) **SA** **F** **JA** **58M7** **VBP** **Z** **00** **R02**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
SA	SAW Filters

② Function

Code	Function
F	Filters

③ Structure/Size

Code	Structure/Size
G□	Lead Type
J□	Cap Chip Type
C□	Chip Type

□ is expressed "A" or subsequent code, which indicates the size.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Standard Specification Code

Code	Standard Specification Code
VBP	Three-digit alphanumerics expressed design type.

⑥ Piezoelectric Board Material

Code	Piezoelectric Board Material
Z	Expressed by an alphabet.

⑦ Individual Specification Code

Code	Individual Specification Code
00	Standard

⑧ Packaging

Code	Packaging
B03	Bulk
R01	1000pcs. /Plastic Taping $\phi=330\text{mm}$
R03	3000pcs. /Plastic Taping $\phi=330\text{mm}$
R10	500pcs. /Plastic Taping $\phi=180\text{mm}$
A01	Radial Taping $H_0=18\text{mm}$

Radial taping is applied to lead type and plastic taping to chip type.

SAW Filters for TV/VCR Dual Type

(Global Part Number) **SA** **W** **GS** **38M0** **VCA** **Z** **00** **B03**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
SA	SAW Filters

② Function

Code	Function
W	Dual Filters

③ Structure/Size

Code	Structure/Size
GS	Lead Type
KE	Chip Type

④ Nominal Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Standard Specification Code

Code	Standard Specification Code
VCA	Three-digit alphanumerics expressed design type.

⑥ Piezoelectric Board Material

Code	Piezoelectric Board Material
Z	Expressed by an alphabet.

⑦ Individual Specification Code

Code	Individual Specification Code
00	Standard Type

⑧ Packaging

Code	Packaging
B03	Bulk
A02	Radial Taping $H_0=18\text{mm}$
R02	Plastic Taping $\phi=330\text{mm}$

Radial taping is applied to lead type and plastic taping to chip type.

BGS Filters

(Global Part Number) **MK** **F** **GA** **25M0** **HA0** **P** **00** **B05**
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product ID

Product ID	
MK	BGS

② Function

Code	Function
F	Filters

③ Structure/Size

Code	Structure/Size
G □	Lead Type

□ is expressed "A" or subsequent code, which indicates the size.

④ Nominal Center Frequency

Expressed by four-digit alphanumerics. The unit is in hertz (MHz).
 Decimal point is expressed by capital letter "M".

⑤ Product Specification

Code	Product Specification
HA0	Expressed by three-digit alphanumerics.

⑥ Piezoelectric Board Material

Code	Piezoelectric Board Material
P	An alphabet express Piezoelectric material.

⑦ Individual Specification Code

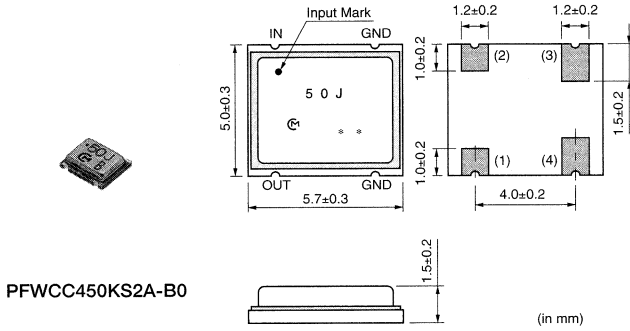
Code	Individual Specification Code
00	Standard

⑧ Packaging

Code	Packaging
B05	Bulk
A03	Radial Taping H ₀ =18mm

CERAFIL[®] for AM

● Chip Type PFWCC Series

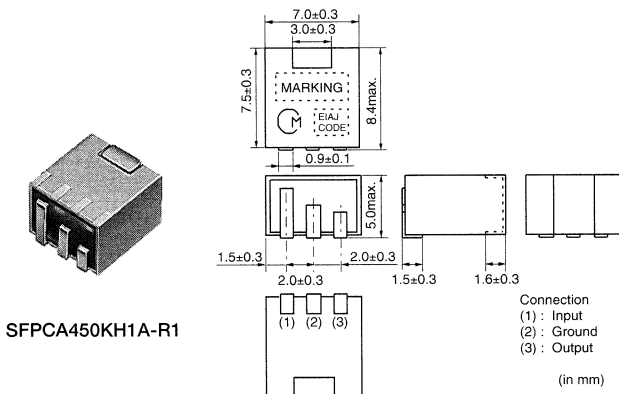


Part Number	Center Frequency (fo) (kHz)	3dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
PFWCC450KS2A-B0	450 ±2.0kHz	within 5.5 ±1.5kHz	17 min.[fo+9kHz]	17 min.[fo-9kHz]	6 max.	2

Center frequency(fo) is defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

● Chip Type SFPCA Series

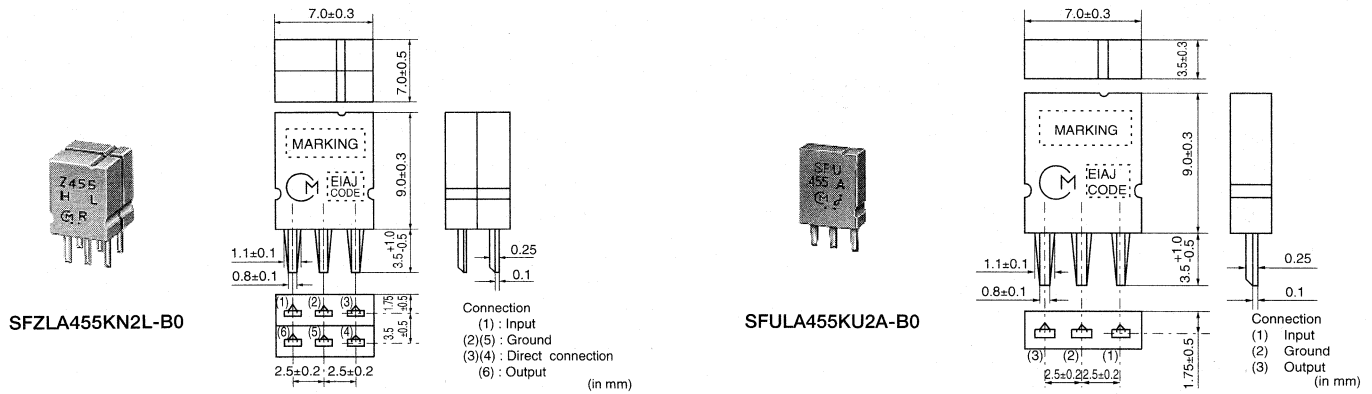


Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
SFPCA450KH1A-R1	450 ±1.0kHz	fn±3.0 min.	40 min.[fn+9kHz]	40 min.[fn-9kHz]	6 max.	4
SFPCA450KG1A-R1	450 ±1.0kHz	fn±4.5 min.	40 min.[fn+10kHz]	40 min.[fn-10kHz]	6 max.	4
SFPCA450KF4A-R1	450 ±1.5kHz	fn±6.0 min.	40 min.[fn+12.5kHz]	40 min.[fn-12.5kHz]	6 max.	4

Center frequency(fo) is defined by the center of 3dB bandwidth.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

● SFULA/SFZLA Series

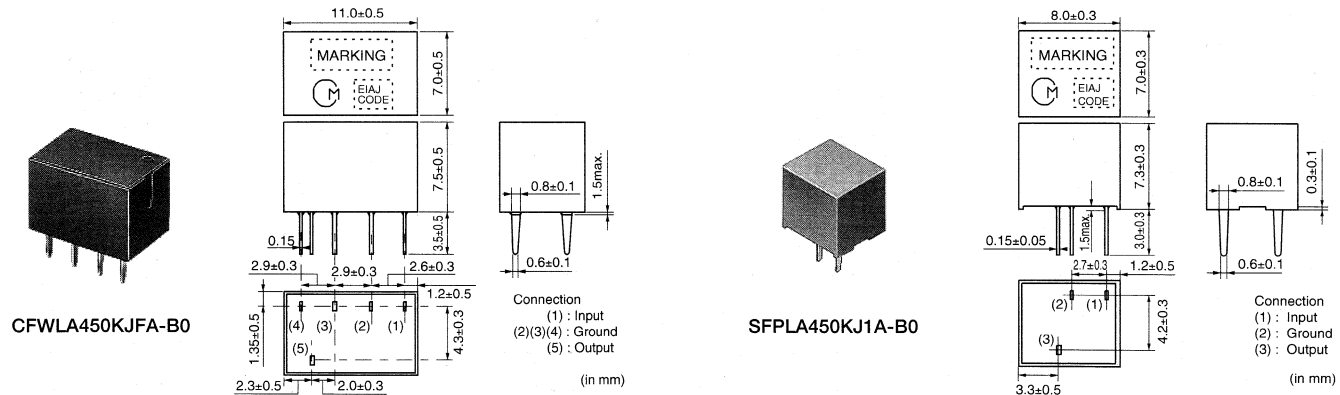


Part Number	Center Frequency (fo) (kHz)	3dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
SFULA455KU2A-B0	455 ±2.0kHz	10.0 ±3.0kHz	4 min.[fo+10kHz]	6 min.[fo-10kHz]	5 max.	1
SFULA455KU2L-B0	462 ±2.0kHz	10.0 ±3.0kHz	4 min.[fo+10kHz]	6 min.[fo-10kHz]	5 max.	1
SFZLA455KN2L-B0	455.5 ±2.0kHz	4.0 ±1.0kHz	23 min.[fo+9kHz]	23 min.[fo-9kHz]	7 max.	2
SFZLA455KS2L-B0	456 ±2.0kHz	5.5 ±1.0kHz	18 min.[fo+9kHz]	18 min.[fo-9kHz]	7 max.	2
SFZLA455KT2L-B0	456 ±2.0kHz	7.0 ±1.0kHz	16 min.[fo+9kHz]	16 min.[fo-9kHz]	6 max.	2

Center frequency(fo) is defined by the center of 3dB bandwidth.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● SFPLA/CFWLA Series



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
SFPLA450KJ1A-B0	450 ±1.0kHz	fn±2.0 min.	40 min.[fn+7.5kHz]	40 min.[fn-7.5kHz]	6 max.	4
SFPLA450KH1A-B0	450 ±1.0kHz	fn±3.0 min.	40 min.[fn+9kHz]	40 min.[fn-9kHz]	6 max.	4
CFWLA450KJFA-B0	450 (fn)	fn±2.0 min.	50 min.[fn+7.5kHz]	50 min.[fn-7.5kHz]	7 max.	6
CFWLA450KHFA-B0	450 (fn)	fn±3.0 min.	50 min.[fn+9kHz]	50 min.[fn-9kHz]	6 max.	6

Center frequency(fo) is defined by the center of 6dB bandwidth.

(fn) means nominal center frequency.

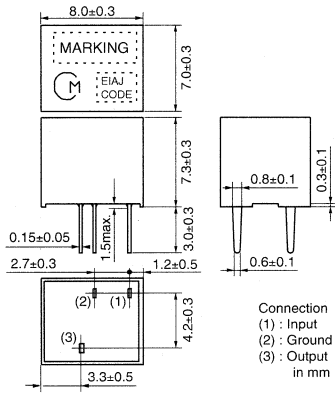
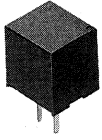
For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

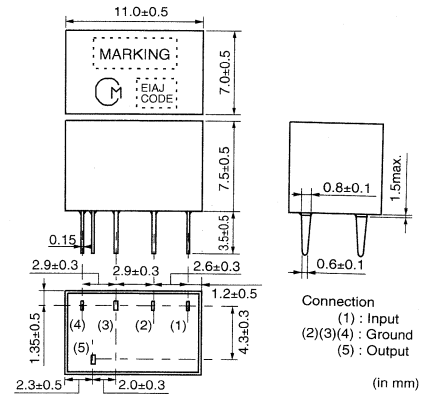
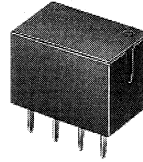
Filters for Audio Visual Equipment

● SFPLA /CFULA/CFWLASeries (For AM Stereo Wide-Band Type)

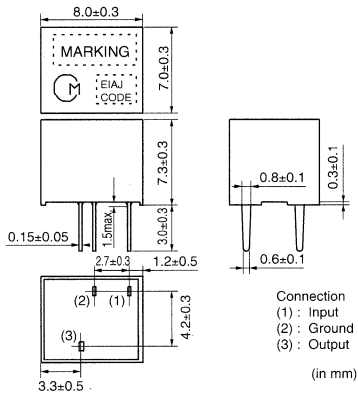
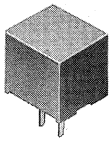
CFULA450KG1Y-B0



CFWLA450KGFA-B0



SFPLA450KG1A-B0



Part Number	Center Frequency (fo) (kHz)	6dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	GDT 20μsec. Bandwidth (kHz)	Elements
SFPLA450KG1A-B0	450 ±1.0kHz	fn±4.5 min.	30 min.[fn+9kHz]	30 min.[fn-9kHz]	6 max.	-	4
SFPLA450KF1A-B0	450 ±1.0kHz	fn±6.0 min.	40 min.[fn+12.5kHz]	40 min.[fn-12.5kHz]	6 max.	-	4
SFPLA450KE1A-B0	450 ±1.0kHz	fn±7.5 min.	40 min.[fn+15kHz]	40 min.[fn-15kHz]	6 max.	-	4
SFPLA450KD1A-B0	450 ±1.0kHz	fn±10.0 min.	40 min.[fn+20kHz]	40 min.[fn-20kHz]	4 max.	-	4
CFWLA450KGFA-B0	450 (fn)	fn±4.5 min.	50 min.[fn+10kHz]	50 min.[fn-10kHz]	6 max.	-	6
CFWLA450KFFA-B0	450 (fn)	fn±6.0 min.	50 min.[fn+12.5kHz]	50 min.[fn-12.5kHz]	6 max.	-	6
CFWLA450KEFA-B0	450 (fn)	fn±7.5 min.	50 min.[fn+15kHz]	50 min.[fn-15kHz]	6 max.	-	6
CFWLA450K DFA-B0	450 (fn)	fn±10.0 min.	50 min.[fn+20kHz]	50 min.[fn-20kHz]	4 max.	-	6
CFWLA450KG1Y-B0	450 ±1.0kHz	fn±4.5 min.	50 min.[fn+15kHz]	50 min.[fn-15kHz]	11 max.	fn±4.0	6
CFULA450KG1Y-B0	450 ±1.0kHz	fn±4.5 min.	40 min.[fn+15kHz]	40 min.[fn-15kHz]	10 max.	fn±4.5	4
CFWLA450KF1Y-B0	450 ±1.0kHz	fn±6.0 min.	50 min.[fn+17.5kHz]	50 min.[fn-17.5kHz]	10 max.	fn±5.0	6
CFULA450KF1Y-B0	450 ±1.0kHz	fn±6.0 min.	40 min.[fn+17.5kHz]	40 min.[fn-17.5kHz]	9 max.	fn±6.0	4
CFWLA450KD1Y-B0	450 ±1.0kHz	fn±10.0 min.	50 min.[fn+25kHz]	50 min.[fn-25kHz]	8 max.	fn±8.0	6
CFULA450KD1Y-B0	450 ±1.0kHz	fn±10.0 min.	40 min.[fn+25kHz]	40 min.[fn-25kHz]	7 max.	fn±9.0	4

Center frequency(fo) is defined by the center of 6dB bandwidth.

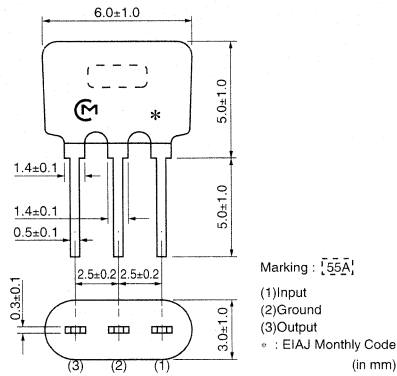
(fn) means nominal center frequency.

For safety purposes, connect the output of filters to the IF amplifier through a D.C. blocking capacitor. Avoid applying a direct current to the output of ceramic filters.

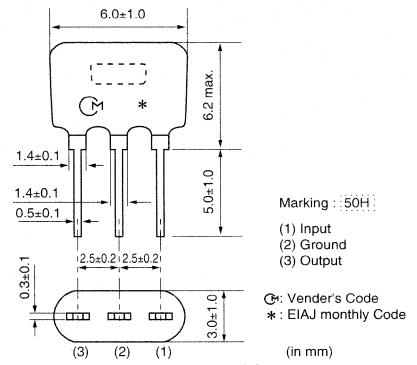
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

● PFSLA/PFWLA Series

PFSLA455KP2A-B0



PFWLA450KP2A-B0

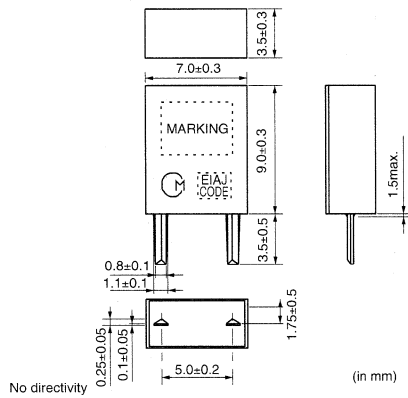
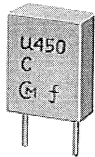


Part Number	Center Frequency (fo) (kHz)	3dB Bandwidth (kHz)	Selectivity (+) (dB)	Selectivity (-) (dB)	Insertion Loss (dB)	Elements
PFSLA455KP2A-B0	455 ±2.0kHz	within 4.5 ±1.5kHz	8 min.[fo+9kHz]	8 min.[fo-9kHz]	5 max.	1
PFWLA450KP2A-B0	450 ±2.0kHz	within 4.5 ±1.5kHz	19 min.[fo+9kHz]	19 min.[fo-9kHz]	7 max.	2
PFWLA450KS2A-B0	450 ±2.0kHz	within 5.5 ±1.5kHz	17 min.[fo+9kHz]	17 min.[fo-9kHz]	6 max.	2

Center frequency(fo) is defined by the center of 3dB bandwidth.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

CERAFIL® for Search-stop Signal Detection

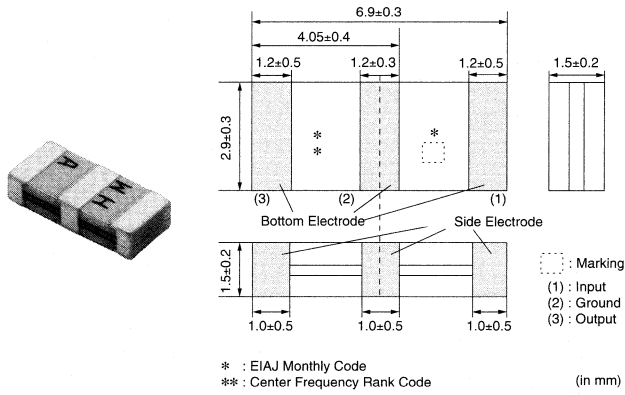


Part Number	Resonant Frequency (Fr) (kHz)	Delta F (Fa-Fr) (kHz)	Resonant Resistance (ohm)	Capacitance (pF)
BFULA450KC-B0	450 ±1.0kHz	within 14.0 ±2.0kHz	20 min.	360 ±20%
BFULA450KC004-B0	450 ±0.8kHz	within 9.0 ±2.0kHz	30 min.	360 ±20%
BFULA450KK003-B0	450 ±1.0kHz	within 27.5 ±4.5kHz	30 min.	550 ±20%

fa-fr means difference between the anti-resonant frequency and the resonant frequency.

CERAFIL[®] for FM

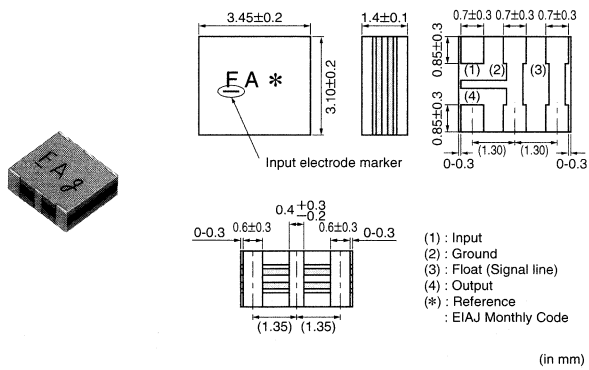
● Chip Type SFECV Series



Part Number	Center Frequency (fo) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)
SFECV10M7KA00-R0	10.700 ±30kHz	within110 ±30kHz	320 max.	within6.0 ±2.0dB	35 min.
SFECV10M7JA00-R0	10.700 ±30kHz	within150 ±30kHz	380 max.	10.0 max.	30 min.
SFECV10M7HA00-R0	10.700 ±30kHz	within180 ±40kHz	470 max.	within4.0 ±2.0 dB	35 min.
SFECV10M7GA00-R0	10.700 ±30kHz	within230 ±50kHz	510 max.	within3.5 ±2.0 dB	35 min.
SFECV10M7FA00-R0	10.700 ±30kHz	within280 ±50kHz	590 max.	within3.0 ±2.0 dB	35 min.

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
 Center frequency(fo) defined by the center of 3dB bandwidth.

● Small Chip Type SF ECS Series

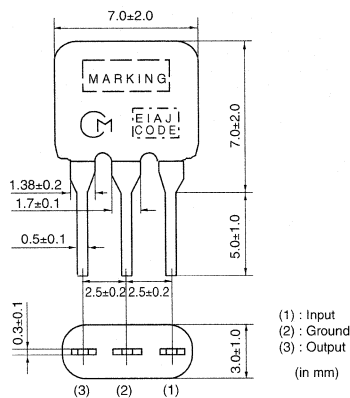
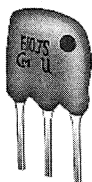


Part Number	Center Frequency (fo) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)
SF ECS10M7HA00-R0	10.700 ±30kHz	within180 ±40kHz	470 max.	within4.5 ±2.0 dB	30 min.
SF ECS10M7GA00-R0	10.700 ±30kHz	within230 ±50kHz	510 max.	within3.5 ±2.0 dB	30 min.
SF ECS10M7FA00-R0	10.700 ±30kHz	within280 ±50kHz	590 max.	within3.0 ±2.0 dB	30 min.

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
 Center frequency(fo) defined by the center of 3dB bandwidth.

Filters for Audio Visual Equipment

● Standard Lead Type

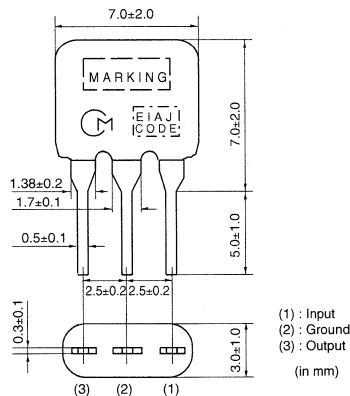


(1) : Input
(2) : Ground
(3) : Output
(in mm)

Part Number	Center Frequency (fo) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)
SFELA10M7HA00-B0	10.700 \pm 30kHz	within180 \pm 40kHz	520 max.	7.0 max.	40 min.
SFELA10M7GA00-B0	10.700 \pm 30kHz	within230 \pm 50kHz	570 max.	within4.0 \pm 2.0dB	40 min.
SFELA10M7FA00-B0	10.700 \pm 30kHz	within280 \pm 50kHz	650 max.	within4.0 \pm 2.0dB	30 min.

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
Center frequency(fo) defined by the center of 3dB bandwidth.

● Low-loss Type

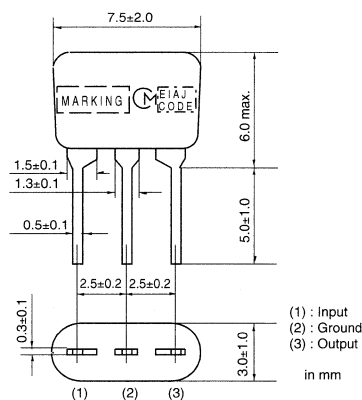


(1) : Input
(2) : Ground
(3) : Output
(in mm)

Part Number	Center Frequency (fo) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)
SFELA10M7JAA0-B0	10.700 \pm 30kHz	within150 \pm 40kHz	360 max.	within4.5 \pm 2.0dB	35 min.
SFELA10M7HAA0-B0	10.700 \pm 30kHz	within180 \pm 40kHz	470 max.	within3.5 \pm 1.5dB	35 min.
SFELA10M7GAA0-B0	10.700 \pm 30kHz	within230 \pm 50kHz	520 max.	within3.0 \pm 2.0dB	35 min.
SFELA10M7FAA0-B0	10.700 \pm 30kHz	within280 \pm 50kHz	590 max.	within2.5 \pm 2.0dB	30 min.

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
Center frequency(fo) defined by the center of 3dB bandwidth.

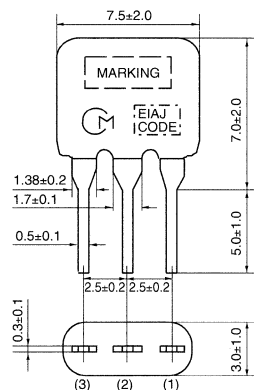
● Low-profile Type



Part Number	Center Frequency (fo) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)
SFELB10M7KA00-B0	10.700 ±30kHz	within110 ±30kHz	350 max.	within7.0 ±2.0dB	30 min.
SFELB10M7JA00-B0	10.700 ±30kHz	within150 ±40kHz	360 max.	within4.5 ±2.0dB	35 min.
SFELB10M7HA00-B0	10.700 ±30kHz	within180 ±40kHz	470 max.	within3.5 ±2.0dB	35 min.
SFELB10M7GA00-B0	10.700 ±30kHz	within230 ±50kHz	570 max.	within3.0 ±2.0dB	40 min.
SFELB10M7FA00-B0	10.700 ±30kHz	within280 ±50kHz	650 max.	within3.0 ±2.0dB	30 min.

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
Center frequency(fo) defined by the center of 3dB bandwidth.

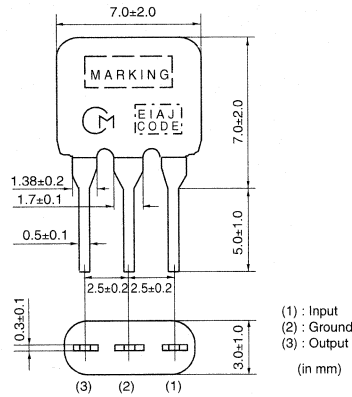
● Lower Spurious Response Type



Part Number	Center Frequency (fo) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)
SFELA10M7KAB0-B0	10.700 ±30kHz	within110 ±30kHz	350 max.	7.0 ±2.0dB	45 min.
SFELA10M7JAB0-B0	10.700 ±30kHz	within150 ±40kHz	380 max.	5.5 ±2.0dB	45 min.
SFELA10M7HAB0-B0	10.700 ±30kHz	within180 ±40kHz	520 max.	5.0 ±2.0dB	45 min.
SFELA10M7GAB0-B0	10.700 ±30kHz	within230 ±50kHz	570 max.	3.0 ±2.0dB	45 min.
SFELA10M7FAB0-B0	10.700 ±30kHz	within280 ±50kHz	650 max.	3.0 ±2.0dB	45 min.

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
Center frequency(fo) defined by the center of 3dB bandwidth.

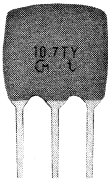
● Wider Band-width Type



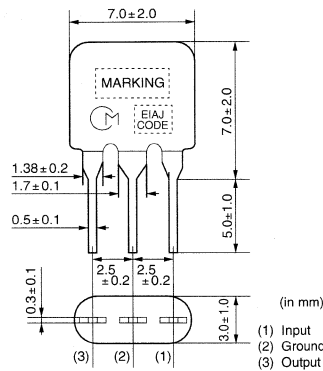
Part Number	Center Frequency (fo) (MHz)	Nominal Center Frequency(fn) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)
SFELA10M7EA00-B0	$10.700 \pm 30\text{kHz}$	-	within $330 \pm 50\text{kHz}$	680 max.	within $4.0 \pm 2.0\text{dB}$	30 min.
SFELA10M7DF00-B0	-	10.700	$f_n \pm 175$ min.	950 max.	within $3.0 \pm 2.0\text{dB}$	20 min.

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
 Center frequency(fo) defined by the center of 3dB bandwidth.

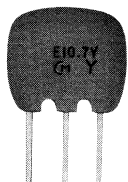
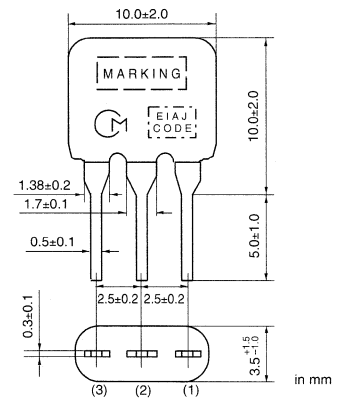
● Narrow Band Type



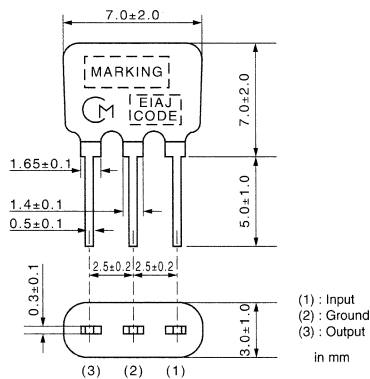
SFELA10M7LFTA-B0



SFKLA10M7NF00-B0



SFVLA10M7MF00-B0



Part Number	Center Frequency (fo) (MHz)	Nominal Center Frequency(fn) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation
SFKLA10M7NF00-B0	$10.700 \pm 15\text{kHz}$	-	20 min.	95 max.	6.0 max.	24dB min.
SFVLA10M7MF00-B0	-	10.700	$f_n \pm 13$ min.	135 max.	within $5.5 \pm 2.5\text{dB}$	3530 min.
SFVLA10M7LF00-B0	-	10.700	$f_n \pm 25$ min.	200 max.	within $5.5 \pm 2.5\text{dB}$	30dB min.
SFELA10M7LFTA-B0	-	10.700	$f_n \pm 25$ min.	280 max.	within $7.0 \pm 2.0\text{dB}$	30dB min.
SFELA10M7KAH0-B0	$10.700 \pm 30\text{kHz}$	-	within $110 \pm 30\text{kHz}$	350 max.	within $7.0 \pm 2.0\text{dB}$	30dB min.

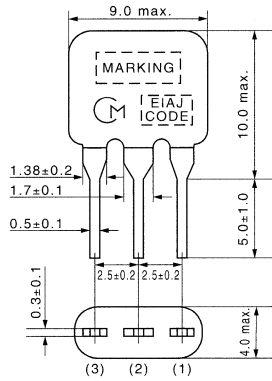
Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
 Center frequency(fo) defined by the center of 3dB bandwidth.
 (fn) means nominal center frequency.

