

INTEGRATED CIRCUITS EN
DISCRETE SEMICONDUCTORS
PROGRAMMA 1993

Philips Nederland B.V.



PHILIPS

PHILIPS SEMICONDUCTORS CONCISE CATALOGUE 1993

The standard type range

This Concise Catalogue will provide you with a compact, handy reference to the Philips standard range of integrated circuits and discrete semiconductors, offered for sale through our extensive and worldwide network of National Sales Organizations. We recommend that you consult with your local Philips sales organization for information regarding full data, price and availability of these products.

The Philips Data Handbook System

For complete specifications of the components listed in this catalogue, please refer to the relevant volume of the Philips data handbook, which is indicated in the alphanumerical index of this catalogue. A complete list of the Philips integrated circuit and discrete semiconductor handbooks appears on page IV of this catalogue.

The Philips data handbook system comprises more than 65 books, classified into seven series:

- Integrated Circuits
- Discrete Semiconductors
- Display Components
- Passive Components
- Professional Components
- Magnetic Products
- Liquid Crystal Displays

Data handbooks contain all pertinent data available at the time of publication and each is revised and reissued regularly. Loose data sheets are sent to subscribers to keep them up-to-date on additions and alterations made during the lifetime of a data handbook. Catalogues are available for selected product ranges (some catalogues are also available on floppy disks).

For more information about data handbooks, catalogues and subscriptions, contact your local Philips sales organization listed on the back cover of this catalogue. Product specialists are at your service and enquiries are answered promptly.

Alphanumeric Index



Integrated Circuits



Discrete Semiconductors



RF and Microwave Semiconductors



Circulators and Isolators



High-power Klystrons



Semiconductor Sensors



The CECC system

The objective of the CECC system is stated as:

"... to facilitate international trade by the publication of specifications and quality assessment procedures for electronic components and by the grant of an internationally recognized Mark, and/or Certificate, of Conformity. The components produced under this system are thereby acceptable by all member countries without further testing."

There are 15 member countries of CECC: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

CECC specifications

Harmonization of specifications greatly reduces the variety of test methods and specifications of both manufacturers and users of electronic components. This harmonization takes place on:

- testing and sampling methods
- Blank Detail Specifications, which give the standard presentation and requirements for the detail specifications of a family of components
- Detail Specifications of specific components.

CECC approvals

Before components can be supplied with CECC approval, the factories producing these components must have CECC Manufacturer approval. For this type of approval the certification to ISO 9000 is used.

There are 2 types of product approvals:

- Qualification approval.
This is the approval for one component of a specific type. Approval is granted after a series of fixed tests have been successfully completed and the results have been approved by the National Supervising Inspectorate.
- Capability approval.
This is the approval for a group of components sharing a common technology. From this group a number of so-called 'Capability Qualifying Components', which are chosen as relevant for the technological domain, are tested as in the qualification approval.

Components with CECC approval are registered in the Qualified Products List: CECC 00200. Products are delivered in a package, sealed with the CECC mark of conformity. The sealed package may only be opened by an approved distributor.

Policy of Philips Semiconductors

A key element of our quality policy is the securing of CECC approval for all standard products and all production centres.

For us CECC's comprehensive system of Quality Assurance and result reporting is another aid in our quest for zero defects.

For our customers the benefits of CECC approval are:

- a guarantee of the quality of our components
- evidence of our highly developed QA system
- the knowledge that our products are ship-to-stock capable.

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In the alphanumeric index sections, IC4, SC4 and SC9, reference is made to Philips Semiconductors' data sheets or data handbooks. These data handbooks contain all pertinent data available at the time of publication and each is revised and reissued regularly.

Loose data sheets are sent to subscribers to keep them up-to-date on additions or alterations made during the lifetime of a data handbook

Catalogues are available for selected product ranges; some catalogues are also on floppy disks.

For more information about Philips Semiconductors handbooks, catalogues and subscriptions contact your nearest Philips Semiconductors national organization listed on the back cover of this catalogue.

For this catalogue, the following data handbooks are of interest:

Integrated Circuit handbook series

book	title
IC01	Semiconductors for Radio and Audio Systems
IC02	Semiconductors for Television and Video Systems
IC03	Semiconductors for Telecom Systems
IC04	CMOS HE4000B Logic Family
IC05	Advanced Low-power Schottky (ALS) Logic Series
IC06	High-speed CMOS Logic Family
IC08	100K ECL Logic Family
IC10	Memories
IC11	General-purpose/Linear ICs
IC12	Display Drivers and Microcontroller Peripherals (planned)
IC13	Programmable Logic Devices (PLD)
IC14	8048-based 8-bit Microcontrollers
IC15	FAST TTL Logic Series
IC16	ICs for Clocks and Watches
IC18	Semiconductors for In-Car Electronics and General Industrial Applications (planned)
IC19	Semiconductors for Datacom: LANs, UARTs, Multi-protocol Controllers and Fibre Optics
IC20	8051-based 8-bit Microcontrollers
IC21	68000-based 16-bit Microcontrollers (planned)
IC22	ICs for Multi-media Systems
IC23	QUBIC Advanced BiCMOS Interface Logic ABT, MULTIBYTE™
IC24	Low Voltage CMOS Logic

Discrete Semiconductor handbook series

book	title
SC01	Diodes
SC02	Power Diodes
SC03	Thyristors and Triacs
SC04	Small-signal Transistors
SC05	Low-frequency Power Transistors and Hybrid IC Power Modules
SC06	High-voltage and Switching NPN Power Transistors
SC07	Small-signal Field-effect Transistors
SC08a	RF Power Bipolar Transistors
SC08b	RF Power MOS Transistors
SC09	RF Power Modules
SC13	PowerMOS Transistors
SC14	RF Wideband Transistors, Video Transistors and Modules
SC15	Microwave Transistors
SC16	Wideband Hybrid IC Modules
SC17	Semiconductor Sensors

Professional Components handbook series (selection)

book	title
PC01	High-power Klystrons and Accessories
PC06	Circulators and Isolators

Integrated Circuits



**PHILIPS SEMICONDUCTORS
CONCISE CATALOGUE 1993**



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INTEGRATED CIRCUITS

Packing quantities

Smallest packing quantity (SPQ) and packing quantity (PQ)

package	SOT no.	SPQ/PQ tube	SPQ/PQ reel 7"	SPQ/PQ reel 13"	SPQ/PQ reel 360 mm	SPQ/PQ hard tray	PQ1/PQ5 JEDEC tray
DIL8	97	50/2000	-	-	-	-	-
DIL14	27	24/960	-	-	-	-	-
DIL16	38-1/69	22/880	-	-	-	-	-
DIL16	** 38-4	25/1000	-	-	-	-	-
DIL18	102-2	20/800	-	-	-	-	-
DIL18	** 102-1	22/880	-	-	-	-	-
DIL20	146	18/720	-	-	-	-	-
DIL20SHR	325	development	-	-	-	-	-
DIL22	116	17/544	-	-	-	-	-
DIL22SKI	224	18/720	-	-	-	-	-
DIL24	101	15/360	-	-	-	-	-
DIL24SKI	222	15/600	-	-	-	-	-
DIL24SHR	234	21/672	-	-	-	-	-
DIL28	117	13/312	-	-	-	-	-
DIL32	201	11/264	-	-	-	-	-
DIL32SHR	232	16/512	-	-	-	-	-
DIL40	129	9/216	-	-	-	-	-
DIL42SHR	270	12/288	-	-	-	-	-
DIL48	240	7/168	-	-	-	-	-
DIL48SHR	264	10/240	-	-	-	-	-
DIL52SHR	247	10/240	-	-	-	-	-
DIL64SHR	274	8/160	-	-	-	-	-
CERDIP8	151	48/1920	-	-	-	-	-
CERDIP14	73	25/1000	-	-	-	-	-
CERDIP16	74	25/1000	-	-	-	-	-
CERDIP18	133	21/840	-	-	-	-	-
CERDIP20	152	20/800	-	-	-	-	-
CERDIP24	94	15/360	-	-	-	-	-
CERDIP28	135	13/312	-	-	-	-	-
CERDIP40	145	9/216	-	-	-	-	-
SIL9MPF	110	22/748	-	-	-	-	-
SIL9P	131	20/420	-	-	-	-	-
SIL9MP	142	22/748	-	-	-	-	-
SIL13P	193	20/420	-	-	-	-	-
QUIL16	58	42/820	-	-	-	-	-
QUIL18	165	42/820	-	-	-	-	-
RBS9MPF	352	22/924	-	-	-	-	-
RBS9P	237	20/360	-	-	-	-	-
DBS9MPF	111	22/748	-	-	-	-	-
DBS9P	157	20/360	-	-	-	-	-
DBS13P	141	20/360	-	-	-	-	-
DBS17P	243	20/360	-	-	-	-	-
SMS9P	* 354	development	-	-	-	-	-
PMFP8	* 144	50/2000	5000/10000	-	-	-	-
SO8	* 96	100/2000	1000/1000	2500/2500	-	-	-



INTEGRATED CIRCUITS

Packing quantities

Smallest packing quantity (SPQ) and packing quantity (PQ)

package	SOT no.	SPQ/PQ tube	SPQ/PQ reel 7"	SPQ/PQ reel 13"	SPQ/PQ reel 360 mm	SPQ/PQ hard tray	PQ1/PQ5 JEDEC tray
SO8L *	176	64/2560	700/700	1000/1000	-	-	-
SO14 *	108	57/1140	1000/1000	2500/2500	-	-	-
SO16 *	109	50/1000	1000/1000	2500/2500	-	-	-
SO16L *	162	47/1880	500/500	1000/1000	-	-	-
SO20L *	163	38/1520	500/500	1000/1000	-	-	-
SO20M *	336	66/TBF	-	-	-	-	-
SO24L *	137	31/1240	500/500	1000/1000	-	-	-
SO28L *	136	27/1080	500/500	1000/1000	-	-	-
SO28XL *	213	27/756	350/350	1000/1000	-	-	-
SO32L *	287	24/960	500/500	1000/1000	-	-	-
SSOP20 *	266	75/6750	1000/1000	2500/2500	-	-	-
SSOP20M *	339	67/4690	-	-	-	-	-
SSOP24M *	340	59/4130	-	-	-	-	-
SSOP28M *	341	47/3290	-	-	-	-	-
VSO40 *	158	31/1240	300/300	1000/1000	-	-	-
VSO56 *	190	22/616	-	-	1000/1000	-	-
QFP44 *	311	-	-	-	-	-	96/480
QFP44S10 *	307	-	-	-	-	720/720	96/480
QFP44S14 *	205	-	-	-	-	720/720	84/420
QFP48S10 *	196	-	-	-	-	720/720	96/480
QFP64 *	319	-	-	-	-	-	66/330
QFP64REC *	208	-	-	-	-	640/640	66/330
QFP80 *	318	-	-	-	-	-	66/330
QFP80REC *	219/310	-	-	-	-	640/640	66/330
QFP100 *	317	-	-	-	-	-	66/330
QFP100REC *	210	-	-	-	-	640/640	66/330
QFP120 *	349	-	-	-	-	300/300	24/120
QFP120REC *	220	-	-	-	-	-	24/120
QFP128SL *	280	-	-	-	-	300/300	24/120
QFP160 *	225/322	-	-	-	-	300/300	24/120
SQFP48S7 *	313	-	-	-	-	400/400	-
SQFP64S10 *	314	-	-	-	-	-	TBF
SQFP80 *	315	-	-	-	-	-	TBF
SQFP208 *	316	-	-	-	-	-	24/120
SQFP240 *	334	-	-	-	-	-	24/120
PLCC20 *	AL	46/3680	-	1000/1000	-	-	-
PLCC28 *	261	37/2368	300/300	750/750	-	-	-
PLCC32 *	AR	31/2232	-	750/750	-	-	-
PLCC44 *	187	26/1248	-	-	500/500	-	-
PLCC52 *	238	23/1012	-	500/500	-	-	-
PLCC68 *	188	18/648	-	-	250/250	-	-
PLCC84 *	189	15/420	-	-	250/250	-	-

INTEGRATED CIRCUITS

Packing quantities

Package abbreviations *

Plastic packages

DBS	DIL Bent SIL
DIL	Dual In-Line
PLCC*	Plastic Leaded Chip Carrier
PMPF*	Plastic Micro Flat Pack
QFP*	Quad Flat Pack
QUIL	QUadruple In-Line
RBS	Rectangular Bent SIL
SIL	Single In-Line
SO*	Small Outline
SOJ*	SO with J-bent leads
SSOP*	Shrink Small Outline Package
SQFP*	Shrink Quad Flat Pack
TAB*	Tape Automated Bonding
VSO*	Very Small Outline

Ceramic glass sealed packages

CERDIP	CERamic Dual In-line Package
QCERPA*	Quad CERamic (flat) PAcK
QUADKP*	QUAD K-Pack

Ceramic packages with a metal lid

CERDIL	CERamic Dual In-Line
CERSOL*	CERamic SO Large package
CLCC*	Ceramic Leaded Chip Carrier
CPGA	Ceramic Pin-Grid Array
LCCC*	Leadless Ceramic Chip Carrier

Metal can packages

CIRCLE leads on a pin CIRCLE

Package suffix

FD	Face Down
L	Large
MP	Medium Power
MPF	Medium Power + cooling Fin
P	Power
REC	REctangular
SHR	SHRink
SKI	SKInny
SL	Short Lead
SLL	SLim Line
S10	Square 10 (10 × 10 mm)
S14	Square 14 (14 × 14 mm)
XL	eXtra Large
XXL	eXtra eXtra Large

Smallest Packing Quantity (SPQ)

For highest quality assurance, it is recommended to order multiples of the SPQs preferably up to the packing quantity (PQ) i.e. full boxes listed in the table above. For circuit evaluation, single samples can be ordered.

Notes:

- * SMD package for surface mounting
 - ** DIL16/DIL18 with short body
- reels: Philips Semiconductors, Sunnyvale supports 13" reels only; Philips Semiconductors supports 7" and 13" reels



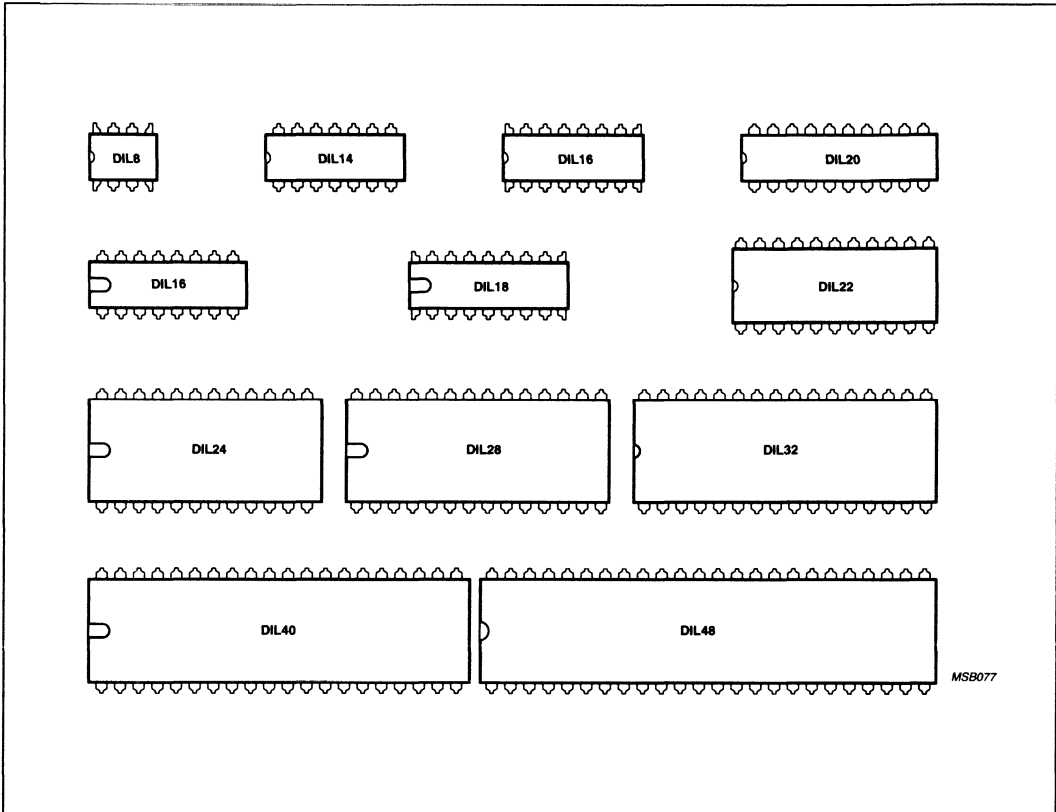
INTEGRATED CIRCUITS

Packing quantities

INTEGRATED CIRCUITS

Package outlines

Dual In-Line (DIL) packages (actual size)



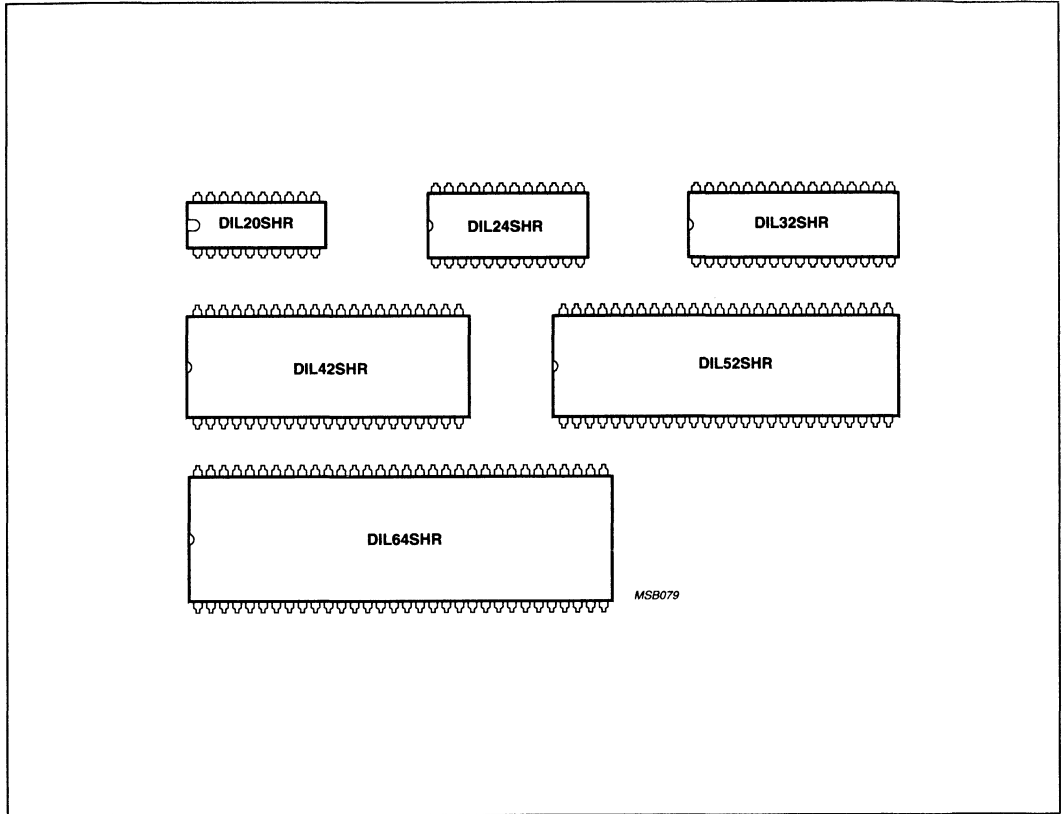
Package dimensions (typical)

package	body size (W × L)		pitch		package	body size (W × L)		pitch	
	mm	mm	mm	mils		mm	mm	mm	mils
DIL8	6.35	9.32	2.54	100	DIL22	8.89	27.8	2.54	100
DIL14	6.35	19.02	2.54	100	DIL24	13.8	31.7	2.54	100
DIL16	6.35	19.02	2.54	100	DIL28	13.8	35.7	2.54	100
DIL16	6.35	21.6	2.54	100	DIL32	13.97	41.1	2.54	100
DIL18	6.35	21.6	2.54	100	DIL40	13.8	52.0	2.54	100
DIL20	6.35	26.6	2.54	100	DIL48	13.97	61.7	2.54	100

INTEGRATED CIRCUITS

Package outlines

Shrink Dual In-Line (SHRDIL) packages (actual size)



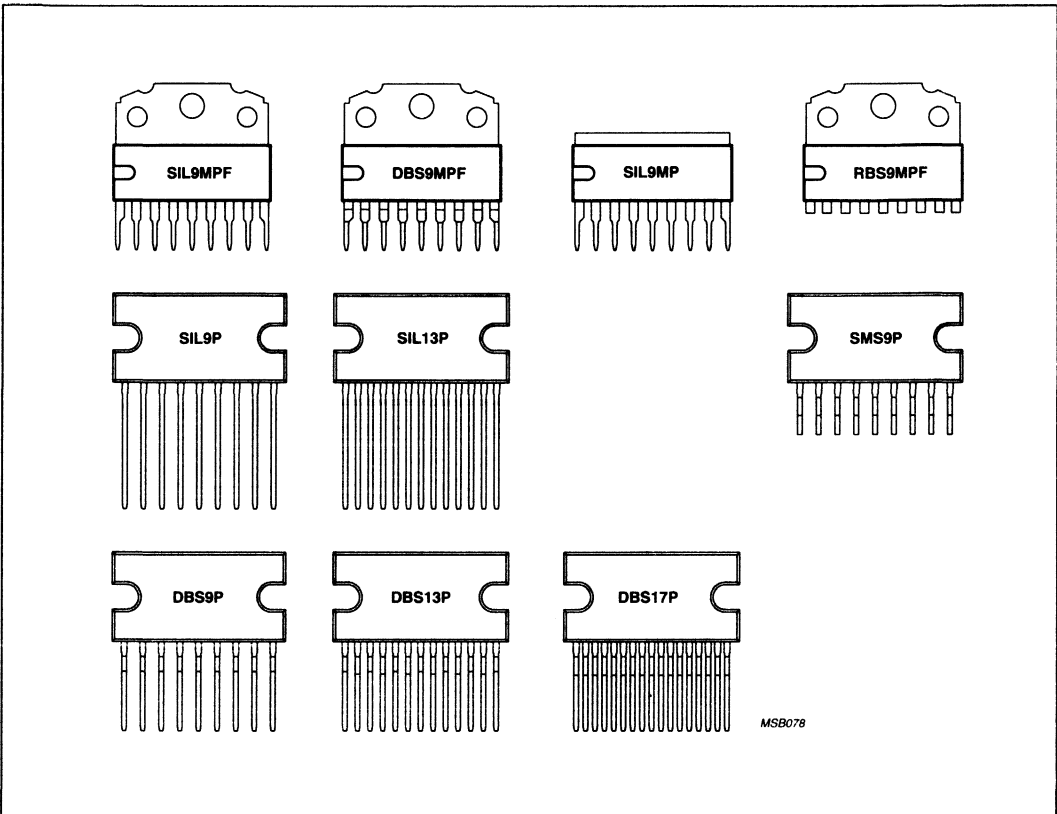
Package dimensions (typical)

package	body size (W × L)		pitch	
	mm	mm	mm	mils
DIL20SHR	6.35 × 19.02	1.778	70	
DIL24SHR	8.9 × 21.86	1.778	70	
DIL32SHR	8.9 × 28.98	1.778	70	
DIL42SHR	13.8 × 38.6	1.778	70	
DIL52SHR	13.8 × 47.5	1.778	70	
DIL64SHR	17.0 × 58.16	1.778	70	

INTEGRATED CIRCUITS

Package outlines

Single In-Line (SIL) packages (actual size)



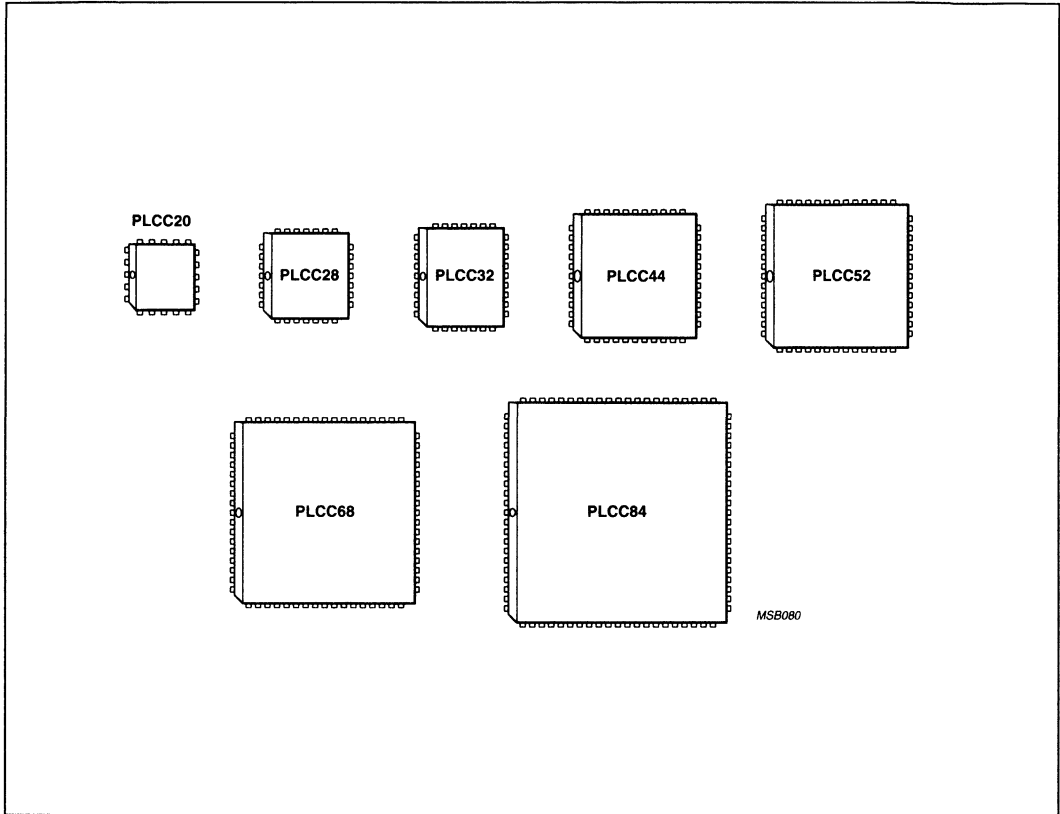
Package dimensions (typical)

package	body size		pitch		package	body size		pitch	
	(W × L)	mm	mm	mils		(W × L)	mm	mm	mils
SIL9P	12.0 × 23.7		2.54	100	DBS9MPF	6.35 × 21.6		5.08	200
SIL9MP	6.35 × 21.6		2.54	100	RBS9MPF	6.35 × 21.6		2.54	100
SIL9MPF	6.35 × 21.6		2.54	100	SIL13P	12.0 × 23.7		1.7	-
SMS9P	12.0 × 23.7		2.54	100	DBS13P	12.0 × 23.7		3.4	-
DBS9P	12.0 × 23.7		5.08	200	DBS17	12.0 × 23.7		1.27	100

INTEGRATED CIRCUITS

Package outlines

Plastic Leaded Chip Carrier (PLCC) packages (actual size)



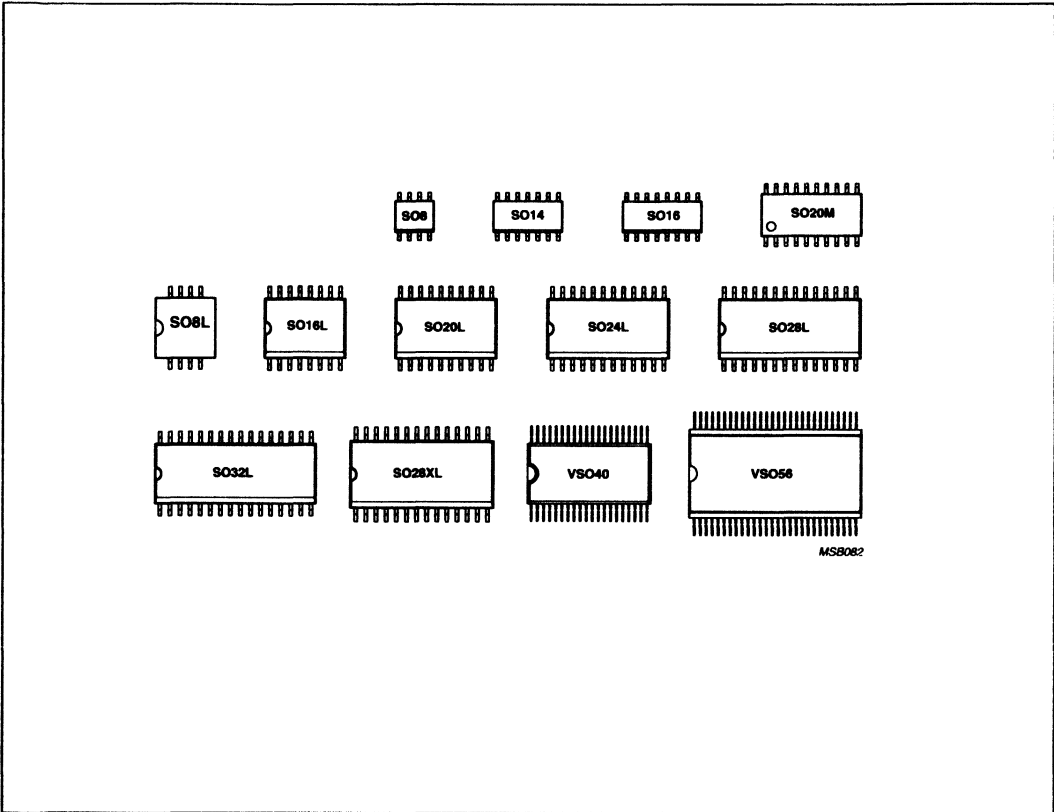
Package dimensions (typical)

package	body size (W × L)		pitch	
	mm	mm	mm	mils
PLCC20	8.92 × 8.92	1.27	50	
PLCC28	11.46 × 11.46	1.27	50	
PLCC32	13.97 × 11.43	1.27	50	
PLCC44	16.54 × 16.54	1.27	50	
PLCC52	19.08 × 19.08	1.27	50	
PLCC68	24.16 × 24.16	1.27	50	
PLCC84	29.24 × 29.24	1.27	50	

INTEGRATED CIRCUITS

Package outlines

Small Outline (SO) and Very Small Outline (VSO) packages (actual size)



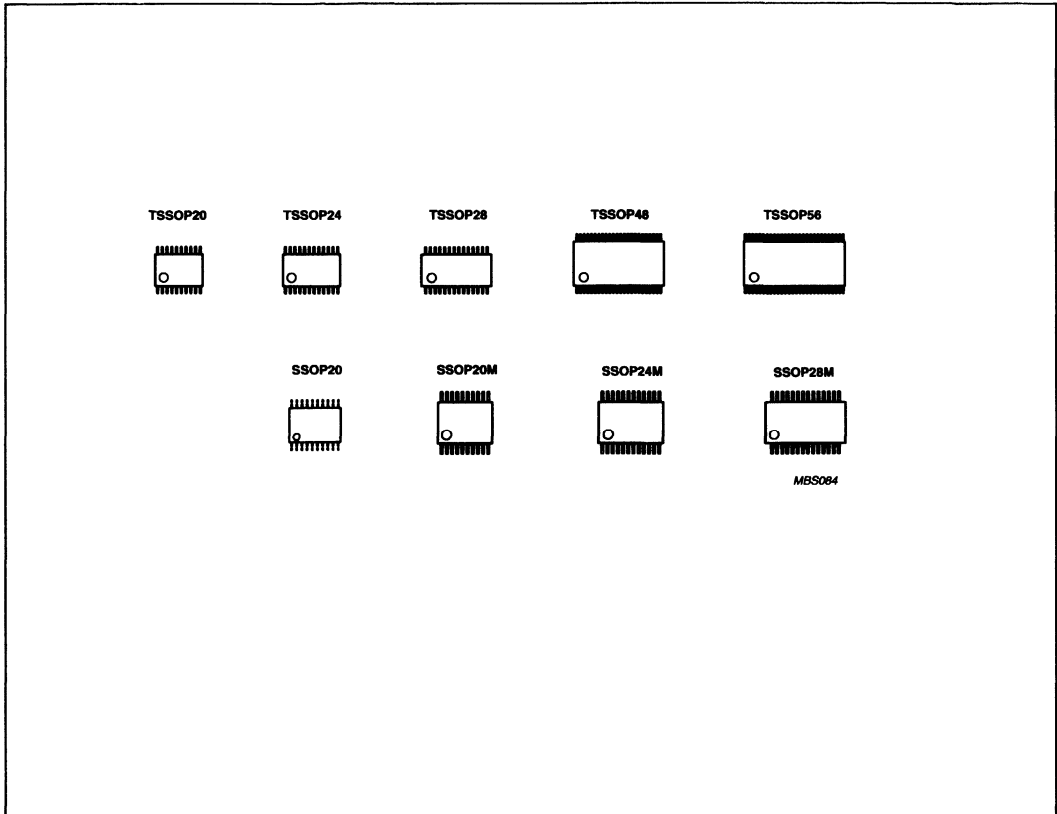
Package dimensions (typical)

package	body size (W × L × T) mm	pitch		package	body size (W × L × T) mm	pitch	
		mm	mils			mm	mils
SO8	3.9 × 4.9 × 1.35	1.27	50	SO24L	7.5 × 15.4 × 2.35	1.27	50
SO8L	7.5 × 7.6 × 2.35	1.27	50	SO28L	7.5 × 17.9 × 2.35	1.27	50
SO14	3.9 × 8.6 × 1.35	1.27	50	SO28XL	8.4 × 18.0 × 2.70	1.27	50
SO16	3.9 × 9.9 × 1.35	1.27	50	SO32L	7.5 × 20.5 × 2.35	1.27	50
SO16L	7.5 × 10.3 × 2.85	1.27	50	VSO40	7.5 × 15.6 × 2.35	0.762	30
SO20L	7.5 × 12.8 × 2.35	1.27	50	VSO56	11.1 × 22.0 × 2.9	0.75	-
SO20M	5.3 × 12.6	1.27	50				

INTEGRATED CIRCUITS

Package outlines

Shrink Small Outline (SSOP) and Thin Small Outline (TSSOP) packages (actual size)



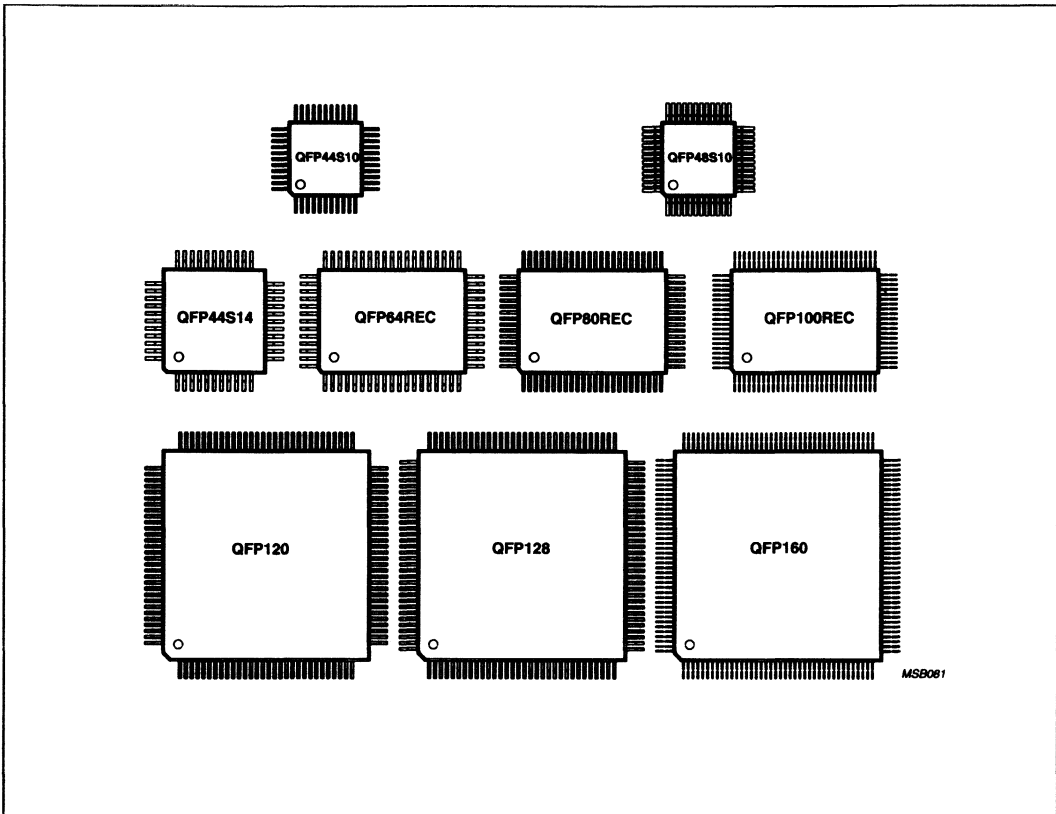
Package dimensions (typical)

package	body size (W × L × T) mm	pitch mm	package	body size (W × L × T) mm	pitch mm
SSOP20	4.4 × 6.5 × 1.3	0.65	TSSOP20	4.4 × 6.5 × 0.85	0.65
SSOP20M	5.3 × 7.2 × 1.7	0.65	TSSOP24	4.4 × 7.8 × 0.85	0.65
SSOP24M	5.3 × 8.2 × 1.7	0.65	TSSOP28	4.4 × 9.7 × 0.85	0.65
SSOP28M	5.3 × 10.2 × 1.7	0.65	TSSOP48	6.1 × 12.5 × 1.0	0.5
			TSSOP56	6.1 × 14.0 × 1.0	0.5

INTEGRATED CIRCUITS

Package outlines

Quad Flat-Pack (QFP) packages (actual size)



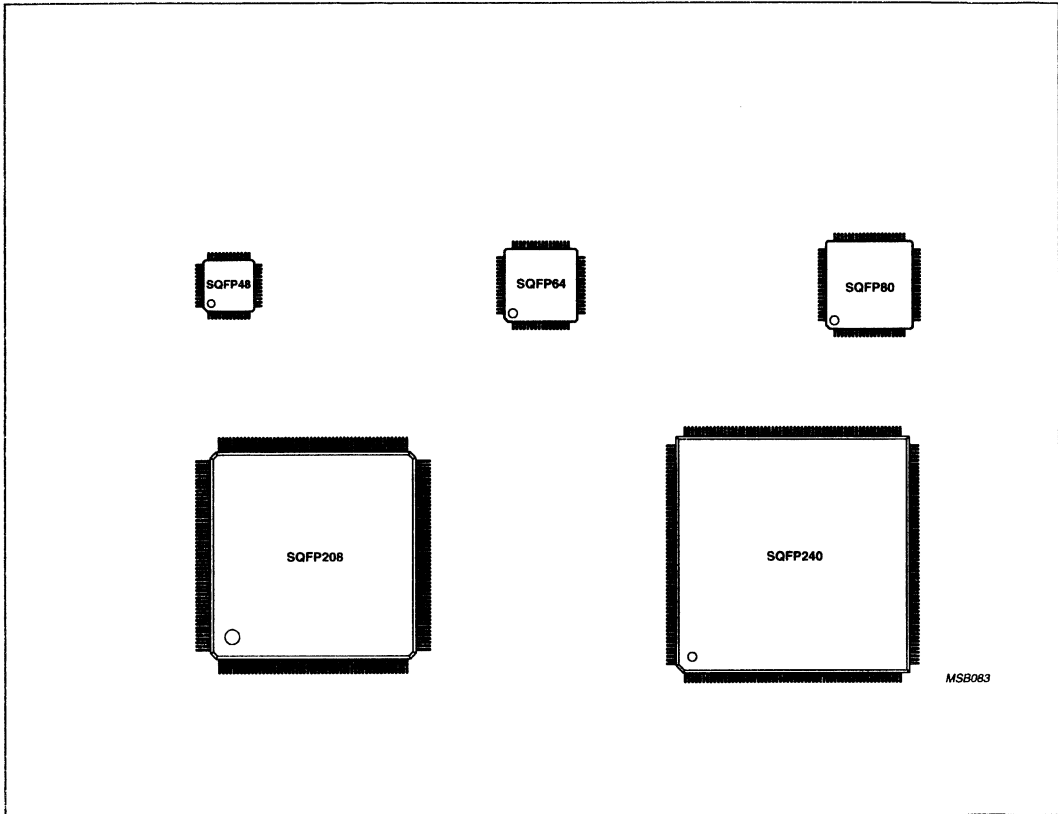
Package dimensions (typical)

package	body size (W × L × T) mm	pitch mm	package	body size (W × L × T) mm	pitch mm
QFP32	7 × 7 × 1.4	0.8	QFP80REC	14 × 20 × 2.75	0.8
QFP44S10	10 × 10 × 1.75	0.8	QFP100REC	14 × 20 × 2.75	0.65
QFP44S14	14 × 14 × 2.2	1.0	QFP120	28 × 28 × 3.35	0.8
QFP48S10	10 × 10 × 1.75	0.75	QFP128	28 × 28 × 3.35	0.8
QFP52	10 × 10 × 2.0	0.65	QFP160	28 × 28 × 3.35	0.65
QFP64REC	14 × 20 × 2.75	1.0			

INTEGRATED CIRCUITS

Package outlines

Shrink Quad Flat-Pack (SQFP) and Thin Shrink Quad Flat-Pack (TSQFP) packages (actual size)



Package dimensions (typical)

package	body size (W × L × T) mm	pitch mm	package	body size (W × L × T) mm	pitch mm
SQFP32	5 × 5 × 1.4	0.5	TQFP44	10 × 10 × 1.0	0.8
SQFP48	7 × 7 × 1.4	0.5	TQFP64	10 × 10 × 1.0	0.5
SQFP64	10 × 10 × 1.4	0.5	TQFP100	14 × 14 × 1.0	0.5
SQFP80	12 × 12 × 1.4	0.5			
SQFP208	28 × 28 × 3.35	0.5			
SQFP240	32 × 32 × 3.35	0.5			

INTEGRATED CIRCUITS

Alphanumeric index

type number	description	package		handbook	page IC5.
		through-hole	SMD		
100101	triple 5-input OR/NOR gate	CERDIP24	PLCC28	IC08	43
100102	quint 2-inp. OR/NOR, common enable	CERDIP24	PLCC28	IC08	43
100107	quint EXCL. OR/NOR gate, compare	CERDIP24	PLCC28	IC08	43
100112	quad double fan-out OR/NOR gate	CERDIP24	PLCC28	IC08	43
100113	quad fan-out OR/NOR gate	CERDIP24	PLCC28	IC08	43
100114	quintuple differential line receiver	CERDIP24	PLCC28	IC08	43
100117	triple 1-2-2 input OR/AND-OR/NAND	CERDIP24	PLCC28	IC08	43
100118	quint 2-4-4-4-5 inp. OR/AND-OR/NAND	CERDIP24	PLCC28	IC08	43
100122	9-bit buffer gate	CERDIP24	PLCC28	IC08	43
100123	hex bus driver	CERDIP24	PLCC28	IC08	43
100124	hex TTL to ECL translator	CERDIP24	PLCC28	IC08	44
100125	hex ECL to TTL translator	CERDIP24	PLCC28	IC08	44
100126	9-bit buffer gate	CERDIP24	PLCC28	IC08	43
100131	triple D-type master-slave flip-flop	CERDIP24	PLCC28	IC08	43
100136	multipurpose counting register	CERDIP24	PLCC28	IC08	43
100141	8-bit universal shift register	CERDIP24	PLCC28	IC08	44
100149	1024-bit ECL bipolar PROM (256x4)	CERDIP16		IC10	44, 48
100149A	1024-bit ECL bipolar PROM (256x4)	CERDIP16		IC10	44, 48
100150	hex D-type latch	CERDIP24	PLCC28	IC08	43
100151	hex D-type master-slave flip-flop	CERDIP24	PLCC28	IC08	43
100155	quadruple 2-way multiplexer latch	CERDIP24	PLCC28	IC08	43
100158	8-bit shift matrix	CERDIP24	PLCC28	IC08	44
100160	dual 9-bit parity gen./8-bit comparator	CERDIP24	PLCC28	IC08	43
100163	dual 8-bit multiplexer	CERDIP24	PLCC28	IC08	43
100164	16-input multiplexer	CERDIP24	PLCC28	IC08	43
100165	universal priority encoder	CERDIP24	PLCC28	IC08	43
100166	9-bit comparator	CERDIP24	PLCC28	IC08	43
100170	universal demultiplexer/decoder	CERDIP24	PLCC28	IC08	43
100171	triple bit 4-way multiplexer	CERDIP24	PLCC28	IC08	43
100175	5-bit 100K to 10K interface with latch	CERDIP16		IC08	43, 44
100179	high-speed carry look ahead generator	CERDIP24	PLCC28	IC08	43
100180	fast 6-bit adder	CERDIP24	PLCC28	IC08	43
100181	4-bit ALU binary/decimal	CERDIP24	PLCC28	IC08	43
10020EV8-4	ECL 100K GAL-type PAL	CERDIP24	PLCC28	IC08, 13	44, 45
100231	triple D-type master-slave flip-flop	CERDIP24	PLCC28	IC08	43
100255	5-bit ECL/TTL interface	CERDIP16		IC08	44
100790	9-bit transceiver		PLCC28	IC08	44
100982	hex ECL-TTL translator with registers		PLCC28	IC08	44
100984	quad ECL-TTL translator with registers		PLCC28	IC08	44
100990	9-bit transceiver		PLCC28	IC08	44
10149	1024-bit ECL bipolar PROM (256x4)	CERDIP16		IC10	48
10149A	1024-bit ECL bipolar PROM (256x4)	CERDIP16		IC10	48
10H20EV8-4	ECL 10KH GAL-type PAL	CERDIP24	PLCC28	IC13	45
27C256-12	256K CMOS EPROM (32Kx8)	DIL28	PLCC32, SO28L	IC10	47
27C256-15	256K CMOS EPROM (32Kx8)	DIL28	PLCC32, SO28L	IC10	47
27C256-20	256K CMOS EPROM (32Kx8)	DIL28	PLCC32, SO28L	IC10	47
27C256-90	256K CMOS EPROM (32Kx8)	DIL28	PLCC32, SO28L	-	47
27C256I12	256K CMOS EPROM (32Kx8)	DIL28	PLCC32, SO28L	-	47
27C256I15	256K CMOS EPROM (32Kx8)	DIL28	PLCC32, SO28L	IC10	47
27C256I20	256K CMOS EPROM (32Kx8)	DIL28	PLCC32, SO28L	IC10	47
27C256I90	256K CMOS EPROM (32Kx8)	DIL28	PLCC32, SO28L	IC10	47
27C512-12	512K CMOS EPROM (64Kx8)	DIL28	PLCC32, SO28L	-	47
27C512-15	512K CMOS EPROM (64Kx8)	DIL28	PLCC32, SO28L	IC10	47
27C512-20	512K CMOS EPROM (64Kx8)	DIL28	PLCC32, SO28L	IC10	47
27C512I12	512K CMOS EPROM (64Kx8)	DIL28	PLCC32, SO28L	-	47
27C512I15	512K CMOS EPROM (64Kx8)	DIL28	PLCC32, SO28L	-	47

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Alphanumeric index

type number	description	package		handbook	page IC5.
		through-hole	SMD		
27C512I20	512K CMOS EPROM (64K×8)	DIL28	PLCC32, SO28L	-	47
27C64A-12	64K CMOS EPROM (8K×8)	DIL28	PLCC32	IC10	47
27C64A-15	64K CMOS EPROM (8K×8)	DIL28	PLCC32	IC10	47
27C64A-20	64K CMOS EPROM (8K×8)	DIL28	PLCC32	IC10	47
27C64AI12	64K CMOS EPROM (8K×8)	DIL28	PLCC32	IC10	47
27C64AI15	64K CMOS EPROM (8K×8)	DIL28	PLCC32	IC10	47
27C64AI20	64K CMOS EPROM (8K×8)	DIL28	PLCC32	IC10	47
74ABT125	quad buffer	DIL14	SO14	IC23	33
74ABT126	quad buffer	DIL14	SO14	IC23	33
74ABT240	octal inverting buffer	DIL20	SO20L, SSOP20	IC23	33
74ABT240-1	octal inverting buffer	DIL20	SO20L, SSOP20	IC23	33
74ABT241	octal buffer/line driver	DIL20	SO20L, SSOP20	IC23	33
74ABT244	octal buffer/line driver	DIL20	SO20L, SSOP20	IC23	33
74ABT244-1	octal buffer/line driver	DIL20	SO20L, SSOP20	-	33
74ABT245	octal transceiver with direction pin	DIL20	SO20L, SSOP20	IC23	33
74ABT273	octal D-type flip-flop	DIL20	SO20L, SSOP20	IC23	33
74ABT2952	octal registered transceiver	DIL24SK	SO24L, SSOP24	IC23	34
74ABT2953	octal registered transceiver	DIL24SK	SO24L, SSOP24	IC23	34
74ABT373	octal D-type transparent latch	DIL20	SO20L, SSOP20	IC23	33
74ABT374	octal D-type flip-flop	DIL20	SO20L, SSOP20	IC23	33
74ABT377	octal D-type flip-flop with enable	DIL20	SO20L, SSOP20	IC23	33
74ABT534	octal D-type flip-flop	DIL20	SO20L, SSOP20	IC23	33
74ABT540	octal buffer	DIL20	SO20L, SSOP20	IC23	33
74ABT541	octal buffer/line driver	DIL20	SO20L, SSOP20	IC23	33
74ABT543	octal latched transceiver, dual enable	DIL24SK	SO24L, SSOP24	IC23	33
74ABT544	octal latched transceiver, dual enable	DIL24SK	SO24L, SSOP24	IC23	33
74ABT573	octal D-type transparent latch	DIL20	SO20L, SSOP20	IC23	33
74ABT574	octal D-type flip-flop	DIL20	SO20L, SSOP20	IC23	33
74ABT620	octal transceiver with dual enable	DIL20	SO20L, SSOP20	IC23	33
74ABT623	octal transceiver with dual enable	DIL20	SO20L, SSOP20	IC23	33
74ABT640	octal transceiver with direction pin	DIL20	SO20L, SSOP20	IC23	33
74ABT646	octal bus transceiver/register	DIL24SK	SO24L, SSOP24	IC23	33
74ABT648	octal bus transceiver/register	DIL24SK	SO24L, SSOP24	IC23	33
74ABT652	transceiver/register	DIL24SK	SO24L, SSOP24	IC23	33
74ABT657	octal transceiver, parity gen./check	DIL24	SO24L	IC23	33
74ABT821	10-bit D-type flip-flop	DIL24SK	SO24L, SSOP24	IC23	33
74ABT823	9-bit D-type flip-flop, reset and enable	DIL24SK	SO24L, SSOP24	IC23	33
74ABT827	10-bit buffer/line driver	DIL24SK	SO24L, SSOP24	IC23	33
74ABT827-1	10-bit buffer/line driver	DIL24SK	SO24L, SSOP24	-	33
74ABT833	octal transceiver, parity gen./check	DIL24SK	SO24L, SSOP24	IC23	33
74ABT834	octal inv. transceiver, par. gen./check	DIL24SK	SO24L	IC23	33
74ABT841	10-bit bus interface latch	DIL24SK	SO24L, SSOP24	IC23	33
74ABT843	9-bit bus interface latch, set and reset	DIL24SK	SO24L, SSOP24	IC23	33
74ABT845	8-bit bus interface latch, set and reset	DIL24	SO24L, SSOP24	IC23	33
74ABT853	8-bit transc., 9-bit par. gen./check	DIL24SK	SO24L, SSOP24	IC23	33
74ABT861	10-bit bus transceiver	DIL24	SO24L, SSOP24	IC23	33
74ABT863	9-bit bus transceiver	DIL24SK	SO24L, SSOP24	IC23	33
74ABT899	9-bit dual latch tr., 8-b par. gen./chk	DIL28SK	SO28L	IC23	33
74HC00	quad 2-input NAND gate	DIL14	SO14	IC06	27
74HC02	quad 2-input NOR gate	DIL14	SO14	IC06	27
74HC03	quad 2-input NAND gate	DIL14	SO14	IC06	27
74HC04	hex inverter	DIL14	SO14	IC06	27
74HC08	quad 2-input AND gate	DIL14	SO14	IC06	26
74HC10	triple 3-input NAND gate	DIL14	SO14	IC06	27
74HC107	dual JK flip-flop with reset	DIL14	SO14	IC06	26
74HC109	dual JK flip-flop with set and reset	DIL16	SO16	IC06	26