Filters for Audio Visual Equipment

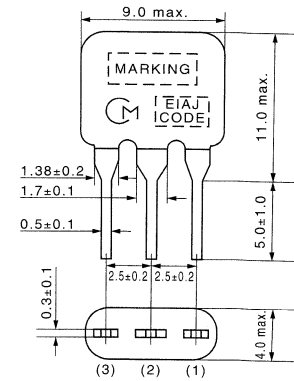
● For FM -IF Tuners



SFELA10M7JAXE-B0



SFELA10M7GAXA-B0

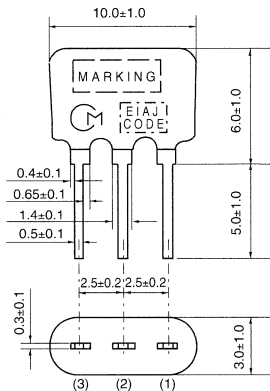
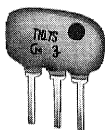


(1) : Input
(2) : Ground
(3) : Output
in mm

Part Number	Center Frequency (fo) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)	GDT Bandwidth (kHz)
SFELA10M7JAXE-B0	10.700 ±30kHz	within150 ±30kHz	500 max.	14.0 max.	35 min.	fo±50 min.[within 0.15μsec.]
SFELA10M7HA0G-B0	10.700 ±30kHz	within180 ±40kHz	520 max.	7.0 max.	40 min.	fo±45 min.[within 0.5μsec.]
SFELA10M7HAXD-B0	10.700 ±30kHz	within180 ±30kHz	530 max.	14.0 max.	33 min.	fo±60 min.[within 0.15μsec.]
SFELA10M7GA0G-B0	10.700 ±30kHz	within230 ±50kHz	600 max.	7.0 max.	40 min.	fo±60 min.[within 0.5μsec.]
SFELA10M7GALM-B0	10.700 ±30kHz	within230 ±50kHz	600 max.	within9.0 ±2.0dB	30 min.	fo±60 min.[within 0.25μsec.]
SFELA10M7GAXA-B0	10.700 ±30kHz	within220 ±40kHz	610 max.	12.5 max.	30 min.	fo±80 min.[within 0.15μsec.]
SFELA10M7FA0G-B0	10.700 ±30kHz	within280 ±50kHz	650 max.	within4.0 ±2.0dB	30 min.	fo±85 min.[within 0.5μsec.]
SFELA10M7GALP03-B0	10.700 ±30kHz	within250 ±50kHz	650 max.	10.0 max.	30 min.	fo±65 min.[within 0.25μsec.]
SFELA10M7GAXX-B0	10.700 ±30kHz	within250 ±40kHz	670 max.	12.0 max.	25 min.	fo±110 min.[within 0.2μsec.]
SFELA10M7FALL-B0	10.700 ±30kHz	within280 ±50kHz	700 max.	within7.0 ±2.0dB	25 min.	fo±70 min.[within 0.25μsec.]

Area of Attenuation : [within 20dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
Center frequency(fo) defined by the center of 3dB bandwidth.
(fn) means nominal center frequency.

● Three-Elements Type SFTLA Series



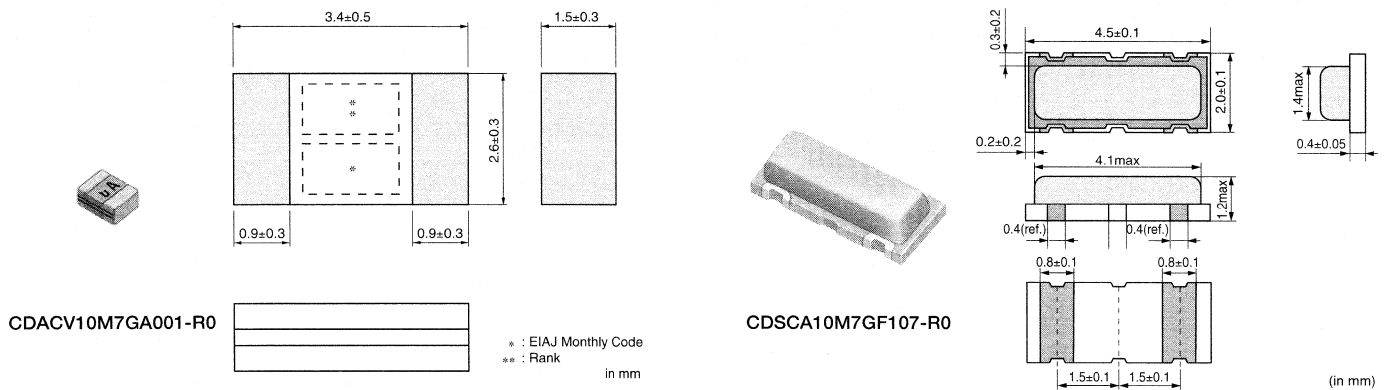
(1) : Input
(2) : Ground
(3) : Output
in mm

Part Number	Center Frequency (fo) (MHz)	3dB Bandwidth (kHz)	Attenuation (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)
SFTLA10M7HA00-B0	10.700 ±30kHz	within180 ±40kHz	550 max.	within5.5 ±2.5dB	50 min.
SFTLA10M7GA00-B0	10.700 ±30kHz	within230 ±40kHz	650 max.	within6.0 ±2.0dB	50 min.
SFTLA10M7FA00-B0	10.700 ±30kHz	within280 ±50kHz	700 max.	within6.0 ±2.0dB	50 min.

Area of Attenuation : [within 40dB] Area of Spurious Attenuation : [within 9MHz to 12MHz]
Center frequency(fo) defined by the center of 3dB bandwidth.

Discriminators for FM

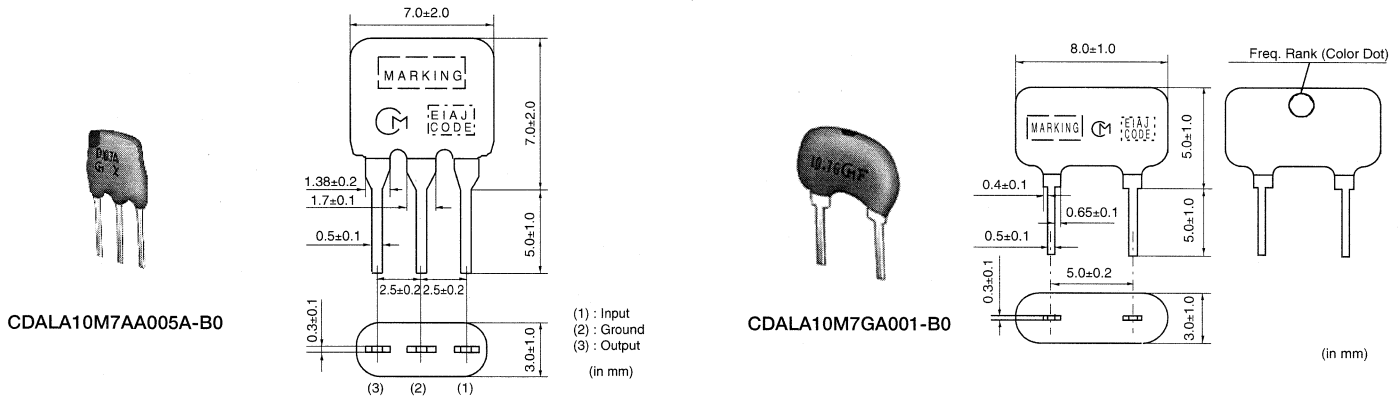
● Chip Type CDACV/CDSCA Series



Part Number	Center Frequency (fo) (MHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (%)	IC	Detection Method
CDACV10M7GA001-R0	10.700 ±30kHz	fo±150 min.	55 min.	1.0 max.	CX20029	Quadrature
CDACV10M7GA016-R0	10.700 ±30kHz	300 min.	within60 to 90mV	0.9 max.	TA8122F	Quadrature
CDACV10M7GA046-R0	10.700 ±30kHz	330 min.	280 min.	1.5 max.	LA1832	Quadrature
CDACV10M7GA069-R0	10.700 ±30kHz	330 min.	80 min.	1.0 max.	CXA1538N	Quadrature
CDACV10M7CA001-R0	10.700 ±30kHz	fo±150 min.	55 min.	1.0 max.	CX20091	Quadrature
CDSCA10M7GF107-R0	10.700 (fn)	fn±80 min.	52 min.	3.0 max.	TA31272F	Quadrature

(fn) means nominal center frequency.

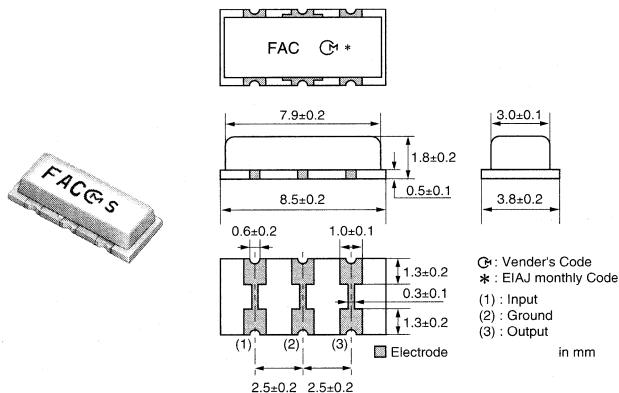
● CDALA Series



Part Number	Center Frequency (fo) (MHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output (mV)	Distortion (%)	IC	Detection Method
CDALA10M7GA001-B0	10.700 ±30kHz	345 min.	25 min.	0.6 max.	CX20029	Quadrature
CDALA10M7GA016-B0	10.700 ±30kHz	300 min.	within60 to 90mV	0.9 max.	TA8122F	Quadrature
CDALA10M7GA018-B0	10.700 ±30kHz	300 min.	60 min.	0.9 max.	TA8132N	Quadrature
CDALA10M7GA046-B0	10.700 ±30kHz	330 min.	280 min.	1.0 max.	LA1832	Quadrature
CDALA10M7GA048-B0	10.700 ±30kHz	400 min.	700 min.	1.0 max.	LA1835	Quadrature
CDALA10M7GA092-B0	10.700 ±30kHz	300 min.	60 min.	1.0 max.	TA2132P	Quadrature
CDALA10M7CA001-B0	10.700 ±30kHz	242 min.	35 min.	-	CX20091	Quadrature
CDALA10M7CA005A-B0	10.700 ±30kHz	100 min.	600 min.	6.0 max.	LA7770	Quadrature
CDALA10M7CA040-B0	10.700 ±30kHz	130 min.	40 min.	0.7 max.	TEA5710	Quadrature

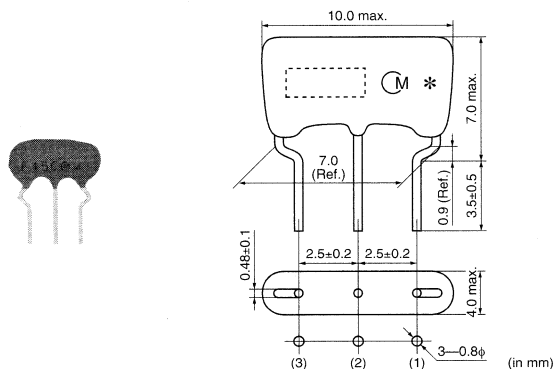
CERAFIL® for TV/VCR

● Chip Type SFSKA Series



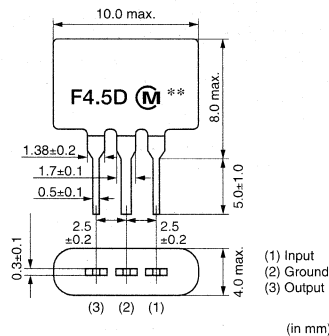
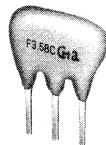
Part Number	Nominal Center Frequency (fn) (MHz)	3dB Bandwidth (kHz)	20dB Bandwidth (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)	Area of Spurious Attenuation	Input/Output Impedance (ohm)
SFSKA4M50CF00-R1	4.500	fn±60 min.	600 max.	6.0 max.	20 min.	[within 0 to fn]	1000

● Picture Band Low-Spurious SFSRA Series



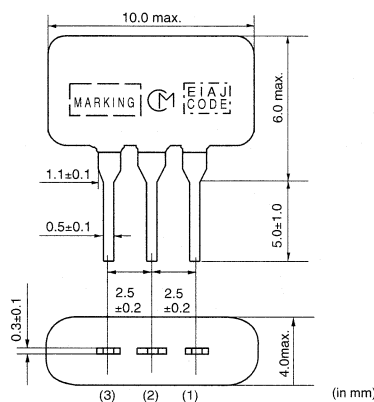
Part Number	Nominal Center Frequency (fn) (MHz)	3dB Bandwidth (kHz)	20dB Bandwidth (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)	Area of Spurious Attenuation	Input/Output Impedance (ohm)
SFSRA4M43CF00-B0	4.430	fn±60 min.	600 max.	6.0 max.	30 min.	[within 0 to fn]	1000
SFSRA4M50CF00-B0	4.500	fn±60 min.	600 max.	6.0 max.	30 min.	[within 0 to fn]	1000
SFSRA4M50DF00-B0	4.500	fn±70 min.	750 max.	6.0 max.	30 min.	[within 0 to fn]	1000
SFSRA4M50EF00-B0	4.500	fn±125 min.	850 max.	6.0 max.	25 min.	[within 0 to fn]	1000
SFSRA5M50BF00-B0	5.500	fn±50 min.	400 max.	8.0 max.	30 min.	[within 0 to fn]	600
SFSRA5M50CF00-B0	5.500	fn±60 min.	600 max.	6.0 max.	30 min.	[within 0 to fn]	600
SFSRA5M50DF00-B0	5.500	fn±80 min.	750 max.	6.0 max.	30 min.	[within 0 to fn]	600
SFSRA5M74BF00-B0	5.742	fn±50 min.	400 max.	8.0 max.	30 min.	[within 0 to fn]	600
SFSRA5M74CF00-B0	5.742	fn±60 min.	600 max.	6.0 max.	30 min.	[within 0 to fn]	600
SFSRA6M00CF00-B0	6.000	fn±60 min.	600 max.	6.0 max.	30 min.	[within 0 to fn]	470
SFSRA6M00DF00-B0	6.000	fn±80 min.	750 max.	6.0 max.	30 min.	[within 0 to fn]	470
SFSRA6M50CF00-B0	6.500	fn±70 min.	650 max.	6.0 max.	30 min.	[within 0 to fn]	470
SFSRA6M50DF00-B0	6.500	fn±80 min.	800 max.	6.0 max.	30 min.	[within 0 to fn]	470

● Chroma Signal SFSRH Series



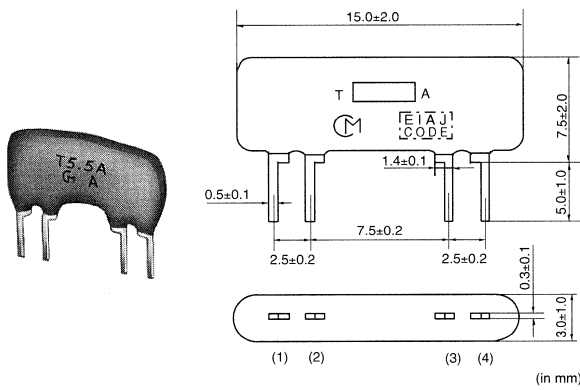
Part Number	Nominal Center Frequency (fn) (MHz)	3dB Bandwidth (kHz)	20dB Bandwidth (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)	Area of Spurious Attenuation	Input/Output Impedance (ohm)
SFSRH3M58CF00-B0	3.580	fn±40 min.	530 max.	6.0 max.	25 min.	[within 0 to fn]	1000

● Low-profile SFSRL Series



Part Number	Nominal Center Frequency (fn) (MHz)	3dB Bandwidth (kHz)	20dB Bandwidth (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)	Area of Spurious Attenuation	Input/Output Impedance (ohm)
SFSRL4M32DF00-B0	4.320	fn±70 min.	750 max.	6.0 max.	30 min.	[within 0 to fn]	1000
SFSRL4M50CF00-B0	4.500	fn±60 min.	600 max.	6.0 max.	30 min.	[within 0 to fn]	1000
SFSRL4M50DF00-B0	4.500	fn±70 min.	750 max.	6.0 max.	30 min.	[within 0 to fn]	1000
SFSRL5M17DF00-B0	5.170	fn±70 min.	750 max.	7.5 max.	30 min.	[within 0 to fn]	600
SFSRL5M50CF00-B0	5.500	fn±60 min.	600 max.	6.0 max.	30 min.	[within 0 to fn]	600
SFSRL5M50DF00-B0	5.500	fn±80 min.	750 max.	6.0 max.	30 min.	[within 0 to fn]	600
SFSRL6M00CF00-B0	6.000	fn±60 min.	600 max.	6.0 max.	30 min.	[within 0 to fn]	470
SFSRL6M00DF00-B0	6.000	fn±80 min.	750 max.	6.0 max.	30 min.	[within 0 to fn]	470
SFSRL6M50CF00-B0	6.500	fn±70 min.	650 max.	6.0 max.	30 min.	[within 0 to fn]	470
SFSRL6M50DF00-B0	6.500	fn±80 min.	800 max.	6.0 max.	30 min.	[within 0 to fn]	470

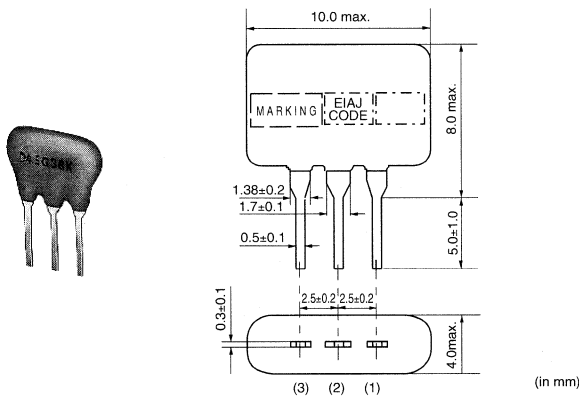
● High-selectivity Type SFTRD Series



Part Number	Nominal Center Frequency (fn) (MHz)	3dB Bandwidth (kHz)	20dB Bandwidth (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)	Area of Spurious Attenuation	Input/Output Impedance (ohm)
SFTRD4M50AF00-B0	4.500	fn±40 min.	370 max.	10.0 max.	50 min.	[within fn-1.0MHz to fn]	1000
SFTRD4M72AF00-B0	4.724	fn±40 min.	370 max.	10.0 max.	50 min.	[within fn-1.0MHz to fn]	1000
SFTRD5M50AF00-B0	5.500	fn±50 min.	350 max.	9.0 max.	50 min.	[within fn-1.0MHz to fn]	600
SFTRD5M74AF00-B0	5.742	fn±50 min.	350 max.	9.0 max.	50 min.	[within fn-1.0MHz to fn]	600
SFTRD6M00AF00-B0	6.000	fn±50 min.	400 max.	9.0 max.	50 min.	[within fn-1.0MHz to fn]	470
SFTRD6M25AF00-B0	6.250	fn±50 min.	400 max.	9.0 max.	50 min.	[within fn-1.0MHz to fn]	470
SFTRD6M50AF00-B0	6.500	fn±50 min.	400 max.	9.0 max.	50 min.	[within fn-1.0MHz to fn]	470
SFTRD6M74AF00-B0	6.742	fn±50 min.	400 max.	9.0 max.	50 min.	[within fn-1.0MHz to fn]	470

Discriminators for TV/VCR

● Discriminators Wide-Band Type CDSRH Series



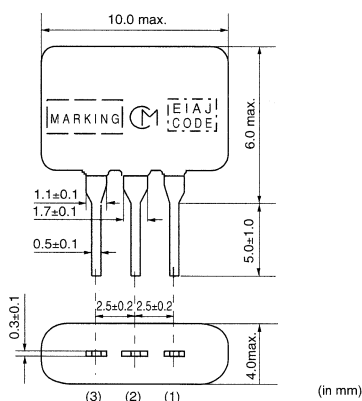
Part Number	Center Frequency (fn) (MHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output Voltage(at fn) (mV)	Distortion (%)	IC	Detection Method
CDSRH4M50CK026-B0	4.500	fn±40 min.	70 min.	1.2 max.	LA7530	Quadrature
CDSRH5M50CK026-B0	5.500	fn±50 min.	500 min.	3.0 max.	LA7530	Quadrature
CDSRH6M00CK026-B0	6.000	fn±50 min.	400 min.	3.0 max.	LA7530	Quadrature
CDSRH6M50CK026-B0	6.500	fn±35 min.	400 min.	3.0 max.	LA7530	Quadrature
CDSRH4M50EK020-B0	4.500	fn±80 min.	245 min.	1.0 max.	LA7550/7555	Quadrature
CDSRH6M50EK020-B0	6.500	fn±110 min.	350 min.	1.2 max.	LA7550/7555	Quadrature
CDSRH4M50EK049-B0	4.500	fn±100 min.	220 min.	1.0 max.	LA7577	Quadrature
CDSRH5M50EK049-B0	5.500	fn±60 min.	500 min.	1.0 max.	LA7577	Quadrature
CDSRH6M00EK049-B0	6.000	fn±60 min.	500 min.	1.0 max.	LA7577	Quadrature
CDSRH6M50EK049-B0	6.500	fn±60 min.	500 min.	1.0 max.	LA7577	Quadrature
CDSRH4M50EK035-B0	4.500	fn±55 min.	240 min.	1.0 max.	LA7680/7681	Quadrature
CDSRH5M50EK035-B0	5.500	fn±80 min.	350 min.	1.0 max.	LA7680/7681	Quadrature
CDSRH4M50CK030-B0	4.500	fn±40 min.	within 130 +30/-20mV	3.0 max.	M51348FP	Quadrature

Continued on the following page.

Continued from the preceding page.

Part Number	Center Frequency (fn) (MHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output Voltage(at fn) (mV)	Distortion (%)	IC	Detection Method
CDSRH5M50CK030-B0	5.500	fn±55 min.	150 min.	3.0 max.	M51348FP	Quadrature
CDSRH6M00CK030-B0	6.000	fn±55 min.	150 min.	3.0 max.	M51348FP	Quadrature
CDSRH4M50CK029-B0	4.500	fn±65 min.	250 min.	1.2 max.	M51365SP	Quadrature
CDSRH5M50CK029-B0	5.500	fn±70 min.	420 min.	1.5 max.	M51365SP	Quadrature
CDSRH6M00CK029-B0	6.000	fn±70 min.	450 min.	1.7 max.	M51365SP	Quadrature
CDSRH6M50CK029-B0	6.500	fn±70 min.	430 min.	2.0 max.	M51365SP	Quadrature
CDSRH4M50EK023-B0	4.500	fn±60 min.	230 min.	2.5 max.	M51496P	Quadrature
CDSRH5M50EK023-B0	5.500	fn±45 min.	220 min.	1.0 max.	M51496P	Quadrature
CDSRH4M50EK070-B0	4.500	fn±50 min.	65 min.	1.5 max.	M52007FP	Quadrature
CDSRH4M50EK060-B0	4.500	fn±90 min.	90 min.	1.0 max.	M52318SP	Quadrature
CDSRH5M50EK060-B0	5.500	fn±70 min.	190 min.	1.5 max.	M52318SP	Quadrature
CDSRH6M00EK060-B0	6.000	fn±60 min.	180 min.	2.5 max.	M52318SP	Quadrature
CDSRH6M50EK060-B0	6.500	fn±60 min.	160 min.	2.5 max.	M52318SP	Quadrature
CDSRH4M50EK069-B0	4.500	fn±60 min.	320 min.	1.5 max.	TA8701N	Quadrature
CDSRH5M50EK054-B0	5.500	fn±100 min.	300 min.	1.2 max.	TDA3857	Quadrature
CDSRH5M74EK054-B0	5.742	fn±90 min.	340 min.	1.2 max.	TDA3857	Quadrature
CDSRH6M00EK054-B0	6.000	fn±90 min.	340 min.	1.5 max.	TDA3857	Quadrature
CDSRH6M50EK054-B0	6.500	fn±90 min.	340 min.	1.5 max.	TDA3857	Quadrature
CDSRH4M50CK020-B0	4.500	fn±50 min.	280 min.	2.0 max.	μPC1382C	Quadrature
CDSRH6M50CK020-B0	6.500	fn±60 min.	480 min.	2.0 max.	μPC1382C	Quadrature

Discriminators Low-Profile Type CDSRL Series



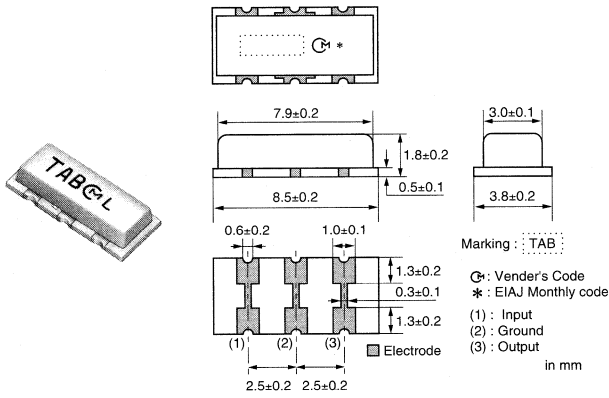
Part Number	Center Frequency (fn) (MHz)	Recovered Audio 3dB BW (kHz)	Recovered Audio Output Voltage(at fn) (mV)	Distortion (%)	IC	Detection Method
CDSRL6M50CK026-B0	6.500	fn±35 min.	400 min.	3.0 max.	LA7530	Quadrature
CDSRL4M50EK020-B0	4.500	fn±80 min.	245 min.	1.0 max.	LA7550/7555	Quadrature
CDSRL5M50EK020-B0	5.500	fn±100 min.	330 min.	1.2 max.	LA7550/7555	Quadrature
CDSRL4M50CK030-B0	4.500	fn±40 min.	within 130 +30/-20mV	3.0 max.	M51348FP	Quadrature
CDSRL5M50CK030-B0	5.500	fn±55 min.	150 min.	3.0 max.	M51348FP	Quadrature
CDSRL6M00CK030-B0	6.000	fn±55 min.	150 min.	3.0 max.	M51348FP	Quadrature
CDSRL4M50CK029-B0	4.500	fn±65 min.	250 min.	1.2 max.	M51365SP	Quadrature
CDSRL6M00CK029-B0	6.000	fn±70 min.	450 min.	1.7 max.	M51365SP	Quadrature
CDSRL4M50CK020-B0	4.500	fn±50 min.	280 min.	2.0 max.	μPC1382C	Quadrature
CDSRL6M50CK020-B0	6.500	fn±60 min.	480 min.	2.0 max.	μPC1382C	Quadrature

All CDSRH series are available as low-profile type CDSRL series.

Traps for TV/VCR

Ceramic Traps

● Chip Type TPSKA Series

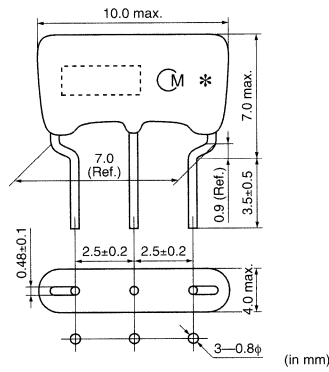


Part Number	Nominal Center Frequency (fn1) (MHz)	Attenuation (at fn1) (dB)	30dB Attenuation BW (fn1) (kHz)
TPSKA4M50B00-R1	4.500	35 min.	50 min.

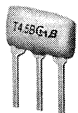
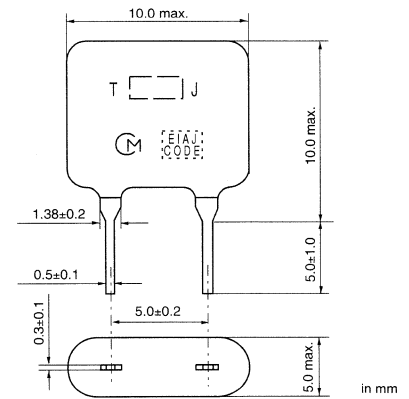
● TPSR Series



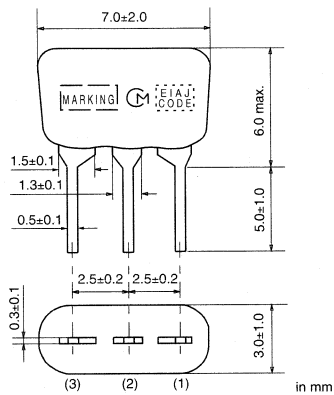
TPSRA4M50B00-B0



TPSRD3M58J00-B0



TPSRL4M50B00002-B0



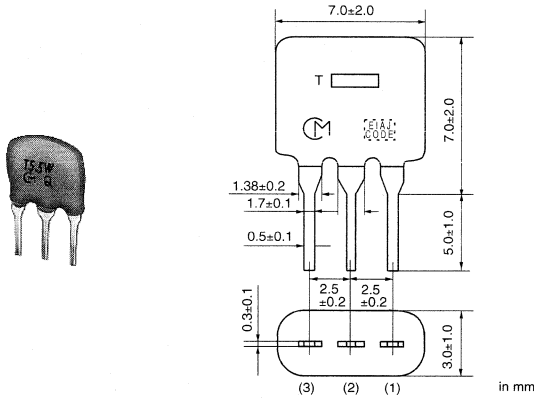
Part Number	Nominal Center Frequency (fn1) (MHz)	Attenuation (at fn1) (dB)	30dB Attenuation BW (fn1) (kHz)
TPSRA4M50B00-B0	4.500	35 min.	50 min.
TPSRA4M50C00-B0	4.500	30 min.	-
TPSRA5M50B00-B0	5.500	35 min.	70 min.
TPSRA5M74B00-B0	5.742	35 min.	70 min.
TPSRA6M00B00-B0	6.000	35 min.	70 min.
TPSRA6M50B00-B0	6.500	35 min.	70 min.
TPSRD3M58J00-B0	3.580	20 min.	20 min.[20dB Att.BW]
TPSRD4M43J00-B0	4.430	20 min.	40 min.[20dB Att.BW]

Continued on the following page.

Continued from the preceding page.

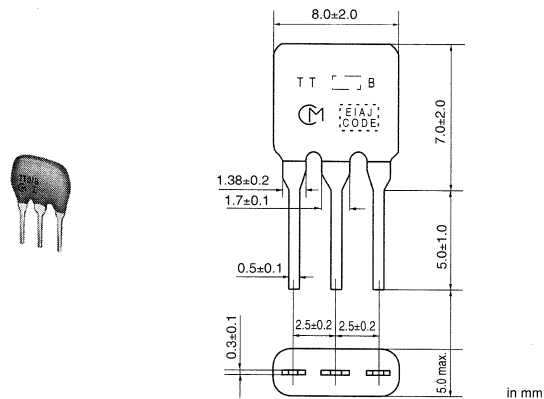
Part Number	Nominal Center Frequency (fn1) (MHz)	Attenuation (at fn1) (dB)	30dB Attenuation BW (fn1) (kHz)
TPSRD4M50J00-B0	4.500	20 min.	30 min.[20dB Att.BW]
TPSRD5M50J00-B0	5.500	20 min.	30 min.[20dB Att.BW]
TPSRD5M74J00-B0	5.742	20 min.	30 min.[20dB Att.BW]
TPSRD6M00J00-B0	6.000	20 min.	40 min.[20dB Att.BW]
TPSRD6M50J00-B0	6.500	20 min.	40 min.[20dB Att.BW]
TPSRL4M50B00002-B0	4.500	35 min.	50 min.
TPSRL4M50C00-B0	4.500	30 min.	-

● TPSRD Series for 2ch Sound TV in Germany



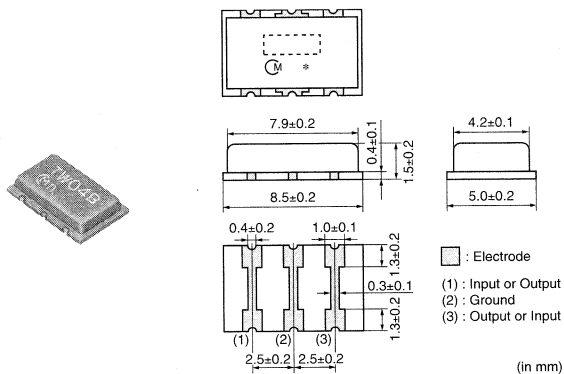
Part Number	Nominal Center Frequency (fn1) (MHz)	Nominal Center Frequency (fn2) (MHz)	Attenuation (at fn1) (dB)	Attenuation (at fn2) (dB)	30dB Attenuation BW (fn1) (kHz)
TPSRD5M50W00-B0	5.500	5.742	32 min.	25 min.	70 min.