INTEGRATED CIRCUITS

Alphanumeric index

type number	description	package		handbook	page IC5.
		through-hole	SMD		
74HC11	triple 3-input AND gate	DIL14	SO14	IC06	26
74HC112	dual JK flip-flop with set and reset	DIL16	SO16	IC06	26
74HC123	dual retriggerable monovib with reset	DIL16	SO16	IC06	28
74HC125	quad buffer/line driver	DIL14	SO14	IC06	25
74HC126	quad buffer/line driver	DIL14	SO14	IC06	25
74HC132	quad 2-input NAND Schmitt trigger	DIL14	SO14	IC06	27, 28
74HC133	13-input NAND gate	DIL14	SO14	IC06	27
74HC137	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HC138	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HC139	dual 2-to-4 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HC14	hex inverting Schmitt trigger	DIL14	SO14	IC06	28
74HC147	10-to-4 line priority encoder	DIL16	SO16	IC06	26
74HC151	8-input multiplexer	DIL16	SO16	IC06	27
74HC153	dual 4-input multiplexer	DIL16	SO16	IC06	27
74HC154	4-to-16 line decoder/demultiplexer	DIL24, DIL24SK	SO24L	IC06	26
74HC157	quad 2-input multiplexer	DIL16	SO16	IC06	27
74HC158	quad 2-input multiplexer	DIL16	SO16	IC06	27
74HC160	preset. synchr. BCD decade counter	DIL16	SO16	IC06	25
74HC161	preset. synchr. 4-bit binary counter	DIL16	SO16	IC06	25
74HC162	preset. synchr. BCD decade counter	DIL16	SO16	IC06	25
74HC163	preset. synchr. 4-bit binary counter	DIL16	SO16	IC06	25
74HC164	8-bit serial-in/parallel-out shift reg.	DIL14	SO14	IC06	28
74HC165	8-bit serial-in/parallel-out shift reg.	DIL16	SO16	IC06	28
74HC166	8-bit serial-in/parallel-out shift reg.	DIL16	SO16	IC06	28
74HC173	quad D-type flip-flop	DIL16	SO16	IC06	26
74HC174	hex D-type flip-flop with reset	DIL16	SO16	IC06	26
74HC175	quad D-type flip-flop with reset	DIL16	SO16	IC06	26
74HC181	4-bit arithmetic logic unit	DIL24, DIL24SK	SO24L	IC06	25
74HC182	look-ahead carry generator	DIL16	SO16	IC06	25
74HC190	preset. syn. BCD decade up/down cnt.	DIL16	SO16	IC06	25
74HC191	preset. syn. 4-bit binary up/down cnt.	DIL16	SO16	IC06	25
74HC192	preset. syn. BCD decade up/down cnt.	DIL16	SO16	IC06	25
74HC193	preset. syn. 4-bit binary up/down cnt.	DIL16	SO16	IC06	25
74HC194	4-bit bidir. universal shift register	DIL16	SO16	IC06	28
74HC195	4-bit parallel access shift register	DIL16	SO16	IC06	28
74HC20	dual 4-input NAND gate	DIL14	SO14	IC06	27
74HC21	dual 4-input AND gate	DIL14	SO14	IC06	26
74HC221	dual non-retrig. monovib with reset	DIL16	SO16	IC06	28
74HC237	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HC238	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HC240	octal buffer/line driver	DIL20	SO20L	IC06	25
74HC241	octal buffer/line driver	DIL20	SO20L	IC06	25
74HC242	quad bus transceiver	DIL14	SO14	IC06	29
74HC243	quad bus transceiver	DIL14	SO14	IC06	29
74HC244	octal buffer/line driver	DIL20	SO20L	IC06	25
74HC245	octal bus transceiver	DIL20	SO20L	IC06	29
74HC251	8-input multiplexer	DIL16	SO16	IC06	27
74HC253	dual 4-input multiplexer	DIL16	SO16	IC06	27
74HC257	quad 2-input multiplexer	DIL16	SO16	IC06	27
74HC258	quad 2-input multiplexer	DIL16	SO16	IC06	27
74HC259	8-bit addressable latch	DIL16	SO16	IC06	27
74HC27	triple 3-input NOR gate	DIL14	SO14	IC06	27
74HC273	octal D-type flip-flop with reset	DIL20	SO20L	IC06	26
74HC280	9-bit odd/even parity generator/checker	DIL14	SO14	IC06	25
74HC283	4-bit binary full adder with fast carry	DIL16	SO16	IC06	25
74HC297	digital phase-locked-loop filter	DIL16	SO16	IC06	28

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type number	description	package		handbook	page IC5.
		through-hole	SMD		
74HC299	8-bit universal shift register	DIL20	SO20L	IC06	28
74HC30	8-input NAND gate	DIL14	SO14	IC06	27
74HC32	quad 2-input OR gate	DIL14	SO14	IC06	27
74HC354	8-input mux/register with latches	DIL20	SO20L	IC06	27, 28
74HC356	8-input multiplexer/register	DIL20	SO20L	IC06	27, 28
74HC365	hex buffer/line driver	DIL16	SO16	IC06	25
74HC366	hex buffer/line driver	DIL16	SO16	IC06	25
74HC367	hex buffer/line driver	DIL16	SO16	IC06	25
74HC368	hex buffer/line driver	DIL16	SO16	IC06	25
74HC373	octal D-type transparent latch	DIL20	SO20L	IC06	26
74HC374	octal D-type flip-flop	DIL20	SO20L	IC06	26
74HC377	octal D-type flip-flop with data enab.	DIL20	SO20L	IC06	26
74HC390	dual decade ripple counter	DIL16	SO16	IC06	25
74HC393	dual 4-bit binary ripple counter	DIL14	SO14	IC06	25
74HC4002	dual 4-input NOR gate	DIL14	SO14	IC06	27
74HC40102	8-bit synchronous BCD down counter	DIL16	SO16	IC06	25
74HC40103	8-bit synchronous binary down counter	DIL16	SO16	IC06	25
74HC40104	4-bit bidir. universal shift register	DIL16	SO16	IC06	28
74HC40105	4-bit x 16 word FIFO register	DIL16	SO16	IC06	28, 49
74HC4015	dual 4-bit ser.-in/par.-out shift reg.	DIL16	SO16	IC06	28
74HC4016	quad bilateral switches	DIL14	SO14	IC06	28
74HC4017	Johnson dec. cnt. with 10 decoded o/p	DIL16	SO16	IC06	25
74HC4020	14-stage binary ripple counter	DIL16	SO16	IC06	25
74HC4024	7-stage binary ripple counter	DIL14	SO14	IC06	25
74HC4040	12-stage binary ripple counter	DIL16	SO16	IC06	25
74HC4046A	phase-locked loop with VCO	DIL16	SO16	IC06	28, 59
74HC4049	hex inverting HIGH-to-LOW level shifter	DIL16	SO16	IC06	27
74HC4050	hex HIGH-to-LOW level shifter	DIL16	SO16	IC06	27
74HC4051	8-channel analog mux/demux	DIL16	SO16	IC06	27
74HC4052	dual 4-channel analog mux/demux	DIL16	SO16	IC06	27
74HC4053	triple 2-channel analog mux/demux	DIL16	SO16	IC06	27
74HC4059	programmable divide-by-n counter	DIL24, DIL24SK	SO24L	IC06	25
74HC4060	14-stage binary ripple counter with osc.	DIL16	SO16	IC06	25
74HC4066	quad bilateral switches	DIL14	SO14	IC06	28
74HC4067	16-channel analog mux/demux	DIL24, DIL24SK	SO24L	IC06	27
74HC4075	triple 3-input OR gate	DIL14	SO14	IC06	27
74HC4094	8-stage shift-and-store bus register	DIL16	SO16	IC06	28
74HC42	BCD to decimal decoder (1-of-10)	DIL16	SO16	IC06	26
74HC423	dual retriggerable monovib with reset	DIL16	SO16	IC06	28
74HC4316	quad bilateral switches	DIL16	SO16	IC06	28
74HC4351	8-channel analog mux/demux with latch	DIL20	SO20L	IC06	27
74HC4352	dual 4-chan. an. mux/demux w. latch	DIL20	SO20L	IC06	27
74HC4353	triple 2-chan. an. mux/demux w. latch	DIL20	SO20L	IC06	27
74HC4510	BCD up/down counter	DIL16	SO16	IC06	25
74HC4511	BCD to 7-segment latch/decoder/driver	DIL16	SO16	IC06	26
74HC4514	4-to-16 line decoder/demultiplexer	DIL24, DIL24SK	SO24L	IC06	26
74HC4515	4-to-16 line decoder/demultiplexer	DIL24, DIL24SK	SO24L	IC06	26
74HC4516	binary up/down counter	DIL16	SO16	IC06	25
74HC4518	dual synchronous BCD counter	DIL16	SO16	IC06	25
74HC4520	dual synchronous 4-bit binary counter	DIL16	SO16	IC06	25
74HC4538	dual retriggerable precision monovib	DIL16	SO16	IC06	28
74HC4543	BCD-to-7 segm. latch/dec./dr. for LCDs	DIL16	SO16	IC06	26
74HC533	octal D-type transparent latch	DIL20	SO20L	IC06	26
74HC534	octal D-type flip-flop	DIL20	SO20L	IC06	26
74HC540	octal buffer/line driver	DIL20	SO20L	IC06	25
74HC541	octal buffer/line driver	DIL20	SO20L	IC06	25

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type number	description	package		handbook	page IC5.
		through-hole	SMD		
74HC555	prog. delay timer with oscillator	DIL16	SO16	IC06	28
74HC563	octal D-type transparent latch	DIL20	SO20L	IC06	26
74HC564	octal D-type flip-flop	DIL20	SO20L	IC06	26
74HC573	octal D-type transparent latch	DIL20	SO20L	IC06	26
74HC574	octal D-type flip-flop	DIL20	SO20L	IC06	26
74HC58	dual AND-OR gate	DIL14	SO14	IC06	26
74HC583	4-bit full adder with fast carry	DIL16	SO16	IC06	25
74HC594	8-bit shift register with output reg.	DIL16	SO16	DS-IC06	28
74HC595	8-bit ser.-in/ser. or par.-out sh. reg.	DIL16	SO16	IC06	28
74HC597	8-bit shift register with input latches	DIL16	SO16	IC06	28
74HC6323A	programmable ripple counter with osc.		SO8	IC06	25
74HC640	octal bus transceiver	DIL20	SO20L	IC06	29
74HC643	octal bus transceiver	DIL20	SO20L	IC06	29
74HC646	octal bus transceiver/register	DIL24, DIL24SK	SO24L	IC06	29
74HC648	octal bus transceiver/register	DIL24, DIL24SK	SO24L	IC06	29
74HC652	octal registered bus transceiver	DIL24	SO24L	-	29
74HC670	4 x 4 register file	DIL16	SO16	IC06	28
74HC688	8-bit magnitude comparator	DIL20	SO20L	IC06	25
74HC7014	hex inverting Schmitt trigger	DIL14	SO14	-	28
74HC7030	9-bit x 64-word FIFO register	DIL28	SO28L	IC06	28, 49
74HC7046A	PLL with lock detector	DIL16	SO16	IC06	28
74HC7080	16-bit even/odd parity gen./checker	DIL20	SO20L	IC06	25
74HC7132	quad adj. precision Schmitt trigger	DIL14	SO14	-	28
74HC7245	octal bus Schmitt trigger transceiver	DIL20	SO20L	IC06	28, 29
74HC7266	quad 2-input EXCLUSIVE-NOR gate	DIL14	SO14	IC06	27
74HC73	dual JK flip-flop with reset	DIL14	SO14	IC06	26
74HC74	dual D-type flip-flop with set and reset	DIL14	SO14	IC06	26
74HC7403	4-bit x 64-word FIFO register	DIL16	SO16	IC06	28
74HC7404	5-bit x 64-word FIFO register	DIL18	SO20L	IC06	28
74HC75	quad bistable transparent latch	DIL16	SO16	IC06	27
74HC7540	octal Schmitt trigger buffer/line driver	DIL20	SO20L	IC06	25, 28
74HC7541	octal Schmitt trigger buffer/line driver	DIL20	SO20L	IC06	25, 28
74HC7597	8-bit shift register with input latches	DIL16	SO16	IC06	28
74HC7731	quad 64-bit static shift register	DIL16	SO16	IC06	28
74HC85	4-bit magnitude comparator	DIL16	SO16	IC06	25
74HC86	quad 2-input EXCLUSIVE-OR gate	DIL14	SO14	IC06	26
74HC9014	nine-wide Schmitt trig. buf./line driver	DIL20	SO20L	IC06	25, 28
74HC9015	nine-wide Schmitt trig. buf./line driver	DIL20	SO20L	IC06	25, 28
74HC9046A	high-performance PLL	DIL16	SO16	-	28
74HC9114	nine-wide Schmitt trigger buffer	DIL20	SO20L	IC06	25, 28
74HC9115	nine-wide Schmitt trigger buffer	DIL20	SO20L	IC06	25, 28
74HC93	4-bit binary ripple counter	DIL14	SO14	IC06	25
74HCT00	quad 2-input NAND gate	DIL14	SO14	IC06	27
74HCT02	quad 2-input NOR gate	DIL14	SO14	IC06	27
74HCT03	quad 2-input NAND gate	DIL14	SO14	IC06	27
74HCT04	hex inverter	DIL14	SO14	IC06	27
74HCT08	quad 2-input AND gate	DIL14	SO14	IC06	26
74HCT10	triple 3-input NAND gate	DIL14	SO14	IC06	27
74HCT107	dual JK flip-flop with reset	DIL14	SO14	IC06	26
74HCT109	dual JK flip-flop with set and reset	DIL16	SO16	IC06	26
74HCT11	triple 3-input AND gate	DIL14	SO14	IC06	26
74HCT112	dual JK flip-flop with set and reset	DIL16	SO16	IC06	26
74HCT123	dual retriggerable monovib with reset	DIL16	SO16	IC06	28
74HCT125	quad buffer/line driver	DIL14	SO14	IC06	25
74HCT126	quad buffer/line driver	DIL14	SO14	IC06	25
74HCT132	quad 2-input NAND Schmitt trigger	DIL14	SO14	IC06	27, 28

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		through-hole	SMD		
74HCT133	13-input NAND gate	DIL14	SO14	IC06	27
74HCT137	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HCT138	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HCT139	dual 2-to-4 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HCT14	hex inverting Schmitt trigger	DIL14	SO14	IC06	28
74HCT147	10-to-4 line priority encoder	DIL16	SO16	IC06	26
74HCT151	8-input multiplexer	DIL16	SO16	IC06	27
74HCT153	dual 4-input multiplexer	DIL16	SO16	IC06	27
74HCT154	4-to-16 line decoder/demultiplexer	DIL24, DIL24SK	SO24L	IC06	26
74HCT157	quad 2-input multiplexer	DIL16	SO16	IC06	27
74HCT158	quad 2-input multiplexer	DIL16	SO16	IC06	27
74HCT160	preset. synchr. BCD decade counter	DIL16	SO16	IC06	25
74HCT161	preset. synchr. 4-bit binary counter	DIL16	SO16	IC06	25
74HCT162	preset. synchr. BCD decade counter	DIL16	SO16	IC06	25
74HCT163	preset. synchr. 4-bit binary counter	DIL16	SO16	IC06	25
74HCT164	8-bit serial-in/parallel-out shift reg.	DIL14	SO14	IC06	28
74HCT165	8-bit serial-in/parallel-out shift reg.	DIL16	SO16	IC06	28
74HCT166	8-bit serial-in/parallel-out shift reg.	DIL16	SO16	IC06	28
74HCT173	quad D-type flip-flop	DIL16	SO16	IC06	26
74HCT174	hex D-type flip-flop with reset	DIL16	SO16	IC06	26
74HCT175	quad D-type flip-flop with reset	DIL16	SO16	IC06	26
74HCT181	4-bit arithmetic logic unit	DIL24, DIL24SK	SO24L	IC06	25
74HCT182	look-ahead carry generator	DIL16	SO16	IC06	25
74HCT190	preset. syn. BCD decade up/down cnt.	DIL16	SO16	IC06	25
74HCT191	preset. syn. 4-bit binary up/down cnt.	DIL16	SO16	IC06	25
74HCT192	preset. syn. BCD decade up/down cnt.	DIL16	SO16	IC06	25
74HCT193	preset. syn. 4-bit binary up/down cnt.	DIL16	SO16	IC06	25
74HCT194	4-bit bidir. universal shift register	DIL16	SO16	IC06	28
74HCT195	4-bit parallel access shift register	DIL16	SO16	IC06	28
74HCT20	dual 4-input NAND gate	DIL14	SO14	IC06	27
74HCT21	dual 4-input AND gate	DIL14	SO14	IC06	26
74HCT221	dual non-retrig. monovib with reset	DIL16	SO16	IC06	28
74HCT237	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HCT238	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC06	26
74HCT240	octal buffer/line driver	DIL20	SO20L	IC06	25
74HCT241	octal buffer/line driver	DIL20	SO20L	IC06	25
74HCT242	quad bus transceiver	DIL14	SO14	IC06	29
74HCT243	quad bus transceiver	DIL14	SO14	IC06	29
74HCT244	octal buffer/line driver	DIL20	SO20L	IC06	25
74HCT245	octal bus transceiver	DIL20	SO20L	IC06	29
74HCT251	8-input multiplexer	DIL16	SO16	IC06	27
74HCT253	dual 4-input multiplexer	DIL16	SO16	IC06	27
74HCT257	quad 2-input multiplexer	DIL16	SO16	IC06	27
74HCT258	quad 2-input multiplexer	DIL16	SO16	IC06	27
74HCT259	8-bit addressable latch	DIL16	SO16	IC06	27
74HCT27	triple 3-input NOR gate	DIL14	SO14	IC06	27
74HCT273	octal D-type flip-flop with reset	DIL20	SO20L	IC06	26
74HCT280	9-bit odd/even parity generator/checker	DIL14	SO14	IC06	25
74HCT283	4-bit binary full adder with fast carry	DIL16	SO16	IC06	25
74HCT297	digital phase-locked-loop filter	DIL16	SO16	IC06	28
74HCT299	8-bit universal shift register	DIL20	SO20L	IC06	28
74HCT30	8-input NAND gate	DIL14	SO14	IC06	27
74HCT32	quad 2-input OR gate	DIL14	SO14	IC06	27
74HCT354	8-input mux/register with latches	DIL20	SO20L	IC06	27, 28
74HCT356	8-input multiplexer/register	DIL20	SO20L	IC06	27, 28
74HCT365	hex buffer/line driver	DIL16	SO16	IC06	25

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		through-hole	SMD		
74HCT386	hex buffer/line driver	DIL16	SO16	IC06	25
74HCT387	hex buffer/line driver	DIL16	SO16	IC06	25
74HCT388	hex buffer/line driver	DIL16	SO16	IC06	25
74HCT373	octal D-type transparent latch	DIL20	SO20L	IC06	26
74HCT374	octal D-type flip-flop	DIL20	SO20L	IC06	26
74HCT377	octal D-type flip-flop with data enab.	DIL20	SO20L	IC06	26
74HCT390	dual decade ripple counter	DIL16	SO16	IC06	25
74HCT393	dual 4-bit binary ripple counter	DIL14	SO14	IC06	25
74HCT4002	dual 4-input NOR gate	DIL14	SO14	IC06	27
74HCT40102	8-bit synchronous BCD down counter	DIL16	SO16	IC06	25
74HCT40103	8-bit synchronous binary down counter	DIL16	SO16	IC06	25
74HCT40104	4-bit bidir. universal shift register	DIL16	SO16	IC06	28
74HCT40105	4-bit x 16 word FIFO register	DIL16	SO16	IC06	28, 49
74HCT4015	dual 4-bit ser.-in/par.-out shift reg.	DIL16	SO16	IC06	28
74HCT4016	quad bilateral switches	DIL14	SO14	IC06	28
74HCT4017	Johnson dec. cnt. with 10 decoded o/p	DIL16	SO16	IC06	25
74HCT4020	14-stage binary ripple counter	DIL16	SO16	IC06	25
74HCT4024	7-stage binary ripple counter	DIL14	SO14	IC06	25
74HCT4040	12-stage binary ripple counter	DIL16	SO16	IC06	25
74HCT4048A	phase-locked loop with VCO	DIL16	SO16	IC06	28, 59
74HCT4051	8-channel analog mux/demux	DIL16	SO16	IC06	27
74HCT4052	dual 4-channel analog mux/demux	DIL16	SO16	IC06	27
74HCT4053	triple 2-channel analog mux/demux	DIL16	SO16	IC06	27
74HCT4059	programmable divide-by-n counter	DIL24, DIL24SK	SO24L	IC06	25
74HCT4060	14-stage binary ripple counter with osc.	DIL16	SO16	IC06	25
74HCT4066	quad bilateral switches	DIL14	SO14	IC06	28
74HCT4067	16-channel analog mux/demux	DIL24, DIL24SK	SO24L	IC06	27
74HCT4075	triple 3-input OR gate	DIL14	SO14	IC06	27
74HCT4094	8-stage shift-and-store bus register	DIL16	SO16	IC06	28
74HCT42	BCD to decimal decoder (1-of-10)	DIL16	SO16	IC06	26
74HCT423	dual retriggerable monovib with reset	DIL16	SO16	IC06	28
74HCT4316	quad bilateral switches	DIL16	SO16	IC06	28
74HCT4351	8-channel analog mux/demux with latch	DIL20	SO20L	IC06	27
74HCT4352	dual 4-chan. an. mux/demux w. latch	DIL20	SO20L	IC06	27
74HCT4353	triple 2-chan. an. mux/demux w. latch	DIL20	SO20L	IC06	27
74HCT4510	BCD up/down counter	DIL16	SO16	IC06	25
74HCT4511	BCD to 7-segment latch/decoder/driver	DIL16	SO16	IC06	26
74HCT4514	4-to-16 line decoder/demultiplexer	DIL24, DIL24SK	SO24L	IC06	26
74HCT4515	4-to-16 line decoder/demultiplexer	DIL24, DIL24SK	SO24L	IC06	26
74HCT4516	binary up/down counter	DIL16	SO16	IC06	25
74HCT4518	dual synchronous BCD counter	DIL16	SO16	IC06	25
74HCT4520	dual synchronous 4-bit binary counter	DIL16	SO16	IC06	25
74HCT4538	dual retriggerable precision monovib	DIL16	SO16	IC06	28
74HCT4543	BCD-to-7 segm. latch/dec./dr. for LCDs	DIL16	SO16	IC06	26
74HCT533	octal D-type transparent latch	DIL20	SO20L	IC06	26
74HCT534	octal D-type flip-flop	DIL20	SO20L	IC06	26
74HCT540	octal buffer/line driver	DIL20	SO20L	IC06	25
74HCT541	octal buffer/line driver	DIL20	SO20L	IC06	25
74HCT5555	prog. delay timer with oscillator	DIL16	SO16	IC06	28
74HCT563	octal D-type transparent latch	DIL20	SO20L	IC06	26
74HCT564	octal D-type flip-flop	DIL20	SO20L	IC06	26
74HCT573	octal D-type transparent latch	DIL20	SO20L	IC06	26
74HCT574	octal D-type flip-flop	DIL20	SO20L	IC06	26
74HCT583	4-bit full adder with fast carry	DIL16	SO16	IC06	25
74HCT594	8-bit shift register with output reg.	DIL16	SO16	DS-IC06	28
74HCT595	8-bit ser.-in/ser. or par.-out sh. reg.	DIL16	SO16	IC06	28

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type number	description	package		handbook	page IC5.
		through-hole	SMD		
74HCT597	8-bit shift register with input latches	DIL16	SO16	IC06	28
74HCT6323A	programmable ripple counter with osc.		SO8	IC06	25
74HCT640	octal bus transceiver	DIL20	SO20L	IC06	29
74HCT643	octal bus transceiver	DIL20	SO20L	IC06	29
74HCT646	octal bus transceiver/register	DIL24, DIL24SK	SO24L	IC06	29
74HCT648	octal bus transceiver/register	DIL24, DIL24SK	SO24L	IC06	29
74HCT652	octal registered bus transceiver	DIL24	SO24L	-	29
74HCT670	4 x 4 register file	DIL16	SO16	IC06	28
74HCT688	8-bit magnitude comparator	DIL20	SO20L	IC06	25
74HCT7014	hex inverting Schmitt trigger	DIL14	SO14	-	28
74HCT7030	9-bit x 64-word FIFO register	DIL28	SO28L	IC06	28, 49
74HCT7046A	PLL with lock detector	DIL16	SO16	IC06	28
74HCT7080	16-bit even/odd parity gen./checker	DIL20	SO20L	IC06	25
74HCT7132	quad adj. precision Schmitt trigger	DIL14	SO14	-	28
74HCT7245	octal bus Schmitt trigger transceiver	DIL20	SO20L	IC06	28, 29
74HCT73	dual JK flip-flop with reset	DIL14	SO14	IC06	26
74HCT74	dual D-type flip-flop with set and reset	DIL14	SO14	IC06	26
74HCT7403	4-bit x 64-word FIFO register	DIL16	SO16	IC06	28
74HCT7404	5-bit x 64-word FIFO register	DIL18	SO20L	IC06	28
74HCT75	quad bistable transparent latch	DIL16	SO16	IC06	27
74HCT7540	octal Schmitt trigger buffer/line driver	DIL20	SO20L	IC06	25, 28
74HCT7541	octal Schmitt trigger buffer/line driver	DIL20	SO20L	IC06	25, 28
74HCT7597	8-bit shift register with input latches	DIL16	SO16	IC06	28
74HCT7731	quad 64-bit static shift register	DIL16	SO16	IC06	28
74HCT85	4-bit magnitude comparator	DIL16	SO16	IC06	25
74HCT86	quad 2-input EXCLUSIVE-OR gate	DIL14	SO14	IC06	26
74HCT9014	nine-wide Schmitt trig. buf./line driver	DIL20	SO20L	IC06	25, 28
74HCT9015	nine-wide Schmitt trig. buf./line driver	DIL20	SO20L	IC06	25, 28
74HCT9046A	high-performance PLL	DIL16	SO16	-	28
74HCT9114	nine-wide Schmitt trigger buffer	DIL20	SO20L	IC06	25, 28
74HCT9115	nine-wide Schmitt trigger buffer	DIL20	SO20L	IC06	25, 28
74HCT93	4-bit binary ripple counter	DIL14	SO14	IC06	25
74HL33240	octal buffer/line driver		SO24L, (T)SSOP24	IC24	8
74HL33241	octal buffer/line driver		SO24L, (T)SSOP24	IC24	8
74HL33244	octal buffer/line driver		SO24L, (T)SSOP24	IC24	8
74HL33245	octal bus transceiver		SO24L, (T)SSOP24	IC24	9
74HL332952	8-bit transceiver		SO28L, (T)SSOP28	IC24	9
74HL33373	octal D-type transparent latch		SO24L, (T)SSOP24	IC24	8
74HL33374	octal D-type flip-flop		SO24L, (T)SSOP24	IC24	8
74HL33533	octal D-type transparent latch		SO24L, (T)SSOP24	IC24	8
74HL33534	octal D-type flip-flop		SO24L, (T)SSOP24	IC24	8
74HL33543	octal registered transceiver		SO28L, (T)SSOP28	IC24	9
74HL33620	octal bus transceiver		SO24L, (T)SSOP24	IC24	9
74HL33623	octal bus transceiver		SO24L, (T)SSOP24	IC24	9
74HL33640	octal bus transceiver		SO24L, (T)SSOP24	IC24	9
74HL33646	octal bus transceiver/register		SO28L, (T)SSOP28	IC24	9
74HL33648	octal bus transceiver/register		SO28L, (T)SSOP28	IC24	9
74HL33651	octal transceiver/register		SO28L, (T)SSOP28	IC24	9
74HL33652	octal registered bus transceiver		SO28L, (T)SSOP28	IC24	9
74LV00	quad 2-input NAND gate	DIL14	SO14	IC24	8
74LV02	quad 2-input NOR gate	DIL14	SO14	IC24	8
74LV04	hex inverter	DIL14	SO14	IC24	8
74LV04U	hex inverter (unbuffered)	DIL14	SO14	IC24	8
74LV08	quad 2-input AND gate	DIL14	SO14	IC24	8
74LV125	quad buffer/line driver	DIL14	SO14	IC24	8
74LV138	3-to-8 line decoder/demultiplexer	DIL16	SO16	IC24	8

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type number	description	package		handbook	page IC5.
		through-hole	SMD		
74LV139	dual 2-to-4 line decoder/demultiplexer	DIL16	SO16	IC24	8
74LV14	hex inverting Schmitt trigger	DIL14	SO14	IC24	9
74LV164	8-bit serial-in/parallel-out shift reg.	DIL14	SO14	IC24	9
74LV174	hex D-type flip-flop with reset	DIL16	SO16	IC24	8
74LV244	octal buffer/line driver	DIL20	SO20L, (T)SSOP20	IC24	8
74LV245	octal bus transceiver	DIL20	SO20L, (T)SSOP20	IC24	9
74LV273	octal D-type flip-flop with reset	DIL20	SO20L, (T)SSOP20	IC24	8
74LV32	quad 2-input OR gate	DIL14	SO14	IC24	8
74LV373	octal D-type transparent latch	DIL20	SO20L, (T)SSOP20	IC24	8
74LV374	octal D-type flip-flop	DIL20	SO20L, (T)SSOP20	IC24	8
74LV4060	14-stage binary ripple counter with osc.	DIL16	SO16	IC24	8
74LV4066	quad bilateral switches	DIL14	SO14	IC24	9
74LV4094	8-stage shift-and-store bus register	DIL14	SO14	IC24	9
74LV4799	NiMH battery management circuit	DIL16	SO16	IC24	9
74LV573	octal D-type transparent latch	DIL20	SO20L, (T)SSOP20	IC24	8
74LV74	dual D-type flip-flop with set and reset	DIL14	SO14	IC24	8
74LVC00	quad 2-input NAND gate		SO14	IC24	8
74LVC04	hex inverter		SO14	IC24	8
74LVC08	quad 2-input AND gate		SO14	IC24	8
74LVC240	octal buffer/line driver		SO20L, (T)SSOP20	IC24	8
74LVC241	octal buffer/line driver		SO20L, (T)SSOP20	IC24	8
74LVC244	octal buffer/line driver		SO20L, (T)SSOP20	IC24	8
74LVC245	octal bus transceiver		SO20L, (T)SSOP20	IC24	9
74LVC32	quad 2-input OR gate		SO14	IC24	8
74LVC373	octal D-type transparent latch		SO20L, (T)SSOP20	IC24	8
74LVC374	octal D-type flip-flop		SO20L, (T)SSOP20	IC24	8
74LVC543	octal registered transceiver		SO24L, (T)SSOP24	IC24	9
74LVC573	octal D-type transparent latch		SO20L, (T)SSOP20	IC24	8
74LVC574	octal D-type flip-flop		SO20L, (T)SSOP20	IC24	8
74LVC623	octal bus transceiver		SO20L, (T)SSOP20	IC24	9
74LVC646	octal bus transceiver/register		SO24L, (T)SSOP24	IC24	9
74LVC652	octal registered bus transceiver		SO24L, (T)SSOP24	IC24	9
74LVC86	quad 2-input EXCLUSIVE-OR gate		SO14	IC24	8
74LVT125	quad buffer/line driver		SO14	IC24	8
74LVT240	octal buffer/line driver		SO20L, (T)SSOP20	IC24	8
74LVT241	octal buffer/line driver		SO20L, (T)SSOP20	IC24	8
74LVT244	octal buffer/line driver		SO20L, (T)SSOP20	IC24	8
74LVT245	octal bus transceiver		SO20L, (T)SSOP20	IC24	9
74LVT273	octal D-type flip-flop with reset		SO20L, (T)SSOP20	IC24	8
74LVT373	octal D-type transparent latch		SO20L, (T)SSOP20	IC24	8
74LVT374	octal D-type flip-flop		SO20L, (T)SSOP20	IC24	8
74LVT543	octal registered transceiver		SO24L, (T)SSOP24	IC24	9
74LVT573	octal D-type transparent latch		SO20L, (T)SSOP20	IC24	8
74LVT574	octal D-type flip-flop		SO20L, (T)SSOP20	IC24	8
74LVT623	octal bus transceiver		SO20L, (T)SSOP20	IC24	9
74LVT646	octal bus transceiver/register		SO24L, (T)SSOP24	IC24	9
74LVT652	octal registered bus transceiver		SO24L, (T)SSOP24	IC24	9
ADC0803-1C	8-bit CMOS ADC	DIL20	SO20L	IC11	58
ADC0803-1LC	8-bit CMOS ADC	DIL20	SO20L	IC11	58
ADC0804-1C	8-bit CMOS ADC	DIL20	SO20L	IC11	58
ADC0804-1LC	8-bit CMOS ADC	DIL20	SO20L	IC11	58
ADC0820	8-bit CMOS ADC	DIL20	SO20L	IC11	58
AM26LS31	quad high-speed differential line driver	DIL16	SO16	IC11, 19	65
AM26LS32	quad high-speed diff. line receiver	DIL16	SO16	IC11, 19	65
AM26LS33	quad high-speed diff. line receiver	DIL16	SO16	IC11, 19	65
AM6012	12-bit multiplying DAC	CERDIP20	SO20L	IC11	58

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type number	description	package		handbook	page IC5.
		through-hole	SMD		
AU2901	quad voltage comparator	DIL14	SO14	IC11	58
AU2902	quad low-power operational amplifier	DIL14	SO14	IC11	56
AU2903	low-power dual voltage comparator	DIL8	SO8	IC11	58
AU2904	dual low-power operational amplifier	DIL8	SO8	IC11	56
DAC08	8-bit high-speed multiplying DAC	CERDIP16		IC11	58
DAC08A	8-bit high-speed multiplying DAC	CERDIP16		IC11	58
DAC08C	8-bit high-speed multiplying DAC	DIL16, CERDIP16		IC11	58
DAC08E	8-bit high-speed multiplying DAC	DIL16, CERDIP16	SO16	IC11	58
DAC08H	8-bit high-speed multiplying DAC	DIL16		IC11	58
HEC4001B	quadruple 2-input NOR gate	CERDIP14		IC04	15
HEC4002B	dual 4-input NOR gate	CERDIP14		IC04	15
HEC4007UB	dual complementary pair and inverter	CERDIP14		IC04	14, 15
HEC40097B	3-state hex non-inverting buffer	CERDIP16		IC04	14
HEC40098B	3-state hex inverting buffer	CERDIP16		IC04	14
HEC4011B	quadruple 2-input NAND gate	CERDIP14		IC04	15
HEC4012B	dual 4-input NAND gate	CERDIP14		IC04	15
HEC4013B	dual D-type flip-flop	CERDIP14		IC04	15
HEC4014B	8-bit static shift register	CERDIP16		IC04	16
HEC4015B	dual 4-bit static shift register	CERDIP16		IC04	16
HEC4016B	quadruple bilateral switches	CERDIP14		IC04	17
HEC40174B	hex D-type flip-flop	CERDIP16		IC04	15
HEC40175B	quadruple D-type flip-flop	CERDIP16		IC04	15
HEC4017B	5-stage Johnson counter	CERDIP16		IC04	14
HEC40194B	4-bit bidir. universal shift register	CERDIP16		IC04	16
HEC40195B	4-bit universal shift register	CERDIP16		IC04	16
HEC4019B	quadruple 2-input multiplexer	CERDIP16		IC04	16
HEC4020B	14-stage binary counter	CERDIP16		IC04	14
HEC4023B	triple 3-input NAND gate	CERDIP14		IC04	15
HEC4024B	7-stage binary counter	CERDIP14		IC04	14
HEC4025B	triple 3-input NOR gate	CERDIP14		IC04	15
HEC4027B	dual JK flip-flop	CERDIP16		IC04	15
HEC4030B	quadruple EXCLUSIVE-OR gate	CERDIP14		IC04	15
HEC4035B	4-bit universal shift register	CERDIP16		IC04	16
HEC4040B	12-stage binary counter	CERDIP16		IC04	14
HEC4042B	quadruple D-latch	CERDIP16		IC04	16
HEC4047B	monostable/astable multivibrator	CERDIP14		IC04	16
HEC4049B	hex inverting buffers	CERDIP16		IC04	14
HEC4050B	hex non-inverting buffers	CERDIP16		IC04	14
HEC4051B	8-channel analog mux/demux	CERDIP16		IC04	16
HEC4066B	quadruple bilateral switches	CERDIP14		IC04	17
HEC4068B	8-input NAND gate	CERDIP14		IC04	15
HEC4069UB	hex inverter	CERDIP14		IC04	15
HEC4070B	quadruple EXCLUSIVE-OR gate	CERDIP14		IC04	15
HEC4071B	quadruple 2-input OR gate	CERDIP14		IC04	15
HEC4073B	triple 3-input AND gate	CERDIP14		IC04	15
HEC4081B	quadruple 2-input AND gate	CERDIP14		IC04	15
HEC4093B	quad 2-input NAND Schmitt trigger	CERDIP14		IC04	16
HEC4094B	8-stage shift-and-store bus register	CERDIP16		IC04	16
HEC4505B	64-bit, 1-bit per word static R/W RAM	CERDIP14		IC04	16
HEC4510B	BCD up/down counter	CERDIP16		IC04	14
HEC4511B	BCD to 7-segm. latch/decoder/driver	CERDIP16		IC04	14, 15
HEC4512B	8-input mux with 3-state output	CERDIP16		IC04	16
HEC4519B	quadruple 2-input multiplexer	CERDIP16		IC04	16
HEC4520B	dual binary counter	CERDIP16		IC04	14
HEC4528B	dual monostable multivibrator	CERDIP16		IC04	16
HEC4539B	dual 4-input multiplexer	CERDIP16		IC04	16

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type number	description	package		page IC5.
		through-hole	SMD	
HEC4541B	programmable timer	CERDIP14		IC04 17
HEC4556B	dual 1-of-4 decoder/demultiplexer	CERDIP16		IC04 14
HEC4557B	1-to-64 bit var. length shift reg.	CERDIP16		IC04 16
HEC4585B	4-bit magnitude comparator	CERDIP16		IC04 14
HEC4750V	frequency synthesizer	CERDIP28		IC04 17
HEC4751V	universal divider	CERDIP28		IC04 14
HEF4000B	dual 3-input NOR gate and inverter	DIL14	SO14	IC04 15
HEF4001B	quadruple 2-input NOR gate	DIL14, CERDIP14	SO14	IC04 15
HEF4001UB	quad 2-input NOR gate; unbuffered	DIL14, CERDIP14	SO14	IC04 15
HEF4002B	dual 4-input NOR gate	DIL14, CERDIP14	SO14	IC04 15
HEF4006B	18-stage static shift register	DIL14, CERDIP14	SO14	IC04 16
HEF4007UB	dual complementary pair and inverter	DIL14, CERDIP14	SO14	IC04 14, 15
HEF4008B	4-bit binary full adder	DIL16, CERDIP16	SO16	IC04 14
HEF40097B	3-state hex non-inverting buffer	DIL16, CERDIP16	SO16	IC04 14
HEF40098B	3-state hex inverting buffer	DIL16, CERDIP16	SO16	IC04 14
HEF40106B	hex inverting Schmitt trigger	DIL14, CERDIP14	SO14	IC04 16
HEF4011B	quadruple 2-input NAND gate	DIL14, CERDIP14	SO14	IC04 15
HEF4011UB	quadruple 2-input NAND gate	DIL14, CERDIP14	SO14	IC04 15
HEF4012B	dual 4-input NAND gate	DIL14, CERDIP14	SO14	IC04 15
HEF4013B	dual D-type flip-flop	DIL14, CERDIP14	SO14	IC04 15
HEF4014B	8-bit static shift register	DIL16, CERDIP16	SO16	IC04 16
HEF4015B	dual 4-bit static shift register	DIL16, CERDIP16	SO16	IC04 16
HEF40160B	4-bit synchronous decade counter	DIL16, CERDIP16	SO16	IC04 14
HEF40161B	4-bit synchronous binary counter	DIL16, CERDIP16	SO16	IC04 14
HEF40162B	4-bit synchronous decade counter	DIL16, CERDIP16	SO16	IC04 14
HEF40163B	4-bit synchronous binary counter	DIL16, CERDIP16	SO16	IC04 14
HEF4016B	quadruple bilateral switches	DIL14, CERDIP14	SO14	IC04 17
HEF40174B	hex D-type flip-flop	DIL16, CERDIP16	SO16	IC04 15
HEF40175B	quadruple D-type flip-flop	DIL16, CERDIP16	SO16	IC04 15
HEF4017B	5-stage Johnson counter	DIL16, CERDIP16	SO16	IC04 14
HEF4018B	presettable divide-by-n counter	DIL16, CERDIP16	SO16	IC04 14
HEF40192B	4-bit up/down decade counter	DIL16, CERDIP16	SO16	IC04 14
HEF40193B	4-bit up/down binary counter	DIL16, CERDIP16	SO16	IC04 14
HEF40194B	4-bit bidir. universal shift register	DIL16, CERDIP16	SO16	IC04 16
HEF40195B	4-bit universal shift register	DIL16, CERDIP16	SO16	IC04 16
HEF4019B	quadruple 2-input multiplexer	DIL16, CERDIP16	SO16	IC04 16
HEF4020B	14-stage binary counter	DIL16, CERDIP16	SO16	IC04 14
HEF4021B	8-bit static shift register	DIL16, CERDIP16	SO16	IC04 16
HEF4022B	4-stage divide-by-8 Johnson counter	DIL16, CERDIP16	SO16	IC04 14
HEF4023B	triple 3-input NAND gate	DIL14, CERDIP14	SO14	IC04 15
HEF40240B	octuple buffers with 3-state outputs	DIL20, CERDIP20	SO20L	IC04 14
HEF40244B	octal buffers with 3-state outputs	DIL20, CERDIP20	SO20L	IC04 14
HEF40245B	octuple bus transceiver; 3-state	DIL20, CERDIP20	SO20L	IC04 17
HEF4024B	7-stage binary counter	DIL14, CERDIP14	SO14	IC04 14
HEF4025B	triple 3-input NOR gate	DIL14, CERDIP14	SO14	IC04 15
HEF4027B	dual JK flip-flop	DIL16, CERDIP16	SO16	IC04 15
HEF4028B	1-of-10 decoder	DIL16, CERDIP16	SO16	IC04 14
HEF4029B	synchronous up/down counter	DIL16, CERDIP16	SO16	IC04 14
HEF4030B	quadruple EXCLUSIVE-OR gate	DIL14, CERDIP14	SO14	IC04 15
HEF4031B	64-stage static shift register	DIL16, CERDIP16	SO16	IC04 16
HEF4035B	4-bit universal shift register	DIL16, CERDIP16	SO16	IC04 16
HEF40373B	octal transp. latch with 3-state	DIL20, CERDIP20	SO20L	IC04 16
HEF40374B	octal D-type flip-flop	DIL20, CERDIP20	SO20L	IC04 15
HEF4040B	12-stage binary counter	DIL16, CERDIP16	SO16	IC04 14
HEF4041B	quadruple true/complement buffer	DIL14, CERDIP14	SO14	IC04 14
HEF4042B	quadruple D-latch	DIL16, CERDIP16	SO16	IC04 16

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		through-hole	SMD		
HEF4043B	quad R/S latch with 3-state outputs	DIL16, CERDIP16	SO16	IC04	16
HEF4044B	quad R/S latch with 3-state outputs	DIL16, CERDIP16	SO16	IC04	16
HEF4046B	phase-locked loop	DIL16, CERDIP16	SO16	IC04	17
HEF4047B	monostable/astable multivibrator	DIL14, CERDIP14	SO14	IC04	16
HEF4049B	hex inverting buffers	DIL16, CERDIP16	SO16	IC04	14
HEF4050B	hex non-inverting buffers	DIL16, CERDIP16	SO16	IC04	14
HEF4051B	8-channel analog mux/demux	DIL16, CERDIP16	SO16	IC04	16
HEF4052B	dual 4-channel analog mux/demux	DIL16, CERDIP16	SO16	IC04	16
HEF4053B	triple 2-channel analog mux/demux	DIL16, CERDIP16	SO16	IC04	16
HEF4059B	programmable divide-by-n counter	DIL24, CERDIP24	SO24L	IC04	14
HEF4060B	14-stage ripple-carry binary counter	DIL16, CERDIP16	SO16	IC04	14
HEF4066B	quadruple bilateral switches	DIL14, CERDIP14	SO14	IC04	17
HEF4067B	16-channel analog mux/demux	DIL24, CERDIP24	SO24L	IC04	16
HEF4068B	8-input NAND gate	DIL14, CERDIP14	SO14	IC04	15
HEF4069UB	hex inverter	DIL14, CERDIP14	SO14	IC04	15
HEF4070B	quadruple EXCLUSIVE-OR gate	DIL14, CERDIP14	SO14	IC04	15
HEF4071B	quadruple 2-input OR gate	DIL14, CERDIP14	SO14	IC04	15
HEF4072B	dual 4-input OR gate	DIL14, CERDIP14	SO14	IC04	15
HEF4073B	triple 3-input AND gate	DIL14, CERDIP14	SO14	IC04	15
HEF4075B	triple 3-input OR gate	DIL14, CERDIP14	SO14	IC04	15
HEF4076B	quad D-type register, 3-state	DIL16, CERDIP16	SO16	IC04	16
HEF4077B	quadruple EXCLUSIVE-NOR gate	DIL14, CERDIP14	SO14	IC04	15
HEF4078B	8-input NOR gate	DIL14, CERDIP14	SO14	IC04	15
HEF4081B	quadruple 2-input AND gate	DIL14, CERDIP14	SO14	IC04	15
HEF4082B	dual 4-input AND gate	DIL14, CERDIP14	SO14	IC04	15
HEF4085B	dual 2-wide 2-inp. AND-OR-inv. gate	DIL14, CERDIP14	SO14	IC04	15
HEF4086B	4-wide 2-input AND-OR-invert gate	DIL14, CERDIP14	SO14	IC04	15
HEF4093B	quad 2-input NAND Schmitt trigger	DIL14, CERDIP14	SO14	IC04	16
HEF4094B	8-stage shift-and-store bus register	DIL16, CERDIP16	SO16	IC04	16
HEF4104B	quad low-to-high voltage translator	DIL16, CERDIP16	SO16	IC04	17
HEF4502B	strobed hex inverter/buffer	DIL16, CERDIP16	SO16	IC04	14
HEF4505B	64-bit, 1-bit per word static R/W RAM	DIL14, CERDIP14		IC04	16
HEF4508B	dual 4-bit latch	DIL24, CERDIP24	SO24L	IC04	16
HEF4510B	BCD up/down counter	DIL16, CERDIP16	SO16	IC04	14
HEF4511B	BCD to 7-segm. latch/decoder/driver	DIL16, CERDIP16	SO16	IC04	14-16
HEF4512B	8-input mux with 3-state output	DIL16, CERDIP16	SO16	IC04	16
HEF4514B	1-of-16 decoder/demultiplexer	DIL24, CERDIP24	SO24L	IC04	14
HEF4515B	1-of-16 decoder/demultiplexer	DIL24, CERDIP24	SO24L	IC04	14
HEF4516B	binary up/down counter	DIL16, CERDIP16	SO16	IC04	14
HEF4517B	dual 64-bit static shift register	DIL16, CERDIP16	SO16L	IC04	16
HEF4518B	dual BCD counter	DIL16, CERDIP16	SO16	IC04	14
HEF4519B	quadruple 2-input multiplexer	DIL16, CERDIP16	SO16	IC04	16
HEF4520B	dual binary counter	DIL16, CERDIP16	SO16	IC04	14
HEF4521B	24-stage frequency divider	DIL16, CERDIP16	SO16	IC04	14
HEF4522B	programmable 4-bit BCD down counter	DIL16, CERDIP16	SO16	IC04	14
HEF4526B	prog. 4-bit binary down counter	DIL16, CERDIP16	SO16	IC04	14
HEF4527B	BCD rate multiplier	DIL16, CERDIP16	SO16	IC04	17
HEF4528B	dual monostable multivibrator	DIL16, CERDIP16	SO16	IC04	16
HEF4531B	13-input parity checker/generator	DIL16, CERDIP16	SO16	IC04	14
HEF4532B	8-input priority encoder	DIL16, CERDIP16	SO16	IC04	15
HEF4534B	real time 5-decade counter	DIL24, CERDIP24	SO24L	IC04	14
HEF4538B	dual precision monostable multivib.	DIL16, CERDIP16	SO16	IC04	16
HEF4539B	dual 4-input multiplexer	DIL16, CERDIP16	SO16	IC04	16
HEF4541B	programmable timer	DIL14, CERDIP14	SO14	IC04	17
HEF4543B	BCD to 7-segm. latch/decoder/driver	DIL16, CERDIP16	SO16	IC04	14-16
HEF4555B	dual 1-of-4 decoder/demultiplexer	DIL16, CERDIP16	SO16	IC04	14