● Triple Traps TPTRD Series



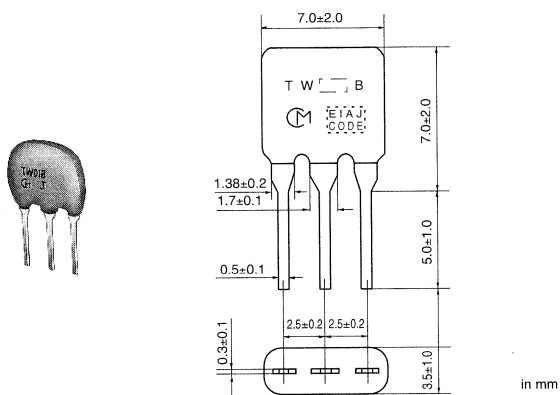
Part Number	Nominal Center Frequency (fn1) (MHz)	Nominal Center Frequency (fn2) (MHz)	Nominal Center Frequency (fn3) (MHz)	Attenuation (at fn1) (dB)	Attenuation (at fn2) (dB)	Attenuation (at fn3) (dB)	30dB Attenuation BW (fn1) (kHz)
TPTRD5M50B01-B0	5.500	6.000	6.500	30 min.	30 min.	30 min.	50 min.
TPTRD5M50B02-B0	5.500	5.742	6.500	30 min.	30 min.	30 min.	50 min.
TPTRD5M50B04-B0	5.500	5.742	6.000	30 min.	30 min.	30 min.	50 min.

● Chip Type Double Trap TPWKA Series



Part Number	Nominal Center Frequency (fn1) (MHz)	Nominal Center Frequency (fn2) (MHz)	Attenuation (at fn1) (dB)	Attenuation (at fn2) (dB)	30dB Attenuation BW (fn1) (kHz)
TPWKA5M50B04-R1	5.500	5.742	30 min.	30 min.	50 min.

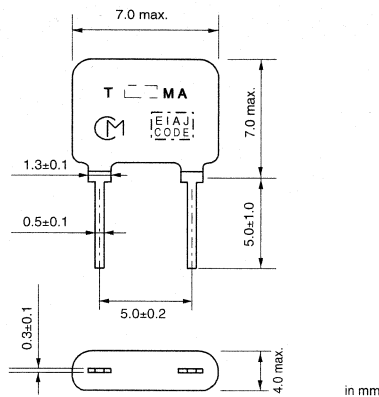
● Double Traps TPWRD Series



Part Number	Nominal Center Frequency (fn1) (MHz)	Nominal Center Frequency (fn2) (MHz)	Attenuation (at fn1) (dB)	Attenuation (at fn2) (dB)	30dB Attenuation BW (fn1) (kHz)
TPWRD4M50B05-B0	4.500	6.000	30 min.	30 min.	50 min.
TPWRD4M50B06-B0	4.500	4.850	30 min.	30 min.	50 min.
TPWRD4M50B10-B0	4.500	4.724	30 min.	30 min.	50 min.
TPWRD4M50B11-B0	4.500	5.500	30 min.	30 min.	50 min.
TPWRD5M50B02-B0	5.500	6.500	30 min.	30 min.	50 min.
TPWRD5M50B03-B0	5.500	6.000	30 min.	30 min.	50 min.
TPWRD5M50B04-B0	5.500	5.742	30 min.	30 min.	50 min.
TPWRD5M50B07-B0	5.500	5.850	30 min.	30 min.	50 min.
TPWRD6M00B01-B0	6.000	6.500	30 min.	30 min.	70 min.

Traps for TV/VCR

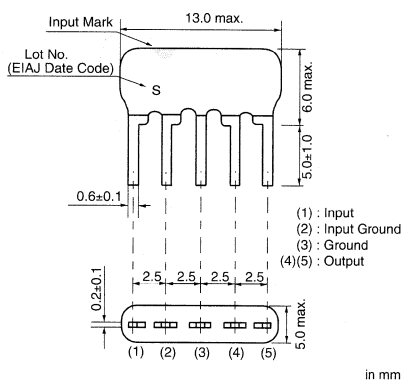
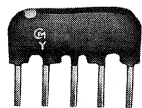
BGS Traps



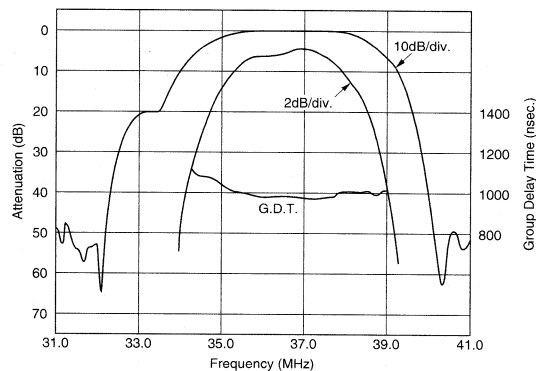
Part Number	Nominal Center Frequency (fn) (MHz)	Attenuation at fp (dB)	Attenuation at fs (dB)	6dB Bandwidth (kHz)	10dB Bandwidth (kHz)
MKTGA30M0AALP00B05	30.0	-	2.0 max.	-	±65.0 min.
MKTGA30M9AALP00B05	30.9	-	2.0 max.	-	±65.0 min.
MKTGA31M2AALP00B05	31.2	-	2.0 max.	-	±65.0 min.
MKTGA31M5AALP00B05	31.5	-	2.0 max.	-	±65.0 min.
MKTGA31M9AALP00B05	31.9	-	2.0 max.	-	±65.0 min.
MKTGA32M0AALP00B05	32.0	-	2.0 max.	-	±65.0 min.
MKTGA39M5AAHP00B05	39.5	2.0 max.	-	-	±65.0 min.
MKTGA39M7AALP00B05	39.75	2.0 max.	-	-	±65.0 min.
MKTGA40M4AAHP00B05	40.4	2.0 max.	-	-	±65.0 min.
MKTGA40M7AAHP00B05	40.7	2.0 max.	-	-	±65.0 min.
MKTGA40M9AAHP00B05	40.9	2.0 max.	-	-	±65.0 min.
MKTGA41M5AAHP00B05	41.5	2.0 max.	-	-	±65.0 min.
MKTGA47M2AAHP00B05	47.25	2.0 max.	-	-	±65.0 min.
MKTGA47M2CAHP00B05	47.25	0.5 max.	-	±45 min. (from fn) , 180kHz min. (total)	-
MKTGA60M2CAHP00B05	60.25	0.5 max.	-	±45 min. (from fn) , 180kHz min. (total)	-

SAW Filters for TV/VCR

● For Color TV/VCR



Frequency Characteristics



Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGB38M9VZ0Z00B03	24.0 max.	5.0 ±1.2	5.5 ±1.5	20.0 ±3.0	40 min.	40 min.	30 min. [0 to 31.90MHz]	30 min. [40.40 to 47.00MHz]
SAFGB39M5VZ0Z00B03	25.0 max.	5.0 ±1.2	5.0 ±1.5	22.0 ±3.0	40 min.	40 min.	30 min. [0 to 31.50MHz]	30 min. [41.50 to 47.00MHz]

Continued on the following page.

Filters for Audio Visual Equipment

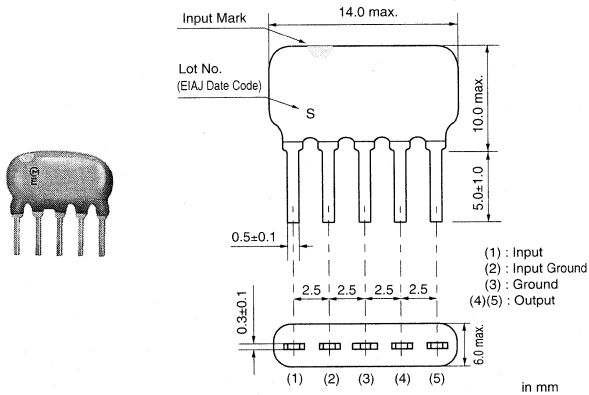
Continued from the preceding page.

Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGB45M7VA0Z00B03	21.0 max.	4.0 ±1.2	4.5 ±1.5	18.0 ±3.0	40 min.	40 min.	30 min. [0 to 39.75MHz]	30 min. [47.25 to 56.00MHz]
SAFGB58M7VH0Z00B03	20.0 max.	4.2 ±1.2	4.2 ±1.5	20.0 ±3.0	40 min.	40 min.	30 min. [0 to 52.75MHz]	30 min. [60.25 to 70.00MHz]
SAFGK36M9VZ0Z00B03	25.0 max.	5.0 ±1.2	5.0 ±1.5	20.0 ±3.0	40 min.	40 min.	30 min. [0 to 29.875MHz]	30 min. [38.375 to 45.000MHz]
SAFGM38M0VK0Z00B03	21.5 max.	5.8 ±1.2	4.1 ±1.5	21.0 ±3.0	40 min.	40 min.	30 min. [0 to 30.00MHz]	30 min. [39.50 to 46.00MHz]
SAFGM39M5VZC00B03	25.0 max.	6.0 ±1.2	3.9 ±1.5	19.0 ±2.5	40 min.	40 min.	30 min. [0 to 31.50MHz]	30 min. [41.50 to 47.00MHz]
SAFGM45M7VBPZL0B03	14.5 max.	4.6 ±1.2	1.8 ±1.5	19.5 ±3.0	40.0 min.	40.0 min.	33.0 min. [0 to 39.75MHz]	33.0 min. [47.25 to 53.00MHz]
SAFGM45M7VFLZL0B03	14.5 max.	5.7 ±1.5	2.8 ±1.2	20.0 ±3.0	40.0 min.	40.0 min.	30.0 min. [0 to 39.75MHz]	30.0 min. [47.25 to 56.00MHz]
SAFGN38M0VZ0Z00B03	27.0 max.	6.0 ±1.5	6.6 ±1.5	25.0 ±3.0	40 min.	40 min.	30 min. [0 to 30.00MHz]	30 min. [39.50 to 47.00MHz]
SAFGN38M0VZEZ00B03	25.0 max.	4.8 ±1.2	3.8 ±1.3	17.5 ±3.0	40 min.	40 min.	30 min. [0 to 30.00MHz]	30 min. [39.50 to 47.00MHz]
SAFGN38M9VZ0Z00B03	24.0 max.	5.0 ±1.2	5.8 ±1.5	20.0 ±3.0	40 min.	40 min.	30 min. [0 to 31.90MHz]	30 min. [40.40 to 47.00MHz]
SAFGN39M5VZ0Z00B03	25.0 max.	5.0 ±1.2	4.5 ±1.5	20.0 ±3.0	40 min.	40 min.	30 min. [0 to 31.50MHz]	30 min. [41.50 to 47.00MHz]
SAFGN45M7VA0Z00B03	21.0 max.	4.0 ±1.2	4.5 ±1.5	18.0 ±3.0	40 min.	40 min.	30 min. [0 to 39.75MHz]	30 min. [47.25 to 56.00MHz]
SAFGN58M7VH0Z00B03	21.0 max.	4.2 ±1.2	4.2 ±1.5	20.0 ±3.0	40 min.	40 min.	30 min. [0 to 52.75MHz]	30 min. [60.25 to 70.00MHz]
SAFGB32M7VZ0Z00B03	25.0 max.	6.5 ±1.5	1.0 ±1.0	38.0 min.	40 min.	35 min.	30 min. [0 to 31.20MHz]	30 min. [39.20 to 47.00MHz]
SAFGM38M9VVBZ00B03	24.0 max.	4.5 ±1.2	4.8 ±1.5	25.0 min.	40 min.	40 min.	30 min. [0 to 31.90MHz]	30 min. [40.40 to 47.00MHz]
SAFGM45M7VVGZ00B03	23.0 max.	3.0 ±1.0	3.3 ±1.0	25.0 min.	40 min.	40 min.	30 min. [0 to 39.75MHz]	29 min. [47.25 to 56.00MHz]
SAFGM58M7VVBZ00B03	20.0 max.	4.5 ±1.2	4.5 ±1.5	25.0 min.	40 min.	40 min.	30 min. [0 to 52.75MHz]	30 min. [60.25 to 70.00MHz]
SAFGN32M7VZ0Z00B03	26.0 max.	6.5 ±1.5	2.0 max.	38.0 min.	40.0 min.	35.0 min.	30.0 min. [0 to 31.20MHz]	30.0 min. [39.20 to 47.00MHz]
SAFGN38M9VVEZ00B03	23.0 max.	4.5 ±1.2	4.7 ±1.5	25.0 min.	42 min.	45 min.	35 min. [0 to 31.90MHz]	33 min. [40.40 to 47.00MHz]

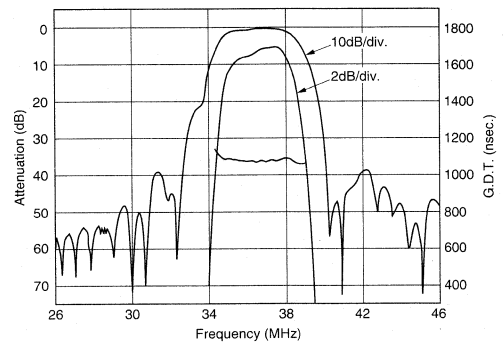
Filters for Audio Visual Equipment

10

● For Compliance with FTZ Regulations(Germany)



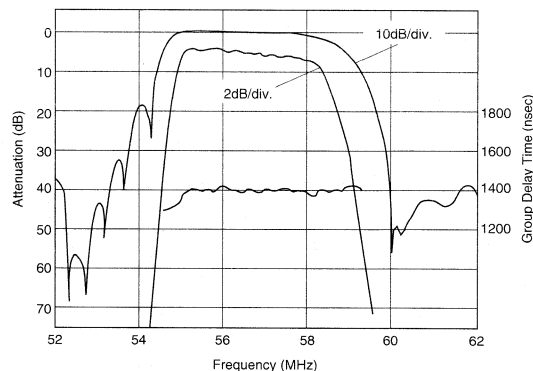
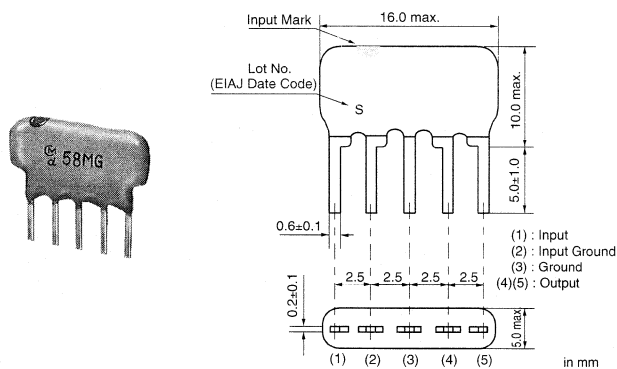
Frequency Characteristics



Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGK38M9VZRZ00B03	24.0 max.	4.5 ±1.2	4.5 ±1.5	22.0 ±3.0	40 min.	40 min.	30 min. [0 to 31.90MHz]	30 min. [40.40 to 47.00MHz]
SAFGM38M9VZH05B03	23.5 max.	4.5 ±1.2	4.7 ±1.0	19.5 ±2.0	42 min.	45 min.	32 min. [0 to 30.90MHz]	37 min. [40.40 to 47.00MHz]
SAFGM38M9VZRZ00B03	24.0 max.	4.7 ±1.2	4.5 ±1.5	22.0 ±3.0	40.0 min.	40.0 min.	30.0 min. [0 to 31.90MHz]	30.0 min. [40.40 to 47.00MHz]
SAFGN38M9VZWZ00B03	22.5 max.	4.5 ±1.2	3.1 ±1.0	17.5 ±3.0	43 min.	36 min.	33 min. [0 to 31.40MHz]	33 min. [41.40 to 47.00MHz]
SAFGN39M5VZ0Z05B03	24.0 max.	5.0 ±1.0	4.5 ±1.0	20.5 ±2.0	44 min.	45 min.	40 min. [0 to 31.50MHz]	34 min. [41.50 to 47.00MHz]

● For High Picture Level(Broad-Band Type)

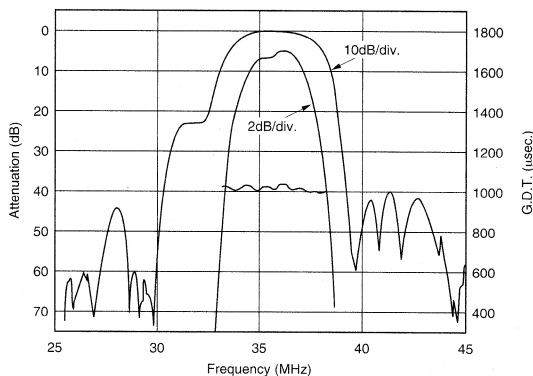
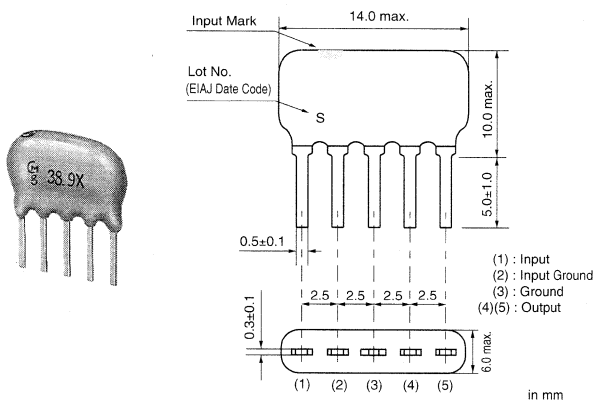
Frequency Characteristics



Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGH58M7VVGZ00B03	23.0 max.	4.8 ±1.2	1.0 max.	20.0 min.	40 min.	40 min.	30 min. [0 to 52.75MHz]	30 min. [60.25 to 70.00MHz]
SAFGK45M7VVEZ00B03	23.0 max.	5.0 ±1.2	1.2 max.	20.0 min.	40 min.	40 min.	30 min. [0 to 39.75MHz]	28 min. [47.25 to 56.00MHz]
SAFGK58M7VVGZ00B03	23.0 max.	4.8 ±1.2	1.0 max.	20.0 min.	40 min.	40 min.	30 min. [0 to 52.75MHz]	30 min. [60.25 to 70.00MHz]

● For Multi-System TV/VCR

Frequency Characteristics



Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGK38M0VZJZ00B03	29.0 max.	5.1 ±1.2	4.2 ±1.5	22.0 ±3.0	40 min.	40 min.	30 min. [0 to 30.00MHz]	30 min. [39.50 to 47.00MHz]
SAFGM38M0VZJZ00B03	25.5 max.	4.6 ±1.2	3.4 ±1.3	19.0 ±3.0	40.0 min.	40.0 min.	30.0 min. [0 to 30.00MHz]	30.0 min. [39.50 to 45.00MHz]

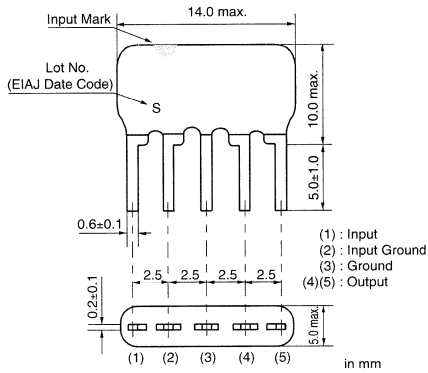
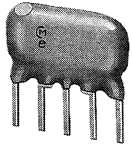
Continued on the following page.

Filters for Audio Visual Equipment

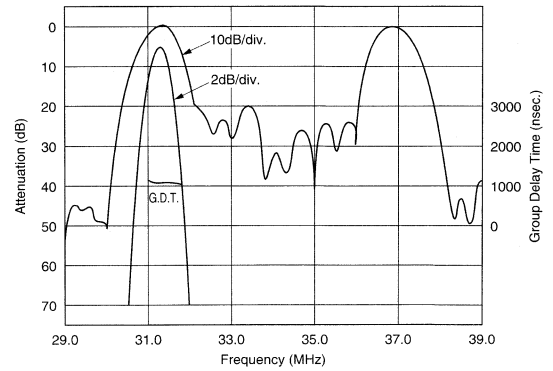
Continued from the preceding page.

Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGM38M9VZ0Z00B03	26.0 max.	5.0 ±1.2	3.4 ±1.0	18.0 ±3.0	40 min.	35 min.	30 min. [0 to 31.90MHz]	30 min. [40.40 to 47.00MHz]
SAFGM38M9VZA0Z00B03	25.0 max.	4.5 ±1.3	4.5 ±1.3	16.5 ±3.0	40 min.	40 min.	30 min. [0 to 30.90MHz]	30 min. [40.40 to 47.00MHz]
SAFGM38M9VZC0Z00B03	26.0 max.	3.7 ±1.3	4.3 ±1.3	15.5 ±3.0	40 min.	40 min.	30 min. [0 to 30.90MHz]	30 min. [40.40 to 47.00MHz]

● For TV/VCR SIF



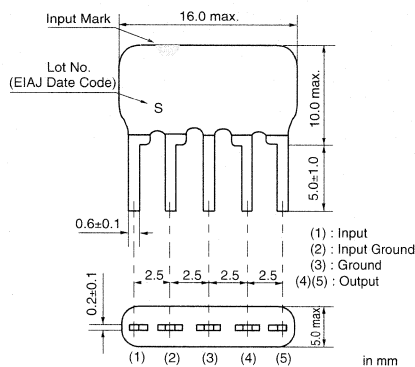
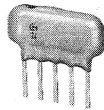
Frequency Characteristics



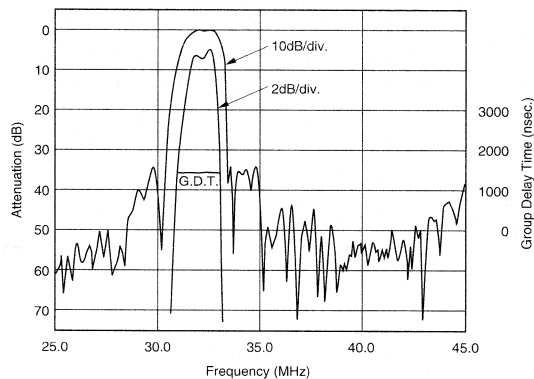
Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGH31M4VD0Z00B03	28.0 max.	0 ±3.0	15.0 min.	-	35 min.	35 min.	30 min. [0 to 29.875MHz]	30 min. [38.375 to 47.00MHz]
SAFGH32M9VDEZ00B03	25.0 max.	4.3 ±3.0	15.0 min.	-	35 min.	25 min.	22 min. [0 to 31.50MHz]	30 min. [41.50 to 50.00MHz]
SAFGH33M0VDAZ00B03	26.0 max.	5.0 ±0.3	12.0 min.	-	26 min.	20 min.	15 min. [0 to 31.90MHz]	22 min. [40.40 to 50.00MHz]
SAFGM33M4VD0Z00B03	20.0 max.	0 ±3.0	20.0 min.	-	35 min.	35 min.	30 min. [0 to 31.90MHz]	30 min. [40.40 to 50.00MHz]
SAFGM41M2VD0Z00B03	17.0 max.	0.0 ±3.0	20.0 min.	-	35 min.	35 min.	30 min. [0 to 39.75MHz]	30 min. [47.75 to 55.00MHz]
SAFGM54M2VD0Z00B03	20.0 max.	0.0 ±3.0	20.0 min.	-	35 min.	30 min.	28 min. [0 to 52.75MHz]	28 min. [60.25 to 70.00MHz]
SAFGN33M0VDAZ00B03	27.5 max.	5.0 ±3.0	12.0 min.	3.0 ±3.0	26.0 min.	20.0 min.	15.0 min. [0 to 31.90MHz]	22.0 min. [40.40 to 50.00MHz]
SAFGH39M2VC0Z00B03	19.0 max.	40.0 min.	35.0 min.	-	40.0 min.	30.0 min.	30.0 min. [0 to 31.20MHz]	30.0 min. [40.70 to 50.00MHz]
SAFGM33M4VC0Z00B03	20.0 max.	40.0 min.	20.0 min.	-	40 min.	35 min.	30 min. [0 to 31.90MHz]	30 min. [40.40 to 47.00MHz]
SAFGM41M2VC0Z00B03	17.0 max.	40.0 min.	17.0 min.	-	40 min.	37 min.	28 min. [0 to 39.75MHz]	30 min. [43.75 to 56.00MHz]
SAFGM54M2VC0Z00B03	16.0 max.	40.0 min.	17.0 min.	-	40 min.	37 min.	28 min. [0 to 52.75MHz]	30 min. [56.75 to 70.00MHz]

Filters for Audio Visual Equipment

● For Multi-System TV/VCR SIF

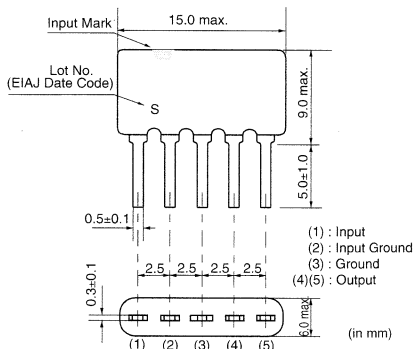


Frequency Characteristics

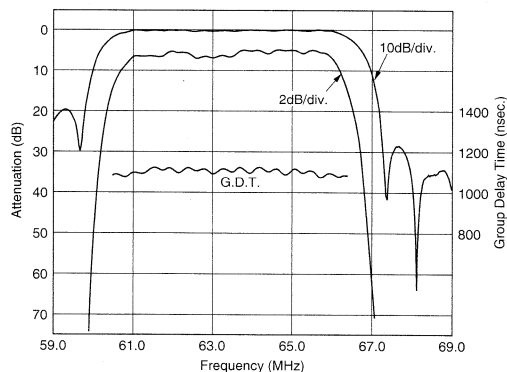


Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGH32M0VCAZ00B03	26.0 max.	35.0 min.	25.0 min.	3.0 max.	40 min.	35 min.	30 min. [0 to 30.00MHz]	22 min. [33.57 to 42.00MHz]
SAFGH32M9VCAZ00B03	25.0 max.	35.0 min.	25.0 min.	3.0 max.	40 min.	35 min.	30 min. [0 to 30.90MHz]	22 min. [34.47 to 42.00MHz]
SAFGH33M4VCDZ00B03	29.0 max.	30.0 min.	20.0 min.	2.0 max.	30 min.	28 min.	25 min. [0 to 30.90MHz]	30 min. [40.40 to 46.00MHz]
SAFGM33M4VCBZ00B03	30.0 max.	30.0 min.	14.0 min.	3.0 max.	30 min.	35 min.	25 min. [0 to 30.90MHz]	25 min. [40.40 to 46.00MHz]
SAFGM33M4VCDZ00B03	32.0 max.	30.0 min.	20.0 min.	2.0 max.	30.0 min.	28.0 min.	25.0 min. [0 to 30.90MHz]	30.0 min. [40.40 to 46.00MHz]

● For CATV



Frequency Characteristics



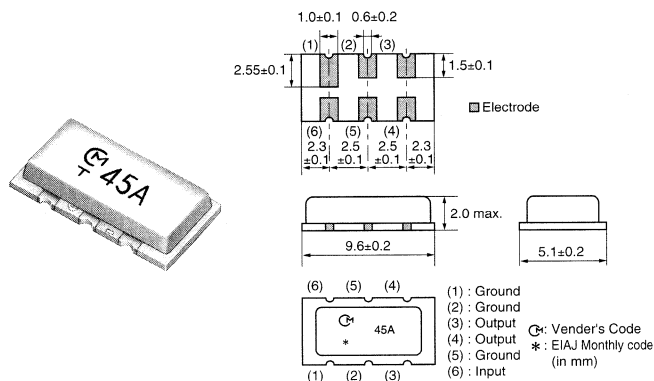
Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGB61M2VD0Z00B03	22.0 max.	2.0 max.	2.0 max.	2.0 max.	-	-	27 min. [0 to 55.25MHz]	27 min. [68.25 to 80.00MHz]
SAFGH45M7VT0Z00B03	23.0 max.	2.0 max.	2.0 max.	2.0 max.	-	-	27 min. [0 to 38.75MHz]	27 min. [51.75 to 57.00MHz]
SAFGH58M7VT0Z01B03	22.0 max.	2.0 max.	2.0 max.	2.0 max.	-	-	27 min. [0 to 51.75MHz]	27 min. [64.75 to 70.00MHz]
SAFGH61M2VZ0Z02B03	22.0 max.	5.5 ±1.2	5.5 ±1.5	20.0 ±3.0	40 min.	40 min.	30 min. [0 to 59.75MHz]	28 min. [67.25 to 80.00MHz]
SAFGH65M7VA0Z02B03	18.0 max.	-	-	-	-	-	20 min. [0 to 64.70MHz]	20 min. [66.80 to 100.00MHz]
SAFGM65M7VA0Z00B03	18.5 max.	-	-	-	-	-	20.0 min. [0 to 64.70MHz]	20.0 min. [66.80 to 100.00MHz]
SAFGN45M7VT0Z00B03	23.0 max.	2.0 max.	2.0 max.	2.0 max.	-	-	27.0 min. [0 to 38.50MHz]	27.0 min. [51.75 to 57.00MHz]

Continued on the following page.

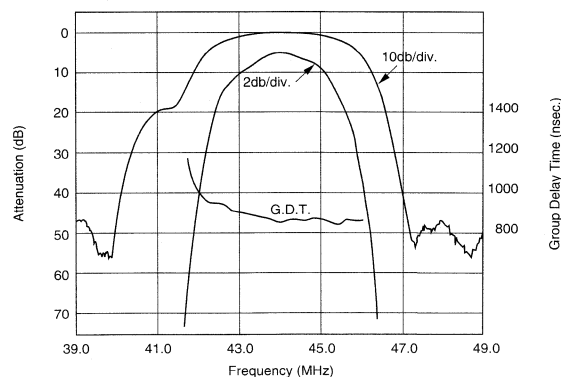
Continued from the preceding page.

Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFGN58M7VT0Z00B03	22.5 max.	2.0 max.	2.0 max.	2.0 max.	-	-	27.0 min. [0 to 51.75MHz]	27.0 min. [64.75 to 70.00MHz]
SAFGN61M2VB0Z00B03	20.0 max.	.	0.0 ±1.0	2.0 max.	-	-	26 min. [0 to 55.25MHz]	26 min. [67.25 to 80.00MHz]
SAFGN58M7VHAZ00B03	22.0 max.	4.0 ±1.2	4.4 ±1.5	17.5 ±2.5	40 min.	40 min.	30 min. [0 to 52.75MHz]	30 min. [60.25 to 72.00MHz]

● Chip Type



Frequency Characteristics

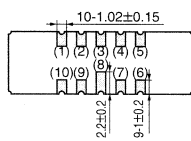
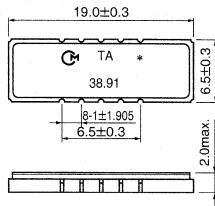


Part Number	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)	Spurious Response(1) (dB)	Spurious Response(2) (dB)
SAFJA45M7VA0Z00R03	22.5 max.	4.5 ±1.2	4.8 ±1.5	19.0 ±3.0	35 min.	40 min.	30 min. [0 to 39.75MHz]	30 min. [47.25 to 56.00MHz]
SAFJA58M7VPZ00R03	21.0 max.	4.0 ±1.2	1.8 ±1.0	19.5 ±3.0	40.0 min.	43.0 min.	30.0 min. [0 to 52.75MHz]	25.0 min. [60.25 to 70.00MHz]
SAFJA58M7VH0Z00R03	17.5 max.	4.2 ±1.2	4.2 ±1.5	21.0 ±3.0	40.0 min.	40.0 min.	30.0 min. [0 to 52.75MHz]	30.0 min. [60.25 to 70.00MHz]
SAFJA41M2VD0Z00R03	18.0 max.	0.0 ±3.0	18.0 min.	-	35.0 min.	35.0 min.	30.0 min. [0 to 39.75MHz]	30.0 min. [47.25 to 55.00MHz]
SAFJA54M7VD0Z00R03	21.0 max.	0.0 ±3.0	18.0 min.	-	33.0 min.	33.0 min.	28.0 min. [0 to 52.75MHz]	28.0 min. [60.25 to 70.00MHz]
SAFJA33M4VCBZ00R03	30.0 max.	30.0 min.	14.0 min.	-	30.0 min.	35.0 min.	25.0 min. [0 to 30.90MHz]	25.0 min. [40.40 to 46.00MHz]
SAFJA41M2VC0Z00R03	16.0 max.	40.0 min.	17.0 min.	-	40.0 min.	37.0 min.	28.0 min. [0 to 39.75MHz]	28.0 min. [43.75 to 56.00MHz]
SAFJA54M2VC0Z00R03	16.0 max.	40 min.	17 min.	-	40 min.	37 min.	28 min. [0 to 52.75MHz]	30 min. [56.75 to 70.00MHz]
SAFJA38M9VVBZ00R03	24.0 max.	4.5 ±1.2	4.5 ±1.5	20.0 min.	35.0 min.	35.0 min.	30.0 min. [0 to 31.90MHz]	30.0 min. [40.40 to 47.00MHz]
SAFJA45M7VVBZ00R03	22.0 max.	4.5 ±1.2	4.7 ±1.5	25 min.	40 min.	40 min.	30 min. [0 to 39.75MHz]	30 min. [47.25 to 56.00MHz]
SAFJA58M7VVBZ00R03	20.5 max.	4.0 ±1.2	5.0 ±1.5	25 min.	40 min.	40 min.	30 min. [0 to 52.75MHz]	30 min. [60.25 to 72.00MHz]

SAW Filters for Digital Broadcasting



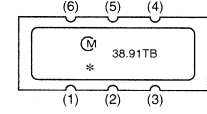
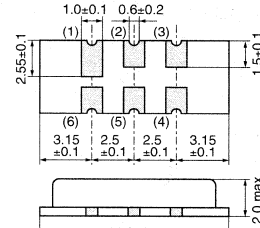
SAFCZ38M9WTAZ00R01



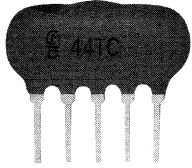
- (10) : Input Hot
 - (1) : Input Cold (Ground)
 - (5) : Output
 - (6) : Output
 - (2),(3),(4),(7),(8),(9) : Ground
 - Ⓜ : Vender's Code
 - * : EIAJ Monthly code
- (in mm)



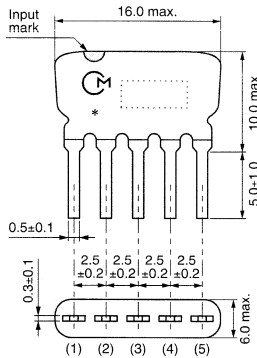
SAFJB38M9WTBZ00R10



- (1) : Ground
 - (2) : Ground
 - (3) : Output
 - (4) : Output
 - (5) : Ground
 - (6) : Input
- (in mm)



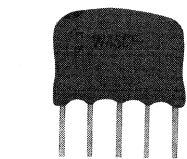
SAFGK43M7WTCZL0B03



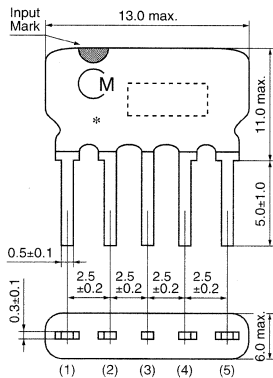
- Marking : 44TC
 - (1) : Input
 - (2)(3) : Ground
 - (4)(5) : Out put
 - * : EIAJ Monthly Code
- (in mm)

Part Number	Nominal Center Frequency(fn) (MHz)	System	Insertion Loss (dB)	3dB Bandwidth (MHz)	30dB Bandwidth (MHz)	Attenuation (1) (dB)	Attenuation (2) (dB)
SAFCZ38M9WTAZ00R01	38.912	DAB	25.5 max.	1.25 min.	-	11.0 max.[fn±768kHz]	18.0 min.[fn±944kHz]
SAFJB38M9WTBZ00R10	38.912	DAB	20.0 max.	1.4 min.	2.9 min.	-	-
SAFGP43M7WTAZL0B03	43.75	Digital CATV	21.0 max.	6.0 typ.	-	34.0 min.[39.75MHz]	9.0 min.[40.25MHz]
SAFGP43M7WTGZL0B03	43.75	Digital CATV	29.0 max.	6.1 typ.	-	32.0 min.[39.75MHz]	8.0 min.[40.25MHz]
SAFGP44M0WTGZL0B03	44.00	Digital CATV	21.0 max.	6.1 typ.	-	32.0 min.[40.00MHz]	7.0 min.[40.50MHz]
SAFGP57M0WTOZL0B03	57.00	Digital CATV	18.0 max.	6.0 typ.	-	30.0 min.[52.75MHz]	3.0 max.[54.19MHz]
SAFGK43M7WTCZL0B03	43.75	Digital TV	21.5 max.	5.4 min.(5.6MHz typ.)	7.5 max.	40.0 min.[39.75MHz]	22.0 min.[40.25MHz]
SAFGK44M0WTCZL0B03	44.00	Digital TV	22.0 max.	5.6 typ.	-	0.7 ±1.3dB[41.31MHz]	1.5 ±1.5dB[46.69MHz]
SAFGM44M0WA0Z00B03	44.00	Interactive TV	20.5 max.	1.7 typ.	-	2.5 ±1.5dB[43.15MHz]	2.0 ±1.5dB[44.85MHz]

SAW Filters for TV/VCR Dual Type

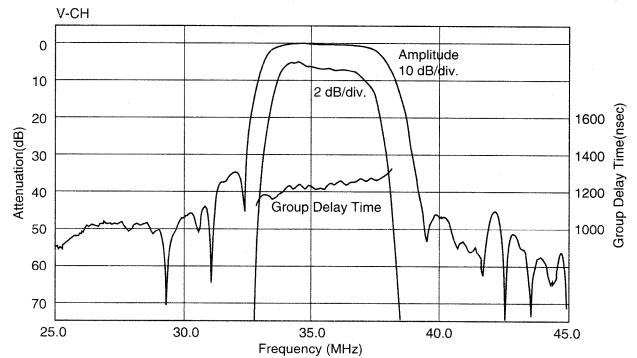


SAWGS38M0VCAZ00B03



- (1) : Input
 - (2) : Ground
 - (3) : Output (Sound Channel)
 - (4) : Output (Picture Channel)
 - (5) : Output (Picture Channel)
- (in mm)

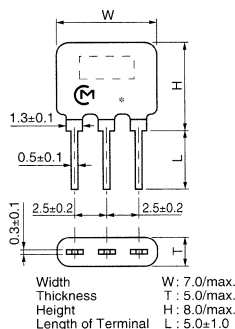
Frequency Characteristics(Pictuer-ch)



Filters for Audio Visual Equipment

Part Number	Picture Frequency(fp) (MHz)	Insertion Loss (dB)	Picture Carrier (dB)	Chroma Carrier (dB)	Sound Carrier (dB)	Adjacent Sound Carrier (dB)	Adjacent Picture Carrier (dB)
SAWGS38M0VCAZ00B03	38.00 (Picture-ch)	23.0 max.(Picture-ch) /25.0dB max.(Sound-ch)	6.0±1.2 (P-ch) /28.0dB min.(S-ch)	1.7 max.(P-ch) /30.0dB min.(S-ch)	29.0 min. (P-ch)/-	43.0 min.(P-ch) /35.0dB min.(S-ch)	40.0 min.(P-ch) /27.0dB min.(S-ch)
SAWGS45M7VCFZ00B03	45.75 (Picture-ch)	21.0 max.(Picture-ch) /29.0dB max.(Sound-ch)	5.0±1.2 (Picture-ch) /17.0dB min.(Sound-ch)	2.6±1.2 (Picture-ch) /16.0dB min.(Sound-ch)	18.0 min. (Picture-ch)/-	40.0 min.(Picture-ch) /20.0dB min.(Sound-ch)	42.0 min.(Picture-ch) /20.0dB min.(Sound-ch)
SAWGS45M7VCGZ00B03	45.75 (Picture-ch)	23.0 max.(Picture-ch) /29.5dB max.(Sound-ch)	6.3±1.2 (Picture-ch) /18.0dB min.(Sound-ch)	1.5 max.(Picture-ch) /16.0dB min.(Sound-ch)	18.0 min. (Picture-ch)/-	44.0 min.(Picture-ch) /20.0dB min.(Sound-ch)	45.0 min.(Picture-ch) /22.0dB min.(Sound-ch)
SAWGS45M7VCHZ00B03	45.75 (Picture-ch)	23.0 max.(Picture-ch) /29.5dB max.(Sound-ch)	4.6±1.2 (Picture-ch) /16.0dB min.(Sound-ch)	1.7 max.(Picture-ch) /16.0dB min.(Sound-ch)	25.0 min. (Picture-ch)/-	44.0 min.(Picture-ch) /18.0dB min.(Sound-ch)	45.0 min.(Picture-ch) /21.0dB min.(Sound-ch)
SAWGS58M7VCGZ00B03	58.75 (Picture-ch)	21.0 max.(Picture-ch) /29.5dB max.(Sound-ch)	5.2±1.2 (Picture-ch) /18.0dB min.(Sound-ch)	1.5 max.(Picture-ch) /16.0dB min.(Sound-ch)	22.0 min. (Picture-ch)/-	40.0 min.(Picture-ch) /22.0dB min.(Sound-ch)	40.0 min.(Picture-ch) /22.0dB min.(Sound-ch)
SAWGS58M7VCHZ00B03	58.75 (Picture-ch)	21.0 max.(Picture-ch) /28.0dB max.(Sound-ch)	5.5±1.2 (Picture-ch) /20.0dB min.(Sound-ch)	1.5 max.(Picture-ch) /12.0dB min.(Sound-ch)	18.0 min. (Picture-ch)/-	42.0 min.(Picture-ch) /22.0dB min.(Sound-ch)	43.0 min.(Picture-ch) /22.0dB min.(Sound-ch)
SAWGS58M7VCJZ00B03	58.75 (Picture-ch)	21.0 max.(Picture-ch) /28.0dB max.(Sound-ch)	6.3±1.2 (Picture-ch) /22.0dB min.(Sound-ch)	1.5 max.(Picture-ch) /15.0dB min.(Sound-ch)	18.0 min. (Picture-ch)/-	44.0 min.(Picture-ch) /25.0dB min.(Sound-ch)	43.0 min.(Picture-ch) /25.0dB min.(Sound-ch)
SAWGS58M7VCPZ00B03	58.75 (Picture-ch)	21.0 max.(Picture-ch) /28.0dB max.(Sound-ch)	6.3±1.2 (Picture-ch) /22.0dB min.(Sound-ch)	1.5 max.(Picture-ch) /15.0dB min.(Sound-ch)	18.0 min. (Picture-ch)/-	44.0 min.(Picture-ch) /25.0dB min.(Sound-ch)	43.0 min.(Picture-ch) /25.0dB min.(Sound-ch)
SAWKE58M7VCMZ00R02	58.75 (Picture-ch)	19.0 max.(Picture-ch) /28.0dB max.(Sound-ch)	4.0±1.2 (Picture-ch) /20.0dB min.(Sound-ch)	3.5±1.5 (Picture-ch) /15.0dB min.(Sound-ch)	20.0 min. (Picture-ch)/-	40.0 min.(Picture-ch) /22.0dB min.(Sound-ch)	40.0 min.(Picture-ch) /22.0dB min.(Sound-ch)

BGS Filters



Marking : [F25.0CA]
C: Vender's Code
* : EIAJ Monthly code

in mm

Part Number	Center Frequency(fo) (MHz)	3dB Bandwidth (kHz)	Insertion Loss (dB)	Spurious Attenuation (dB)	Input/Output Impedance (ohm)
MKFGA25M0HA0P00B05	25.000 ±60kHz	within 220 ±50kHz	5 max.	30 min.	50

Area of Spurious Attenuation : [Range : 23MHz to (fo-400kHz)]

11

Products for Video Equipment

Tuners (for TV/VCR/CATV)

Flyback Transformers

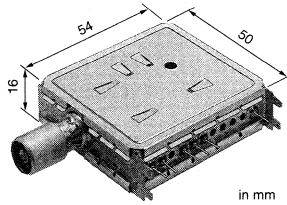
Focus Adjusting Resistors

High-Voltage CR Blocks

Tuners (for TV/VCR/CATV)

TV Tuner

TU700 Series for color TV and VCR



●TU700 Series

Specification of each destination of PAL, JPN and USA are available.

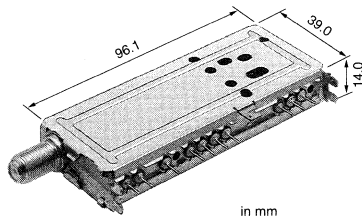
Point of input terminal and arrangement of pin for tuner are based on the industry standard.

Series	CH	Supply Voltage (V)				Input/Output Impedance (Ω)	AGC
		B	Tuning	AGC	AFC		
TU700 Series	USA 181CH	5	0.5 to 30	6.3	—	75	Reverse
	CCIR HYP	5/9	0.5 to 30	4.0/6.3	—	75	Reverse
	JAPAN (CATV)	5/9	0.5 to 30	4.0/6.3	—	75	Reverse

For formal part numbers, please consult us.

CATV Tuner

CAPTU1000 Series



●CAPTU1000 Series

Applicable in all countries.

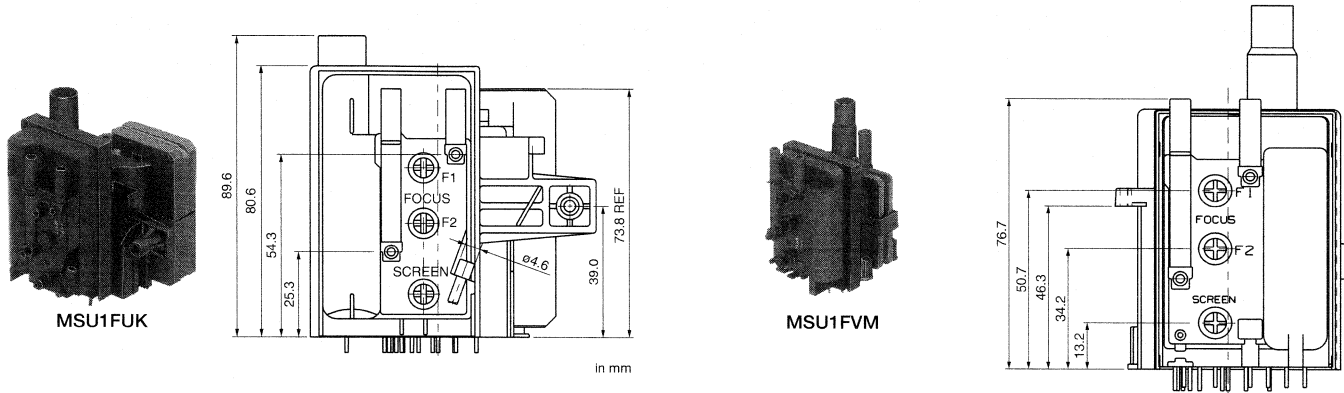
Synthesizer output for 1/64 ECL, 1/128ECL, 1/256 TTL (prescaler) and PLL is available for IC output.

Application	Output	Supply Voltage (V)					Input Frequency Range (MHz)
		B	Pre	Tuning	AGC	AFC	
CAPTU1000 Series	IF Output	9	5	1 to 27	0 to 8	4 \pm 3	47 to 860

For formal part numbers, please consult us.

Flyback Transformers

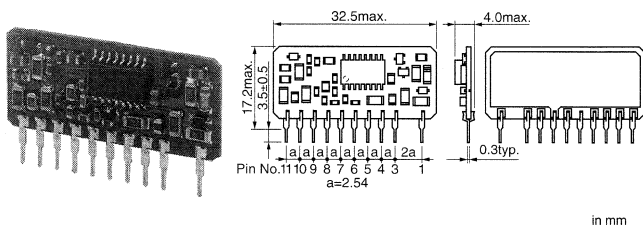
Flyback Transformer



Part Number	Application	CRT Size (Inch)	Horizontal Frequency (kHz)	Focus Pack	HV Capacitor (pF)	HV Bleeder Resistor	Dynamic Focus Capacitor	Features
MSU1AVT	Projection TV	70 max.	15.75	-	-	-	-	Lead Less
MSU1FUK	HDTV, Multimedia TV	32 max.	15.75	Top-Load Double Focus	1500	-	Exist	Lead Less
MSU1FVK	Color TV	21 max.	15.75	Pre-Load	-	-	-	-
MSU1FVR	Color TV	15 max.	15.75	Pre-Load	-	-	-	Isolated Type
MSU1FVT	Color TV	32 max.	15.75	Pre-Load	-	-	-	Lead Less
MSU1FTW	Color Display	15 max.	69 max.	Top-Load	2700	-	Exist	Focus, Screen lead-less
MSU1FVS	Color Display	15 max.	69 max.	Pre-Load	3000	Exist	Exist	Lead Less, for TRINITRON
MSU1FVC	Color Display	17 max.	96 max.	Top-Load Double Focus	Exist	-	Exist	Lead Less
MSU1FVF	Color Display	17 max.	96 max.	Top-Load Double Focus	2700	-	Exist	Focus, Screen Lead Less
MSU1FVM	Color Display	17 max.	96 max.	Top-Load Double Focus	2700	-	Exist	Lead Less
MSU1FWV	Color Display	17 max.	96 max.	Top-Load Double Focus	2700 2pcs	-	Exist	Lead Less
MSU1FTR	Color Display	21 max.	128 max.	Top-Load Double Focus	2700	-	Exist	Focus, Screen Lead Less

Flyback Transformers

Primary Control System Modules

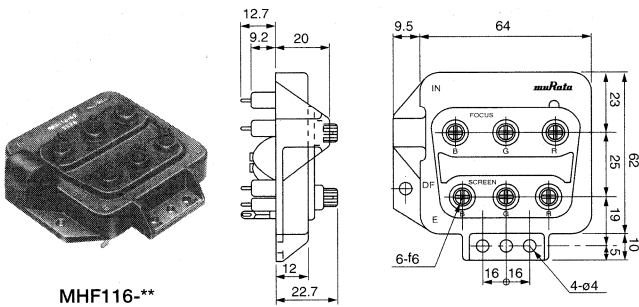


MSPAD101

in mm

Part Number	Application	CRT Size (Inch)	Horizontal Frequency (kHz)	XPROT Accuracy (%)	Features
MSPAD100	Color Display	21 max.	150 max.	+/-2.7	Electrical Controllable HV Value
MSPAD101	HDTV, Projection TV	70 max.	90 max.	+/-2.7	Electrical Controllable HV Value

Continued from the preceding page.

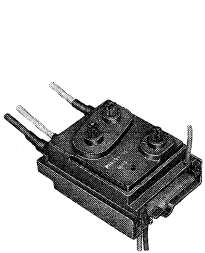


MHF116-**

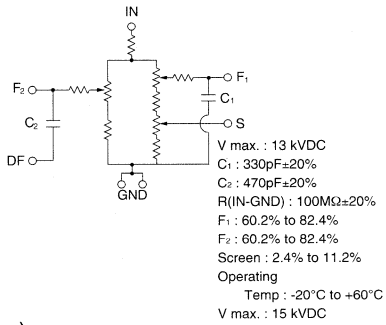
(in mm)

Part Number	Application	Maximum Rated Voltage	Feature	Input Style	Focus/Screen Output Style
MHF111-**	Adjusting convergence	3 KV	Single knob type, Separate type	Center Tapped	Lug Terminal
MHF167-**	Adjusting convergence	4 KV	Single knob type, Separate type	Center Tapped	Snap In
MHF116-**	Projection TV	16 KV	Capacitor for DF built in, Separate type	Center Tapped	Lug Terminal

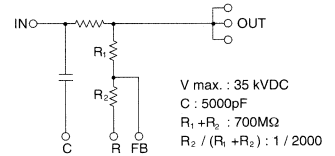
High-voltage CR Blocks



MSC63
(Double Focus for CRT Display)



MSC102
(for Projection TV)



Part Number	Capacitance			Bleeder Resistor	Focus Output
	15kV	30kV	35kV		
MSC63, MSC64	—	—	—	—	Dual
MSC102	—	—	5000pF	○	—

Please see pages 102 to 103 for high voltage resistors.

12

Power Supplies

Switching Power Supplies

Ultra-Low Profile Switching Power Supplies

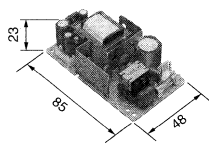
High-Voltage Power Supplies

DC/DC Converters

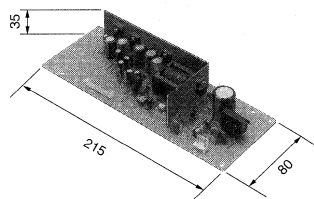
Piezoelectric Inverters

Switching Power Supplies

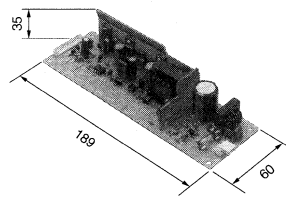
MPS Series/MPW Series



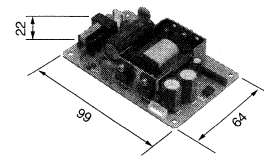
For SOHO Equipment



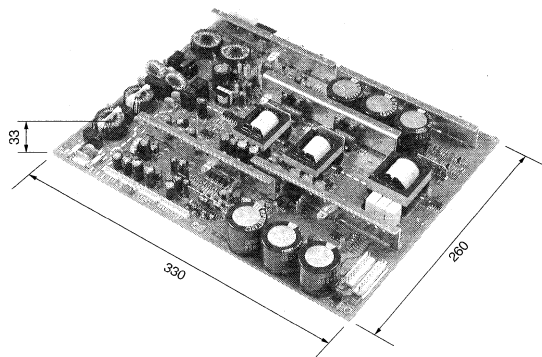
For Communication Equipment



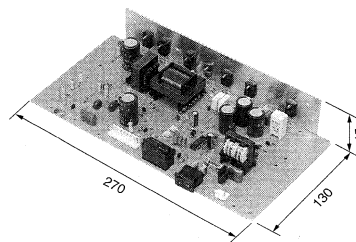
For Audio Visual Equipment



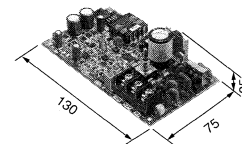
For LCD Display



For PDP



For PBX



For PHS Cell Stations

in mm

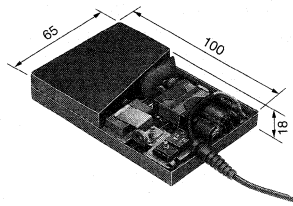
● Features

1. Small size, light weight, high reliability.
2. Low noise, overload protection up to safety standard.

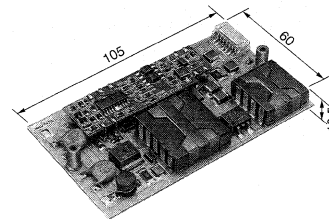
Application	Input Voltage	Output Voltage	Safety Standard	EMI Standard	Remarks	
SOHO equipment	115V AC	5V 0.3A / 24V 4.5A (PEAK) 24V 1.0A (RATE)	Facsimile voluntary standard, UL, CSA	VCCI, FCC	Models which provide a power-saving standby mode are also available.	
	230V AC					
Communication equipment	115V AC	3.3V 0.2A / 5V 0.6A / 9V 0.9A / 15V 0.2A / 25V 0.05A / -27V 0.05A	UL, CSA	VCCI, FCC		
	230V AC					
Audio visual equipment	115V AC	3.3V 1A / 5V 1.5A / 9V 0.6A / 15V 0.3A / 25V 0.05A / -30V 0.05A	UL, CSA	VCCI, FCC		
	230V AC					
LCD Display	100V/115V/ 230V	12V 2.5A (15 inch) 12V 4.5A (18 inch)	UL, CSA, IEC	VCCI, FCC, CISPR		
PDP	100/ 115V AC/ 230V	170V 1.2A / 70V 0.5A / 25V 0.6A / 12V 0.5A / 5V 3.0A / 5Vs 2.0A /	Electrical Appliance and Material Control Law of Japan, UL, CSA, IEC	VCCI, FCC, VDE, CISPR		• W/W input type is available.
PBX	115V/230V	5V 5.0A 12V 1.0A -4.8V 2.5A	UL, IEC	FCC, CISPR		Provided with Pb battery charging function.
PHS cell stations	100V AC	7.2V 1.3A	Electrical Appliance and Material Control Law of Japan	VCCI		Provided with Ni-Cd battery charging function.
LCD Projector	100V/120V/ 230V	12V 1.0A/ 5V 3.5A/ 360V 0.35A	Electrical Appliance and Material Control Law of Japan, UL	VCCI, FCC	• Each system like LCD, DLP is available.	
			IEC	CISPR		

Ultra-Low-profile Switching Power Supplies

MPA Series/MPD Series



AC Adapters



For Communication Equipment
(board-on type)

in mm

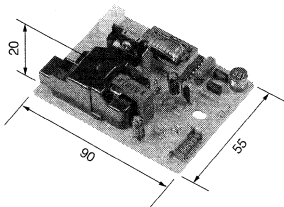
● Features

1. Built-in ultra-low-profile multilayer transformer.
2. Ultra-low-profile, high reliability, light weight.
3. Low noise, overload protection up to safety standard.

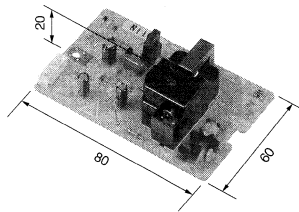
Application	Input Voltage	Output Voltage	Safety Standard	EMI Standard
AC adapters	115V AC	15V 1.5A	UL, CSA	VCCI, FCC
	230V AC		IEC	VDE, CISPR
Communication equipment (board-on type)	-48V DC	-5V 10A	Electrical Appliance and Material Control Law of Japan	VCCI
		-3.3V 15A		

High-Voltage Power Supplies

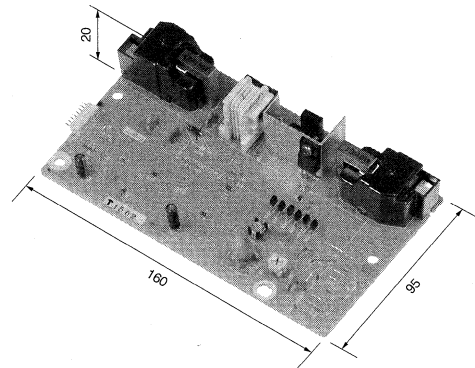
MPH Series/MPL Series



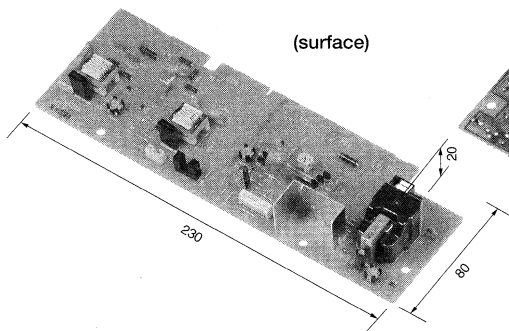
MPH1000/4000 Series



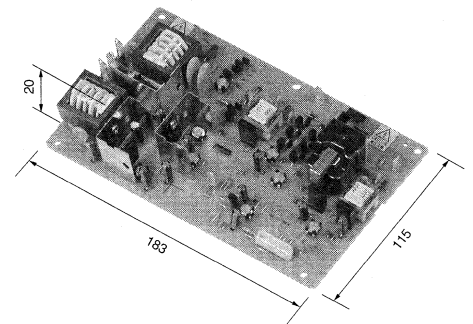
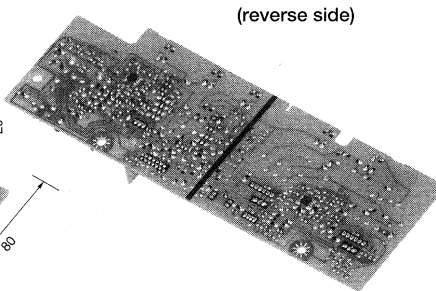
MPH2000 Series



MPH3000 Series



MPH3000 Series with SMD on Reverse Side



MPH7000 Series

in mm

Power Supplies

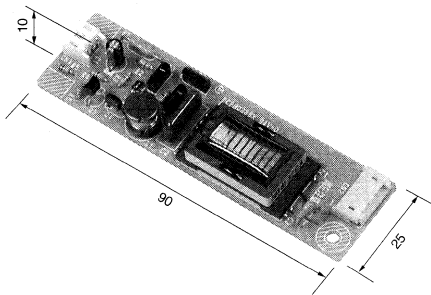
● Features

1. Small size, light weight, high reliability.
2. Built-in protective circuit against shortcircuits of overload.
3. To compound with the inverter for CCFL is available.

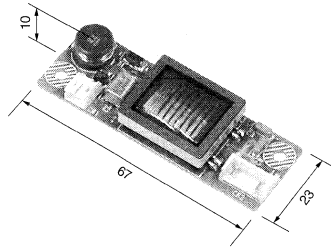
● Applications

PPC, LBP, PPF
Air Cleaner

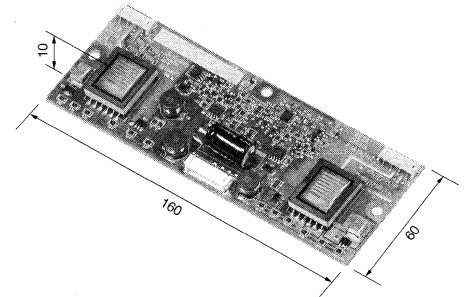
Series	Input V in	Type	Output Voltage V out	Output Current I out	Variability Range	
MPH1000 Series	24V DC	DC constant voltage	6kV	(350 μ A)	V out : 4 to 6.5kV	
MPH2000 Series		DC constant current	(6kV)	350 μ A	I out : 150 to 400 μ A	
MPH3000 Series		DC constant current	(-5kV)	-400 μ A	I out : -300 to -500 μ A	
		DC constant voltage	-0.7kV	(-400 μ A)	V out : -600 to -900V	
		DC constant current	(6.5kV)	250 μ A	I out : 150 to 350 μ A	
MPH6000 Series		DC constant voltage	2kV	(200 μ A)	V out : 1.5 to 2.5kV	
		AC constant voltage	5kV rms	(500 μ A rms)	V out : 4 to 5.5kV rms	
MPH7000 Series		DC constant current	(6kV)	250 μ A	I out : 200 to 300 μ A	
		DC constant voltage	0.6kV	(1 μ A)	V out : 550 to 650V	
		Selectable	DC constant current	(-1.5kV)	-3 μ A	I out : -2 to -4 μ A
			DC constant voltage	1.5kV	(0.5 μ A)	V out : 1.4 to 1.6kV
MPH4000 Series		AC constant voltage	1.5kV rms	(250 μ A rms)	V out : 1.3 to 1.7kV rms	
		DC constant voltage	\pm 6kV	\pm 400 μ A	—————	
		DC constant current	(\pm 6kV)	\pm 400 μ A	—————	



MPL5100 series



MPL5600 series



MPL6600 series

in mm

● Features

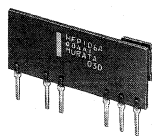
1. Small size, low profile.
2. High reliability, long life.