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		through-hole	SMD		
HEF4556B	dual 1-of-4 decoder/demultiplexer	DIL16, CERDIP16	SO16	IC04	14
HEF4557B	1-to-64 bit var. length shift reg.	DIL16, CERDIP16	SO16	IC04	16
HEF4585B	4-bit magnitude comparator	DIL16, CERDIP16	SO16	IC04	14
HEF4720B	256-bit, 1-bit per word RAM	DIL16, CERDIP16	SO16L	IC04	16
HEF4720V	256-bit, 1-bit per word RAM	DIL16, CERDIP16	SO16L	IC04	16
HEF4724B	8-bit addressable latch	DIL16, CERDIP16	SO16	IC04	16
HEF4731B	quad 64-bit static shift register	DIL14, CERDIP14		IC04	16
HEF4731V	quad 64-bit static shift register	DIL14, CERDIP14		IC04	16
HEF4737B	quadruple static decade counter	DIL18, CERDIP18		IC04	14
HEF4737V	quadruple static decade counter	DIL18, CERDIP18		IC04	14
HEF4738V	IEC/IEEE bus interface	DIL40		IC04	17
HEF4750V	frequency synthesizer	CERDIP28		IC04	17, 71
HEF4751V	universal divider	DIL28, CERDIP28	SO28L	IC04	14
HEF4752V	AC motor control circuit	DIL28, CERDIP28		IC04	17
HEF4753B	universal timer module	DIL18, CERDIP18		IC04	17
HEF4753V	universal timer module	DIL18, CERDIP18		IC04	17
HEF4754V	18-element bar graph LCD driver	DIL28, CERDIP28	SO28L	IC04	17
HEF4755V	transceiver for serial data comm.	DIL28, CERDIP28	SO28L	IC04	17
HEF7069UB	hex inverter; open drain	DIL14	SO14	-	15
ICM7555C	general purpose CMOS timer	DIL8	SO8	IC11	59
ICM7555I	general purpose CMOS timer	DIL8	SO8	IC11	59
ICM7555M	general purpose CMOS timer	DIL8	SO8	IC11	59
LF198	sample-and-hold amplifier	CERDIP8		IC11	57
LF298	sample-and-hold amplifier	CERDIP8		IC11	57
LF398	sample-and-hold amplifier	DIL8, CERDIP8	SO14	IC11	57
LM111	voltage comparator	CERDIP8		IC11	58
LM124	quad low-power operational amplifier	DIL14, CERDIP14		IC11	56
LM139	quad voltage comparator	CERDIP14		IC11	58
LM139A	quad voltage comparator	DIL14		IC11	58
LM158	dual low-power operational amplifier	CERDIP8		IC11	56
LM193	low-power dual voltage comparator	CERDIP8		IC11	58
LM193A	low-power dual voltage comparator	DIL8		IC11	58
LM211	voltage comparator	DIL8	SO8	IC11	58
LM219	dual voltage comparator	CERDIP14		IC11	58
LM224	quad low-power operational amplifier	DIL14, CERDIP14		IC11	56
LM239	quad voltage comparator	DIL14	SO14	IC11	58
LM239A	quad voltage comparator	DIL14		IC11	58
LM258	dual low-power operational amplifier	DIL8	SO8	IC11	56
LM2901	quad voltage comparator	DIL14	SO14	IC11	58
LM2902	quad low-power operational amplifier	DIL14	SO14	IC11	56
LM2903	low-power dual voltage comparator	DIL8	SO8	IC11	58
LM2904	dual low-power operational amplifier	DIL8	SO8	IC11	56
LM293	low-power dual voltage comparator	DIL8, CERDIP8	SO8	IC11	58
LM293A	low-power dual voltage comparator	DIL8		IC11	58
LM311	voltage comparator	DIL8	SO8	IC11	58
LM319	dual voltage comparator	DIL14	SO14	IC11	58
LM324	quad low-power operational amplifier	DIL14, CERDIP14	SO14	IC11	56
LM324A	quad low-power operational amplifier	DIL14	SO14	IC11	56
LM339	quad voltage comparator	DIL14	SO14	IC11	58
LM339A	quad voltage comparator	DIL14		IC11	58
LM358	dual low-power operational amplifier	DIL8	SO8	IC11	56
LM358A	dual low-power operational amplifier	DIL8	SO8	IC11	56
LM393	low-power dual voltage comparator	DIL8, CERDIP8	SO8	IC11	58
LM393A	low-power dual voltage comparator	DIL8, CERDIP8		IC11	58
MAX8031	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	52
MAX8032	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	52

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type number	description	package		handbook	page IC5.
		through-hole	SMD		
MAx8051	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	52
MAx8052	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	52
MAx8421	8-bit NMOS microcontroller	DIL28	SO28L	IC14	54
MAx8441	8-bit NMOS microcontroller	DIL28	SO28L	IC14	54
MAx8461	8-bit NMOS microcontroller	DIL28	SO28L	IC14	54
MB2052	16-bit registered transceiver		QFP52	IC23	34
MB2240	16-bit inverting buffer		QFP52	IC23	33
MB2241	16-bit buffer/line driver		QFP52	IC23	33
MB2244	16-bit buffer/line driver		QFP52	IC23	33
MB2245	16-bit transceiver with direction pin		QFP52	IC23	34
MB2373	16-bit D-type transparent latch		QFP52	IC23	33
MB2374	16-bit D-type flip-flop		QFP52	IC23	33
MB2377	16-bit D-type flip-flop with enable		QFP52	IC23	33
MB2541	16-bit buffer/line driver		QFP52	IC23	33
MB2543	16-bit latched transc. with dual enable		QFP52	-	34
MB2623	16-bit transceiver with dual enable		QFP52	IC23	34
MB2646	16-bit bus transceiver/register		QFP52	IC23	34
MB2652	16-bit bus transceiver/register		QFP52	IC23	34
MB2821	20-bit D-type flip-flop		QFP52	-	33
MB2823	18-bit D-type flip-flop, reset, enable		QFP52	-	33
MB2827	20-bit buffer/line driver		QFP52	-	33
MB2841	20-bit bus interface latch		QFP52	-	33
MC1408-8	8-bit multiplying DAC	DIL16	SO16	IC11	58
MC145406	EIA-232-D, CCITT V.28 driver/receiver	DIL16	SO16L	IC11, 19	65
MC1458	dual gen. purpose operational amplifier	DIL8	SO8	IC11	56
MC1496	balanced modulator/demodulator	DIL14		IC11	66
MC1508-8	8-bit multiplying DAC	CERDIP16		IC11	58
MC1558	dual gen. purpose operational amplifier	DIL8		IC11	56
MC3302	quad voltage comparator	DIL14, CERDIP14	SO14	IC11	58
MC3361	low-power FM IF system	DIL16	SO16L	IC03	66
MC3410	10-bit high-speed multiplying DAC	CERDIP16		IC11	58
MC3410C	10-bit high-speed multiplying DAC	CERDIP16		IC11	58
N74ALS00A	quad 2-input NAND gate	DIL14	SO14	IC05	38
N74ALS02	quad 2-input NOR gate	DIL14	SO14	IC05	38
N74ALS04B	hex inverter	DIL14	SO14	IC05	38
N74ALS08	quad 2-input AND gate	DIL14	SO14	IC05	38
N74ALS109A	dual JK positive-edge triggered flip-flo	DIL16	SO16	IC05	38
N74ALS10A	triple 3-input NAND gate	DIL14	SO14	IC05	38
N74ALS112	dual JK negative-edge trigg. flip-flop	DIL16	SO16	IC05	38
N74ALS11A	triple 3-input AND gate	DIL14	SO14	IC05	38
N74ALS138	3-line to 8-line decoder/demultiplexer	DIL16	SO16	IC05	37
N74ALS139	dual 2-line to 4-line decoder/demux	DIL16	SO16	IC05	37
N74ALS151	8-line to 1-line multiplexer	DIL16	SO16	IC05	39
N74ALS153	dual 4-line to 1-line multiplexer	DIL16	SO16	IC05	39
N74ALS157	quad 2-input data selector/multiplexer	DIL16	SO16	IC05	39
N74ALS158	quad 2-input data selector/multiplexer	DIL16	SO16	IC05	39
N74ALS161B	synchronous 4-bit binary counter	DIL16	SO16	IC05	36
N74ALS163B	synchronous 4-bit binary counter	DIL16	SO16	IC05	36
N74ALS164	8-bit serial-in/parallel-out shift reg.	DIL14	SO14	IC05	39
N74ALS174	hex D-type flip-flop with reset	DIL16	SO16	IC05	37
N74ALS175	quad D-type edge-triggered flip-flop	DIL16	SO16	IC05	37
N74ALS20A	dual 4-input NAND gate	DIL14	SO14	IC05	38
N74ALS240A-1	octal inverter buffer	DIL20	SO20L	IC05	36
N74ALS241A	octal buffer	DIL20	SO20L	IC05	36
N74ALS241A-1	octal buffer	DIL20	SO20L	IC05	36
N74ALS244A	octal buffer	DIL20	SO20L	IC05	36

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N74ALS244A-1	octal buffer	DIL20	SO20L	IC05	36
N74ALS245A	octal bus transceiver	DIL20	SO20L	IC05	40
N74ALS245A-1	octal bus transceiver	DIL20	SO20L	IC05	40
N74ALS251	8-line to 1-line multiplexer	DIL16	SO16	IC05	39
N74ALS253	dual 4-line to 1-line multiplexer	DIL16	SO16	IC05	39
N74ALS257	quad 2-input data selector/multiplexer	DIL16	SO16	IC05	39
N74ALS258	quad 2-input data selector/multiplexer	DIL16	SO16	IC05	39
N74ALS27	triple 3-input NOR gate	DIL14	SO14	IC05	38
N74ALS273	octal D-type flip-flop with reset	DIL20	SO20L	IC05	37
N74ALS30A	8-input NAND gate	DIL14	SO14	IC05	38
N74ALS32	quad 2-input OR gate	DIL14	SO14	IC05	38
N74ALS373	octal transparent latch	DIL20	SO20L	IC05	39
N74ALS374	octal D-type flip-flop	DIL20	SO20L	IC05	37
N74ALS377	octal D-type flip-flop with clock enable	DIL20	SO20L	IC05	37
N74ALS38A	quad 2-input NAND buffer	DIL14	SO14	IC05	38
N74ALS543	octal registered transceiver	DIL24SK	SO24L	IC05	40
N74ALS543-1	octal registered transceiver	DIL24SK	SO24L	IC05	40
N74ALS544	octal registered transceiver	DIL24SK	SO24L	IC05	40
N74ALS544-1	octal registered transceiver	DIL24SK	SO24L	IC05	40
N74ALS563A	octal transparent latch	DIL20	SO20L	IC05	39
N74ALS564A	octal D-type flip-flop	DIL20	SO20L	IC05	37
N74ALS573B	octal transparent latch	DIL20	SO20L	IC05	39
N74ALS574A	octal D-type flip-flop	DIL20	SO20L	IC05	37
N74ALS620A	octal bus transceiver	DIL20	SO20L	IC05	41
N74ALS620A-1	octal bus transceiver	DIL20	SO20L	IC05	41
N74ALS623A	octal bus transceiver	DIL20	SO20L	IC05	41
N74ALS623A-1	octal bus transceiver	DIL20	SO20L	IC05	41
N74ALS645A	octal transceiver	DIL20	SO20L	IC05	41
N74ALS645A-1	octal transceiver	DIL20	SO20L	IC05	41
N74ALS646	octal bus transceiver and register	DIL24SK	SO24L	IC05	41
N74ALS646-1	octal bus transceiver and register	DIL24SK	SO24L	IC05	41
N74ALS648	octal bus transceiver and register	DIL24SK	SO24L	IC05	41
N74ALS648-1	octal bus transceiver and register	DIL24SK	SO24L	IC05	41
N74ALS651	octal transceiver and register	DIL24SK	SO24L	IC05	41
N74ALS651-1	octal transceiver and register	DIL24SK	SO24L	IC05	41
N74ALS652	octal transceiver and register	DIL24SK	SO24L	IC05	41
N74ALS652-1	octal transceiver and register	DIL24SK	SO24L	IC05	41
N74ALS74A	dual D-type edge-triggered flip-flop	DIL14	SO14	IC05	37
N74ALS86	quad 2-input EXCLUSIVE-OR gate	DIL14	SO14	IC05	38
N74F00	quad 2-input NAND gate	DIL14	SO14	IC15	38
N74F02	quad 2-input NOR gate	DIL14	SO14	IC15	38
N74F04	hex inverter	DIL14	SO14	IC15	38
N74F06	hex inverter buffer/driver	DIL14	SO14	IC15	36
N74F07	hex buffer/line driver	DIL14	SO14	IC15	36
N74F08	quad 2-input AND gate	DIL14	SO14	IC15	38
N74F10	triple 3-input NAND gate	DIL14	SO14	IC15	38
N74F109	dual JK positive-edge triggered flip-flo	DIL16	SO16	IC15	38
N74F11	triple 3-input AND gate	DIL14	SO14	IC15	38
N74F112	dual JK negative-edge trigg. flip-flop	DIL16	SO16	IC15	38
N74F113	dual JK positive-edge triggered flip-flop	DIL14	SO14	IC15	38
N74F114	dual JK negative-edge trigg. flip-flop	DIL14	SO14	IC15	38
N74F1240	octal buffer	DIL20	SO20L	IC15	36
N74F1241	octal buffer	DIL20	SO20L	IC15	36
N74F1243	quad transceiver	DIL14	SO14	IC15	41
N74F1244	octal buffer	DIL20	SO20L	IC15	36
N74F1245	octal bus transceiver	DIL20	SO20L	IC15	41

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N74F126	quad buffer	DIL14	SO14	IC15	36
N74F132	quad 2-input NAND Schmitt trigger	DIL14	SO14	IC15	38, 40
N74F133	13-input NAND gate	DIL16	SO16	IC15	38
N74F138	3-line to 8-line decoder/demultiplexer	DIL16	SO16	IC15	37
N74F139	dual 2-line to 4-line decoder/demux	DIL16	SO16	IC15	37
N74F14	hex inverter Schmitt trigger	DIL14	SO14	IC15	40
N74F148	8-line to 3-line priority encoder	DIL16	SO16	IC15	37
N74F151A	8-line to 1-line multiplexer	DIL16	SO16	IC15	39
N74F153	dual 4-line to 1-line multiplexer	DIL16	SO16	IC15	39
N74F154	4-line to 16-line decoder/demultiplexer	DIL24SK	SO24L	IC15	37
N74F157	quad 2-input data selector/multiplexer	DIL16	SO16	IC15	39
N74F157A	quad 2-input data selector/multiplexer	DIL16	SO16	IC15	39
N74F158	quad 2-input data selector/multiplexer	DIL16	SO16	IC15	39
N74F158A	quad 2-input data selector/multiplexer	DIL16	SO16	IC15	39
N74F1604	dual octal latch	DIL28	SO28L	IC15	39
N74F161A	synchronous 4-bit binary counter	DIL16	SO16	IC15	36
N74F163A	synchronous 4-bit binary counter	DIL16	SO16	IC15	36
N74F164	8-bit serial-in/parallel-out shift reg.	DIL14	SO14	IC15	39
N74F166	8-bit ser./par.-in/serial-out shift reg.	DIL16	SO16	IC15	39
N74F169	synchr. 4-bit binary up/down counter	DIL16	SO16	IC15	37
N74F173	quad D-type flip-flop	DIL16	SO16	IC15	37
N74F174	hex D-type flip-flop with reset	DIL16	SO16	IC15	37
N74F175	quad D-type edge-trigg. flip-flop	DIL16	SO16	IC15	37
N74F1762	4 M-bit memory address controller	DIL40	PLCC44	IC15	40, 49
N74F1763	1 M-bit intelligent DRAM controller	DIL48	PLCC44	IC15	40, 49
N74F1764	1 M-bit DRAM dual ported controller	DIL48	PLCC44	IC15	40, 49
N74F1764-1	1 M-bit DRAM dual ported controller	DIL48	PLCC44	IC15	40, 49
N74F1765	1 M-bit DRAM dual ported controller	DIL48	PLCC44	IC15	40, 49
N74F1765-1	1 M-bit DRAM dual ported controller	DIL48	PLCC44	IC15	40, 49
N74F1766	burst-mode DRAM controller	DIL48	PLCC44	IC15	40, 49
N74F1779	8-bit bidirectional binary counter	DIL16	SO16L	IC15	37
N74F1804	hex 2-input NAND driver	DIL20	SO20L	IC15	37
N74F1805	hex 2-input NOR driver	DIL20	SO20L	IC15	37
N74F1808	hex 2-input NAND driver	DIL20	SO20L	IC15	37
N74F181	4-bit arithmetic logic unit	DIL24SK	SO24L	IC15	36
N74F182	look-ahead carry generator	DIL16	SO16	IC15	36
N74F1832	hex 2-input OR driver	DIL20	SO20L	IC15	37
N74F189A	64-bit TTL bipolar RAM (16x4)	DIL16	SO16	IC15	39, 49
N74F191	preset. 4-bit binary up/down counter	DIL16	SO16	IC15	37
N74F192	preset. BCD decade up/down counter	DIL16	SO16	IC15	37
N74F193	preset. 4-bit binary up/down counter	DIL16	SO16	IC15	37
N74F194	4-bit bidirectional universal shift reg.	DIL16	SO16	IC15	40
N74F195	4-bit parallel access shift register	DIL16	SO16	IC15	40
N74F198	4-bit bidirectional universal shift reg.	DIL24SK	SO24L	IC15	40
N74F199	4-bit parallel access shift register	DIL24SK	SO24L	IC15	40
N74F20	dual 4-input NAND gate	DIL14	SO14	IC15	38
N74F219A	64-bit TTL bipolar RAM (16x4)	DIL16	SO16	IC15	39, 49
N74F2240	octal inv. buffer w. 30 Ω term. network	DIL20	SO20L	IC15	36
N74F2241	octal buffer with 30 Ω term. network	DIL20	SO20L	IC15	36
N74F2244	octal buffer with 30 Ω term. network	DIL20	SO20L	IC15	36
N74F225	16x5 asynchronous FIFO	DIL20	SO20L	IC15	40
N74F240	octal inverter buffer	DIL20	SO20L	IC15	36
N74F240A	octal inverter buffer	DIL20	SO20L	IC15	36
N74F241	octal buffer	DIL20	SO20L	IC15	36
N74F241A	octal buffer	DIL20	SO20L	IC15	36

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N74F242	quad bus inverting transceiver	DIL14	SO14	IC15	40
N74F243	quad bus transceiver	DIL14	SO14	IC15	40
N74F244	octal buffer	DIL20	SO20L	IC15	36
N74F244A	octal buffer	DIL20	SO20L	IC15	36
N74F245	bus transceiver	DIL20	SO20L	IC15	40
N74F251A	8-line to 1-line multiplexer	DIL16	SO16	IC15	39
N74F253	dual 4-line to 1-line multiplexer	DIL16	SO16	IC15	39
N74F256	dual 4-bit addressable latch	DIL16	SO16	IC15	38
N74F257A	quad 2-line to 1-line data selector/mux	DIL16	SO16	IC15	39
N74F258A	quad 2-line to 1-line data selector/mux	DIL16	SO16	IC15	39
N74F259	8-bit addressable latch	DIL16	SO16	IC15	39
N74F260	dual 5-input NOR gate	DIL14	SO14	IC15	38
N74F269	8-bit binary counter	DIL24SK	SO24L	IC15	37
N74F27	triple 3-input NOR gate	DIL14	SO14	IC15	38
N74F273	octal D-type flip-flop with reset	DIL20	SO20L	IC15	37
N74F280A	9-bit odd/even parity generator/checker	DIL14	SO14	IC15	36
N74F280B	9-bit odd/even parity generator/checker	DIL14	SO14	IC15	36
N74F283	4-bit full adder with fast carry	DIL16	SO16	IC15	36
N74F2952	8-bit transceiver	DIL24SK	SO24L, PLCC28	IC15	41
N74F2953	8-bit transceiver	DIL24SK	SO24L, PLCC28	IC15	41
N74F298	quad 2-input multiplexer with storage	DIL16	SO16	IC15	40
N74F299	octal shift/storage register	DIL20	SO20L	IC15	40
N74F30	8-input NAND gate	DIL14	SO14	IC15	38
N74F30244	octal 30 Ω transm.-line/backplane driver	DIL24SK, Cerdip24	SO24L	IC15	37
N74F30245	octal transc./30 Ω transm. line driver	DIL24SK, Cerdip24		IC15	37, 41
N74F3037	quad 2-inp. NAND, 30Ω transm. line dr.	DIL16	SO16L	IC15	37
N74F3038	quad 2-inp. NAND, 30Ω transm. line dr.	DIL16	SO16L	IC15	37
N74F3040	dual 4-inp. NAND, 30 Ω transm. line dr.	DIL16	SO16L	IC15	37
N74F32	quad 2-input OR gate	DIL14	SO14	IC15	38
N74F322	octal shift/storage register	DIL20	SO20L	IC15	40
N74F323	octal shift/storage register	DIL20	SO20L	IC15	40
N74F350	4-bit shift register	DIL16	SO16	IC15	40
N74F353	dual 4-input multiplexer	DIL16	SO16	IC15	39
N74F365	hex buffer/driver	DIL16	SO16	IC15	36
N74F366	hex inverter buffer	DIL16	SO16	IC15	36
N74F367	hex buffer/driver	DIL16	SO16	IC15	36
N74F368	hex inverter buffer	DIL16	SO16	IC15	36
N74F37	quad 2-input NAND buffer	DIL14	SO14	IC15	38
N74F373	octal transparent latch	DIL20	SO20L	IC15	39
N74F374	octal D-type flip-flop	DIL20	SO20L	IC15	37
N74F377	octal D-type flip-flop with clock enable	DIL20	SO20L	IC15	37
N74F378	hex D-type flip-flop with clock enable	DIL16	SO16	IC15	37
N74F379	quad D-type flip-flop with enable	DIL16	SO16	IC15	37
N74F38	quad 2-input NAND buffer	DIL14	SO14	IC15	38
N74F381	4-bit arithmetic logic unit	DIL20	SO20L	IC15	36
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N74F385	quad serial adder/subtractor	DIL20	SO20L	IC15	36
N74F3893	quad FutureBus backplane transceiver		PLCC20	IC15	41
N74F393	dual 4-bit binary ripple counter	DIL14	SO14	IC15	37
N74F395	4-bit cascadable shift register	DIL16	SO16	IC15	40
N74F398	quad 2-port register true	DIL20	SO20L	IC15	40
N74F399	quad 2-port register true	DIL16	SO16	IC15	40
N74F40	dual 4-input NAND buffer	DIL14	SO14	IC15	38
N74F410	64-bit TTL bipolar RAM (16x4)	DIL18		IC15	39, 40,
N74F455	octal buffer with parity gen./checker	DIL24SK	SO24L	IC15	36
N74F456	octal buffer with parity gen./checker	DIL24SK	SO24L	IC15	36