Series	Applications	Input V in	Output Voltage	Specification
MPL5100 Series	Monitor, Scanner	12 to 24V (fixed)	to 10W	PWM Dimming 1 to 2 Lamp
MPL5600 Series	Note PC PDA	7 to 19V (variable)	to 6W	PWM Dimming (Burst Dimming) 1 Lamp
MPL6000 Series	LCD monitor/TV	12 to 24V (fixed)	to 25W	PWM Dimming (Burst Dimming) 2 to 6 Lamp
MPL7000 Series	Other high voltage application	12 to 150V (fixed)	500V to 10kVDC (to 10mA)	Special specification

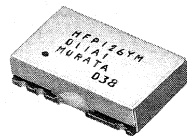
Output open voltage is 1600Vrms max.

DC/DC Converters

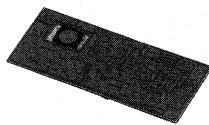
For LCD Display



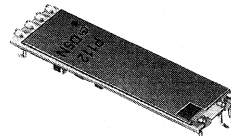
SIP



SMD



Ultra Low Profile Type



SMD Lead-type

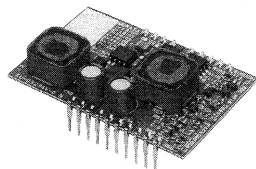
● Specification

Part Number	Input Voltage	Output		Dimensions (mm) L×W×H		Application
		V	mA	mm	mm	
HFP106A004A1	5V	30V	40mA	SIP	24.5×5.5×12.0	STN LCD
HFP106YM002A1				SMD	18.0×11.0×4.5	
HFP126A010A1	5V	-24V	20mA	SIP	24.5×5.5×12.0	
HFP126YM011A1				SMD	18.0×11.0×4.5	
HFP163YL011B1	3 to 5.5V	18 to 29V	40mA	SMD Lead type	28.7×8.5×4.6	
HFP166YC028A1	3.3V	15V	10mA	SMD	38.7×5.8×3.0	TFT LCD
		5V	150mA			
		-9V	20mA			
Ultra Low Profile Type	3.3V	Multiple Output (3)		SMD	31.6×13.7×1.1	TFT LCD

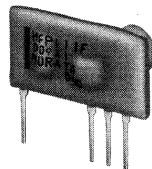
Minimum Quantity (order in sets only) : 1,000 pcs.

DC/DC Converters

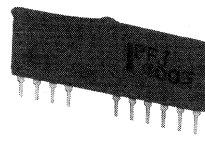
For Personal Computer and Peripheral Equipment



For Note Book Personal Computer



IEEE 1394 for Isolation



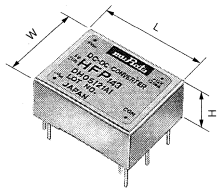
For Flash Memory

● Specification

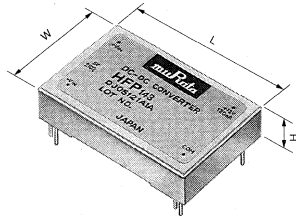
Part Number	Input Voltage (V)	Output Voltage (V)	Output Current (mA)	Dimensions (mm) L×W×H		Application
				mm	mm	
Large Capacity Type	5.2 to 20	3.3, 5	—	—		for Note PC
HFP111F006A1	5.5 to 17	5	240	SIP	22.0×8.0×13.0	
HFP106F001A1	5	12	100	SIP	23.0×8.0×13.5	for PC card
HFP143F05031A3	5	3.3	450	SIP	33.0×9.0×14.5	IEEE 1394 for Isolation

DC/DC Converters

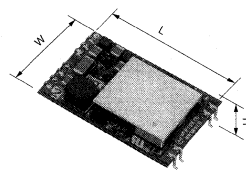
Isolation Type



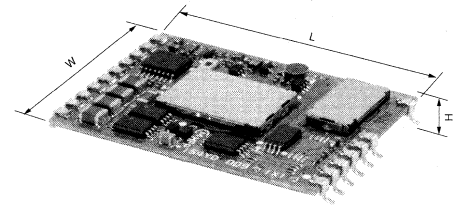
HFP143DH05121A1



HFP143DJ05121A1



HFP154YD48 Series



HFP154YD48_X1 Series

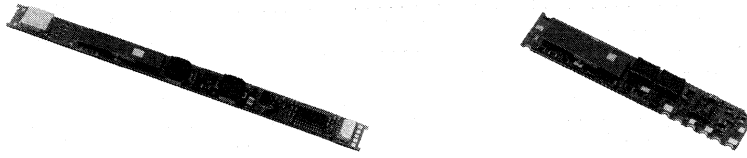
Power (W)	Number of Output	Part Number	Input Voltage (V)	Output Voltage (V)	Output Current (mA)	Dimensions (mm)			Weight (g)
						H	W	L	
1.5	1	HFP143DH05051A1	5	5	300	10.5	20.5	25.5	12
		HFP143DH05121A1	5	12	120				
		HFP143DH05151A1	5	15	100				
		HFP143DH24051A1	24	5	300				
		HFP143DH48051A1	48	5	300				
	2	HFP143DH05122A1	5	±12	Each 60				
HFP143DH05152A1		5	±15	Each 50					
3.0	1	HFP143DJ05121A1	5	12	250	8.5	26.0	42.0	20
		HFP143DJ05151A1	5	15	200				
		HFP143DJ05091A1	5	9	340				
		HFP143DJ48051A1	48	5	600				
	2	HFP143DJ05122A1	5	±12	Each 120				
		HFP143DJ05152A1	5	±15	Each 100				
10.0	1	HFP154YD48 Series	48	1.5	3,000	7.7	23.4	37.7	8
				1.8	3,000				
				2.0	3,000				
				2.5	3,000				
				3.3	3,000				
				5.0	2,000				
5.2	2,000								
10.0	1	HFP154YD48_X1 Series	48	1.8	3,000	4.2	27.2	39.9	8
				2.0	3,000				
				2.5	3,000				
				3.3	3,000				
				5.0	2,000				
				5.2	2,000				

Minimum Order Quantity : 1,000 pcs.

Power Supplies

Piezoelectric Inverters

for Note PC / for DVC, DSC, PDA



HFV/MPV Series

Applications	Input Voltage	Output Power	Output Open Voltage	Operating Frequency	Dimensions (mm) W×L×H
for Note PC	6V to 20V	to 4W	1600Vrms min.	55 to 60kHz	10×130×4.0
for DVC, DSC, PDA	2.5V to 4.3V	to 1W	900Vrms min.	85 to 90kHz	11×55×2.8

13

Functional Modules/Hybrid ICs

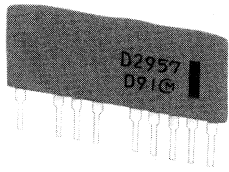
Modules for OA Equipment

Modules for Video Equipment

Modules for Communication Equipment

Modules for OA Equipment

Cut-off Module for CRT Display



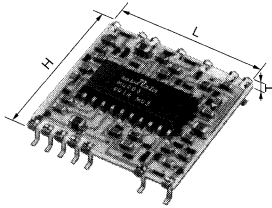
H8D2957

Part Number	Max.Value of +B Voltage (V)	Dimensions (mm)		
		L	H	T
H8D2957	275	24.5	11.0	4.0

Minimum Order Quantity : 1,000 pcs.

Modules for Video Equipment

High Frequency Active Filter for Video Equipment



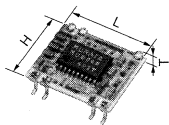
Part Number	Application	Filter Characteristics	Dimensions (mm)		
			L	H	T
AFM79YL30M0C1	Output Part for BS digital/DTV RGB	30MHz 3ch LPF	18.1	16.3	4.7
AFM712YL30M0K1	Output Part for BS digital/DTV YPbPr	30MHz/15MHz/15MHz LPF	33.4	16.3	4.7
AFM712YL30M0K3	Output Part for BS digital/DTV YPbPr	30MHz 3ch LPF	33.4	16.3	4.7

We can also support any other filter. Please consult with us for details.

Minimum Order Quantity : 1,000 pcs.

Modules for Communication Equipment

High Frequency Active Filter for Communication Equipment



Part Number	Application	Filter Characteristics	Dimensions (mm)		
			L	H	T
AFL78YL615KK1	PCS(CDMA) Base Station	615kHz LPF	13.1	12.7	4.7
AFE32YL315KA1	PCS(CDMA) Base Station	315kHz Equalizer	13.1	12.7	5.0
AFM834YL1M90K1	PCS(W-CDMA) Base Station	1.92MHz 2ch LPF	33.4	16.3	4.8

We can also support any other filter. Please consult with us for details.

Minimum Order Quantity : 1,000 pcs.

14

Sensors

PTC Thermistors (for overheat sensing)

NTC Thermistors (for temperature sensor)

Pyroelectric Infrared Sensors

Pyroelectric Infrared Sensor Modules

Ultrasonic Sensors

Shock Sensors

Built-in Circuit Acceleration Sensors

Piezoelectric Gyroscopes (GYROSTAR®)

Non-contact Potentiometers

Rotary Sensors

Magnetic Pattern Recognition Sensors

Electric Potential Sensors

- **Part Numbering** (The structure of the "Global Part Numbers" that have been adopted since June 2001 and the meaning of each code are described herein.)
If you have any questions about details, inquire at your usual Murata sales office or distributor.

PTC Thermistors (POSISTOR®) Chip Type

(Global Part Number)

PR	F	18	AR	471	Q	B1	RB
①	②	③	④	⑤	⑥	⑦	⑧

① Product ID

Product ID	
PR	PTC Thermistors Chip Type

② Series

Code	Series
F	for Overheat Sensing

③ Dimensions (L×W)

Code	Dimensions (L×W)
18	1.60×0.80

④ Temperature Characteristics

Code	Temperature Characteristics
AR	Curie Point 120°C
AS	Curie Point 130°C
BA	Curie Point 110°C
BB	Curie Point 100°C
BC	Curie Point 90°C
BD	Curie Point 80°C
BE	Curie Point 70°C

⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
471	470 Ω

⑥ Resistance Tolerance

Code	Resistance Tolerance
Q	Special Tolerance

⑦ Individual Specifications

Code	Individual Specifications
B1	Structure, others

⑧ Packaging

Code	Packaging
RB	Paper Taping (4mm Pitch)

PTC Thermistors (POSISTOR®) Lead Type

(Global Part Number)

PT	FL	04	BB	222	Q	2N34	B0
①	②	③	④	⑤	⑥	⑦	⑧

① Product ID

Product ID	
PT	PTC Thermistors

② Series

Code	Series
FL	for Overheat Sensing Lead Type
FM	for Overheat Sensing with Lug-terminal
GL	for Circuit Protection Lead Type

③ Dimensions

Code	Dimensions
04	Nominal Body Diameter 4mm Series

④ Temperature Characteristics

Code	Temperature Characteristics
BA	Curie Point 110°C
BB	Curie Point 100°C
BC	Curie Point 90°C
BD	Curie Point 80°C
BE	Curie Point 70°C
BF	Curie Point 60°C
BG	Curie Point 50°C
BH	Curie Point 40°C

⑤ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
R22	0.22 Ω
2R2	2.2 Ω
220	22 Ω

⑥ Resistance Tolerance

Code	Resistance Tolerance
Q	Special Tolerance

⑦ Individual Specifications

Code	Individual Specifications
2N34	Lead Type, others

⑧ Packaging

Code	Packaging
B0	Bulk

NTC Thermistors Lead Type

(Global Part Number) **NT** **SA0** **XH** **103** **F** **E1** **B0**
 ① ② ③ ④ ⑤ ⑥ ⑦

① Product ID

Product ID	
NT	NTC Thermistors

② Series

Code	Series
SA0	for Temperature Sensors No Lead-coating Type
SD0	for Temperature Sensors Lead-coating Type

③ Temperature Characteristics

Code	Temperature Characteristics
WB	Nominal B-Constant 4050–4099
WC	Nominal B-Constant 4100–4149
WD	Nominal B-Constant 4150–4199
WF	Nominal B-Constant 4250–4299
XM	Nominal B-Constant 3500–3549
XH	Nominal B-Constant 3350–3399
XR	Nominal B-Constant 3700–3749
XV	Nominal B-Constant 3900–3949

④ Resistance

Expressed by three figures. The unit is ohm (Ω). The first and second figures are significant digits, and the third figure expresses the number of zeros which follow the two figures. If there is a decimal point, it is expressed by the capital letter "R". In this case, all figures are significant digits.

Ex.)

Code	Resistance
202	2k Ω
203	20k Ω

⑤ Resistance Tolerance

Code	Resistance Tolerance
E	$\pm 3\%$
F	$\pm 1\%$

⑥ Individual Specifications

Code	Individual Specifications
E1	Lead Style, others

⑦ Packaging

Code	Packaging
A0	Ammo Pack
B0	Bulk

Pyroelectric Infrared Sensors

(Global Part Number) **IR** **A-** **E710ST** **1**
 ① ② ③ ④

① Product ID

② Type

③ Characteristics

④ Individual Specification Code

* Global Part Number shows only an example which might be different from actual part number.

* "③ Characteristics" and "④ Individual Specification Code" might have different digit number from actual Global Part Number.

Pyroelectric Infrared Sensor Modules

(Global Part Number) **IM** **D-** **B101-** **01**
 ① ② ③ ④

① Product ID

② Type

③ Characteristics

④ Individual Specification Code

* Global Part Number shows only an example which might be different from actual part number.

* "③ Characteristics" and "④ Individual Specification Code" might have different digit number from actual Global Part Number.

Ultrasonic Sensors

(Global Part Number) **MA** **40MF** **14** **-1N** **-M**
 ① ② ③ ④ ⑤

① Product ID

② Series

③ Characteristics

④ Individual Specification Code

⑤ Packaging

* Global Part Number shows only an example which might be different from actual part number.

* Any other definitions than "① Product ID" might have different digit numbers from actual Global Part Number.

Shock Sensors

(Global Part Number)

PK	GS-25	ME	1	-R
----	-------	----	---	----

1 2 3 4 5

- 1 Product ID
- 2 Series
- 3 Characteristics
- 4 Individual Specification Code
- 5 Packaging

* Global Part Number shows only an example which might be different from actual part number.
 * "3 Characteristics", "4 Individual Specification Code" and "5 Packaging" might have different digit number from actual Global Part Number.

Built-in Circuit Acceleration Sensors

(Global Part Number)

PK	GA-S	60A		-M
----	------	-----	--	----

1 2 3 4 5

- 1 Product ID
- 2 Series
- 3 Characteristics
- 4 Individual Specification Code
- 5 Packaging

* Global Part Number shows only an example which might be different from actual part number.
 * Any other definitions than "1 Product ID" might have different digit number from actual Global Part Number.

Piezoelectric Gyroscopes (GYROSTAR®)

(Global Part Number)

EN	C-03JA	-02	
----	--------	-----	--

1 2 3 4

- 1 Product ID
- 2 Type
- 3 Individual Specification Code
- 4 Packaging

* Global Part Number shows only an example which might be different from actual part number.
 * Any other definitions than "1 Product ID" might have different digit number from actual Global Part Number.

Non-contact Potentiometers

(Global Part Number)

LP	05M	4R1AA	
----	-----	-------	--

1 2 3 4

- 1 Product ID
- 2 Type
- 3 Characteristics
- 4 Individual Specification Code

* Global Part Number shows only an example which might be different from actual part number.
 * Any other definitions than "1 Product ID" might have different digit number from actual Global Part Number.

Rotary Sensors

(Global Part Number)

FR	05CM	12AL	
----	------	------	--

1 2 3 4

- 1 Product ID
- 2 Type
- 3 Characteristics
- 4 Individual Specification Code

* Global Part Number shows only an example which might be different from actual part number.
 * Any other definitions than "1 Product ID" might have different digit number from actual Global Part Number.

Magnetic Pattern Recognition Sensors

(Global Part Number)

BS	05W	1KFAB	
----	-----	-------	--

1 2 3 4

- 1 Product ID
- 2 Type
- 3 Characteristics
- 4 Individual Specification Code

* Global Part Number shows only an example which might be different from actual part number.
 * Any other definitions than "1 Product ID" might have different digit number from actual Global Part Number.

Electric Potential Sensors

(Global Part Number)

PK	E05	A	
----	-----	---	--

1 2 3 4

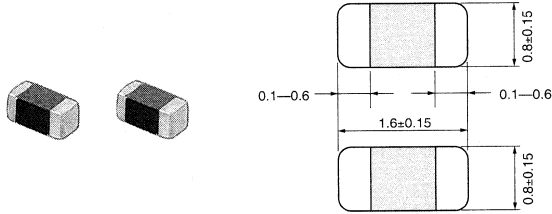
- 1 Product ID
- 2 Series
- 3 Characteristics
- 4 Individual Specification Code

* Global Part Number shows only an example which might be different from actual part number.
 * Any other definitions than "1 Product ID" might have different digit number from actual Global Part Number.

	Detection	Temperature		Infra-red	Ultra-sonic	Magnetic			Mechanical		Electric Potential	
		PTC Thermistors(POSITOR®)	NTC Thermistors			Pyroelectric Infrared Sensors	Ultrasonic Sensors	Rotary Sensors	Non-contact Potentiometers	Magnetic Pattern Recognition Sensors		Shock Sensors
	Murata's Sensors											
Audio Visual Equipment	TV	○	○									
	Audio Equipment	○	○									
	DVD, MD, CD	○	○						○			
	VCR	○	○				○					
	Video Cameras	○	○						○		○	
	Cameras, Digital Cameras		○						○		○	
Home Appliances	Refrigerators		○									
	Microwave Ovens		○	○								
	Air Conditioners	○	○	○								
	Fan Heaters		○									
	Ventilators			○								
	Vacuum Cleaners	○	○									
	Washing Machines											
	Electric Water Fountains		○									
	Kitchen Fans		○	○								
	Water Suppliers		○									
Security	Gas Detection Sensors	○	○	○								
	Flame Detection(heat) Sensors		○									
	Flammable Sensors			○								
	Burglar Alarm Systems			○	○							
	Intruders Detection Sensors			○	○							
	Glass Cracking Detection Sensors				○				○			
Health Equipment	Thermometers		○	○								
Factory Automation Equipment	Automatic Transportation Systems			○	○						○	
	Multi-Joints Robots					○					○	
	Processing Machines					○						
	Shape Inspection Systems				○							
	Molding Machines					○						
Automotive	Engine Control Units		○									
	SRS									○		
	Suspension Control Systems				○							
	Navigation		○								○	
	Air Conditioners	○	○									
	Back Sonars				○							
Office Automation Equipment	Personal Computers	○	○						○		○	
	Copying Machines	○	○				○					○
	Printers	○	○		○		○					○
	Facsimiles	○	○		○		○					
	Electric Boards		○		○							
Financial Systems	Automatic Teller Machines						○	○				

PTC (POSISTOR®) for Overheat Sensing

Chip Type



(in mm)

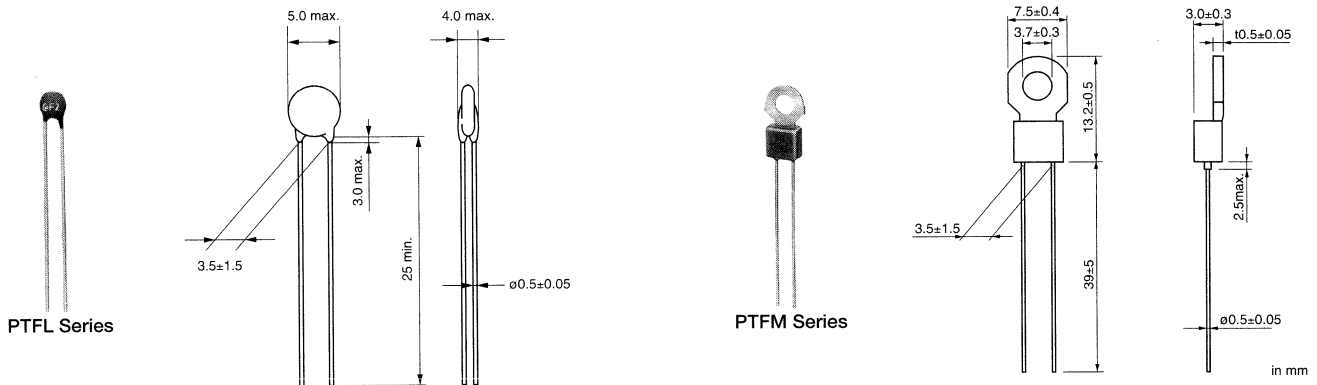
Part Number	Sensing Temperature (at 4.7k ohm) (°C)	Maximum Voltage (V)	Maximum Current (mA)	Curie Point (°C)	Resistance (at 25 degree) (ohm)	Operating Temperature Range (°C)
PRF18BE471QB1RB	85 ±5	16	30	70 (BE)	470 ±50%	-20 to 100
PRF18BD471QB1RB	95 ±5	16	30	80 (BD)	470 ±50%	-20 to 110
PRF18BC471QB1RB	105 ±5	16	30	90 (BC)	470 ±50%	-20 to 120
PRF18BB471QB1RB	115 ±5	16	30	100 (BB)	470 ±50%	-20 to 130
PRF18BA471QB1RB	125 ±5	16	30	110 (BA)	470 ±50%	-20 to 140
PRF18AR471QB1RB	135 ±5	16	30	120 (AR)	470 ±50%	-20 to 150
PRF18AS471QB1RB	145 ±5	16	30	130 (AS)	470 ±50%	-20 to 160

This product is applied to reflow soldering. Please consult us for flow soldering usage.

The order quantity should be an integral multiple of the "Minimum Quantity" the beginning of this catalog.

PTC (POSISTOR®) for Overheat Sensing

Lead Type



Part Number	Max. Voltage (V)	Curie Point (°C)	Sensing Temp.(TS) (°C)	Resistance Value at 25°C (ohm)	Resistance Value (Sensing Temp. -10°C)	Resistance Value at Sensing Temp.(TS°C)
PTF□04BH471Q2N34B0	16	40 (BH)	60	100 max.	330ohm max.	470ohm min.
PTF□04BG471Q2N34B0	16	50 (BG)	70	100 max.	330ohm max.	470ohm min.
PTF□04BF471Q2N34B0	16	60 (BF)	80	100 max.	330ohm max.	470ohm min.
PTF□04BE471Q2N34B0	16	70 (BE)	90	100 max.	330ohm max.	470ohm min.
PTF□04BD471Q2N34B0	16	80 (BD)	100	100 max.	330ohm max.	470ohm min.
PTF□04BC471Q2N34B0	16	90 (BC)	110	100 max.	330ohm max.	470ohm min.
PTF□04BB471Q2N34B0	16	100 (BB)	120	100 max.	330ohm max.	470ohm min.
PTF□04BH222Q2N34B0	16	40 (BH)	60	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BG222Q2N34B0	16	50 (BG)	70	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BF222Q2N34B0	16	60 (BF)	80	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BE222Q2N34B0	16	70 (BE)	90	330 max.	1.5k ohm max.	2.2k ohm min.

Continued on the following page.

Continued from the preceding page.

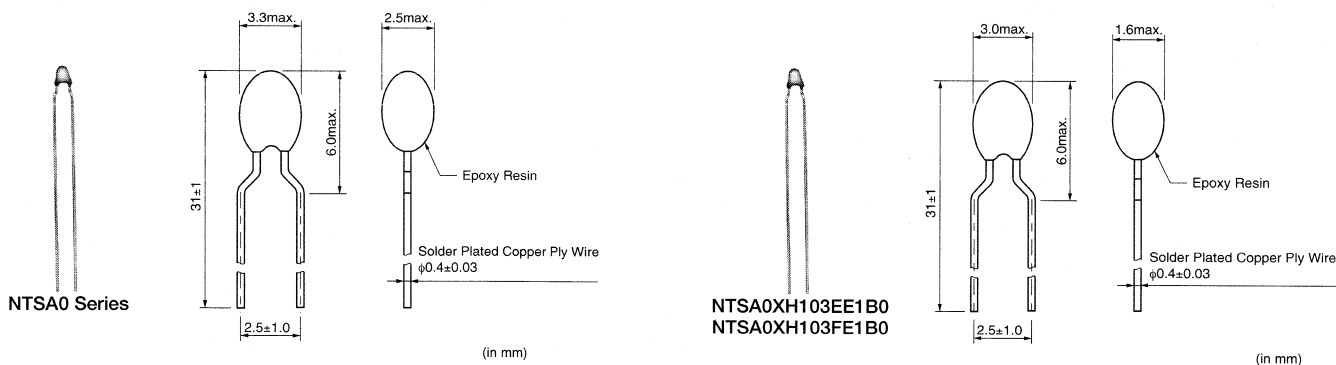
Part Number	Max. Voltage (V)	Curie Point (°C)	Sensing Temp.(TS) (°C)	Resistance Value at 25°C (ohm)	Resistance Value (Sensing Temp. -10°C)	Resistance Value at Sensing Temp.(TS°C)
PTF□04BD222Q2N34B0	16	80 (BD)	100	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BC222Q2N34B0	16	90 (BC)	110	330 max.	1.5k ohm max.	2.2k ohm min.
PTF□04BB222Q2N34B0	16	100 (BB)	120	330 max.	1.5k ohm max.	2.2k ohm min.

A blank is filled with type codes. (L:Lead type, M:with Lug-terminal)

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

NTC for Temperature Sensor

Resin Coated Radial Lead Type



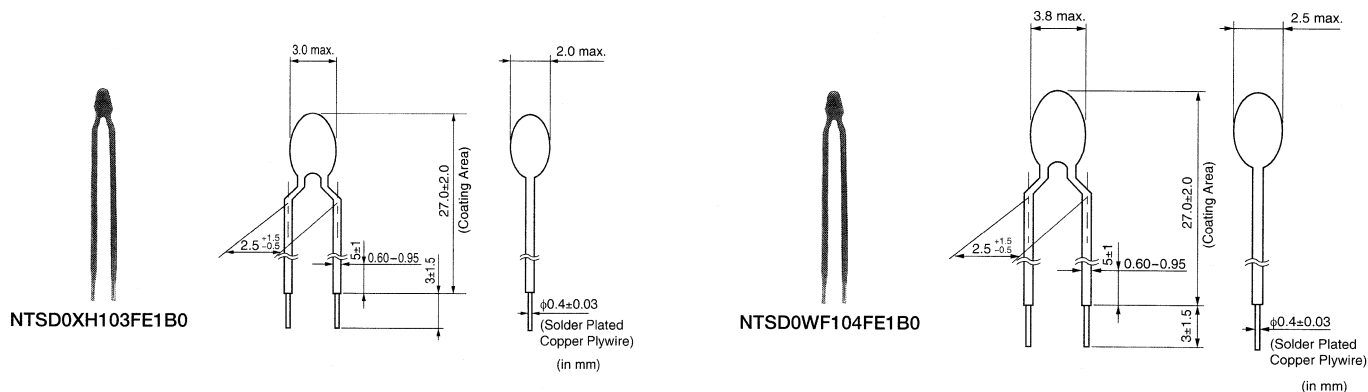
Part Number	Resistance (25°C) (k ohm)	B-Constant (25-50°C) (K)	Max. Operating Current(25°C) (mA)	Rated Electric Power(25°C) (mW)	Typical Dissipation Constant(25°C) (mW/°C)	Thermal Time Constant(s)	Operating Temperature Range (°C)
NTSA0XM202□E1B0	2.0	3500 ±1%	1.05	21	2.1	less than7	-40 to 125
NTSA0XR502□E1B0	5.0	3700 ±1%	0.68	21	2.1	less than7	-40 to 125
NTSA0XH103□E1B0	10	3380 ±1%	0.38	15	1.5	less than7	-40 to 125
NTSA0XV103□E1B0	10	3900 ±1%	0.46	21	2.1	less than7	-40 to 125
NTSA0WB203□E1B0	20	4050 ±1%	0.31	21	2.1	less than7	-40 to 125
NTSA0WC303□E1B0	30	4100 ±1%	0.26	21	2.1	less than7	-40 to 125
NTSA0WD503□E1B0	50	4150 ±1%	0.20	21	2.1	less than7	-40 to 125
NTSA0WF104□E1B0	100	4250 ±1%	0.14	21	2.1	less than7	-40 to 125

A blank column is filled with resistance tolerance codes. (F:±1%, E:±3%)

Taping type of part numbers with "A0" is available.

The order quantity should be an integral multiple of the "Minimum Quantity" shown in the beginning of this catalog.

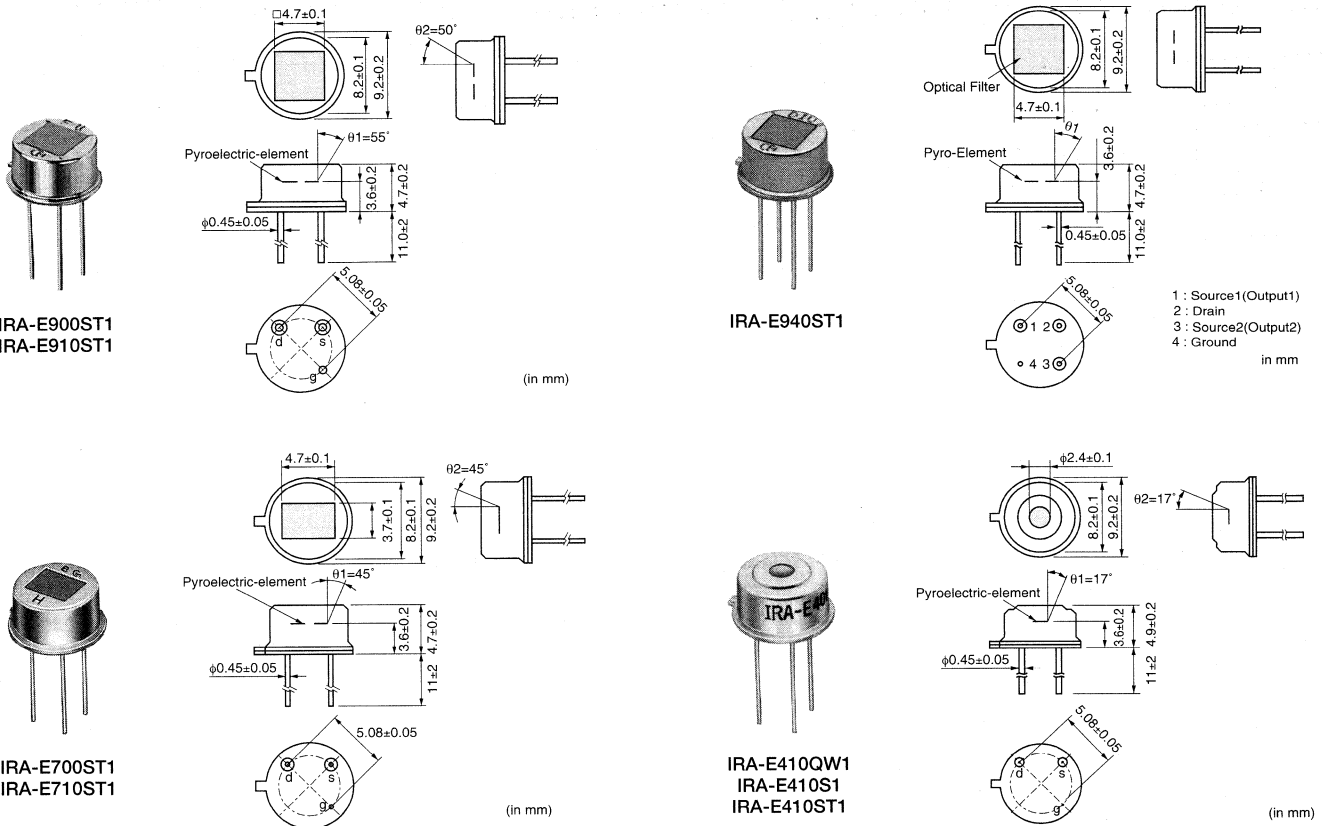
● Lead-Coating Type



Part Number	Resistance (25°C) (k ohm)	B-Constant (25-50°C) (K)	Max. Operating Current(25°C) (mA)	Rated Electric Power(25°C) (mW)	Typical Dissipation Constant(25°C) (mW/°C)	Thermal Time Constant(s)	Operating Temperature Range (°C)
NTSD0XH103FE1B0	10 ±1%	3380 ±1%	0.38	15	1.5	less than7	-40 to 125
NTSD0WF104FE1B0	100 ±1%	4250 ±1%	0.14	21	2.1	less than7	-40 to 125

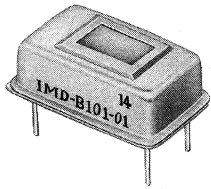
The order quantity should be an integral multiple of the "Minimum Quantity" shown in the shown in the beginning of this catalog.

Pyroelectric Infrared Sensors

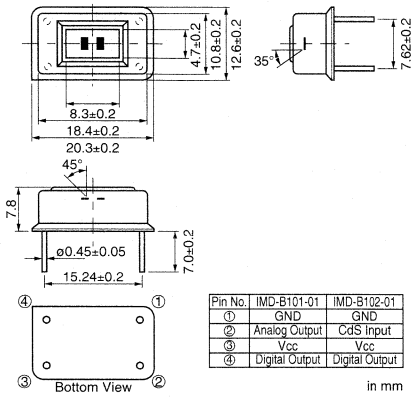


Part Number	Field of View (°)	Optical Filter	Electrode	Operating Temperature Range (°C)
IRA-E900ST1	theta1=theta2=41	5 micron m Long Pass Silicon	(1.1x1.1mm)x4	-25 C. to 55 C.
IRA-E910ST1	theta1=theta2=41	5 micron m Long Pass Silicon	(1.1x1.1mm)x4	-25 C. to 55 C.
IRA-E940ST1	theta1=55 ,theta2=50°	5 micron m Long Pass Silicon	(1.35mmx1.0mm)x4	-25 C. to 55 C.
IRA-E700ST0	theta1=theta2=45	5 micro m Long Pass Silicon	(2.0x1.0mm)x2	-40 C. to 70 C.
IRA-E710ST0	theta1=theta2=45	5 micro m Long Pass Silicon	(2.0x1.0mm)x2	-40 C. to 70 C.
IRA-E410QW1	theta1=theta2=17	4.3µm Band Pass Silicon	fai 1.6mm	-25 to 55
IRA-E410S1	theta1=theta2=17	Silicon	fai 1.6mm	-25 to 55
IRA-E410ST1	theta1=theta2=17	5µm Long Pass Silicon	fai 1.6mm	-25 to 55

Pyroelectric Infrared Sensor Modules



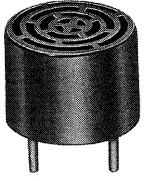
IMD-B101-01



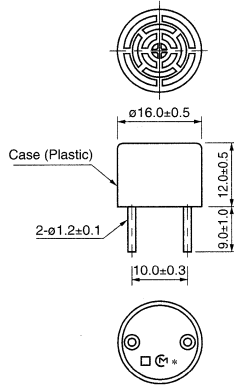
Part Number	Supply Voltage	Detection Length (without Lens) (m)	Detection Length (with IMD-FL01W/G) (m)	Detection Range (with IMD-FL01W/G)	Output Type
IMD-B101-01	2.6~5.5V	1	5	104°x30°	Digital Output / Analog Output
IMD-B102-01	2.6~5.5V	1	5	104°x30°	Digital Output

Ultrasonic Sensors

● Open Structure Type

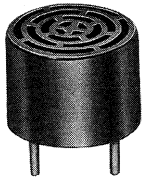
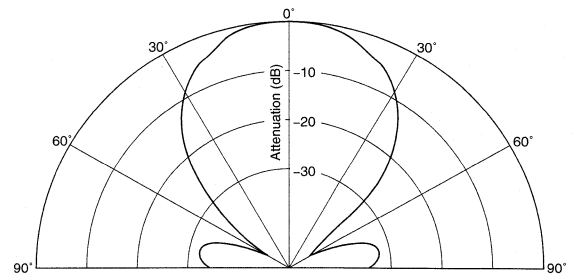


MA40B8R

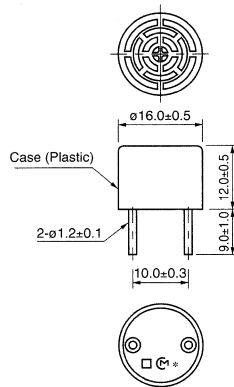


* : EIAJ Code
□ : R or S
in mm

Directivity in sensitivity

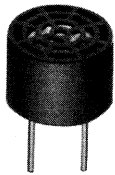
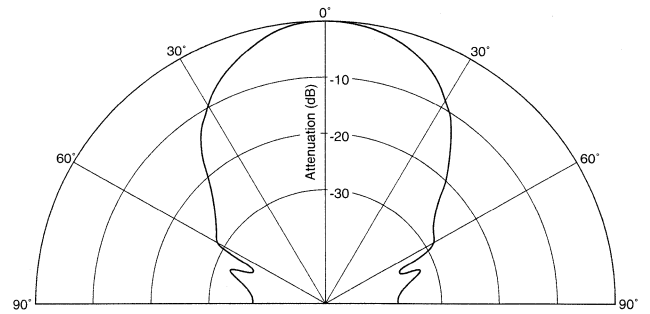


MA40B8S

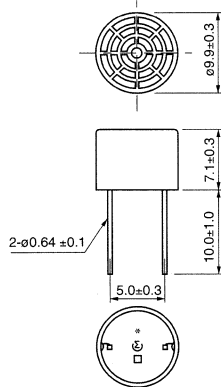


* : EIAJ Code
□ : R or S
in mm

Directivity in S.P.L.

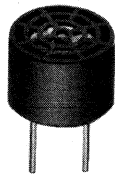
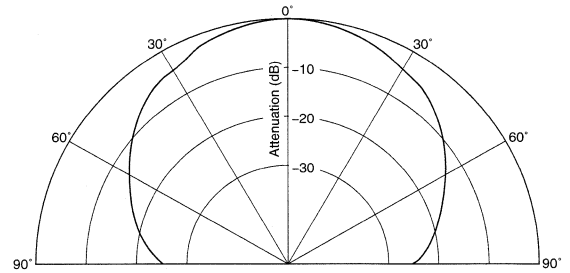


MA40S4R

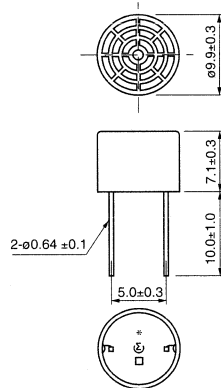


* : EIAJ Code
□ : R or S
in mm

Directivity in sensitivity

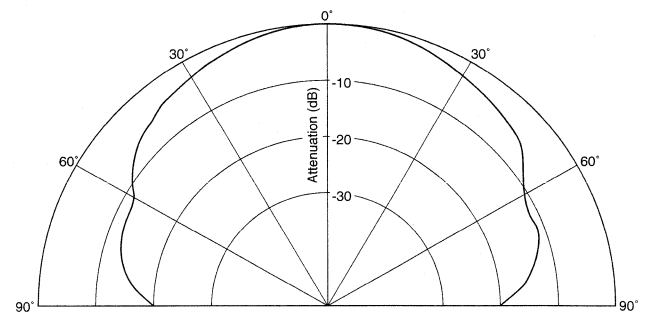


MA40S4S



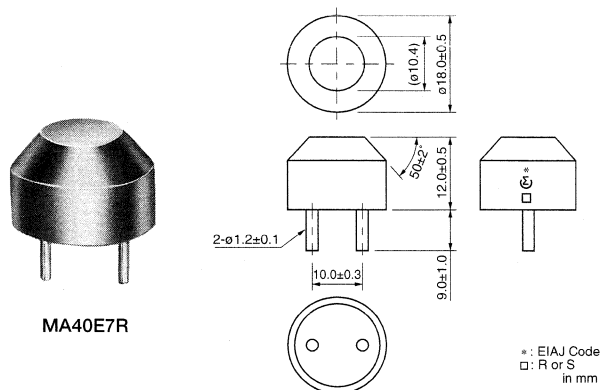
* : EIAJ Code
□ : R or S
in mm

Directivity in S.P.L.

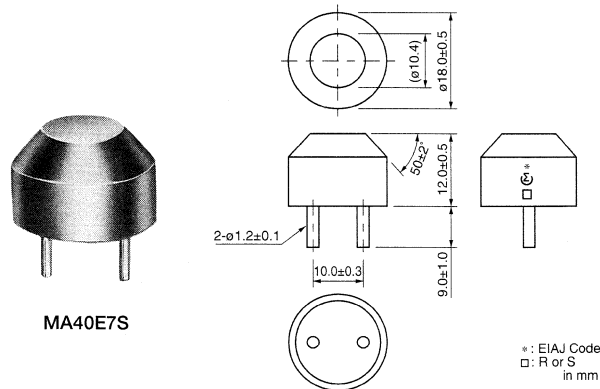
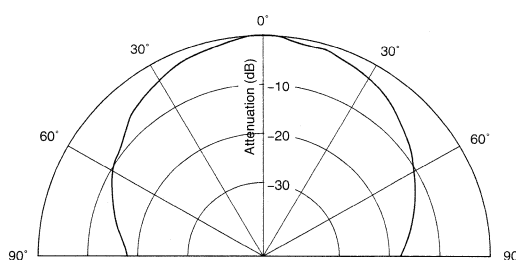


Part Number	Construction	Using Method	Nominal Freq. (kHz)	Overall Sensitivity (mVp-p)	Sensitivity (dB)	S.P.L. (dB)	Directivity (°)	Cap. (pF)	Detectable Range (m)	Resolution (mm)
MA40B8R	Open struct.	Receiver	40	-	-63 typ. (0dB=10V/Pa)	-	50	2000	0.2 to 6	9
MA40B8S	Open struct.	Transmitter	40	-	-	120 typ. (0dB=0.02mPa)	50	2000	0.2 to 6	9
MA40S4R	Open struct.	Receiver	40	-	-63 typ. (0dB=10V/Pa)	-	80	2550	0.2 to 4	9
MA40S4S	Open struct.	Transmitter	40	-	-	120 typ. (0dB=0.02mPa)	80	2550	0.2 to 4	9
MA40S5	Open struct.	Dual Use	40	20 typ.	-	-	60 typ.	2550	0.5 to 2	9

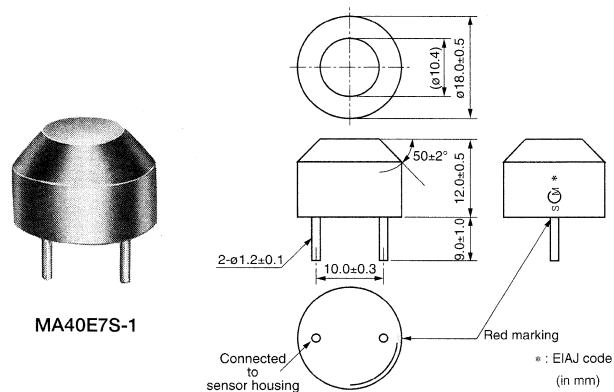
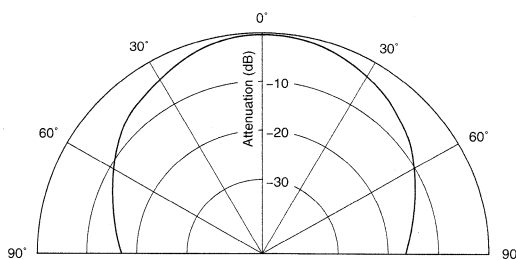
Water Proof Type



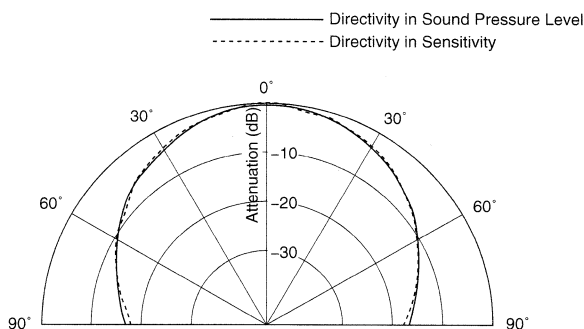
Directivity in sensitivity



Directivity in S.P.L.

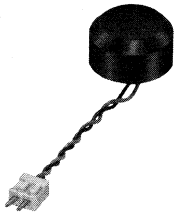


Directivity in overall sensitivity

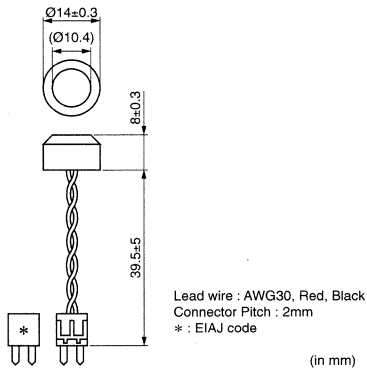


Continued on the following page. ↗

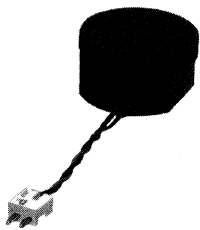
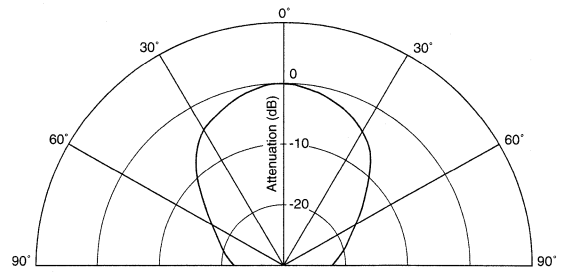
Continued from the preceding page.



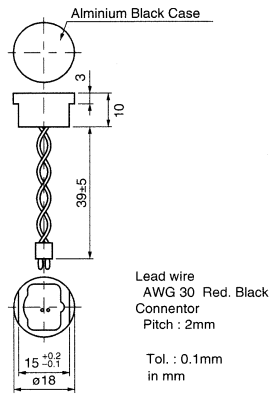
MA40E8-2



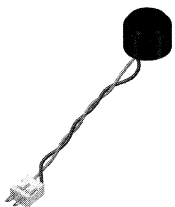
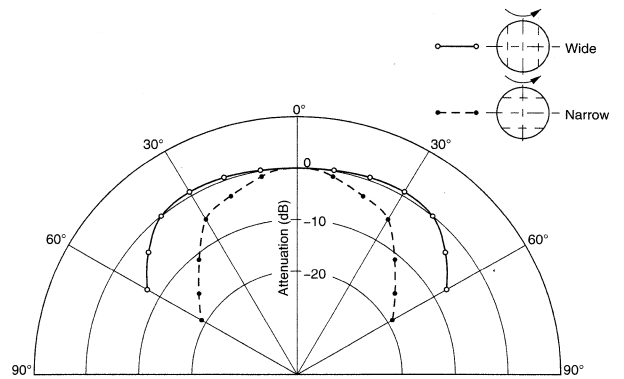
Directivity in overall sensitivity



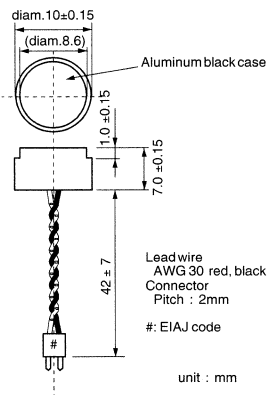
MA40E9-1



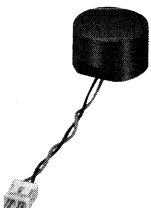
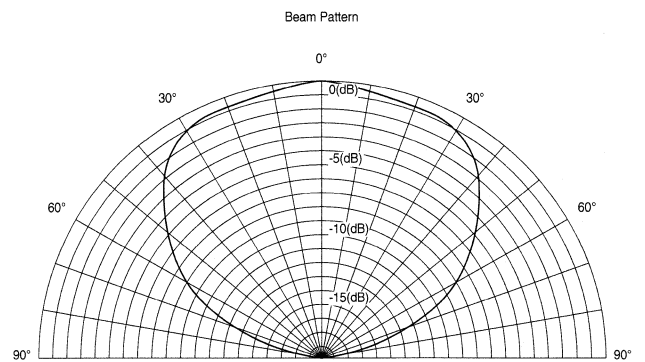
Directivity in overall sensitivity



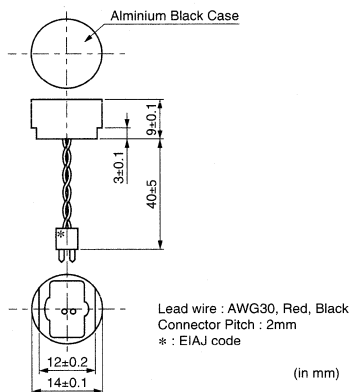
MA40MC10-1B



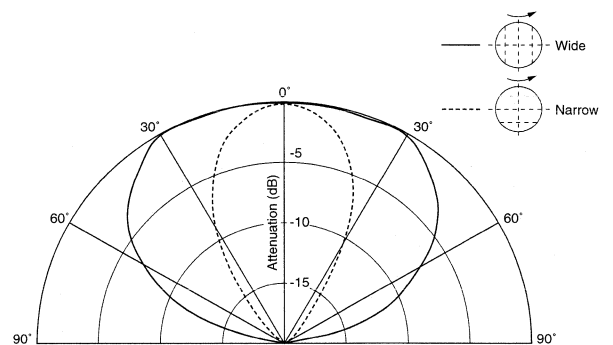
Directivity in overall sensitivity



MA40MF14-1B

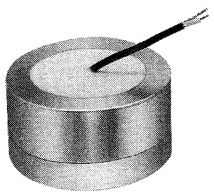


Directivity in overall sensitivity

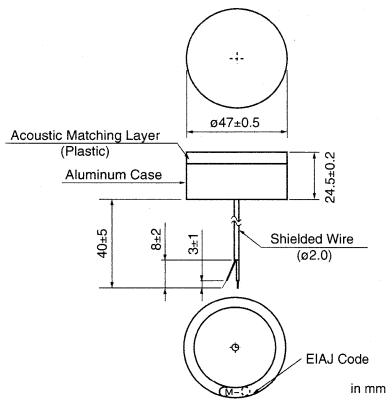


Part Number	Construction	Using Method	Nominal Freq. (kHz)	Overall Sensitivity	Sensitivity (dB)	S.P.L. (dB)	Directivity (°)	Cap. (pF)	Detectable Range (m)	Resolution (mm)
MA40E7R	Water proof	Receiver	40	-	-74 min. (0dB=10V/Pa)	-	100	2200	0.2 to 3	9
MA40E7S	Water proof	Transmitter	40	-	-	106 min. (0dB=0.02mPa)	100	2200	0.2 to 3	9
MA40E7S-1	Water proof	Dual Use	40	-	-72 min. (0dB=10V/Pa) : reference only	106 min. (0dB=0.02mPa)	75	2200	0.2 to 3	9
MA40E8-2	Water proof	Dual Use	40	-	-85 min. (0dB=10V/Pa)	106 min. (0dB=0.02mPa)	75	2800	0.2 to 1.5	9
MA40E9-1	Water proof	Dual Use	40	-	-85 min. (0dB=10V/Pa)	103 min. (0dB=0.02mPa)	100 x50°	4000	0.2 to 1.5	9
MA40MC10-1B	Water proof	Dual Use	40	-	-86 min. (0dB=10V/Pa)	104 min. (0dB=0.02mPa)	100 typ.	2400	0.2 to 1.5	9
MA40MF14-1B	Water proof	Dual Use	40	-	-87 min. (0dB=10V/Pa)	103 min. (0dB=0.02mPa)	110 x50°	4400	0.2 to 1.5	9

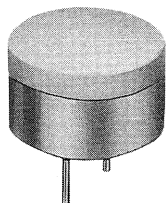
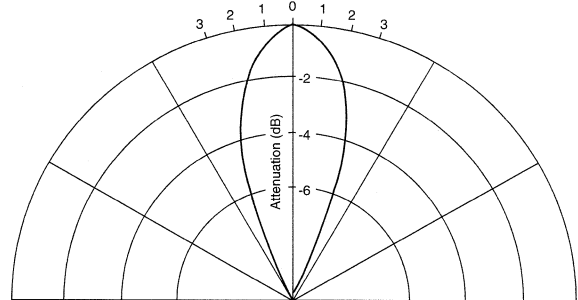
● High-frequency Type



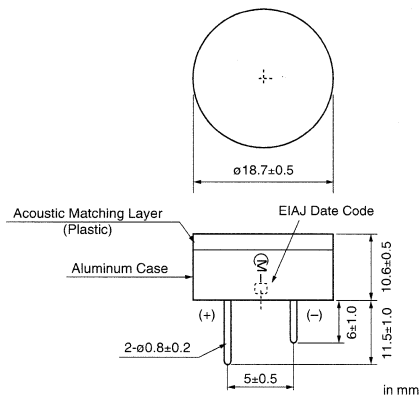
MA80A1



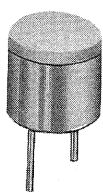
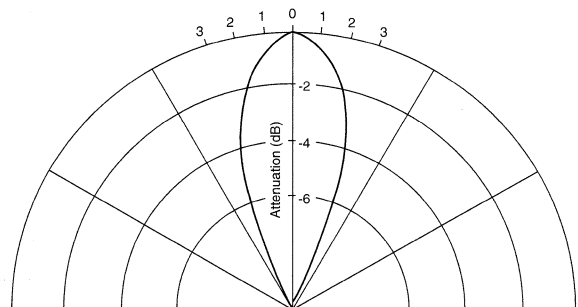
Directivity in overall sensitivity



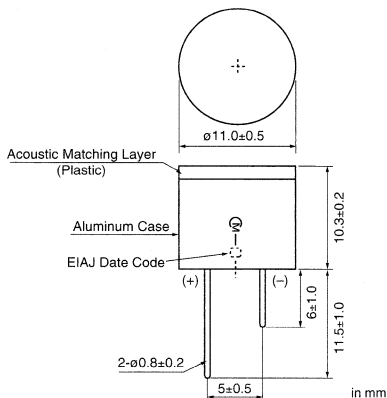
MA200A1



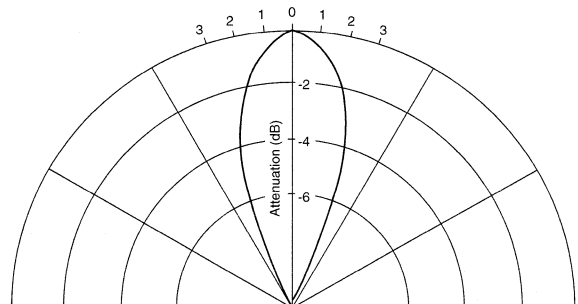
Directivity in overall sensitivity



MA400A1

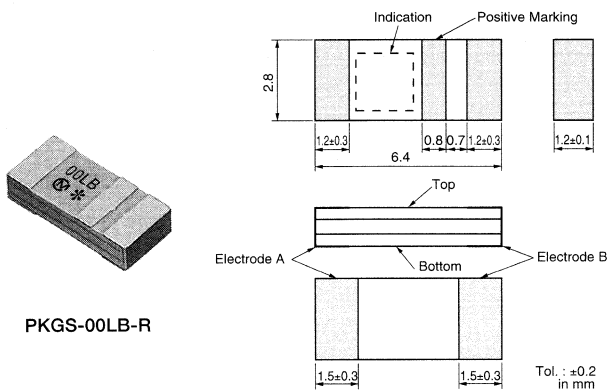


Directivity in overall sensitivity

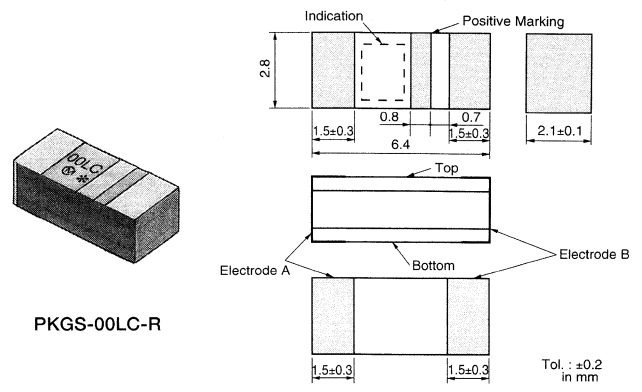


Part Number	Construction	Using Method	Nominal Freq. (kHz)	Overall Sensitivity (dB)	Sensitivity	S.P.L.	Directivity (°)	Cap.	Detectable Range (m)	Resolution (mm)
MA80A1	High frequency type	Dual Use	75 +/-5	-47 min. 0dB=18Vpp (at 50cm)	-	-	7	-	0.5 to 5	4
MA200A1	High frequency type	Dual Use	200 +/-10	-54 min. 0dB=18Vpp (at 20cm)	-	-	7	-	0.2 to 1	2
MA400A1	High frequency type	Dual Use	400 +/-20	-74 min. 0dB=18Vpp (at 10cm)	-	-	7	-	0.06 to 0.3	1

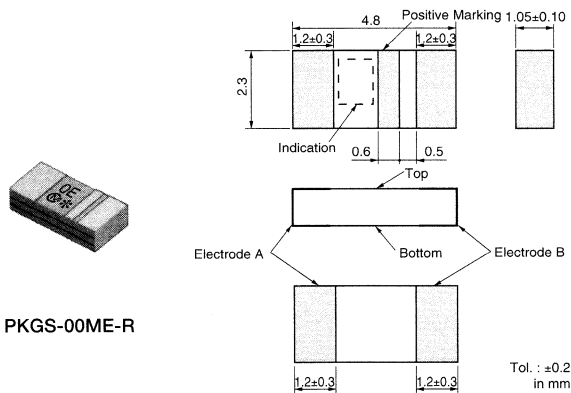
Shock Sensors



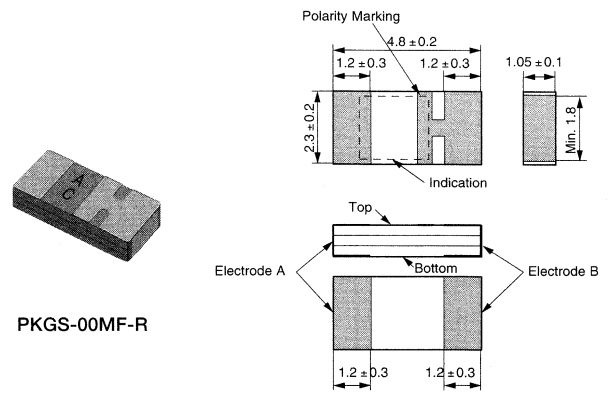
PKGS-00LB-R



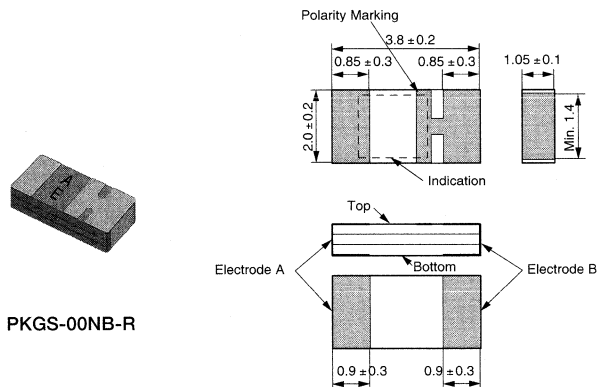
PKGS-00LC-R



PKGS-00ME-R



PKGS-00MF-R



PKGS-00NB-R

Part Number	Primary Axis Inclined Angle (°)	Sensitivity*	Capacitance (pF)	Insulation Resistance (M ohm)	Resonant Frequency (kHz)	Non-linearity (%)
PKGS-00LB-R	0	1.85mV/G typ.	210 typ.	500 min.	20 typ.	1 typ.
PKGS-00LC-R	0	2.10mV/G typ.	420 typ.	500 min.	20 typ.	1 typ.
PKGS-00ME-R	0	1.00mV/G typ.	160 typ.	500 min.	27 typ.	1 typ.

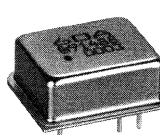
Continued on the following page.

Continued from the preceding page.

Part Number	Primary Axis Inclined Angle (°)	Sensitivity*	Capacitance (pF)	Insulation Resistance (M ohm)	Resonant Frequency (kHz)	Non-linearity (%)
PKGS-00MF-R	0	0.325pC/G typ.	570 typ.	500 min.	27 typ.	1 typ.
PKGS-00NB-R	0	0.153pC/G typ.	480 typ.	500 min.	44 typ.	1 typ.
PKGS-25LB-R	25	1.85mV/G typ.	240 typ.	500 min.	20 typ.	1 typ.
PKGS-25ME-R	25	1.0mV/G typ.	170 typ.	500 min.	27 typ.	1 typ.
PKGS-25MF-R	25	0.350pC/G typ.	610 typ.	500 min.	27 typ.	1 typ.
PKGS-25NB-R	25	0.168pC/G typ.	520 typ.	500 min.	44 typ.	1 typ.
PKGS-45LB-R	45	1.93mV/G typ.	295 typ.	500 min.	20 typ.	1 typ.
PKGS-45ME-R	45	1.00mV/G typ.	210 typ.	500 min.	27 typ.	1 typ.
PKGS-45MF-R	45	0.285pC/G typ.	490 typ.	500 min.	26 typ.	1 typ.
PKGS-45NB-R	45	0.133pC/G typ.	440 typ.	500 min.	43 typ.	1 typ.
PKGS-90LC-R	90	2.10mV/G typ.	420 typ.	500 min.	20 typ.	1 typ.

*1G=9.8m/s²


Built-in Circuit Acceleration Sensors



PKG-A-D60A

Terminal No.	Function
No. 1	Vcc (5V)
No. 2 No. 3	GND
No. 4	Vout Y
No. 5	Vout X
No. 6	Test in

Note: Two terminals with same function should be connected on the PCB.



PKG-A-S60A


Terminal No.	Function
No.1	Vdd (5V)
No.2	Case GND
No.3	OUT
No.4	Test In

Part Number	Sensitivity* (mV/G)	Non-linearity	Frequency Range	Output Voltage at 0G (V)	Supply Voltage (V)
PKG-A-D60A	60 typ.	1 max.	0.68~500Hz typ.	2 typ.	5.00
PKG-A-S60A	60 typ.	1 max.	0.66~525Hz typ.	2 typ.	5.00

Other specifications are also available. Please contact us for modifications of sensitivity and offset voltage.