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N74F50109	synchronizing dual JK flip-flop	DIL16	SO16	IC15	38
N74F50728	cascaded synchr. dual D-type flip-flop	DIL14	SO14	IC15	38
N74F50729	synchronizing dual D-type flip-flop	DIL14	SO14	IC15	38
N74F5074	synchronizing dual D-type flip-flop	DIL14	SO14	IC15	37
N74F51	dual 2-wide 2-input AND-OR-inv. gate	DIL14	SO14	IC15	38
N74F521	8-bit identify comparator	DIL20	SO20L	IC15	36
N74F524	8-bit register comparator	DIL20	SO20L	IC15	36
N74F5300	fiber-optic LED driver	DIL8	SO8	IC15	37
N74F5302	fiber-optic dual LED/clock driver	DIL14	SO14	IC15	37
N74F533	inverting octal D-type latch	DIL20	SO20L	IC15	39
N74F534	octal D-type flip-flop	DIL20	SO20L	IC15	37
N74F537	1-of-10 decoder	DIL20	SO20L	IC15	37
N74F538	1-of-8 decoder	DIL20	SO20L	IC15	37
N74F539	dual 1-of-4 decoder	DIL20	SO20L	IC15	37
N74F540	octal buffer/line driver	DIL20	SO20L	IC15	36
N74F541	octal non-inverting buffer/line driver	DIL20	SO20L	IC15	36
N74F543	octal registered transceiver	DIL24SK	SO24L	IC15	40
N74F544	octal registered transceiver	DIL24SK	SO24L	IC15	40
N74F545	octal bus transceiver	DIL20	SO20L	IC15	41
N74F552	octal reg. transceiver with status flags	DIL28	SO28L	IC15	41
N74F564	octal D-type flip-flop	DIL20	SO20L	IC15	37
N74F569	4-bit binary up/down synchr. counter	DIL20	SO20L	IC15	37
N74F573	octal transparent latch	DIL20	SO20L	IC15	39
N74F574	octal D-type flip-flop	DIL20	SO20L	IC15	37
N74F579	8-bit binary up/down counter	DIL20	SO20L	IC15	37
N74F583	4-bit BCD adder	DIL16	SO16	IC15	36
N74F595	8-bit shift register with output latches	DIL16	SO16	IC15	40
N74F597	8-bit shift register with input latches	DIL16	SO16	IC15	40
N74F598	8-bit shift register with input latches	DIL20	SO20L	IC15	40
N74F604	dual 8-bit register	DIL28	SO28L	IC15	39
N74F620	octal bus transceiver	DIL20	SO20L	IC15	41
N74F621	octal bus transceiver	DIL20	SO20L	IC15	41
N74F623	octal bus transceiver	DIL20	SO20L	IC15	41
N74F64	4-2-3-2-input AND-OR-invert gate	DIL14	SO14	IC15	38
N74F640	octal bus transceiver	DIL20	SO20L	IC15	41
N74F641	octal bus transceiver	DIL20	SO20L	IC15	41
N74F642	octal bus transceiver	DIL20	SO20L	IC15	41
N74F646	octal bus transceiver and register	DIL24SK	SO24L	IC15	41
N74F646A	octal bus transceiver and register	DIL24SK	SO24L	IC15	41
N74F647	octal bus transceiver and register	DIL24SK	SO24L	IC15	41
N74F648	octal bus transceiver and register	DIL24SK	SO24L	IC15	41
N74F648A	octal bus transceiver and register	DIL24SK	SO24L	IC15	41
N74F649	octal bus transceiver and register	DIL24SK	SO24L	IC15	41
N74F651	octal transceiver/register	DIL24SK	SO24L	IC15	41
N74F651A	octal transceiver/register	DIL24SK	SO24L	IC15	41
N74F652	octal transceiver/register	DIL24SK	SO24L	IC15	41
N74F652A	octal transceiver/register	DIL24SK	SO24L	IC15	41
N74F653	octal transceiver/register	CERDIP24		IC15	41
N74F655A	octal inv. buffer with parity gen./check	DIL24SK	SO24L	IC15	36
N74F656A	octal buffer with parity gen./checker	DIL24SK	SO24L	IC15	36
N74F657	octal bus transc. with parity gen./check	DIL24SK	SO24L	IC15	41
N74F670	4x4 register file	DIL16	SO16L	IC15	40
N74F674	16-bit ser./par.-in,serial out shift reg	DIL24SK	SO24L	IC15	40
N74F676	16-bit ser./par.-in,serial out shift reg	DIL24SK	SO24L	IC15	40
N74F711	quintuple 2-input multiplexer	DIL20	SO20L	IC15	39
N74F711-1	quint 2-input mux with 30 Ω termination	DIL20	SO20L	IC15	39

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N74F712	quintuple 3-input multiplexer	DIL24SK	SO24L	IC15 39
N74F712-1	quint 3-input mux with 30 Ω termination	DIL24SK	SO24L	IC15 39
N74F712A	quintuple 3-input multiplexer	DIL24SK	SO24L	IC15 39
N74F723	quad 3-input multiplexer	DIL24SK	SO24L	IC15 39
N74F723-1	quad 3-input mux with 30 Ω termination	DIL24SK	SO24L	IC15 39
N74F723A	quad 3-input multiplexer	DIL24SK	SO24L	IC15 39
N74F725	quad 3-input multiplexer	DIL24SK	SO24L	IC15 39
N74F725-1	quad 3-input mux with 30 Ω termination	DIL24SK	SO24L	IC15 39
N74F725A	quad 3-input multiplexer	DIL24SK	SO24L	IC15 39
N74F733	quad data multiplexer	DIL20	SO20L	IC15 39
N74F74	dual D-type edge-triggered flip-flop	DIL14	SO14	IC15 37
N74F756	octal inverter buffer	DIL20	SO20L	IC15 36
N74F757	octal buffer	DIL20	SO20L	IC15 36
N74F760	octal buffer	DIL20	SO20L	IC15 36
N74F764	DRAM dual ported controller	DIL40	PLCC44	IC15 40, 49
N74F764-1	DRAM dual ported controller	DIL40	PLCC44	IC15 40, 49
N74F765	DRAM dual ported controller w/o latch	DIL40	PLCC44	IC15 40, 49
N74F765-1	DRAM dual ported controller w/o latch	DIL40	PLCC44	IC15 40, 49
N74F776	octal bidir. latched bus transceiver	DIL28	PLCC28	IC15 41
N74F777	triple bidir. latched bus transceiver	DIL20	PLCC20	IC15 41
N74F779	8-bit bidirectional binary counter	DIL16	SO16L	IC15 37
N74F786	4-input asynchronous bus arbiter	DIL16	SO16	IC15 40
N74F804	hex 2-input NAND driver	DIL20	SO20L	IC15 37
N74F805	hex 2-input NOR driver	DIL20	SO20L	IC15 37
N74F807	octal shift/count registered transceiver	DIL28	SO28L, PLCC28	IC15 41
N74F808	hex 2-input AND driver	DIL20	SO20L	IC15 37
N74F821	10-bit bus interface register	DIL24SK	SO24L	IC15 40
N74F822	10-bit bus interface register	DIL24SK	SO24L	IC15 40
N74F823	9-bit bus interface register	DIL24SK	SO24L	IC15 40
N74F824	9-bit bus interface register	DIL24SK	SO24L	IC15 40
N74F825	9-bit bus interface register	DIL24SK	SO24L	IC15 40
N74F826	9-bit bus interface register	DIL24SK	SO24L	IC15 40
N74F827	10-bit buffer line driver	DIL24SK	SO24L	IC15 36
N74F828	10-bit buffer line driver	DIL24SK	SO24L	IC15 36
N74F832	hex 2-input OR driver	DIL20	SO20L	IC15 37
N74F835	8-bit shift register	DIL24SK	SO24L	IC15 40
N74F841	10-bit bus interface latch	DIL24SK	SO24L	IC15 39
N74F842	10-bit bus interface latch	DIL24SK	SO24L	IC15 39
N74F843	9-bit bus interface latch	DIL24SK	SO24L	IC15 39
N74F844	9-bit bus interface latch	DIL24SK	SO24L	IC15 39
N74F845	8-bit bus interface latch	DIL24SK	SO24L	IC15 39
N74F846	8-bit bus interface latch	DIL24SK	SO24L	IC15 39
N74F85	4-bit magnitude comparator	DIL16	SO16L	IC15 36
N74F86	quad 2-input EXCLUSIVE-OR gate	DIL14	SO14	IC15 38
N74F861	10-bit bus transceiver	DIL24SK	SO24L	IC15 41
N74F862	10-bit bus transceiver	DIL24SK	SO24L	IC15 41
N74F863	9-bit bus transceiver	DIL24SK	SO24L	IC15 41
N74F864	9-bit bus transceiver	DIL24SK	SO24L	IC15 41
N74F8960	octal latched bidir. FutureBus transc.	DIL28	PLCC28	IC15 41
N74F8961	octal latched bidir. FutureBus transc.	DIL28	PLCC28	IC15 41
N74F8962	9-bit latched bidir. FutureBus transc.		QFP44, PLCC44	IC15 41
N74F8963	9-bit latched bidir. FutureBus transc.		QFP44, PLCC44	IC15 41
N74F899	dual 9-bit latch trans., 8-bit parity	DIL28	PLCC28	IC15 41
N82HS195	16384-bit bipolar PROM (4096×4)	DIL20	PLCC20	IC10 48
N82HS195A	16384-bit bipolar PROM (4096×4)	DIL20	PLCC20	IC10 48

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N82HS641B	65536-bit bipolar PROM (8192×8)	DIL24, Cerdip24		IC10	48
N82LS135	2048-bit bipolar PROM (256×8)	DIL20	SO20L, PLCC20	IC10	48
N82S115	4096-bit bipolar PROM (512×8)	DIL24		IC10	48
N82S123	256-bit bipolar PROM (32×8)	DIL16	PLCC20	IC10	48
N82S123A	256-bit bipolar PROM (32×8)	DIL16	SO16, PLCC20	IC10	48
N82S126	1024-bit bipolar PROM (256×4)	DIL16	PLCC20	IC10	48
N82S126A	1024-bit bipolar PROM (256×4)	DIL16	SO16, PLCC20	IC10	48
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N82S129A	1024-bit bipolar PROM (256×4)	DIL16	SO16, PLCC20	IC10	48
N82S130	2048-bit bipolar PROM (512×4)	DIL16	PLCC20	IC10	48
N82S130A	2048-bit bipolar PROM (512×4)	DIL16	SO16, PLCC20	IC10	48
N82S131	2048-bit bipolar PROM (512×4)	DIL16	PLCC20	IC10	48
N82S131A	2048-bit bipolar PROM (512×4)	DIL16	SO16, PLCC20	IC10	48
N82S135	2048-bit bipolar PROM (256×8)	DIL20	SO20L, PLCC20	IC10	48
N82S137	4096-bit bipolar PROM (1024×4)	DIL18	PLCC20	IC10	48
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N82S141	4096-bit bipolar PROM (512×8)	DIL24, DIL24SK		IC10	48
N82S141A	4096-bit bipolar PROM (512×8)	DIL24, DIL24SK	PLCC28	IC10	48
N82S147	4096-bit bipolar PROM (512×8)	DIL20	PLCC20	IC10	48
N82S147A	4096-bit bipolar PROM (512×8)	DIL20	PLCC20	IC10	48
N82S147B	4096-bit bipolar PROM (512×8)	DIL20	PLCC20	IC10	48
N82S181	8192-bit bipolar PROM (1024×8)	DIL24	PLCC28	IC10	48
N82S181A	8192-bit bipolar PROM (1024×8)	DIL24	PLCC28	IC10	48
N82S181C	8192-bit bipolar PROM (1024×8)	DIL24, DIL24SK	PLCC28	IC10	48
N82S183	8192-bit bipolar PROM (1024×8)	DIL24	PLCC28	IC10	48
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PCD5032	pulse-code modulation CODEC		QFP44	IC03	67
PCD5040	DECT burst-mode controller		QFP64	IC03	67
PCD5041	DECT burst-mode controller		QFP64	IC03	67
PCD5101	256x8-bit CMOS static RAM	DIL22	SO24L	IC10	49, 84
PCD5114	1024x8-bit CMOS static RAM	DIL18	SO20L	IC10	49, 84
PCD8582D-2	256x8-bit CMOS EEPROM	DIL8	SO8	IC01	47, 84
PCD8594D-2	512x8-bit CMOS EEPROM	DIL8	SO8	IC01	47, 84
PCD8598D-2	1kx8-bit CMOS EEPROM	DIL8	SO8L	IC01	47, 84
PCF1171C	4.19 MHz digital LCD car clock		VSO40, PADS40	IC16	64
PCF1172C	4.19 MHz digital LCD car clock		VSO40, PADS40	IC16	64
PCF1174C	4.19 MHz 4-digit static-LCD car clock		VSO40, PADS40	IC16	64
PCF1175C	4.19 MHz 4-digit duplex-LCD car clock		SO28L, PADS28	IC16	64
PCF1178C	4.19 MHz 4-digit duplex-LCD car clock		SO28L, PADS28	IC16	64
PCF1179C	4.19 MHz 4-digit duplex-LCD car clock		SO28L	IC16	64
PCF1252-0	power-fail detector and reset generator	DIL8	SO8	IC11	62
PCF1252-1	power-fail detector and reset generator	DIL8	SO8	IC11	62
PCF1252-2	power-fail detector and reset generator	DIL8	SO8	IC11	62
PCF1254	infrared remote control transmitter	DIL8	SO8	DS-IC01	70
PCF1303	18-element bar graph LCD driver		SO28L	IC01	60
PCF2100	LCD driver	DIL28	SO28L	IC01	60
PCF2111	LCD driver	DIL40	VSO40	IC01	60
PCF2112	LCD driver	DIL40	VSO40	IC01	60
PCF2115	LCD controller/driver		QFP120	-	60
PCF29F64	8kx8-bit CMOS EEPROM	DIL28	SO28L	DS-IC10	47, 84
PCF5001	POCSAG decoder		SO28L	IC03	70
PCF5012	14-bit bitstream ADC/DAC	DIL28	QFP44	IC11	67
PCF84C121	8-bit CMOS microcontroller	DIL20	SO20L	IC14	53
PCF84C12A	8-bit CMOS microcontroller	DIL20	SO20L	DS-IC14	53
PCF84C21A	8-bit CMOS microcontroller	DIL28	SO28L	IC14	53
PCF84C22A	8-bit CMOS microcontroller	DIL20	SO20L	DS-IC14	53
PCF84C41A	8-bit CMOS microcontroller	DIL28	SO28L	IC14	53
PCF84C42A	8-bit CMOS microcontroller	DIL20	SO20L	DS-IC14	53
PCF84C633A	8-bit CMOS microcontroller		VSO56	IC14	53
PCF84C81A	8-bit CMOS microcontroller	DIL28	SO28L	IC14	53
PCF84C85A	8-bit CMOS microcontroller	DIL40	VSO40	IC14	53
PCF8566	universal LCD driver for low mux rates	DIL40	VSO40	IC01	60
PCF8568	dot matrix LCD driver	DIL28	SO28L	DS-IC12	60
PCF8569	LCD column driver, dot matrix displays		VSO56	IC01	60
PCF8570	256x8-bit CMOS static RAM	DIL8	SO8L	IC10	49, 84
PCF8571	128x8-bit CMOS static RAM	DIL8	SO8L	IC10	49, 84
PCF8573	clock calendar with serial I/O	DIL16	SO16L	IC01	64, 84
PCF8574	remote 8-bit I/O expander	DIL16	SO16L	IC01	65, 84
PCF8574A	remote 8-bit I/O expander	DIL16	SO16L	IC01	65, 84
PCF8576	universal LCD driver for low mux rates		VSO56	IC01	60
PCF8577C	LCD direct/duplex driver	DIL40	VSO40	IC01	60
PCF8578	LCD row/column driver, dot matrix disp.		VSO56	IC01	60
PCF8579	LCD column driver, dot matrix displays		VSO56	IC01	60
PCF8582C-2	256x8-bit CMOS EEPROM	DIL8	SO8	IC01	47, 84
PCF8582E-2	256x8-bit CMOS EEPROM	DIL8	SO8	IC01	47, 84
PCF8583	clock calendar with 256x8-bit RAM	DIL8	SO8L	IC01	64, 84
PCF8584	I ² C-bus controller	DIL20	SO20L	-	65, 84
PCF8591	8-bit AD and DA converter	DIL16	SO16L	IC11	58, 77
PCF8594C-2	512x8-bit CMOS EEPROM	DIL8	SO8	IC01	47, 84
PCF8594E-2	512x8-bit CMOS EEPROM	DIL8	SO8	IC01	47, 84
PCF8598C-2	1kx8-bit CMOS EEPROM	DIL8	SO8L	IC01	47, 84

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PCF8598E-2	1k×8-bit CMOS EEPROM	DIL8	SO8L	IC01 47, 84
PCx80C31	8-bit CMOS microcontroller	DIL40	PLCC44	IC20 50
PCx80C51	8-bit CMOS microcontroller	DIL40	PLCC44	IC20 50
PCx80C552	8-bit CMOS microcontroller		PLCC68, QFP80	IC20 50
PCx80C562	8-bit CMOS microcontroller		PLCC68, QFP80	IC20 50
PCx83C552	8-bit CMOS microcontroller		PLCC68, QFP80	IC20 50
PCx83C562	8-bit CMOS microcontroller		PLCC68, QFP80	IC20 50
PHD16N8-5	programmable high-speed decoder	DIL20	PLCC20	IC13 45
PHD48N22-7	programmable high-speed decoder		PLCC68	IC13 45
PL22V10-10	CMOS EPLD (EEPROM based)	DIL24	PLCC28, SO24L	IC13 45
PL22V10-12	CMOS EPLD (EEPROM based)	DIL24	PLCC28, SO24L	IC13 45
PL22V10-15	CMOS EPLD (EEPROM based)	DIL24	PLCC28, SO24L	IC13 45
PL22V10I15	CMOS EPLD (EEPROM based)	DIL24	PLCC28, SO24L	IC13 45
PLC18V8Z25	zero-power GAL-type EPLD	DIL20, Cerdip20	PLCC20, SO20L	IC13 45
PLC18V8Z35	zero-power GAL-type EPLD	DIL20, Cerdip20	PLCC20, SO20L	IC13 45
PLC18V8ZI	zero-power GAL-type EPLD	DIL20, Cerdip20	PLCC20, SO20L	IC13 45
PLC18V8ZIA	zero-power GAL-type EPLD	DIL20, Cerdip20	PLCC20, SO20L	IC13 45
PLC415-16	CMOS prog. logic sequencer	DIL28, Cerdip28	PLCC28	IC13 46
PLC415-33	CMOS prog. logic sequencer	DIL28, Cerdip28	PLCC28	- 46
PLC42VA12	CMOS universal EPLD	DIL24, Cerdip24	PLCC28	IC13 46
PLHS501	Bipolar programmable macro logic		PLCC52	IC13 46
PLQ22V10-7	BiCMOS GAL-type device	DIL24, Cerdip24	PLCC28	IC13 45
PLS100	programmable logic array	DIL28	PLCC28	IC13 45
PLS101	programmable logic array	DIL28	PLCC28	IC13 45
PLS105	programmable logic sequencer	DIL28	PLCC28	IC13 46
PLS105A	programmable logic sequencer	DIL28	PLCC28	IC13 46
PLS153	programmable logic array	DIL20	PLCC20	IC13 45
PLS153A	programmable logic array	DIL20	PLCC20	IC13 45
PLS155	programmable logic sequencer	DIL20	PLCC20	IC13 46
PLS157	programmable logic sequencer	DIL20	PLCC20	IC13 46
PLS159A	programmable logic sequencer	DIL20	PLCC20	IC13 46
PLS167	programmable logic sequencer	DIL24	PLCC28	IC13 46
PLS167A	programmable logic sequencer	DIL24	PLCC28	IC13 46
PLS168	programmable logic sequencer	DIL24	PLCC28	IC13 46
PLS168A	programmable logic sequencer	DIL24	PLCC28	IC13 46
PLS173	programmable logic array	DIL24	PLCC28	IC13 45
PLS179	programmable logic sequencer	DIL24	PLCC28	IC13 46
PLUS105-45	programmable logic sequencer	DIL28, DIL28SK	PLCC28	IC13 46
PLUS105-55	programmable logic sequencer	DIL28, DIL28SK	PLCC28	IC13 46
PLUS153-10	programmable logic array	DIL20	PLCC20	IC13 45
PLUS153B	programmable logic array	DIL20	PLCC20	IC13 45
PLUS153D	programmable logic array	DIL20	PLCC20	IC13 45
PLUS16L8-7	PAL-type device	DIL20	PLCC20	IC13 45
PLUS16L8D	PAL-type device	DIL20	PLCC20	IC13 45
PLUS16R4-7	registered PAL-type device	DIL20	PLCC20	IC13 45
PLUS16R4D	registered PAL-type device	DIL20	PLCC20	IC13 45
PLUS16R6-7	registered PAL-type device	DIL20	PLCC20	IC13 45
PLUS16R6D	registered PAL-type device	DIL20	PLCC20	IC13 45
PLUS16R8-7	registered PAL-type device	DIL20	PLCC20	IC13 45
PLUS16R8D	registered PAL-type device	DIL20	PLCC20	IC13 45
PLUS173-10	programmable logic array	DIL24	PLCC28	IC13 45
PLUS173B	programmable logic array	DIL24	PLCC28	IC13 45
PLUS173D	programmable logic array	DIL24	PLCC28	IC13 45
PLUS20L8-7	PAL-type device	DIL24	PLCC28	IC13 45
PLUS20L8D	PAL-type device	DIL24	PLCC28	IC13 45
PLUS20R4-7	registered PAL-type device	DIL24	PLCC28	IC13 45

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PLUS20R6-7	registered PAL-type device	DIL24	PLCC28	IC13	45
PLUS20R6D	registered PAL-type device	DIL24	PLCC28	IC13	45
PLUS20R8-7	registered PAL-type device	DIL24	PLCC28	IC13	45
PLUS20R8D	registered PAL-type device	DIL24	PLCC28	IC13	45
PLUS405-37	programmable logic sequencer	DIL28	PLCC28	IC13	46
PLUS405-45	programmable logic sequencer	DIL28	PLCC28	IC13	46
PLUS405-55	programmable logic sequencer	DIL28	PLCC28	IC13	46
PLV2500H25	CMOS multiple GAL-type EPLD	DIL40, CERDIL40	PLCC44, CCCJ44	DS-IC13	46
PLV2500H30	CMOS multiple GAL-type EPLD	DIL40, CERDIL40	PLCC44, CCCJ44	DS-IC13	46
PLV2500L30	CMOS low-pwr mult. GAL-type EPLD	DIL40, CERDIL40	PLCC44, CCCJ44	DS-IC13	46
PLV2500L35	CMOS low-pwr mult. GAL-type EPLD	DIL40, CERDIL40	PLCC44, CCCJ44	DS-IC13	46
PLV5000-25	CMOS multiple GAL-type EPLD		PLCC68	DS-IC13	46
PLV5000-30	CMOS multiple GAL-type EPLD		PLCC68	DS-IC13	46
PLV5000L30	CMOS low-pwr mult. GAL-type EPLD		PLCC68	DS-IC13	46
PLV5000L35	CMOS low-pwr mult. GAL-type EPLD		PLCC68	DS-IC13	46
PLV750-20	CMOS GAL-type EPLD	DIL24, CERDIL24	PLCC28	DS-IC13	46
PLV750-25	CMOS GAL-type EPLD	DIL24, CERDIL24	PLCC28	DS-IC13	46
PLV750L25	CMOS low-power GAL-type EPLD	DIL24, CERDIL24	PLCC28	DS-IC13	46
PLV750L30	CMOS low-power GAL-type EPLD	DIL24, CERDIL24	PLCC28	DS-IC13	46
PML2552-35	CMOS prog. macro logic (EPLD)		PLCC68, CCCJ68	IC13	46
PML2552-50	CMOS prog. macro logic (EPLD)		PLCC68, CCCJ68	IC13	46
PML2852-35	CMOS prog. macro logic (EPLD)		PLCC84, CCCJ84	IC13	46
PML2852-50	CMOS prog. macro logic (EPLD)		PLCC84, CCCJ84	IC13	46
S80C552	8-bit CMOS microcontroller		PLCC68, QFP80	IC20	50
S80C562	8-bit CMOS microcontroller		PLCC68, QFP80	IC20	50
S80C652	8-bit CMOS microcontroller	DIL40	PLCC44, QFP44	IC20	51
S80C851	8-bit CMOS microcontroller	DIL40	PLCC44, QFP44	IC20	51
S83C552	8-bit CMOS microcontroller		PLCC68, QFP80	IC20	50
S83C562	8-bit CMOS microcontroller		PLCC68, QFP80	IC20	50
S83C652	8-bit CMOS microcontroller	DIL40	PLCC44, QFP44	IC20	51
S83C654	8-bit CMOS microcontroller	DIL40	PLCC44, QFP44	IC20	51
S83C751	8-bit CMOS microcontroller	DIL24	PLCC28	IC20	51
S83C752	8-bit CMOS microcontroller	DIL28	PLCC28	IC20	51
S83C851	8-bit CMOS microcontroller	DIL40	PLCC44, QFP44	IC20	51
S87C552	8-bit CMOS microcontroller		PL/CLCC68, QFP80	IC20	50
S87C652	8-bit CMOS microcontroller	DIL40, CERDIP40	PL/CLCC44, QFP44	IC20	51
S87C654	8-bit CMOS microcontroller	DIL40, CERDIP40	PL/CLCC44, QFP44	IC20	51
S87C751	8-bit CMOS microcontroller	DIL24, CERDIP24	PLCC28	IC20	51
S87C752	8-bit CMOS microcontroller	DIL28, CERDIP28	PLCC28	IC20	51
SA1458	dual gen. purpose operational amplifier		SO8	IC11	56
SA4558	dual gen. purpose operational amplifier	DIL8		IC11	56
SA5050	power line modem	DIL20	SO20L	IC11	65
SA5090	addressable relay driver	DIL16	SO16L	IC11	59
SA5200	dual gain stage RF amplifier		SO8	IC03	57, 66
SA5204A	wide band high-frequency amplifier	DIL8	SO8	IC11, 03	57, 66,
SA5205A	wide band high-frequency amplifier	DIL8	SO8	IC11, 03	57, 66,
SA5209	850 MHz voltage-controlled amplifier	DIL16	SO16	IC03, 11	57, 66,
SA5211	180 MHz transimpedance amplifier		SO14	IC19	57
SA5212A	140 MHz transimpedance amplifier	DIL8, CERDIP8	SO8	IC19	57
SA5214	fibre-optic post amplifier		SO20L	IC19	57
SA5217	fibre-optic post amplifier		SO20L	IC19	57
SA5219	700 MHz voltage-controlled amplifier	DIL16	SO16	IC03, 11	57, 66,
SA5222	low-power low-noise FDDI amplifier		SO8	IC19	57
SA5224	FDDI fibre-optic amplifier		SO16	IC19	57
SA5225	FDDI fibre-optic amplifier		SO16	IC19	57

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SA5230	low-voltage operational amplifier	DIL8, CERDIP8	SO8	IC11	56
SA5234	quad low-voltage operational amplifier	DIL14	SO14	IC11	56
SA532	dual low-power operational amplifier	CERDIP8	SO8	IC11	56
SA534	quad low-power operational amplifier	DIL14, CERDIP14	SO14	IC11	56
SA5512	dual high-perf. operational amplifier		SO8	IC11	56
SA5521	LVDT signal conditioner	DIL18	SO16L	IC11	59
SA5534	single low-noise operational amplifier	DIL8		IC11	56
SA5534A	single low-noise operational amplifier		SO8	IC11	56
SA555	timer	DIL8	SO8	IC11	59
SA556	dual timer	DIL14		IC11	59
SA5570	brushless DC motor controller	DIL24		IC11	61
SA568A	phase-locked loop	DIL20	SO20L	IC11	59
SA571	compandor	DIL16, CERDIP16	SO16L	IC03	67
SA572	programmable analog compandor	DIL16, CERDIP16	SO16L	IC03	67
SA575	low-voltage dual expander/single comp.	DIL20	SO20L, SSOP20	IC03	67
SA5750	audio processor for RF communication	DIL24	SO24L	IC03	67
SA5751	audio processor for RF communication	DIL24	SO28L	IC03	67
SA5752	audio processor for RF communication		SO20L, SSOP20	IC03	67
SA5753	audio processor for RF communication		SO20L, SSOP20	IC03	67
SA576	low-power compandor	DIL14	SO14	IC03	67
SA577	low-power compandor	DIL14	SO14	IC03	67
SA578	low-power compandor	DIL16	SO16	IC03	67
SA594	vacuum fluorescent display driver	DIL18, CERDIP18		IC11	60
SA600	RF gain-stage and mixer		SO14	IC03	66
SA602A	double-balanced mixer and oscillator	DIL8, CERDIP8	SO8	IC03	66
SA604A	high-perform. low-power FM IF system	DIL16	SO16	IC03	66
SA605	high-perf. low-power mixer FM IF syst.	DIL20, CERDIP20	SO20L, SSOP20	IC03	67
SA606	low-volt. high-perf. mixer FM IF syst.	DIL20	SO20L, SSOP20	IC03	67
SA607	low-volt. high-perf. mixer FM IF syst.	DIL20	SO20L, SSOP20	IC03	67
SA608	low-volt. high-perf. mixer FM IF syst.	DIL20	SO20L, SSOP20	IC03	67
SA612A	double-balanced mixer and oscillator	DIL8	SO8	IC03	66
SA614A	low-power FM IF system	DIL16	SO16	IC03	66
SA615	high-perf. low-power mixer FM IF syst.	DIL20	SO20L, SSOP20	IC03	67
SA616	low-volt. high-perf. mixer FM IF syst.	DIL20	SO20L, SSOP20	IC03	67
SA617	low-volt. high-perf. mixer FM IF syst.	DIL20	SO20L, SSOP20	IC03	67
SA620	RF gain-stage, VCO and mixer		SSOP20	IC03	66
SA624	high-perform. low-power FM IF system	DIL16	SO16	IC03	67
SA625	high-perf. low-power mixer FM IF syst.	DIL20	SO20L, SSOP20	IC03	67
SA626	low-voltage high-perf. mixer FM IF syst.		SO20L, SSOP20	IC03	67
SA627	high-perf. low-power mixer FM IF syst.	DIL20	SO20L, SSOP20	IC03	67
SA630	single-pole double-throw switch	DIL8	SO8	IC03	67
SA636	low-voltage high-perf. mixer FM IF syst.		SO20L, SSOP20	-	67
SA637	low voltage digital IF receiver		SO20L, SSOP20	-	67
SA701	divide by 128/129 - 64/65 prescaler	DIL8	SO8	IC03	66
SA702	divide by 64/65/72 ECL prescaler	DIL8	SO8	IC03	66
SA7025	low-voltage 1 GHz fract.-N synthesizer		SSOP20	-	66
SA703	divide by 128/129/144 ECL prescaler	DIL8	SO8	IC03	66
SA741C	general purpose operational amplifier	DIL8		IC11	57
SA8025	low-voltage 2 GHz fract.-N synthesizer		SSOP20	-	66
SAA1029	universal industrial logic interface	DIL16		IC11	59
SAA1043	universal sync generator	DIL28		IC02	82
SAA1057	radio tuning PLL freq. synthesizer	DIL18		IC01	71
SAA1064	4-digit LED driver with I ² C-bus	DIL24	SO24L	IC02	60
SAA1101	universal sync generator (USG)	DIL28	SO28L	IC02	82
SAA1300	tuner switching circuit	SIL9		IC01	75
SAA1310	control interface for VHS recorders	DIL18	SO20L	IC02	82

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SAA1760	MAC video processing		PLCC68	IC02	81
SAA1770	MAC digital processing	DIL48		IC02	81
SAA2520	stereo filter codec		QFP44	-	73
SAA2521	masking threshold processor		QFP44	-	73
SAA3004	IR remote control transmitter	DIL20	SO20L	IC02	85
SAA3006	IR remote control transmitter (RC-5)	DIL28		IC01	85
SAA3007	IR remote control transmitter (455 kHz)	DIL20	SO20L	IC01	85
SAA3008	IR remote control transmitter (RECS80)	DIL20	SO20L	IC02	85
SAA3010	IR remote control transmitter (RC-5)	DIL28	SO28L	IC02	85
SAA3027	IR remote control transmitter (RC-5)	DIL28		IC02	85
SAA3049	IR remote control decoder	DIL20	SO20L	IC01, 02	85
SAA4700	VPS dataline processor	DIL18	SO20L	IC02	82
SAA4940H	noise reduction IC		QFP80	DS-IC02	78
SAA4950	TV memory controller		PLCC44	-	78
SAA4980	integrated 16:9 compressor	DIL24		DS-IC02	77
SAA5191	teletext video processor	DIL28		IC02	80
SAA5231	teletext video processor	DIL28		IC02	80
SAA5233	VPS/PDC decoder	DIL16	SO20L	-	82
SAA5243E	computer-contr. teletext circuit (ECCT)	DIL40		IC02	80
SAA5243H	computer-contr. teletext circuit (ECCT)	DIL40		IC02	80
SAA5243L	computer-contr. teletext circuit (ECCT)	DIL40		IC02	80
SAA5243R	computer-contr. teletext circuit (ECCT)	DIL40		IC02	80
SAA5243T	computer-contr. teletext circuit (ECCT)	DIL40		IC02	81
SAA5244A	integrated VIP and teletext (IVT1.1)	DIL40, DIL42SHR	QFP44	IC02	81
SAA5245A	computer-contr. teletext circuit (ECCT)	DIL40		-	81
SAA5246AE	integrated VIP and teletext (IVT)	DIL48, DIL52SHR	QFP64	IC02	81
SAA5246AH	integrated VIP and teletext (IVT)	DIL48, DIL52SHR	QFP64	IC02	81
SAA5246AI	integrated VIP and teletext (IVT)	DIL48, DIL52SHR	QFP64	IC02	81
SAA5246AJ	integrated VIP and teletext (IVT)	DIL48, DIL52SHR	QFP64	IC02	81
SAA5246AK	integrated VIP and teletext (IVT)	DIL40, DIL52SHR	QFP64	IC02	81
SAA5246AL	integrated VIP and teletext (IVT)	DIL48, DIL52SHR	QFP64	IC02	81
SAA5246AS	integrated VIP and teletext (IVT)	DIL48, DIL52SHR	QFP64	IC02	81
SAA5246AT	integrated VIP and teletext (IVT)	DIL48, DIL52SHR	QFP64	IC02	81
SAA5247B	integr. VIP and teletext (IVT1.1BMC)	DIL48	QFP64	IC02	81
SAA5248E	teletext and VPS decoder (IVT1.0VPS)	DIL52SHR	QFP64	IC02	81
SAA5249E	integr. VIP and teletext (IVT1.1BMC)	DIL48		-	81
SAA5249H	integr. VIP and teletext (IVT1.1BMC)	DIL48		-	81
SAA5249T	integr. VIP and teletext (IVT1.1BMC)	DIL48		-	81
SAA5250	multist. teletext control interface	DIL40	VSO40	IC02	81
SAA5252	line 21 decoder (LITOD)	DIL24		IC02	81
SAA5254E	integrated VIP and teletext (IVT1.1)	DIL40		-	81
SAA5254H	integrated VIP and teletext (IVT1.1)	DIL40		-	81
SAA5254T	integrated VIP and teletext (IVT1.1)	DIL40		-	81
SAA5260E	integrated VIP and teletext (IVT2.0)	DIL48		IC02	81
SAA5270	teletext and OSD decoder (IVT3.0)		PLCC68	-	81
SAA5355	one-chip colour crt contr. (FTFROM)	DIL40		IC02	81
SAA6579	radio data system demodulator (RDS)		SO16L	IC01	71
SAA7151B	digital multi-std decoder with SCART		PLCC68	IC02	77
SAA7152	digital comb filter		PLCC44	DTV	77
SAA7157	clock signal generator for digital TV	DIL20	SO20L	IC02	77
SAA7158	back-end IC for TV memory-based feat.			-	78
SAA7164	video and enhancement DAC		PLCC44	DTV	78
SAA7165	video enhancement and dig.-anal. proc.		PLCC44	IC02	78
SAA7169	35 MHz triple 9-bit DAC		PLCC44	IC02	78
SAA7186	digital video scaler		QFP100	IC02	78

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SAA7197	clock signal gen. for desktop video	DIL20	SO20L	IC02	77
SAA7199B	digital video encoder		PLCC84	IC02	77
SAA7274	audio digital input circuit (ADIC)	DIL24	SO24L	IC01	73
SAA7280	terrestrial digital sound decoder (TDSD)	DIL28		DS-IC02	76, 81
SAA7282	NICAM decoder including audio DACs	DIL32SHR	QFP44	IC02	76
SAA7310	CMOS decoder for CD systems		QFP44	IC01	73
SAA7322	stereo mid-perf. bitstream conv. DAC		QFP44	IC01	73
SAA7323	stereo mid-perf. bitstream conv. DAC		QFP44	IC01	73
SAA7341	CMOS decoder for CD systems		QFP80	IC01	73
SAA7345	CMOS decoder for CD systems		QFP44	IC01	73
SAA7346	CD shock absorbing RAM addresser		QFP44	-	73
SAA7350	stereo high-perf. bitstream conv. DAC		QFP44	IC01	73
SAA7351	stereo high-perf. bitstream conv. DAC		QFP44	IC01	73
SAA7360	bitstream conversion ADC		QFP44	IC01	73
SAA7366	bitstream conversion ADC		SO24L	-	73
SAA7500	dig. satellite radio tuner dec. (SAT-2)		PLCC68	IC01	71
SAA9042A	teletext IC for analog and digital TV	DIL40		IC02	81
SAA9042B	teletext IC for analog and digital TV	DIL40		IC02	81
SAA9042C	teletext IC for analog and digital TV	DIL40		IC02	81
SAA9051	digital multist. TV decoder (S-DMSD)		PLCC68	IC02	77
SAA9057B	clock signal generator for digital TV	DIL20	SO20L	IC02	77
SAA9065	video enhancement and dig.-anal. proc.		PLCC44	IC02	78
SAA9079	7-bit A/D converter (ADC 7)	DIL24	SO24L	IC02	78
SAB3035	computer interface for tuning and ctrl	DIL28		IC02	75
SAB3036	computer interface for tuning and ctrl	DIL18		IC02	75
SAB3037	computer interface for tuning and ctrl	DIL24		IC02	75
SAB6456A	1.3 GHz divide-by-64/256 prescaler	DIL8	SO8	IC02	75
SAB6457A	divide-by-64/256 prescaler			-	75
SAB9070	I ² C-bus controlled PIP controller (PIP8)			-	78
SAD1009	universal DAC	DIL24	SO24L	IC02	77, 82
SAF1039	IR remote control transmitter	DIL16		IC02	85
SAF7579	radio data system (RDS) demodulator		SO16	IC01	71
SC26C460	input/output processor		PLCC68	IC19	65
SC26C562	dual univ. serial comm. contr. (DUSCC)	DIL48	PLCC52	IC19	65
SC26C92	dual asyn. receiver/transm. (DUART)	DIL40	PLCC44	IC19	65
SC26C94	quad asyn. receiver/transm. (QUART)	DIL48	PLCC52	IC19	65
SC68C460	input/output processor		PLCC68	IC19	65
SC68C562	dual univ. serial comm. contr. (DUSCC)	DIL48	PLCC52	IC19	65
SC68C94	quad asyn. receiver/transm. (QUART)	DIL48	PLCC52	IC19	65
SC80C31	8-bit CMOS microcontroller	DIL40	PLCC44, QFP44	IC20	50
SC80C451	8-bit CMOS microcontroller	DIL64	PLCC68	IC20	50
SC80C51	8-bit CMOS microcontroller	DIL40	PLCC44, QFP44	IC20	50
SC83C451	8-bit CMOS microcontroller	DIL64	PLCC68	IC20	50
SC87C451	8-bit CMOS microcontroller	DIL64	PLCC68, CLCC68	IC20	50
SC87C51	8-bit CMOS microcontroller	DIL40, CERCIL40	PLCC44, CLCC44	IC20	50
SCC2691	univ. asyn. receiver/transmitter (UART)	DIL24	SO24L, PLCC28	IC19	65
SCC2692	dual asyn. receiver/transm. (DUART)	DIL28, CERCIP28	PLCC44	IC19	65
SCC2698B	octal asyn. rec./transm. (octal UART)	DIL64	PLCC84	IC19	65
SCC63484	advanced CRT controller (ACRTC)			-	55
SCC66470/03	video and system controller		QFP120	DS-IC21	55
SCC68070	16/32-bit CMOS microcontroller		PLCC84, QFP120	DS-IC21	55
SCC68692	dual asyn. receiver/transm. (DUART)	DIL40, CERCIP40	PLCC44	DS-IC21	65
SCN2651	programmable comm. controller (PCI)	DIL28		IC19	65
SCN2652	multi-protocol comm. controller (MPCC)	DIL40	PLCC44	IC19	65
SCN26562	dual univ. serial comm. contr. (DUSCC)	DIL48	PLCC52	IC19	65

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SCN2661	enhanced prog. comm. interface (EPCI)	DIL28	PLCC28	IC19	65
SCN2672	progr. video timing controller (PVTC)	DIL40	PLCC44	-	55
SCN2672T	progr. video timing contr. (turbo-PVTC)	DIL40	PLCC44	-	55
SCN2674	advanced video display contr. (AVDC)	DIL40	PLCC44	-	55
SCN2674T	adv. video display contr. (turbo-AVDC)	DIL40	PLCC44	-	55
SCN2681	dual asyn. receiver/transm. (DUART)	DIL40	PLCC44	IC19	65
SCN2681T	dual asyn. receiver/transm. (DUART)	DIL40	PLCC44	IC19	65
SCN68562	dual univ. serial comm. contr. (DUSCC)	DIL48	PLCC52	IC19	65
SCN68661	enhanced prog. comm. interface (EPCI)	DIL28	PLCC28	IC19	65
SCN68681	dual asyn. receiver/transm. (DUART)	DIL40	PLCC44	IC19	65
SCN8031	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	52
SCN8032	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	52
SCN8039	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	53
SCN8048	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	53
SCN8049	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	53
SCN8051	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	52
SCN8052	8-bit NMOS microcontroller	DIL40	PLCC44	IC20	52
SE4558	dual gen. purpose operational amplifier	DIL8		IC11	56
SE5018	8-bit microprocessor-compatible DAC	DIL22, CerdIP22		IC11	58
SE521	high-speed dual diff. comp./sense ampl.	CerdIP14		IC11	58
SE5212A	140 MHz transimpedance amplifier	DIL8, CerdIP8		IC19	57
SE529	voltage comparator	CerdIP14		IC11	58
SE531	high slew rate operational amplifier	CerdIP8		IC11	56
SE532	dual low-power operational amplifier	DIL8, CerdIP8		IC11	56
SE5410	10-bit high-speed multiplying DAC	CerdIP16		IC11	58
SE5514	quad high-perf. operational amplifier	DIL14		IC11	56
SE5521	LVDT signal conditioner	CerdIP18		IC11	59
SE5532	dual low-noise operational amplifier	CerdIP8		IC11	56
SE5532A	dual low-noise operational amplifier	CerdIP8		IC11	56
SE5534	single low-noise operational amplifier	DIL8, CerdIP8		IC11	56
SE5534A	single low-noise operational amplifier	DIL8, CerdIP8		IC11	56
SE5537	low-leakage sample-and-hold amplifier	CerdIP8		IC11	57
SE5539	350 MHz operational amplifier	CerdIP14		IC11	57, 66,
SE555	timer	CerdIP8/14, DIL14		IC11	59
SE555C	timer	CerdIP8/14, DIL14		IC11	59
SE556	dual timer	DIL14, CerdIP14		IC11	59
SE5560	switched-mode power supply controller	DIL16, CerdIP16		IC11	62
SE5561	switched-mode power supply controller	DIL8, CerdIP8		IC11	62
SE5562	switched-mode power supply controller	CerdIP20		IC11	62
SE564	phase-locked loop	DIL16		IC11	59
SE566	function gen., square and triangle wave	DIL8		IC11	59
SE567	tone/frequency decoder	DIL8, CerdIP8	SO8	IC11	59
SG3524	switched-mode power supply controller	DIL16, CerdIP16	SO16	IC11	62
TBA120U	TV sound IF amp. and demodulator	DIL14		IC02	76
TCA280B	general purpose triggering circuit	DIL16		DS-IC11	62
TCA520B	low-power/low-voltage op-amp	DIL8		IC11	57
TCA520D	low-power/low-voltage op-amp		SO8	IC11	57
TDA1001B	interference and noise suppr., FM rec.	DIL16	SO16	IC01	72
TDA1013B	4 W audio power amplifier	SIL9		IC01	72
TDA1015	1 to 4 W audio power amplifier	SIL9		IC01	72
TDA1015T	0.5 W audio power amplifier		SO8	IC01	72
TDA1016	recording/playback and 2 W amplifier	DIL16		IC01	72
TDA1020	12 W car radio audio power amplifier	SIL9		IC01	72
TDA1023	proportional-control triac trig. circuit	DIL16	SO16	IC11, 02	62
TDA1029	signal-sources switch	DIL16		IC01	72, 76
TDA1060	control circuit for SMPS	DIL16	SO16	IC11	62

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		through-hole	SMD		
TDA1060A	control circuit for SMPS	DIL16		IC11	62
TDA1060B	control circuit for SMPS	CERDIP16		IC11	62
TDA1072A	AM receiver circuit	DIL16	SO16	IC01	71
TDA1074A	dual tandem electronic potentiometer	DIL18		IC01	72
TDA1082	east-west correction driver circuit	DIL16		IC02	79
TDA1301	digital servo controller for CD systems		SO28L	-	73
TDA1302A	diode amplifier laser supply		SO20L	-	73
TDA1303	digital servo driver		SO24L	-	73
TDA1305	bitstream CC filter DAC		SO28L	-	73
TDA1306	economy filter DAC		SO24L	-	73
TDA1307	high-performance bitstream digital filter	DIL42SHR		-	73
TDA1308	class AB stereo headphone driver		SO8	-	72
TDA1309	low-voltage AD/DA converter		QFP44	-	73
TDA1310A	continuous calibration DAC	DIL8	SO8	-	73
TDA1311A	continuous calibration DAC	DIL8	SO8	-	73
TDA1312A	continuous calibration DAC	DIL8	SO8	-	73
TDA1313	continuous calibration DAC	DIL16	SO16	-	73
TDA1315	digital-audio input/output		QFP44	-	73
TDA1514A	50 W high-perform. hi-fi amplifier	SIL9		IC01	72
TDA1515BQ	24 W BTL, 2x12 W audio power ampl.	DBS13		IC01	72
TDA1516BQ	22 W BTL, 2x11 W audio power ampl.	DBS13		IC01	72
TDA1516CQ	22 W BTL car radio power amplifier	DBS13		IC01	72
TDA1517	2x6 W stereo car radio power amplifier	SIL9		IC01	72
TDA1518BQ	22 W BTL, 2x11 W audio power ampl.	DBS13		IC01	72
TDA1519	2x6 W stereo car radio power amplifier	SIL9		IC01	72
TDA1519A	22 W BTL, 2x11 W audio power ampl.	SIL9		IC01	72
TDA1519B	12 W BTL, 2x6 W audio power ampl.	SIL9		IC01	72
TDA1521	2x12 W hi-fi audio power amplifier	SIL9		IC01	72
TDA1521A	2x6 W hi-fi audio power amplifier	SIL9		IC01	72
TDA1521Q	2x12 W hi-fi audio power amplifier	DBS9		IC01	72
TDA1524A	stereo tone/volume control circuit	DIL18		IC01	72
TDA1526	stereo tone/volume control circuit	DIL18		IC01	72
TDA1534	14-bit ADC	DIL28		IC01	77
TDA1541	dual 16-bit DAC	DIL28		IC01	73
TDA1541A	dual 16-bit DAC	DIL28		IC01	73
TDA1541A/R1	dual 16-bit DAC	DIL28		IC01	73
TDA1541A/S1	dual 16-bit DAC	DIL28		IC01	73
TDA1541A/S2	dual 16-bit DAC	DIL28		IC01	73
TDA1543	dual 16-bit DAC	DIL8		IC01	73
TDA1543A	dual 16-bit DAC	DIL8	SO16L	IC01	73
TDA1544A	stereo low-noise 16-bit DAC	DIL8	SO16L	-	73
TDA1545A	continuous calibration DAC	DIL8	SO8	-	73
TDA1547	dual top-performance bitstream DAC	DIL32SHR		IC01	73
TDA1549	bitstream continuous calibration DAC	DIL16	SO16	-	73
TDA1551Q	2x22 W BTL audio power amplifier	DBS17		IC01	72
TDA1552Q	2x22 W BTL audio power amplifier	DBS13		IC01	72
TDA1553CQ	2x22 W stereo BTL power amplifier	SIL13		IC01	72
TDA1553Q	2x22 W BTL audio power amplifier	DBS13		IC01	72
TDA1554Q	4x11 W or 2x22 W audio power ampl.	DBS17		IC01	72
TDA1555Q	4x11 W or 2x22 W audio power ampl.	DBS17		IC01	72
TDA1556Q	2x22 W stereo BTL differential amplifier	DBS17		IC01	72
TDA1557Q	2x22 W BTL audio power amplifier	DBS13		IC01	72
TDA1558Q	4x11 W or 2x22 W audio power ampl.	DBS17		IC01	72
TDA1572	AM receiver	DIL18	SO20L	IC01	71
TDA1574	FM tuner for radio receivers	DIL18	SO20L	IC01	71
TDA1575	FM tuner for radio receivers		SO16	IC01	71