*1G=9.8m/s²

Piezoelectric Gyroscopes (GYROSTAR®)



ENC-03J

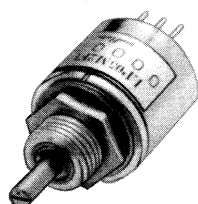
Terminal No.	Description
(1)	+Supply (input)
(2)	Ground (Common)
(3)	Sensor Output (output)



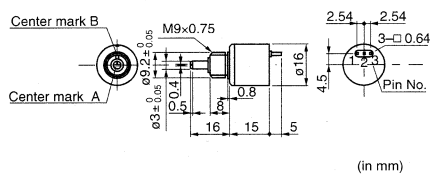
ENV-05F-03

Part Number	Supply Voltage (Vdc)	Maximum Angular Velocity (deg./sec.)	Output (at Angular Velocity=0) (Vdc)	Scale Factor (mV/deg./sec.)	Linearity (%FS)	Offset Drift (deg./sec.)	Response (Hz)	Operating Temperature Range (°C)	Weight (g)
ENC-03J	2.7~5.5	+/-300	1.35 +/-0.7	0.67	+/-5	-	50 max.	-5 to 75	1.0 max.
ENV-05F-03	5 +/-0.5	+/-60	2.5 +/-0.4	25.0	+/-0.5	9 max.	7 max.	-30 to 80	20 max.

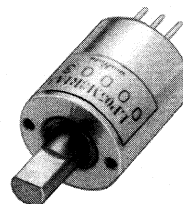
Non-contact Potentiometers



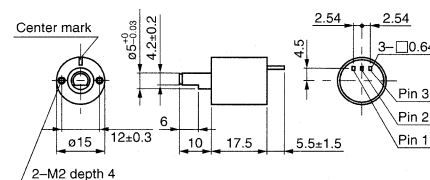
LP05M2F1AA
LP06M2F1HA



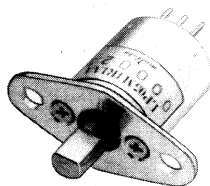
(in mm)



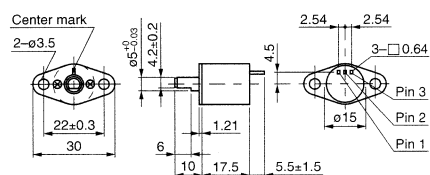
LP05M3R1AA
LP06M3R1HA



in mm



LP05M4R1AA
LP06M4R1HA

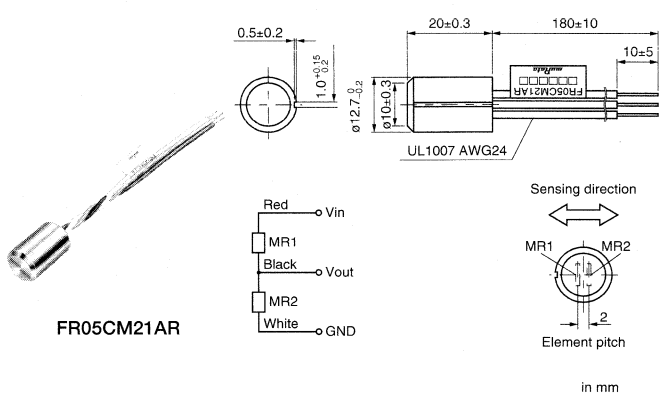
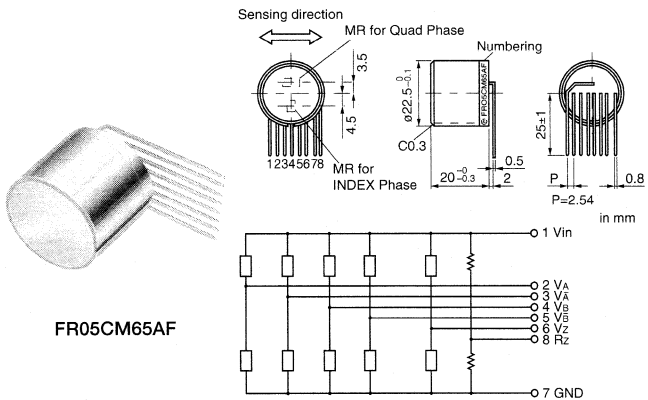
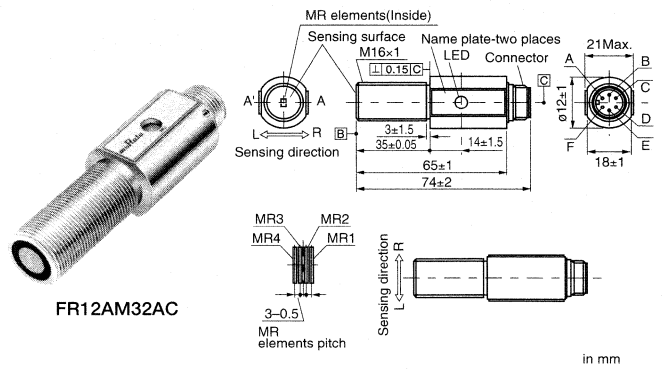
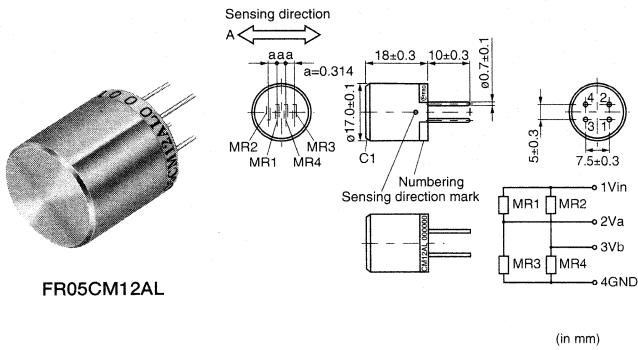


in mm

Part Number	Rated Voltage (V)	Effective Linearity Range (deg.)	Sensitivity (mV/deg.)	Temp. Coefficient (%)	Max. Rotation Torque (mN·m)	Operating Temperature Range (°C)
LP05M2F1AA	5	+/-50 (Centered at 1/2Vcc)	min.9 (Vcc=5V, at 25°C)	+/-7 (-10°C~60°C)	0.1 (at 25°C)	-10 to 60
LP05M3R1AA	5	+/-50 (Centered at 1/2Vcc)	min.9 (Vcc=5V, at 25°C)	+/-7 (-10°C~60°C)	0.5 (at 25°C)	-10 to 60
LP05M4R1AA	5	+/-50 (Centered at 1/2Vcc)	min.9 (Vcc=5V, at 25°C)	+/-7 (-10°C~60°C)	0.5 (at 25°C)	-10 to 60
LP06M2F1HA	6	+/-50 (Centered at 1/2Vcc)	22 +/-6mV/deg (Vcc=6V, at 25°C)	-0.4~-0.15%/°C(-10°C~60°C)	0.1 (at 25°C)	-10 to 80
LP06M3R1HA	6	+/-50 (Centered at 1/2Vcc)	22 +/-6mV/deg (Vcc=6V, at 25°C)	-0.4~-0.15%/°C(-10°C~60°C)	0.5 (at 25°C)	-10 to 80
LP06M4R1HA	6	+/-50 (Centered at 1/2Vcc)	22 +/-6mV/deg (Vcc=6V, at 25°C)	-0.4~-0.15%/°C(-10°C~60°C)	0.5 (at 25°C)	-10 to 80

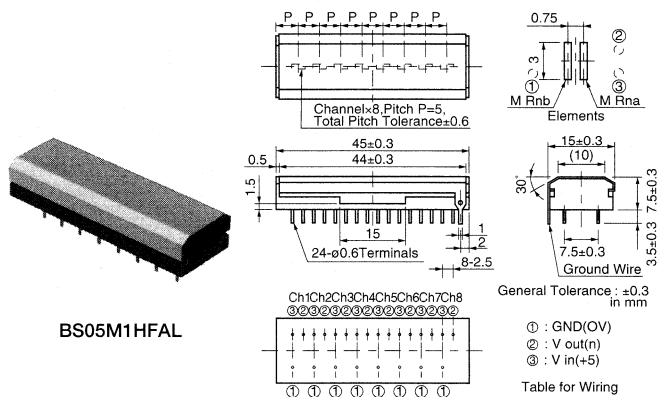
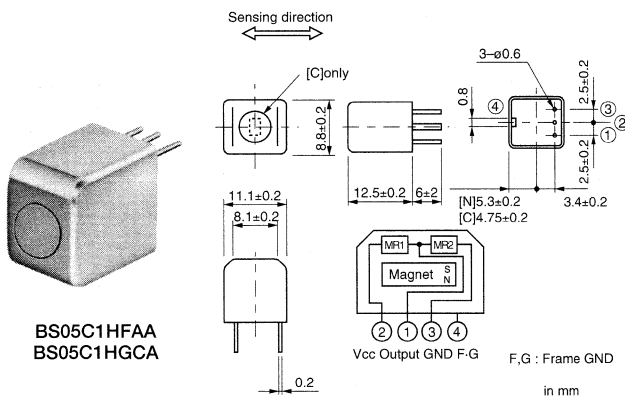
Individual Linearity : ±1.5%(Within effective linearity range)

Rotary Sensors



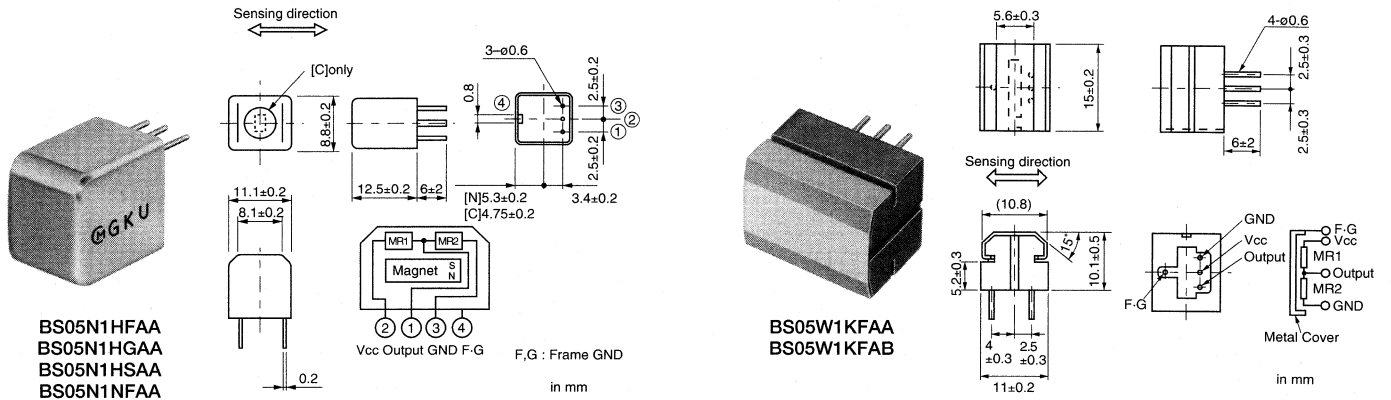
Part Number	Output Type	Target Gear Module
FR05CM12AL	Dual	0.4
FR12AM32AC	Dual,Digital	0.635
FR05CM65AF	Quad with index	0.4(Phase:A-B)
FR05CM21AR	Single	0.3~1.0

Magnetic Pattern Recognition Sensors



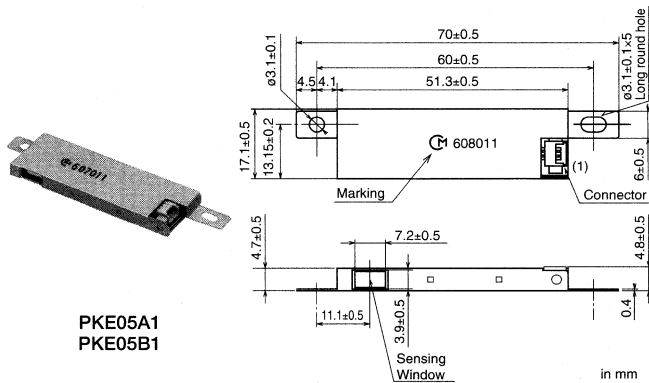
Continued on the following page. ↗

Continued from the preceding page.



Part Number	Supply Voltage (V)	Min. Output Voltage	Max. Output Voltage	Test Method	Detection Width (mm)	Operating Temperature Range (°C)
BS05C1HFAA	5	400mVrms	-	Test Method A	3	-20 to 60
BS05C1HGCA	5	235mVrms	405mVrms	Test Method A	3	-20 to 60
BS05M1HFAL	5	150mVrms	-	Test Method D	3	0 to 50
BS05N1HFAA	5	400mVrms	-	Test Method A	3	-20 to 60
BS05N1HGAA	5	235mVrms	405mVrms	Test Method A	3	-20 to 60
BS05N1HSAA	5	235mVrms	405mVrms	Test Method A	3	-20 to 60
BS05N1NFAA	5	330mVrms	-	Test Method B	6	-20 to 60
BS05W1KFAA	5	0.3mVp-p	0.8mVp-p	Test Method C	10	-20 to 60
BS05W1KFAB	5	0.3mVp-p	0.8mVp-p	Test Method C	10	-20 to 60

Electric Potential Sensors



Part Number	Supply Voltage (Vdc)	Current Consumption (mA)	Min. Detectable Electric Potential (V)	Max. Detectable Electric Potential (V)	Output Voltage	Linearity (%)
PKE05A1	24 +/-10%	50 max.	0	1500	1/240Vdc of the objective potential	+/-1.5 max.(at 50V~1500V)
PKE05B1	24 +/-10%	50 max.	0	-1500	1/240Vdc of the objective potential	+/-1.5 max.(at -50V~-1500V)

Capacitors

Monolithic Ceramic Capacitors Safety Standard Recognized	GA3 Series Type GD/GF	49–50
Ceramic Trimmer Capacitors	TZR1 Series.....	69

Thermistors

POSISTOR® for Circuit Protection Chip Type 24V	PRG18 Series.....	89
POSISTOR® for Circuit Protection SMD Type	PDGA8 Series.....	88
POSISTOR® for Motor Starters	PTH8M Series.....	95–96
Trimmer Potentiometers Rotary Position Sensors	PVS1 Series.....	105–106

Coils/Delay Lines

Chip Coils for High-frequency Horizontal Winding	LQW18AN_12 Series.....	120–122
--	-------------------------------	---------

EMIFIL®/Noise Suppression Products

Chip Common Mode Choke Coils	DLM2HG Series.....	177–178
------------------------------	---------------------------	---------

Piezoelectric Sound Components

Piezoelectric Sounders	PKLCS Series.....	220
------------------------	--------------------------	-----

Filters for Communication Equipment

CERAFIL® for IF	CFXCD Series.....	245
-----------------	--------------------------	-----

Sensors

Shock Sensors	PKGS_NB/_MF Series.....	358–359
---------------	--------------------------------	---------

Alphabetic Product Name Index

A

Acceleration Sensors	359
AC Line Filters	193
Active Filters	342
Adjustment Potentiometers	104
Antennas	276

B

Baluns	273
BC Capacitors	57
BGS Filters	261, 326
BGS Resonators	214
BGS Traps	319

C

Capacitors	26, 279
CATV Tuners	328
CERAFIL®	244, 302, 312
CERALOCK®	208
Ceramic Capacitors	26, 279
Ceramic Discriminators	254, 311, 314
Ceramic Filters (CERAFIL®)	244, 302, 312
Ceramic Resonators (CERALOCK®)	208
Ceramic Traps	240, 316
Ceramic Trimmer Capacitors	69
CERAMITONE®	218
Chip Coils	119
Chip Ceramic Filters (CERAFIL®)	244, 302, 312
Chip Ceramic Resonators (CERALOCK®)	208
Chip Delay Lines	142
Chip Dielectric Antennas	276
Chip Discriminators	254, 311
Chip EMI Suppression Filters (EMIFIL®)	160
Chip Ferrite Beads Array	166
Chip Ferrite Beads Inductors	160
Chip Monolithic Ceramic Capacitors	26, 279
Chip Multilayer Antennas	276
Chip Multilayer Delay Lines	142
Chip Multilayer Diplexers	239
Chip Multilayer Dividers	273
Chip Multilayer Hybrid Balun	273
Chip Multilayer Hybrid Couplers	271
Chip Multilayer Hybrid Dividers	273
Chip Multilayer LC Filters	232, 260
Chip Multilayer Traps	240
Chip NTC Thermistors	97
Chip PTC Thermistors (POSISTOR®)	89, 350
Chip SAW Filters	240, 257
Chip SAW Resonators	213
Chip Trimmer Capacitors	69
Chip Trimmer Potentiometers	104
Chip Varistors	191
Choke Coils	137, 176, 190, 193
C Modules	198
C Networks	73
Coaxial Connectors	287
Coils	118
Common Mode Choke Coils	176, 190, 193
Connectors	287
CRT Peripheral Components	329

D

DC/DC Converters	337
Delay Lines	142
Dielectric Resonators (RESOMICS®)	277
Disc Ceramic Capacitor	55

Discriminators	254, 311, 314
Diplexers	239
Dividers	273
Duplexers	227

E

Electrical Potential Sensors	362
EMIFIL®	159
EMIGUARD®	192
EMI Suppression Filters (EMIFIL®)	159

F

Feed Thru Capacitors	66
Ferrite Beads	160
Ferrite Bead Inductors	181
Ferrite Cores	199
Filters	160, 227, 302
Flyback Transformers	329
Focus Adjusting Resistors	330

G

GaAs FET	275
GIGAFIL®	229
Gyroscopes (GYROSTAR®)	359

H

Heaters	88
High-Frequency Coaxial Connectors	287
High-Frequency Monolithic Ceramic Capacitors	279
High-Frequency Power Ceramic Capacitors	67
High-Voltage Ceramic Capacitors	58, 64
High-Voltage CR Blocks	332
High-Voltage Power Supplies	335
High-Voltage Resistors	102
Hybrid Balun	273
Hybrid Choke Coils	197
Hybrid Couplers	271
Hybrid ICs	342

I

Inductors	160, 181
Isolators	270

L

Line Filters	193
--------------	-----

M

Magnetic Pattern Recognition Sensors	361
Magnetic Sensors	361
Microchip Capacitors	283
Microwave Absorber	199
Microwave Filters (GIGAFIL®)	229
Microwave Isolators	270
Microwave Oscillators	292
Microwave PLL Modules	293
Monolithic Ceramic Capacitors	26, 279
Multilayer LC Filters	232, 260

N

Noise Filters	159
Non-Contact Potentiometers	360
NTC Thermistors	97, 351

O

Oscillators	292
-------------	-----

P

Piezoelectric Buzzers	219
Piezoelectric Diaphragms	218
Piezoelectric Inverters	339
Piezoelectric Sound Components	218
Piezoelectric Sounders	220
Piezoelectric Speakers (CERAMITONE®)	218
Piezoelectric Ringers (PIEZORINGER®)	221
Piezoelectric Vibrating Gyroscopes (GYROSTAR®)	359
PIEZORINGER®	221
PLL Modules	293
Potentiometers	104
Power Supplies	334
PTC Thermistors (POSISTOR®)	88, 350
Pyroelectric Infrared Sensors	352
Pyroelectric Sensors	352

R

RC Modules	198
RF Diode Switches	291
Resistors	102
RESOMICS®	277
Resonators	208
R Networks	103
Rotary Sensors	361

S

SAW Filters	240, 257, 319
SAW Resonators	213
Safety Standard Recognized Capacitors	61
Semiconductive Magnetic Sensors	361
Sensors	349
Shock Sensors	358
Surface Acoustic Wave Filters	240, 257, 319
Surface Acoustic Wave Resonators	213
Switching Power Supplies	334
SWITCHPLEXERS®	292

T

Temperature Sensors	350
Thermistors	88
Transformers	329
Traps	240, 316
TRIMCAP®	69
Trimmer Capacitors	69
Trimmer Potentiometers	104
Tuners	328
TV Tuners	328

U

Ultrasonic Sensors	354
Ultrasonic Transducers	354

V

VCOs (Voltage Control Oscillators)	292
Varistors	191

Previous Part Numbers Alphabetic Index

Previous Part Number	Global Part Number	Page
A		
AF	AF	High-Frequency Active Filters 342-343
ANC	ANC	Chip Dielectric Antennas 276
ARC(L)	ARC(L)	RC Modules 198
B		
B5R	B5R	C Networks 73
B7Z	B7Z	C Networks 73
B8X	B8X	C Networks 74
B8Z	B8Z	C Networks 74
B9H	B9H	C Networks 74-75
BFU	BFULA	CERAFIL® for Search-stop Signal Detection 305
BL0	BL0	Ferrite Beads Inductors 159, 181-184
BLA	BLA	Chip Ferrite Beads Arrays 159, 166
BLM	BLM	Chip Ferrite Beads 159-165
BNP	BNP	EMI Suppression Filters (EMIFIL®) Block Type 159, 189
BNX	BNX	EMI Suppression Filters (EMIFIL®) Block Type 159, 189
BS	BS	Magnetic Pattern Recognition Sensors 361-362
C		
CAPTU	CAPTU	Tuners for CATV 328
CDA	CDALA	Ceramic Discriminators for FM 311
CDACV	CDACV	Ceramic Discriminators for FM 311
CDB	CDBLA	Ceramic Discriminators for IF 254-256
CDBC	CDBCBL	Ceramic Discriminators for IF 254-257
CDBM	CDBLB	Ceramic Discriminators for IF 254-257
CDSH	CDSRH	Ceramic Discriminators for TV/VCR 314-315
CDSCA	CDSCA	Chip Ceramic Discriminators for FM 311
CDSL	CDSRL	Ceramic Discriminators for TV/VCR 315
CE	CE	Isolators 270
CFECS	SFECS	Chip Ceramic Filters (CERAFIL®) for IF 244, 248
CFUCG	CFUCG	Chip Ceramic Filters (CERAFIL®) for IF 244, 246
CFUM	CFULB	Ceramic Filters (CERAFIL®) for IF 244, 250
CFUS450	CFULA	Ceramic Filters (CERAFIL®) for AM 304
CFUS455	CFULA	Ceramic Filters (CERAFIL®) for IF 244, 249
CFUXC	CFXCA	Ceramic Filters (CERAFIL®) for IF 244-245
CFWC	CFWCA	Chip Ceramic Filters (CERAFIL®) for IF 244, 247-248
CFWM	CFWLB	Chip Ceramic Filters (CERAFIL®) for IF 244, 251, 253-254
CFWS450	CFWLA	Ceramic Filters (CERAFIL®) for AM 304
CFWS455	CFWLA	Ceramic Filters (CERAFIL®) for IF 244, 249-250
CFXCD	CFXCD	Ceramic Filters (CERAFIL®) for IF 244-245
CGSD	CGSD	C Networks 75
CLB	CLB	High-Frequency Microchip Capacitors 283-286
CNTL	CNTL	C Modules 198
CSA	CSAL	Ceramic Resonators (CERALOCK®) for MHz Lead Type 211
CSAC	CSAC	Ceramic Resonators (CERALOCK®) for MHz Chip Type 209-210
CSB	CSBLA	Ceramic Resonators (CERALOCK®) for kHz Lead Type 212
CSBF	CSBFB	Ceramic Resonators (CERALOCK®) for kHz Chip Type 211
CST	CSTL	Ceramic Resonators (CERALOCK®) for MHz Lead Type Built-In Capacitor 210
CSTC	CSTC	Ceramic Resonators (CERALOCK®) for MHz Chip Type Built-In Capacitor 208-209
D		
DAT	DCA	High-Frequency Power Ceramic Capacitors 67
DC5	DC5	High-Frequency Power Ceramic Capacitors 67
DC5	DC6	High-Frequency Power Ceramic Capacitors 68
DCT	DCT	High-Frequency Power Ceramic Capacitors 67
DD	DD	Ceramic Capacitors (12V-500V) 55-57
DE	DE	High-Voltage Ceramic Capacitors (250V-6.3kV) 55, 58-60
DE	DE	Safety Standard Recognized Ceramic Capacitors 55, 61-64
DE1	DCW	High-Frequency Power Ceramic Capacitors 68
DFC	DFC	Microwave Filters (GIGAFIL®) Band-Pass Filters 229-232
DFY	DFY	Microwave Filters (GIGAFIL®) Duplexer 227-229
DHR	DHR	High-Voltage Ceramic Capacitors (10k-40kV) 65
DHS	DHS	High-Voltage Ceramic Capacitors 66
DR	DR	Dielectric Resonators (RESOMICS®) 277-278
DS	DSN6	Lead EMIFIL® Capacitor Type for General Small Type 159, 184
DS	DSN9	Lead EMIFIL® Broad Band Type 159, 186
DS	DSN9	Lead EMIFIL® Heavy-duty Type 159, 187

Previous Part Number	Global Part Number		Page
DSS	DSS6	Lead EMIFIL® Capacitor Type for General Small Type	159, 185
DSS	DSS9	Lead EMIFIL® Broad Band Type	159, 186
DSS	DSS9	Lead EMIFIL® Heavy-Duty Type	159, 188
DSS706/710	VFS6V/9V	EMIGUARD® (EMIFIL® with Varistor Function)	192–193
DST	DST9	Lead EMIFIL® Broad Band Type	159, 187
DST	DST9	Lead EMIFIL® Heavy-Duty Type	159, 188
E			
EA	EA	Microwave Absorbers	199
EN	EN	Piezoelectric Vibrating Sensors (GYROSTAR®)	359–360
F			
FKOB	FKOB	Common Mode Choke Coils for AC	193
FR	FR	Rotary Sensors	361
FS	FS	Ferrite Cores	199–204
G			
GHM10	GRM	Chip Monolithic Ceramic Capacitors for Medium-Voltage Low Dissipation	26, 47
GHM15	GRM	Chip Monolithic Ceramic Capacitors for Medium-Voltage High-Capacitance	26, 47–48
GHM2	GA2	Chip Monolithic Ceramic Capacitors AC250V(r.m.s.) Type	26, 48
GHM3	GA3	Chip Monolithic Ceramic Capacitors for Medium-Voltage Safety Standard Recognized	26, 49–50
GM	GMA	Monolithic Microchip	26, 40
GNM30	GNM	Capacitor Array	26, 41–43
GRH7	ERA	Chip Monolithic Ceramic Capacitors for High-Frequency	26, 281–283
GRM	ERF	Chip Monolithic Ceramic Capacitors High-Q & High Power Type	26, 280–281
GRM	GRM	Chip Monolithic Ceramic Capacitors Tin Plated Layer	26–36, 43, 47–48
GRM	GJ2	Chip Monolithic Ceramic Capacitors Smoothing Type	26, 36–37
GRM	GRP	Chip Monolithic Ceramic Capacitors Soldering Electrode	26, 37
GRM61	GJ6	Chip Monolithic Ceramic Capacitors High-Power Type	26, 39–40
GRQ	GQM	Chip Monolithic Ceramic Capacitors High-Frequency for Flow/Reflow Soldering	26, 279
H			
H8D	H8D	Cut -Off Modules	342
HFP	HFP	DC/DC Converters	337–338
HFQ	HFQ	Microwave PLL Modules	293
HFV	HFV	Piezoelectric Inverters	339
HFV	MPV	Piezoelectric Inverters	339
I			
IMD	IMD	Infrared Sensor Modules	353
IRA	IRA	Pyroelectric Infrared Sensor	352
L			
LDA	LDA	Chip Multilayer Antennas	276
LDB	LDB	Chip Multilayer Hybrid Baluns	273–274
LDC	LDC	Chip Multilayer Hybrid Couplers	271–272
LDD	LDD	Chip Multilayer Hybrid Dividers	273
LDH	LDH	Chip Multilayer Delay Lines	142–144
LFD	LFD	Chip Multilayer Diplexers	239–240
LFH	LFE	Chip Multilayer LC Filters (Trap) for RF/Local	240
LFK	LFL_AK	Chip Multilayer LC Filters Low-Pass Filter for RF/Local	238
LFR	LFH	Chip Multilayer LC Filters High-Pass Filter for RF/Local	239
LFSA	LFB_SA	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	234
LF SB	LFB_SB	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	235
LFSC	LFB_SC	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	235
LFSG	LFB_SG	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	232–233
LF SH	LFB_SH	Chip Multilayer LC Filters for IF (Balance-balance Type)	260–261
LF SJ	LFB_SJ	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	235–236
LF SK	LFB_SK	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	236
LF SL	LFB_SL	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	233
LF SN	LFB_SN	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	233, 236
LF SP	LFB_SP	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	234
LF SQ	LFB_SQ	Chip Multilayer LC Filters for IF (Balance-unbalance Type)	261
LFT	LFL_T	Chip Multilayer LC Filters Low-Pass Filter for RF/Local	237–238
LL	LLL	Low-ESL	26, 44–46
LMC	LMS	SWITCHPLEXERS®	292
LMS	LMS	RF Diode Switches	291–292
LP	LP	Non-Contact Potentiometers	360
LQG	LQG	Chip Coils for High-Frequency Monolithic Type	118, 126–127

Previous Part Number	Global Part Number		Page
LQG	LQM	Chip Coils for General Use Monolithic Type	118, 136–137
LQG	LQM	Chip Coils for Choke Monolithic Type	118, 140–141
LQH	LQH	Chip Coils for General Use Winding Type	118, 130–134
LQH	LQH	Chip Coils for Choke Winding Type	118, 137–139
LQN	LQH	Chip Coils for High-Frequency Winding Ferrite Type	118, 125
LQN	LQH	Chip Coils for Choke Large Current Type	118, 141–142
LQN	LQW	Chip Coils for High-Frequency Vertical Winding	118, 123–125
LQP	LQP	Chip Coils for High-Frequency Film Type	118, 128–130
LQS	LQH	Chip Coils for General Use Magnetic Shielded Type	118, 134
LQS	LQH	Chip Coils for Choke Magnetic Shielded Type	118, 134–135, 139–140
LQW	LQW	Chip Coils for High-Frequency Horizontal Winding	118–122

M

MA	MA	Ultrasonic Sensors	354–358
MHF	MHF	Focus Adjusting Resistors	330–332
MHR	MHR	High-Voltage Resistors	102–103
MKF	MKFGA	Ceramic Filters (BGS Filters) for FM	326
MKFC	MKFKB	Ceramic Filters (BGS Filters) for IF	261
MKFC	SAFCJ	SAW Filters for IF	259
MKR	MKR	BGS Resonators	214
MKT	MKT	BGS Traps for TV/VCR	319
MM	MM	Receptacle Used on Coaxial Connectors	287–288
MP	MP	Power Supplies	334–336
MQ	MQ	Microwave Oscillators (VCOs)	292
MSC	MSC	High-Voltage CR Blocks	332
MSP	MSP	Primary Control System Modules	329
MSU	MSU	Flyback Transformers	329
MX	MX	Coaxial Connectors Cables	287

N

NFA	NFA	Chip EMIFIL® Arrays	171–172
NFA	NFA	Chip EMIFIL® RC Combined Array Type	175–176
NFM	NFL	Chip EMIFIL® LC Combined Monolithic Type	174–175
NFM	NFM	Chip EMIFIL® Capacitor Type	167–169
NFM51R	NFW31S	Chip EMIFIL® LC Combined Winding Type	174
NFM60R	NFE31P	Chip EMIFIL® LC Combined T-Type	172–173
NFM61R	NFE61P	Chip EMIFIL® LC Combined T-Type	173
NFM839R	NFR21G	Chip EMIFIL® RC Combined Type	175
NTH4G	NTS	NTC Thermistors for Temperature Sensor	100–101, 351–352
NTH5G	NCP	Chip NTC Thermistors for Temperature Compensation	97–100
NTH7-22D	NTP	NTC Thermistors for Inrush Current Suppression	101–102

P

PDGA8	PDGA8	PTC Thermistors (POSISTOR®) for Circuit Protection	88
PFS	PFSLA	Ceramic Filters (CERAFIL®) for AM	305
PFW	PFWLA	Ceramic Filters (CERAFIL®) for AM	305
PFWCC	PFWCC	Chip Ceramic Filters (CERAFIL®) for AM	302
PKB	PKB	Piezoelectric Buzzers	219
PKE	PKE	Electric Potential Sensors	362
PKGA	PKGA	Built-In Circuit Acceleration Sensors	359
PKGS	PKGS	Shock Sensors	358–359
PKLCS	PKLCS	SMD Piezoelectric Sounder	220
PKM	PKM	Piezoelectric Ringers (PIEZORINGER®)	221–222
PKM	PKM	Piezoelectric Sounders	220–221
PLA	PLA	AC Line Common Mode Choke Coils	194–195
PLH	PLH	AC Line Common Mode Choke Coils for High Frequency	196
PLM	DLM	Chip Common Mode Choke Coils Monolithic Type	159, 177–178
PLM	DLW	Chip Common Mode Choke Coils Winding Type	159, 179–181
PLP	DLP	Chip Common Mode Choke Coils Film Type	159, 176–177
PLP	DLP	Chip Common Mode Choke Coils Film Type Array	159, 177
PLT	PLT	Common Mode Choke Coils for DC	190–191
PLW	DLW	Chip Common Mode Choke Coils Winding Type	159, 179–180
PLY	PLY	AC Line Hybrid Choke Coils	197
POC6	PVC6	Trimmer Potentiometers Lead Closed Type Single-Turn	109
POF2	PVF2	Trimmer Potentiometers Chip Closed Type 2mm Size	106
POG5	PVG5	Trimmer Potentiometers Chip Closed Type Multi-Turns	107–108
POT01	PV01	Trimmer Potentiometers Chip Closed Type Multi-Turns	107–108
POT11	PV12	Trimmer Potentiometers Lead Closed Type Multi-Turns	110
POT21	PV22	Trimmer Potentiometers Lead Closed Type Multi-Turns	110–111

Previous Part Number	Global Part Number		Page
POT21	PV23	Trimmer Potentiometers Lead Closed Type Multi-Turns	111
POT31	PV34	Trimmer Potentiometers Lead Closed Type Single-Turn	108–109
POT31	PV36	Trimmer Potentiometers Lead Closed Type Multi-Turns	111–112
POT31	PV37	Trimmer Potentiometers Lead Closed Type Multi-Turns	112–113
POZ2	PVZ2	Trimmer Potentiometers Chip Open Type 2mm Size	104
POZ3	PVZ3	Trimmer Potentiometers Chip Open Type 3mm Size	105
PRG		Chip PTC Thermistors (POSISTOR®) for Circuit Protection	89
PTH451A	PTDA	PTC Thermistors (POSISTOR®) for Degaussing Circuits	96–97
PTH451C	PTDC	PTC Thermistors (POSISTOR®) for Degaussing Circuits	96–97
PTH476	PTWSB	PTC Thermistors (POSISTOR®) for Heater	88
PTH491	PTHGA	PTC Thermistors (POSISTOR®) for Motor Starters	96
PTH521	PTWTA	PTC Thermistors (POSISTOR®) for Heater	88
PTH632	PTDL	PTC Thermistors (POSISTOR®) for Degaussing Circuits	97
PTH7M	PTH7M	PTC Thermistors (POSISTOR®) for Motor Starters	94–95
PTH8L	PTGL	PTC Thermistors (POSISTOR®) for Circuit Protection	89–93
PTH8M	PTH8M	PTC Thermistors (POSISTOR®) for Motor Starters	95–96
PTH9C	PRF	Chip PTC Thermistors (POSISTOR®) for Overheat Sensing	93, 350
PTH9M	PTF□	PTC Thermistors (POSISTOR®) for Overheat Sensing	94, 350–351
PTH9L	PTF□	PTC Thermistors (POSISTOR®) for Overheat Sensing	94, 350–351
PVG3	PVG3	Trimmer Potentiometers Chip Closed Type 3mm Size	106
PVS1	PVS1	Trimmer Potentiometers Chip Open Type 12mm Size	105–106

R

RG	RG	R Networks	103–104
RPE	RPE	Monolithic Ceramic Capacitors Lead Type	51–54
RPN	ERD	Chip Monolithic Ceramic Capacitors High-Frequency Type	281–283
RPN	ERH	Monolithic Ceramic Capacitors for High-Frequency	280–281
RVG3A	PVA3	Trimmer Potentiometers Chip Open Type 3mm Size	105
RVG3S	PVS3	Trimmer Potentiometers Chip Open Type 3mm Size	105
RVG4M	PVM4	Trimmer Potentiometers Chip Closed Type 4mm Size	107

S

SAF	SAF	SAW Filters for Digital Broadcasting	325
SAF	SAF	SAW Filters for IF	257–260
SAF	SAF	SAW Filters for RF/Local	240–243
SAF	SAF	SAW Filters for TV/VCR	319–324
SAF	SAW	SAW Filters for RF/Local Dual Type	242
SAF	SAW	SAW Filters for TV/VCR Dual Type	325–326
SAR	SAR	SAW Resonators	213
SFE	SFELA/SFELB	Ceramic Filters (CERAFIL®) for FM	307–310
SFE	SFKLA	Ceramic Filters (CERAFIL®) for FM	309
SFE	SFV	Ceramic Filters (CERAFIL®) for FM	309
SFECS	SFECS	Chip Ceramic Filters (CERAFIL®) for FM	306
SFECS	SFECS	Chip Ceramic Filters (CERAFIL®) for IF	250
SFEKV	SFEKV	Chip Ceramic Filters (CERAFIL®) for FM	306
SFGCG	CFUCF	Chip Ceramic Filters (CERAFIL®) for IF	244, 247
SFPCA450	SFPCA450	Chip Ceramic Filters (CERAFIL®) for AM	302
SFPCA455	SFPCA455	Chip Ceramic Filters (CERAFIL®) for IF	244–245
SFPS	SFPLA	Ceramic Filters (CERAFIL®) for AM	303–304
SFSCC	SFSKA	Chip Ceramic Filters (CERAFIL®) for TV/VCR	312
SFSH	SFSRH	Ceramic Filters (CERAFIL®) for TV/VCR	313
SFSL	SFSRL	Ceramic Filters (CERAFIL®) for TV/VCR	313
SFSRA	SFSRA	Ceramic Filters (CERAFIL®) for TV/VCR	312
SFT	SFTLA	Ceramic Filters (CERAFIL®) for FM	310
SFT	SFTRD	Ceramic Filters (CERAFIL®) for TV/VCR	314
SFU	SFU	Ceramic Filters (CERAFIL®) for AM	303
SFZ	SFZ	Ceramic Filters (CERAFIL®) for AM	303

T

TPS	TPSRD	Ceramic Traps	316–317
TPSCC	TPSKA	Chip Ceramic Traps	316
TPSL	TPSRL	Ceramic Traps	316–317
TPSRA	TPSRA	Ceramic Traps	316
TPT	TPTRD	Ceramic Traps (Triple Traps)	317
TPWA	TPWRD	Ceramic Traps (Double Traps)	318
TPWKA	TPWKA	Chip Ceramic Traps (Double Traps)	318
TU	TU	Tuners for TV/VCR	328
TZ	TZ	Trimmer Capacitors	69–72

Previous Part Number	Global Part Number		Page
V			
VCM	VCM	Chip Varistors.....	191
VFM	VFM	Chip EMIGUARD®.....	192
VFR	VFR	EMIGUARD® (EMIFIL® with Varistor Function).....	192
VSB	VSB	Piezoelectric Speakers (CERAMITONE®).....	218
X			
XMF	XMF	GaAs.....	275
7□B	7□B	Piezoelectric Diaphragms.....	218–219

Global Part Numbers Alphabetic Index

Global Part Number	Previous Part Number	Page
A		
AF	AF	High-Frequency Active Filters 342–343
ANC	ANC	Chip Dielectric Antennas 276
ARC(L)	ARC(L)	RC Modules 198
B		
B5R	B5R	C Networks 73
B7Z	B7Z	C Networks 73
B8X	B8X	C Networks 74
B8Z	B8Z	C Networks 74
B9H	B9H	C Networks 74–75
BFULA	BFU	CERAFIL® for Search-Stop Signal Detection 305
BL0	BL0	Ferrite Bead Inductors 159, 181–184
BLA	BLA	Chip Ferrite Beads Arrays 159, 166
BLM	BLM	Chip Ferrite Beads 159–165
BNP	BNP	EMI Suppression Filters (EMIFIL®) Block Type 159, 189
BNX	BNX	EMI Suppression Filters (EMIFIL®) Block Type 159, 189
BS	BS	Magnetic Pattern Recognition Sensors 361–362
C		
CAPTU	CAPTU	Tuners for CATV 328
CDACV	CDACV	Chip Ceramic Discriminators for FM 311
CDALA	CDA	Ceramic Discriminators for FM 311
CDBLA	CDB	Ceramic Discriminators for IF 254–256
CDBCBC	CDBC	Chip Ceramic Discriminators for IF 254–257
CDBLB	CDBM	Ceramic Discriminators for IF 254–257
CDSCA	CDSCA	Chip Ceramic Discriminators for FM 311
CDSRH	CDSH	Ceramic Discriminators for TV/VCR 314–315
CDSRL	CDSL	Ceramic Discriminators for TV/VCR 315
CE	CE	Isolators 270
CFUCF	SFGCG	Ceramic Filters (CERAFIL®) for IF 244, 247
CFUCG	CFUCG	Ceramic Filters (CERAFIL®) for IF 244, 246
CFULA	CFUS450	Ceramic Filters (CERAFIL®) for AM 304
CFULA	CFUS455	Ceramic Filters (CERAFIL®) for IF 244, 249
CFULB	CFUM	Ceramic Filters (CERAFIL®) for IF 244, 250
CFWCA	CFWC	Chip Ceramic Filters (CERAFIL®) for IF 244, 247–248
CFWLA	CFWS450	Ceramic Filters (CERAFIL®) for AM 304
CFWLA	CFWS455	Ceramic Filters (CERAFIL®) for IF 244, 249–250
CFWLB	CFWM	Ceramic Filters (CERAFIL®) for IF 244, 251, 253–254
CFXCA	CFUXC	Ceramic Filters (CERAFIL®) for IF 244–245
CFXCD	CFXCD	Ceramic Filters (CERAFIL®) for IF 244–245
CGSD	CGSD	C Networks 75
CLB	CLB	High-Frequency Microchip Capacitors 283–286
CNTL	CNTL	C Modules 198
CSAC	CSAC	Ceramic Resonators (CERALOCK®) for MHz Chip Type 209–210
CSAL	CSA	Ceramic Resonators (CERALOCK®) for MHz Lead Type 211
CSFB	CSBF	Ceramic Resonators (CERALOCK®) for kHz Chip Type 211
CSBLA	CSB	Ceramic Resonators (CERALOCK®) for kHz Lead Type 212
CSTC	CSTC	Ceramic Resonators (CERALOCK®) for MHz Chip Type Built-In Capacitor 208–209
CSTL	CST	Ceramic Resonators (CERALOCK®) for MHz Lead Type Built-In Capacitor 210
D		
DC5	DC5	High-Frequency Power Ceramic Capacitors 67
DC6	DC5	High-Frequency Power Ceramic Capacitors 68
DCA	DAT	High-Frequency Power Ceramic Capacitors 67
DCT	DCT	High-Frequency Power Ceramic Capacitors 67
DCW	DE1	High-Frequency Power Ceramic Capacitors 68
DD	DD	Ceramic Capacitors (12V-500V) 55–57
DE	DE	High-Voltage Ceramic Capacitors (250V-6.3kV) 55, 58–60
DE	DE	Safety Standard Recognized Ceramic Capacitors 55, 61–64
DFC	DFC	Microwave Filters (GIGAFIL®) Band-Pass Filters 229–232
DFY	DFY	Microwave Filters (GIGAFIL®) Duplexer 227–229
DHR	DHR	High-Voltage Ceramic Capacitors (10k-40kV) 65
DHS	DHS	High-Voltage Ceramic Capacitors 66
DLM	PLM	Chip Common Mode Choke Coils Monolithic Type 159, 177–178
DLP	PLP	Chip Common Mode Choke Coils Film Type 159, 176–177
DLP	PLP	Chip Common Mode Choke Coils Film Type Array 159, 177
DLW	PLM	Chip Common Mode Choke Coils Winding Type 159, 179–181

Global Part Number	Previous Part Number		Page
DLW	PLW	Chip Common Mode Choke Coils Winding Type	159, 179–180
DR	DR	Dielectric Resonators (RESOMICS®)	277–278
DSN6	DS	Lead EMIFIL® Capacitor Type for General Small Type	159, 184
DSN9	DS	Lead EMIFIL® Capacitor Type Broad Band Type	159, 186
DSN9	DS	Lead EMIFIL® Capacitor Type Heavy-Duty Type	159, 187
DSS6	DSS	Lead EMIFIL® Capacitor Type for General Small Type	159, 185
DSS9	DSS	Lead EMIFIL® Capacitor Type Broad Band Type	159, 186
DSS9	DSS	Lead EMIFIL® Capacitor Type Heavy-Duty Type	159, 188
DST9	DST	Lead EMIFIL® Capacitor Type Broad Band Type	159, 187
DST9	DST	Lead EMIFIL® Capacitor Type Heavy-Duty Type	159, 188

E

EA	EA	Microwave Absorbers	199
EN	EN	Piezoelectric Vibrating Sensors (GYROSTAR®)	359–360
ERA	GRH7	Chip Monolithic Ceramic Capacitors for High-Frequency	26, 281–283
ERD	RPN	Chip Monolithic Ceramic Capacitors High-Frequency Type	281–283
ERF	GRM	Chip Monolithic Ceramic Capacitors High-Q & High Power Type	26, 280–281
ERH	RPN	Monolithic Ceramic Capacitors for High-Frequency	280–281

F

FKOB	FKOB	Common Mode Choke Coils for AC	193
FR	FR	Rotary Sensors	361
FS	FS	Ferrite Cores	199–204

G

GA2	GHM2	Chip Monolithic Ceramic Capacitors AC250V(r.m.s.) Type	26, 48
GA3	GHM3	Chip Monolithic Ceramic Capacitors Safety Standard Recognized	26, 49–50
GJ2	GRM	Chip Monolithic Ceramic Capacitors Smoothing Type	26, 36–37
GJ6	GRM61	Chip Monolithic Ceramic Capacitors High-Power Type	26, 39–40
GMA	GM	Monolithic Microchip	26, 40
GNM	GNM30	Capacitor Array	26, 41–43
GQM	GRQ	Chip Monolithic Ceramic Capacitors High-Frequency for Flow/Reflow Soldering	26, 279
GRM	GHM10	Chip Monolithic Ceramic Capacitors for Medium-Voltage Low Dissipation	26, 47
GRM	GHM15	Chip Monolithic Ceramic Capacitors for Medium-Voltage High-Capacitance	26, 47–48
GRM	GRM	Chip Monolithic Ceramic Capacitors Tin Plated Layer	26–36, 43, 47–48
GRP	GRM	Chip Monolithic Ceramic Capacitors Soldering Electrode	26, 37

H

H8D	H8D	Cut -Off Modules	342
HFP	HFP	DC/DC Converters	337–338
HFQ	HFQ	Microwave PLL Modules	293
HFV	HFV	Piezoelectric Inverters	339

I

IMD	IMD	Infrared Sensor Modules	353
IRA	IRA	Pyroelectric Infrared Sensor	352

L

LDA	LDA	Chip Multilayer Antennas	276
LDB	LDB	Chip Multilayer Hybrid Baluns	273–274
LDC	LDC	Chip Multilayer Hybrid Couplers	271–272
LDD	LDD	Chip Multilayer Hybrid Dividers	273
LDH	LDH	Chip Multilayer Delay Lines	142–144
LFB_SA	LFSA	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	234
LFB_SB	LFSB	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	235
LFB_SC	LFSC	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	235
LFB_SG	LFSG	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	232–233
LFB_SH	LFSH	Chip Multilayer LC Filters for IF (Balance-balance Type)	260–261
LFB_SJ	LFSJ	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	235–236
LFB_SK	LFSK	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	236
LFB_SL	LFSL	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	233
LFB_SN	LFSN	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	233, 236
LFB_SP	LFSP	Chip Multilayer LC Filters Band-Pass Filter for RF/Local	234
LFB_SQ	LFSQ	Chip Multilayer LC Filters for IF (Balance-unbalance Type)	261
LFD	LFD	Chip Multilayer Diplexers	239–240
LFE	LFH	Chip Multilayer LC Filters (Trap) for RF/Local	240
LFH	LFR	Chip Multilayer LC Filters High-Pass Filter for RF/Local	239
LFL_AK	LFK	Chip Multilayer LC Filters Low-Pass Filter for RF/Local	238
LFL_T	LFT	Chip Multilayer LC Filters Low-Pass Filter for RF/Local	237–238

Global Part Number	Previous Part Number		Page
LLL	LL	Low-ESL	26, 44–46
LMS	LMC	SWITCHPLEXERS®	292
LMS	LMS	RF Diode Switches	291–292
LP	LP	Non-Contact Potentiometers	360
LQG	LQG	Chip Coils for High-Frequency Monolithic Type	118, 126–127
LQH	LQH	Chip Coils for Choke Winding Type	118, 137–139
LQH	LQH	Chip Coils for General Use Winding Type	118, 130–134
LQH	LQN	Chip Coils for Choke Large Current Type	118, 141–142
LQH	LQN	Chip Coils for High-Frequency Winding Ferrite Type	118, 125
LQH	LQS	Chip Coils for Choke Magnetic Shielded Type	118, 134–135, 139–140
LQH	LQS	Chip Coils for General Use Magnetic Shielded Type	118, 134
LQM	LQG	Chip Coils for Choke Monolithic Type	118, 140–141
LQM	LQG	Chip Coils for General Use Monolithic Type	118, 136–137
LQP	LQP	Chip Coils for High-Frequency Film Type	118, 128–130
LQW	LQN	Chip Coils for High-Frequency Vertical Winding	118, 123–125
LQW	LQW	Chip Coils for High-Frequency Horizontal Winding	118–122

M

MA	MA	Ultrasonic Sensors	354–358
MHF	MHF	Focus Adjusting Resistors	330–332
MHR	MHR	High-Voltage Resistors	102–103
MKFGA	MKF	Ceramic Filters (BGS Filters) for FM	326
MKFKB	MKFC	Ceramic Filters (BGS Filters) for IF	261
MKR	MKR	BGS Resonators	214
MKT	MKT	BGS Traps for TV/VCR	319
MM	MM	Receptacle Used on Coaxial Connectors	287–288
MP	MP	Power Supplies	334–336
MPV	HFV	Piezoelectric Inverters	339
MQ	MQ	Microwave Oscillators (VCOs)	292
MSC	MSC	High-Voltage CR Blocks	332
MSP	MSP	Primary Control System Modules	329
MSU	MSU	Flyback Transformers	329
MX	MX	Coaxial Connectors Cables	287

N

NCP	NTH5G	Chip NTC Thermistors for Temperature Compensation	97–100
NFA	NFA	Chip EMIFIL® Arrays	171–172
NFA	NFA	Chip EMIFIL® RC Combined Array Type	175–176
NFE31P	NFM60R	Chip EMIFIL® LC Combined T-Type	172–173
NFE61P	NFM61R	Chip EMIFIL® LC Combined T-Type	173
NFL	NFM	Chip EMIFIL® LC Combined Monolithic Type	174–175
NFM	NFM	Chip EMIFIL® Capacitor Type	167–169
NFR21G	NFM839R	Chip EMIFIL® RC Combined Type	175
NFW31S	NFM51R	Chip EMIFIL® LC Combined Winding Type	174
NTP	NTH7-22D	NTC Thermistors for Inrush Current Suppression	101–102
NTS	NTH4G	NTC Thermistors for Temperature Sensor	100–101, 351–352

P

PDGA8	PDGA8	PTC Thermistors (POSISTOR®) for Circuit Protection	88
PFLA	PFS	Ceramic Filters (CERAFIL®) for AM	305
PFWCC	PFWCC	Chip Ceramic Filters (CERAFIL®) for AM	302
PFWLA	PFW	Ceramic Filters (CERAFIL®) for AM	305
PKB	PKB	Piezoelectric Buzzers	219
PKE	PKE	Electric Potential Sensors	362
PKGA	PKGA	Built-In Circuit Acceleration Sensors	359
PKGS	PKGS	Shock Sensors	358–359
PKLCS	PKLCS	SMD Piezoelectric Sounder	220
PKM	PKM	Piezoelectric Ringers (PIEZORINGER®)	221–222
PKM	PKM	Piezoelectric Sounders	220–221
PLA	PLA	AC Line Common Mode Choke Coils	194–195
PLH	PLH	AC Line Common Mode Choke Coils for High Frequency	196
PLT	PLT	Common Mode Choke Coils for DC	190–191
PLY	PLY	AC Line Hybrid Choke Coils	197
PRF	PTH9C	Chip PTC Thermistors (POSISTOR®) for Overheat Sensing	93, 350
PRG	PRG	Chip PTC Thermistors (POSISTOR®) for Circuit Protection	89
PTDA	PTH451A	PTC Thermistors (POSISTOR®) for Degaussing Circuits	96–97
PTDC	PTH451C	PTC Thermistors (POSISTOR®) for Degaussing Circuits	96–97
PTDL	PTH632	PTC Thermistors (POSISTOR®) for Degaussing Circuits	97
PTF□	PTH9L	PTC Thermistors (POSISTOR®) for Overheat Sensing	94, 350–351

Global Part Number	Previous Part Number		Page
PTF□	PTH9M	PTC Thermistors (POSISTOR®) for Overheat Sensing	94, 350–351
PTGL	PTH8L	PTC Thermistors (POSISTOR®) for Circuit Protection	89–93
PTH7M	PTH7M	PTC Thermistors (POSISTOR®) for Motor Starters	94–95
PTH8M	PTH8M	PTC Thermistors (POSISTOR®) for Motor Starters	95–96
PTHGA	PTH491	PTC Thermistors (POSISTOR®) for Motor Starters	96
PTWSB	PTH476	PTC Thermistors (POSISTOR®) for Heater	88
PTWTA	PTH521	PTC Thermistors (POSISTOR®) for Heater	88
PV01	POT01	Trimmer Potentiometers Chip Closed Type Multi-Turns	107–108
PV12	POT11	Trimmer Potentiometers Lead Closed Type Multi-Turns	110
PV22	POT21	Trimmer Potentiometers Lead Closed Type Multi-Turns	110–111
PV23	POT21	Trimmer Potentiometers Lead Closed Type Multi-Turns	111
PV34	POT31	Trimmer Potentiometers Lead Closed Type Single-Turn	108–109
PV36	POT31	Trimmer Potentiometers Lead Closed Type Multi-Turns	111–112
PV37	POT31	Trimmer Potentiometers Lead Closed Type Multi-Turns	112–113
PVA3	RVG3A	Trimmer Potentiometers Chip Open Type 3mm Size	105
PVC6	POC6	Trimmer Potentiometers Lead Closed Type Single-Turn	109
PVF2	POF2	Trimmer Potentiometers Chip Closed Type 2mm Size	106
PVG3	PVG3	Trimmer Potentiometers Chip Closed Type 3mm Size	106
PVG5	POG5	Trimmer Potentiometers Chip Closed Type Multi-Turns	107–108
PVM4	RVG4M	Trimmer Potentiometers Chip Closed Type 4mm Size	107
PVS1	PVS1	Trimmer Potentiometers Chip Open Type 12mm Size	105–106
PVS3	RVG3S	Trimmer Potentiometers Chip Open Type 3mm Size	105
PVZ2	POZ2	Trimmer Potentiometers Chip Open Type 2mm Size	104
PVZ3	POZ3	Trimmer Potentiometers Chip Open Type 3mm Size	105

R

RG	RG	R Networks	103–104
RPE	RPE	Monolithic Ceramic Capacitors Lead Type	51–54

S

SAF	SAF	SAW Filters for Digital Broadcasting	325
SAF	SAF	SAW Filters for IF	257–260
SAF	SAF	SAW Filters for RF/Local	240–243
SAF	SAF	SAW Filters for TV/VCR	319–324
SAFJC	MKFC	SAW Filters for IF	259
SAR	SAR	SAW Resonators	213
SAW	SAF	SAW Filters for RF/Local Dual Type	242
SAW	SAF	SAW Filters for TV/VCR Dual Type	325–326
SFELA/SFELB	SFE	Ceramic Filters (CERAFIL®) for FM	307–310
SFECS	CFECS	Chip Ceramic Filters (CERAFIL®) for IF	244, 248
SFECS	SFECS	Chip Ceramic Filters (CERAFIL®) for FM	306
SFECS	SFECS	Chip Ceramic Filters (CERAFIL®) for IF	250
SFECEV	SFECEV	Chip Ceramic Filters (CERAFIL®) for FM	306
SFKLA	SFE	Ceramic Filters (CERAFIL®) for FM	309
SFPCA450	SFPCA450	Chip Ceramic Filters (CERAFIL®) for AM	302
SFPCA455	SFPCA455	Chip Ceramic Filters (CERAFIL®) for IF	244–245
SFPLA	SFPS	Ceramic Filters (CERAFIL®) for AM	303–304
SFSKA	SFSCC	Chip Ceramic Filters (CERAFIL®) for TV/VCR	312
SFSRA	SFSRA	Ceramic Filters (CERAFIL®) for TV/VCR	312
SFSRH	SFSH	Ceramic Filters (CERAFIL®) for TV/VCR	313
SFSRL	SFSL	Ceramic Filters (CERAFIL®) for TV/VCR	313
SFTLA	SFT	Ceramic Filters (CERAFIL®) for FM	310
SFTRD	SFT	Ceramic Filters (CERAFIL®) for TV/VCR	314
SFU	SFU	Ceramic Filters (CERAFIL®) for AM	303
SFV	SFE	Ceramic Filters (CERAFIL®) for FM	309
SFZ	SFZ	Ceramic Filters (CERAFIL®) for AM	303

T

TPSKA	TPSCC	Ceramic Traps	316
TPSRA	TPSRA	Ceramic Traps	316
TPSRD	TPS	Ceramic Traps	316–317
TPSRL	TPSL	Ceramic Traps	316–317
TPTRD	TPT	Ceramic Traps (Triple Traps)	317
TPWKA	TPWKA	Chip Ceramic Traps (Double Traps)	318
TPWRD	TPWA	Ceramic Traps (Double Traps)	318
TU	TU	Tuners for TV/VCR	328
TZ	TZ	Trimmer Capacitors	69–72

Global Part Number	Previous Part Number		Page
V			
VCM	VCM	Chip Varistors.....	191
VFM	VFM	Chip EMIGUARD®.....	192
VFR	VFR	EMIGUARD® (EMIFIL® with Varistor Function).....	192
VFS6V/9V	DSS706/710	EMIGUARD® (EMIFIL® with Varistor Function).....	192-193
VSB	VSB	Piezoelectric Speakers (CERAMITONE®).....	218
X			
XMF	XMF	GaAs.....	275
7□B			
7□B	7□B	Piezoelectric Diaphragms	218-219

⚠ Note:

1. Export Control

⟨For customers outside Japan⟩

Murata products should not be used or sold for use in the development, production, stockpiling or utilization of any conventional weapons or mass-destructive weapons (nuclear weapons, chemical or biological weapons, or missiles), or any other weapons.

⟨For customers in Japan⟩

For products which are controlled items subject to the "Foreign Exchange and Foreign Trade Law" of Japan, the export license specified by the law is required for export.

2. Please contact our sales representatives or product engineers before using our products listed in this catalog for the applications listed below which require especially high reliability for the prevention of defects which might directly cause damage to the third party's life, body or property, or when intending to use one of our products for other applications than specified in this catalog.

- ① Aircraft equipment
- ② Aerospace equipment
- ③ Undersea equipment
- ④ Power plant equipment
- ⑤ Medical equipment
- ⑥ Transportation equipment (vehicles, trains, ships, etc.)
- ⑦ Traffic signal equipment
- ⑧ Disaster prevention / crime prevention equipment
- ⑨ Data-processing equipment
- ⑩ Application of similar complexity and/or reliability requirements to the applications listed in the above

3. Product specifications in this catalog are as of July 2001. They are subject to change or our products in it may be discontinued without advance notice. Please check with our sales representatives or product engineers before your ordering. If there are any questions, please contact our sales representatives or product engineers.

4. This catalog has only typical specifications. Therefore you are requested to approve our product specification or to transact the approval sheet for product specification, before your ordering.

5. Please note that unless otherwise specified, we shall assume no responsibility whatsoever for any conflict or dispute that may occur in connection with the effect of our and/or third party's intellectual property rights and other related rights in consideration of your using our products and/or information described or contained in our catalogs. In this connection, no representation shall be made to the effect that any third parties are authorized to use the rights mentioned above under licenses without our consent.

6. None of ozone depleting substances (ODS) under the Montreal Protocol is used in manufacturing process of us.

Innovator in Electronics

Headquarter Europe:

Murata Europe Management GmbH
Holbeinstrasse 23, 90441 Nürnberg
Tel. +49 (0)911 / 66 87-0
Fax +49 (0)911 / 66 87-270

Sales Network Europe:

Germany

Murata Elektronik Handels GmbH
Holbeinstrasse 23, 90441 Nürnberg
Tel. +49 (0)911 / 66 87-0
Fax +49 (0)911 / 66 87-435
info@murata.de

Italy

Murata Elettronica S.P.A.
Via San Carlo 1, 20040 Caponago - Milano
Tel. +39 (0) 2 959 68 1
Fax +39 (0) 2 959 68 353
info@murata.it

Rome Office:

Via Castelrosso 6, 00144 Rome
Tel. +39 (0) 6 591 44 63
Fax +39 (0) 6 591 44 58
info@murata.it

Distributed by:

Internet address Murata Europe:
www.murata-europe.com

France

Murata Electronique S.A.
18 - 22 Avenue E. Herriot
Parc Technologique
6, Bat Copernic
92356 Le Plessis Robinson Cedex
Tel. +33 (0) 1 40 94 83 00
Fax +33 (0) 1 40 94 01 54
info@murata.fr

Switzerland

Murata Electronics Switzerland AG
Isenrietstrasse 19
8617 Mönchaltorf
Tel. +41 (0) 1 949 30 40
Fax +41 (0) 1 948 17 69
info@murata.ch

United Kingdom

Murata Electronics (UK) Ltd.
Oak House, Ancells Road
Ancells Business Park
Fleet, Hampshire, GU51 2QW
Tel. +44 (0) 12 52 81 16 66
Fax +44 (0) 12 52 81 17 77
enquiry@murata.co.uk

Internet address Murata Japan:
www.murata.co.jp/products/

The Netherlands

Murata Electronics (Netherlands) B.V.
Daalmeerstraat 4
2131 HC Hoofddorp
Tel. +31 (0) 23 569 84 10
Fax +31 (0) 23 569 84 11
info@murata.nl

Nordic office Finland:

Virkatie 1
01510 Vantaa
Tel. +358 (0) 9 27 05 26 88
Fax +358 (0) 9 27 05 26 87

Nordic office Sweden:

Infracity - Kanalvägen 10 C
19461 Upplands Väsby
Tel. +46 (0) 8 59 00 41 80
Fax +46 (0) 8 59 00 41 71

Spanish office:

Centro de Empresas
Parque Tecnológico del Vallés
08290 Cerdanyola - Barcelona
Tel. +34 (9) 3 582 02 59
Fax +34 (9) 3 582 02 60