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TDA1576	FM/IF amplifier/demodulator	DIL18	SO20L	IC01	71
TDA1578A	time multiplex PLL stereo decoder	DIL18		IC01	71
TDA1579	decoder for traffic warning (VWF)	DIL18	SO20L	IC01	71
TDA1581	decoder for traffic warning (VWF)		SO20L	IC01	71
TDA1591	PLL stereo decoder and noise blanker	DIL20	SO20L	IC01	71, 72
TDA1592	PLL stereo decoder and noise blanker			-	71, 72
TDA1596	IF amplifier/demodulator for FM radios	DIL18	SO20L	IC01	71
TDA1599	IF amplifier/demodulator for FM radios	DIL18	SO20L	IC01	71
TDA1602A	double-deck playback/record IC	DIL40		IC01	74
TDA2501	PAL/NTSC encoder	DIL16	SO16L	IC02	82
TDA2506	SECAM encoder	DIL24	SO24L	IC02	82
TDA2507	FM modulator controller	DIL16	SO16L	IC02	82
TDA2545A	quasi-split-sound circuit	DIL16		IC02	75
TDA2546A	quasi-split-sound circuit	DIL18		IC02	75
TDA2549	IF amp. and demodul. for multist. TV	DIL24		IC02	75
TDA2555	dual TV sound demodulator	DIL18		IC02	76
TDA2556	quasi-split-sound circuit	DIL24		IC02	76
TDA2557	dual TV sound demodulator	DIL18		IC02	76
TDA2577A	TV sync circuit with vert. oscillator	DIL18		IC02	79
TDA2578A	TV sync circuit with vert. oscillator	DIL18		IC02	79
TDA2579B	horizontal/vertical sync circuit	DIL18		IC02	79
TDA2579C	horizontal/vertical sync circuit	DIL18		-	79
TDA2582	control circuit for power supplies	DIL16		IC02	79
TDA2582Q	control circuit for power supplies	QIL16		IC02	79
TDA2593	horizontal combination	DIL16		IC02	79, 82
TDA2595	horizontal combination	DIL18		IC02	79, 82
TDA2611A	5 W audio power amplifier	SIL9		IC01	72
TDA2613	6 W hi-fi audio power amplifier	SIL9		IC01	72
TDA2614	6 W hi-fi audio power amplifier	SIL9MP		IC01	72
TDA2615	2x6 W hi-fi audio power amplifier	SIL9MP		IC01	72
TDA2616	2x12 W hi-fi audio power amplifier	SIL9P		IC01	72
TDA2616Q	2x12 W hi-fi audio power amplifier	DBS9P		IC01	72
TDA2653A	vertical deflection circuit	DBS13		IC02	79, 83
TDA2654	vertical deflection circuit	SIL9		IC02	79, 83
TDA2658	vertical deflection circuit	DBS13		IC02	79, 83
TDA3047	IR remote control receiver	DIL16	SO16L	IC02	85
TDA3048	IR remote control receiver	DIL16	SO16L	IC02	85
TDA3504	PAL/SECAM video control combination	DIL20		DS-IC02	77
TDA3505	PAL/SECAM video control combination	DIL28		IC02	77
TDA3506	PAL/SECAM video control combination	DIL28		IC02	77
TDA3561A	PAL decoder	DIL28		IC02	77
TDA3565	PAL decoder	DIL18		IC02	77
TDA3566A	PAL/NTSC decoder	DIL28		IC02	77
TDA3567	NTSC decoder	DIL18		IC02	77
TDA3569B	NTSC decoder with fast blanking	DIL20		IC02	77
TDA3590A	SECAM processor circuit	DIL24		IC02	77
TDA3592A	SECAM-PAL transcoder	DIL24		IC02	77
TDA3601AQ	multiple-output voltage regulator	DBS13P		IC01	62, 74
TDA3601Q	multiple-output voltage regulator	DBS13P		IC01	62, 74
TDA3602	multiple-output voltage regulator	SIL9MP		IC01	62, 74
TDA3653B	vertical deflection and guard circuit	SIL9		IC02	79
TDA3653C	vertical deflection and guard circuit	SIL9		IC02	79
TDA3654	vertical deflection and guard circuit	SIL9		IC02	79
TDA3654Q	vertical deflection and guard circuit	SBD9		IC02	79
TDA3755	PAL/NTSC/SECAM sync. processor	DIL18		IC02	82
TDA3791	band selector and window detector	DIL16		IC02	82

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TDA3803A	TV stereo/dual sound decoder	DIL28		IC02	76
TDA3810	spatial, stereo and pseudo-stereo crt.	DIL18		IC02	76
TDA3825	single FM TV-sound demodulator	DIL14		IC02	76
TDA3826	single FM TV-sound demodulator	DIL14		IC02	76
TDA3827	TV-sound demodulator	DIL18		IC02	76
TDA3833	BTSC-stereo/SAP/DBX dec., DBX exp.	DIL32SHR	SO32L	DS-IC02	76
TDA3840	TV IF amplifier and demodulator	DIL20	SO20L	IC02	75
TDA3841	TV IF amplifier and demodulator			-	75
TDA3842	multist. TV IF amp. and demodulator	DIL20	SO20L	DS-IC02	75
TDA3843	TV AM-sound IF circuit	DIL16		IC02	76
TDA3845	quasi-split-sound circuit	DIL16	SO16	IC02	76
TDA3850	multist. TV IF amp. and demodulator	DIL24		-	75
TDA3851	multist. TV IF amp. and demodulator			-	75
TDA3852	multist. TV IF amp. and demodulator	DIL20		-	75
TDA3853	TV IF amplifier and demodulator		SO20L	IC02	75
TDA3856	quasi-split-sound circuit	DIL24SHR		IC02	76
TDA3857	quasi-split-sound circuit	DIL20		IC02	76
TDA3858	quasi-split-sound circuit	DIL32SHR		IC02	76
TDA3866	quasi-split-sound circuit	DIL24SHR		IC02	76
TDA3867	quasi-split-sound circuit		SO28L	IC02	76
TDA3868	quasi-split-sound circuit		SO28L	IC02	76
TDA4501	CTV small signal combination circuit	DIL28		IC02	79
TDA4502A	CTV small signal combination circuit	DIL28		IC02	79
TDA4504B	small signal combi for multistandard TV	DIL32		IC02	79
TDA4505E	CTV small signal combination circuit	DIL28		IC02	79
TDA4510	PAL decoder	DIL16		IC02	77
TDA4555	multistandard TV decoder	DIL28		IC02	77
TDA4556	multistandard TV decoder	DIL28		IC02	77
TDA4557	multistandard TV decoder	DIL28		IC02	77
TDA4563	colour transient improvement circuit	DIL18		-	77
TDA4565	colour transient improvement circuit	DIL18		IC02	77
TDA4566	colour transient improvement circuit	DIL18		IC02	77
TDA4568	luminance signal delay circuit	DIL18		IC02	77
TDA4570	NTSC decoder	DIL16		IC02	77
TDA4580	video control combination	DIL28		IC02	77
TDA4632	SECAM decoder	DIL28		DS-IC02	77
TDA4650	multistandard TV colour decoder	DIL28		IC02	77
TDA4655	multistandard TV colour decoder	DIL24SHR	SO24L	-	77
TDA4657	PAL/SECAM colour decoder	DIL20	SO20L	-	77
TDA4661	baseband delay line	DIL16	SO16	DS-IC02	77
TDA4662	PAL delay line	DIL16	SO16	-	77
TDA4670	picture signal improvement circuit (PSI)	DIL18		IC02	77
TDA4671	picture signal improvement circuit (PSI)	DIL18		-	77
TDA4680	video processor	DIL28		IC02	77
TDA4681	video processor			-	77
TDA4685	video processor	DIL28		IC02	77
TDA4686	video processor	DIL28	PLCC28	IC02	77
TDA4687	video processor			-	78
TDA4691	sync processor with clock			-	79
TDA4720	SECAM ident. and chrominance corr.	DIL16	SO16	IC02	82
TDA4725	SECAM-L chrominance processor	DIL28	SO28L	IC02	82
TDA4800	vertical deflection circuit for monitors	DBS13		IC02	79, 83
TDA4810	sync proc. and hor. driver for monitors	DIL20		IC02	79, 82
TDA4820	video sync separation circuit		SO8	IC02	79
TDA4850	hor./vert. defl. contr. for monitors	DIL20		DS-IC02	82
TDA4851	hor./vert. defl. contr. for monitors	DIL20		DS-IC02	82

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TDA4852	hor./vert. defl. contr. for monitors	DIL20		DS-IC02	82
TDA4860	vert. defl. power ampl. for monitors	SIL9MPF		IC02	79, 83
TDA4861	vert. defl. power ampl. for monitors	SIL9		IC02	79, 83
TDA4865	vertical deflection booster	SIL9		DS-IC02	79, 83
TDA4881	monitor video controller	DIL20		DS-IC02	83
TDA5030A	TV VHF mixer/oscillator/UHF pre-amp	DIL18	SO20L	IC02	75
TDA5040	DC motor drive circuit		SO8	-	61
TDA5140A	brushless DC motor drive circuit	DIL18	SO20L	IC02	61, 82
TDA5141	brushless DC motor drive circuit	DIL18	SO20L, SO28L	IC02	61
TDA5141A	brushless DC motor drive circuit		SO28L	IC02	61
TDA5142	brushless DC motor drive circuit		SO24L	IC02	61, 82
TDA5143	brushless DC motor drive circuit		SO20L	IC02	61
TDA5144	brushless DC motor drive circuit		SO20L	IC02	61
TDA5144A	brushless DC motor drive circuit		SO28L	IC02	61
TDA5145	brushless DC motor control circuit	DIL28		IC02	61
TDA5330	VHF, UHF and hyperband mixer/osc.		SO28L	IC02	75
TDA5331	VHF, UHF and hyperband mixer/osc.			-	75
TDA5332	double mixer/osc. for TV/VCR tuners		SO20L	IC02	75
TDA5333	double mixer/osc. for TV/VCR tuners			-	75
TDA5340	VCM and spindle driver			-	61
TDA5341	VCM and spindle driver			-	61
TDA5630	3-band mixer oscillator		SO20L, SSOP20	IC02	75
TDA5631	3-band mixer oscillator			-	75
TDA5634	UHF mixer/oscillator			-	75
TDA6101BQ	8 MHz video output amplifier	DBS9MPF		DS-IC02	78
TDA6101Q	8 MHz video output amplifier	DBS9MP		IC02	78
TDA6111Q	16 MHz video output amplifier	DBS9MP		IC02	78
TDA6800	video modulator circuit	DIL8	SO8	IC02	82
TDA7000	FM radio circuit	DIL18		IC01	71
TDA7010	FM radio circuit		SO16	IC01	71
TDA7021	FM radio circuit for MTS		SO16	IC01	71
TDA7040	low-voltage PLL stereo decoder		SO8	IC01	71
TDA7050	150 mW BTL, 2x75 mW power ampl.	DIL8	SO8	IC01	72
TDA7052	1 W BTL mono audio power amplifier	DIL8		IC01	72
TDA7052A	1 W BTL mono audio power amplifier	DIL8		IC01	72
TDA7052AT	0.5 W BTL mono audio power ampl.		SO8	IC01	73
TDA7053	2x1 W portable/mains-fed power ampl.	DIL16		IC01	73
TDA7056	3 W BTL mono audio power amplifier	SIL9MP		IC01	73
TDA7056A	3 W BTL mono audio power amplifier	SIL9P		IC01	73
TDA7057Q	2x3 W BTL audio power amplifier	DBS13		IC01	73
TDA7072	single power driver	DIL8		IC01	61, 73,
TDA7072A	single BTL power driver	DIL8	SO8	IC01	61, 73,
TDA7073	dual power driver	DIL16		IC01	61, 73,
TDA7073A	dual BTL power driver	DIL16	SO16L	IC01	61, 73,
TDA7088	FM receiver circuit for battery supply		SO16	IC01	71
TDA8000	smart card coupler	DIL28	SO28L	DS-IC02	70
TDA8302	CTV small signal combination circuit	DIL32		IC02	79
TDA8303A	TV small signal combination			IC02	79
TDA8304	CTV small signal combination circuit	DIL32		IC02	79
TDA8305A	CTV small signal combination circuit	DIL28		IC02	79
TDA8340	TV IF amplifier and demodulator	DIL16		IC02	75
TDA8340Q	TV IF amplifier and demodulator	QIL16		IC02	75
TDA8341	TV IF amplifier and demodulator	DIL16		IC02	75
TDA8341Q	TV IF amplifier and demodulator	QIL16		IC02	75
TDA8349A	multist. TV IF ampl. and demodulator	DIL20		IC02	75
TDA8350Q	DC-coupled vertical deflection circuit	DBS13P		IC02	79

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type number	description	package		handbook	page IC5.
		through-hole	SMD		
TDA8351	DC deflection vertical output	SIL9		IC02	79, 83
TDA8360	one-chip PAL TV	DIL52SHR		-	79
TDA8361	one-chip PAL/NTSC TV	DIL52SHR		-	79
TDA8362	multistandard TV processor	DIL52SHR		IC02	79
TDA8380	switched-mode power supply controller	DIL16		IC02	62, 79,
TDA8385	self-oscillating power supply controller	DIL16		IC02	62, 79
TDA8395	alignment-free SECAM decoder	DIL16		IC02	80
TDA8415	TV/VTR stereo/dual sound processor	DIL20		IC02	76
TDA8416	TV/VTR stereo/dual sound processor	DIL20		IC02	76
TDA8417	TV/VTR stereo/dual sound processor	DIL20		IC02	76
TDA8421	hi-fi stereo audio processor	DIL28		IC02	76
TDA8424	hi-fi stereo audio processor	DIL20		DS-IC02	76
TDA8425	hi-fi stereo audio processor	DIL20		IC02	76
TDA8426	hi-fi stereo audio processor	DIL20		IC02	76
TDA8433	TV deflection processor	DIL24		IC02	79, 82
TDA8440	CTV receiver switch	DIL18		IC02	78
TDA8442	I ² C-bus interface for colour decoders	DIL16		IC02	82, 83
TDA8443A	I ² C-bus controlled YUV/RGB switch	DIL24		DS-IC02	78
TDA8444	octuple 6-bit DAC with I ² C-bus	DIL16		IC02	82, 83
TDA8480	RGB gamma-correction processor		SO20L	DS-IC02	78
TDA8490	SECAM decoder	DIL18		IC02	78
TDA8501	PAL/NTSC encoder	DIL24SHR		-	82
TDA8505	SECAM encoder	DIL32SHR		-	82
TDA8540	4x4 video switch matrix	DIL20	SO20L	IC02	78
TDA8702	8-bit high-perf., high-speed video DAC	DIL16	SO16L	IC02	78
TDA8703	8-bit high-perf., high-speed ADC	DIL24	SO24L	IC02	78
TDA8706	6-bit ADC with multiplexer and clamp	DIL20	SO20L	IC02	78
TDA8708	30 MHz video analog input interface	DIL28	SO28L	IC02	78
TDA8708A	32 MHz video analog input interface	DIL28	SO28L	IC02	78
TDA8709	30 MHz video analog input interface	DIL28	SO28L	IC02	78
TDA8709A	32 MHz video analog input interface	DIL28	SO28L	IC02	78
TDA8712	8-bit high-perf., high-speed video DAC	DIL16	SO16L	IC02	78
TDA8713	8-bit high-perf., high-speed ADC	DIL24	SO24L	IC02	78
TDA8715	8-bit high-perf., high-speed ADC	DIL18	SO20L	IC02	78
TDA8716	8-bit high-speed ADC	DIL24	SO32L	IC02	78
TDA8720	I ² C-bus controlled RF modulator			-	81
TDA8721	3-wire serial-bus RF modulator			-	81
TDA8725	antenna signal processor			-	81
TDA8730	PLL FM demodulator for DBS signals	DIL16		IC02	81
TDA8732	NICAM-728 demodulator (NIDEM)	DIL20		IC02	76
TDA8734	signal conditioner for multist. MAC dec.		SO24L	IC02	81
TDA8735	PLL frequency synthesizer			-	81
TDA8740	satellite sound crt., noise reduction	DIL42SHR	QFP44	DS-IC02	81
TDA8741	satellite sound crt., noise reduction	DIL42SHR	QFP44	DS-IC02	81
TDA8742	satellite sound crt., noise reduction	DIL42SHR	QFP44	DS-IC02	81
TDA8771	35 MHz triple 8-bit video DAC		QFP44	IC02	78
TDA8772	35/85 MHz triple 8-bit video DAC		QFP44	IC02	78
TDA8781	wideband logarithmic amplifier		SO14	IC03	67
TDA8808	photo-diode signal processor for CD		SO28L	IC01	74
TDA8808A	photo-diode signal processor for CD		SO28L	IC01	74
TDA8809	radial error signal processor for CD		SO28L	IC01	74
TDA8900	photo-diode signal and rad. error proc.	DIL40		IC01	74
TDA9045	video processor and input-selector	DIL18		IC02	78
TDA9141	alignment-free multistandard decoder	DIL32SHR		DS-IC02	78
TDA9150	programmable deflection controller	DIL20		IC02	79
TDA9151	programmable deflection controller	DIL20		IC02	79

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type number	description	package		handbook	page IC5.
		through-hole	SMD		
TDA9160	PAL/NTSC/SECAM dec./ sync proc.	DIL32SHR		IC02	78
TDA9610	audio FM processor for VHS hi-fi audio		QPF64	DS-IC01	82
TDA9715	VHS Y/C one-chip processor		QFP80	DS-IC02	82
TDA9800	TV IF amplifier and PLL-demodulator	DIL20	SO20L	DS-IC02	75
TDA9802	multist. IF amp and PLL-demodulator	DIL20	SO20L	DS-IC02	75
TDA9803	multist. IF amp and PLL-demodulator	DIL20	SO20L	DS-IC02	75
TDA9804	VIF-PLL demodulator	DIL20		DS-IC02	75
TDA9820	multist. TV FM sound demodulator	DIL16		IC02	76
TDA9821	dual chan. TV FM-PLL sound demod.	DIL16		IC02	76, 81
TDA9830	TV AM-sound IF circuit	DIL16		IC02	76
TDA9840	TV stereo/dual sound processor	DIL20	SO20L	DS-IC02	76
TDA9845	TV/VTR stereo/dual sound processor	DIL20	SO20L	DS-IC02	76
TDA9847	TV/VTR stereo/dual sound processor	DIL24SHR	SO24L	-	76
TDA9860	universal hi-fi audio processor	DIL32SHR		DS-IC02	76
TDB1080	IF limiter, FM detector and audio ampl.	DIL16	SO16	IC01	71
TDD1742	low-power freq. synthesizer (LOPSY)		SO28L	IC03	66, 71
TDE8712	8-bit video DAC		CERDIP16	IC02	78
TDE8715	8-bit high-perf., high-speed ADC		CERDIP18	IC02	78
TEA0665	Dolby B and C noise reduction circuit	DIL28	SO28L	IC01	73
TEA0675	dual Dolby B noise reduction circuit	DIL24SHR	SO24L	DS-IC01	73
TEA0678	dual Dolby B noise reduction circuit			-	73
TEA1017	13-bit ser.-par. conv., display driver	DIL18		IC11	59
TEA1039	switched-mode power supply controller	SIL9		IC02	62, 79,
TEA1041	battery voltage low-level indicator		SO8	IC11	62, 74
TEA1060	speech transmission circuit	DIL18		IC03	68
TEA1061	speech transmission circuit	DIL18		IC03	68
TEA1062	speech transmission circuit	DIL16	SO16	IC03	68
TEA1062A	speech transmission circuit	DIL16	SO16	IC03	68
TEA1064A	speech transmission circuit	DIL20	SO20L	IC03	68
TEA1064B	speech transmission circuit	DIL20	SO20L	IC03	68
TEA1065	speech transmission circuit	DIL24	SO24L	IC03	68
TEA1066	speech transmission circuit		SO20L	IC03	69
TEA1067	speech transmission circuit	DIL18	SO20L	IC03	69
TEA1068	speech transmission circuit	DIL18	SO20L	IC03	69
TEA1081	supply circuit for telephone sets	DIL8	SO8	IC03	70
TEA1083	call progress monitor	DIL8		IC03	69
TEA1083A	call progress monitor	DIL16	SO16L	IC03	69
TEA1085	listening-in circuit	DIL24	SO24L	IC03	69
TEA1085A	listening-in circuit	DIL24	SO24L	IC03	69
TEA1088	SMPS battery charger control circuit		SO16L	IC11	62, 74
TEA1093	hands-free listening-in circuit	DIL28	SO28L	IC03	69
TEA1096	line interface and listening-in circuit	DIL28	SO28L	IC03	69
TEA1096A	line interface and listening-in circuit	DIL28	SO28L	IC03	69
TEA1100	monitor and control crt. SMPS chargers	DIL16	SO16L	IC11	62, 74
TEA1101	battery monitor for NiCd/NiMH chargers	DIL16	SO16	DS-IC03	62
TEA5500	coded locking crt for security systems	DIL16	SO16L	DS-IC11	59
TEA5501	coded locking crt for security systems	DIL14		DS-IC11	59
TEA5551	single-chip AM radio		SO16	IC01	71
TEA5570	RF/IF circuit for AM/FM radio	DIL16		IC01	71
TEA5580	PLL stereo decoder	DIL16		IC01	71
TEA5581	PLL stereo decoder	DIL16	SO16L	IC01	71
TEA5582	BTSC PLL stereo decoder	DIL20		IC02	76
TEA5591	AM/FM radio receiver circuit	DIL20		IC01	71
TEA5591A	AM/FM radio receiver circuit	DIL24SHR		IC01	71
TEA5594	AM/FM radio receiver circuit	DIL32SHR		IC01	71
TEA5710	AM/FM radio receiver circuit	DIL24SHR	SO24L	DS-IC01	71



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type number	description	package		handbook	page IC5.
		through-hole	SMD		
TEA5711	AM/FM stereo radio circuit	DIL32SHR	SO32L	DS-IC01	71
TEA5712	AM/FM stereo DTS radio circuit	DIL32SHR	SO32L	DS-IC01	71
TEA6100	FM/IF system for microcomputer tuning	DIL20		IC01	71
TEA6101	antenna diversity circuit	DIL18	SO20L	IC01	71
TEA6200	AM upconversion radio receiver	DIL20		IC01	71
TEA6300	car radio pre-amp and source selector	DIL28	SO28L	IC01	72
TEA6320	sound fader control circuit	DIL32SHR	SO32L	DS-IC01	72
TEA6330	sound fader control circuit		SO20L	IC01	72
TEA6360	five-band equalizer	DIL32SHR	SO32L	IC01	72, 76
TEA7650	CD-video signal processor		QFP48	IC02	82
TSA5055	2.5 GHz bidirectional freq. synthesizer		SO16	IC02	81
TSA5511	1.3 GHz bidirectional synthesizer	DIL18		DS-IC02	75
TSA5511AT	1.3 GHz bidirectional synthesizer		SO20L	DS-IC02	75
TSA5511T	1.3 GHz bidirectional synthesizer		SO16	DS-IC02	75
TSA5512	1.3 GHz bidirectional synthesizer	DIL18	SSOP20	DS-IC02	75
TSA5512AT	1.3 GHz bidirectional synthesizer		SO20L	DS-IC02	75
TSA5512T	1.3 GHz bidirectional synthesizer		SO16	DS-IC02	75
TSA5514	1.3 GHz bidirectional synthesizer	DIL28	SO16	DS-IC02	75
TSA5514AT	1.3 GHz bidirectional synthesizer		SO20	DS-IC02	75
TSA5515	1.3 GHz bidirectional synthesizer		SO14	IC02	75
TSA6057	radio tuning PLL frequency synthesizer	DIL16	SO16L	IC01	71
TSA6060	radio tuning PLL frequency synthesizer	DIL16		-	71
TSA6380	1 GHz 3-wire serial-bus synthesizer	DIL20SHR		-	75
TSA6382	1 GHz 3-wire serial-bus synthesizer	DIL20SHR		-	75
TSA6383	1 GHz 3-wire serial-bus synthesizer	DIL20SHR		-	75
UAA1300	voltage regulator with watch dog	DIL14	SO20L	IC11	62
UAA1301	UHF/VHF remote control receiver			-	85
UAA2050	low-power digital UHF pager receiver		SO28L	IC03	70
UAA2072	900 MHz front-end for GSM appl.		SSOP20	IC03	66
UAA2080	advanced pager receiver		SO28L, QFP32	IC03	70
UC3842	current-mode PWM controller	DIL8	SO14	IC11	62
UMA1005	dual low-power fractional-N synthesizer		SSOP20	IC03	66
UMA1014	low-power synthesizer, mobile radios		SO16	IC03	66
UMA1015	dual 1 GHz frequency synthesizer		SSOP20	IC03	66
UMA1016A	frequency synth. for spread spectrum		SO16	IC03	66
UMA1016B	frequency synth. for spread spectrum		SO16	IC03	66
UMA1016C	frequency synth. for spread spectrum		SO16	IC03	66
UMA1018	GSM frequency synthesizer		SSOP20	IC03	66
UMA1020	dual frequency synthesizer			-	66
UMF1000	data processor for cellular radio		SO28L	IC03	67
UMF1000LT	data processor for cellular radio		SO28L	-	67
μA723	precision voltage regulator	CERDIP14		IC11	62
μA723C	precision voltage regulator	DIL14	SO14	IC11	62
μA733	differential video amplifier	DIL14		IC11	57, 82
μA733C	differential video amplifier	DIL14		IC11	57, 82
μA741	general purpose operational amplifier	DIL8		IC11	57
μA741C	general purpose operational amplifier	DIL8	SO8	IC11	57
μA747C	dual operational amplifier	DIL14		IC11	57

GENERAL PURPOSE

LOW-VOLTAGE SERIES
Logic

FOUR NEW LOW-VOLTAGE LOGIC FAMILIES

Philips has introduced three new low-voltage CMOS logic families and one new low-voltage BiCMOS family to complement their existing range of logic ICs; LV-HCMOS, LVC, HLL and LVT. All four families are completely newly designed, specifically for 3.3 V operation. LV-HCMOS (Low-voltage, high speed CMOS) logic is a 3.3 V version of our HCMOS family, LVC (Low-voltage CMOS) logic is a 3.3 V family compatible with FAST logic, HLL (High speed Low-power Low-voltage) CMOS logic is the world's fastest 3.3 V TTL-compatible logic, LVT (Low-Voltage Technology) advanced BiCMOS logic is a 3.3 V version of ABT logic. In summary:

1. LV-HCMOS

- Low Voltage HCMOS
- A 3.3 V version of our HCMOS series

3. HLL

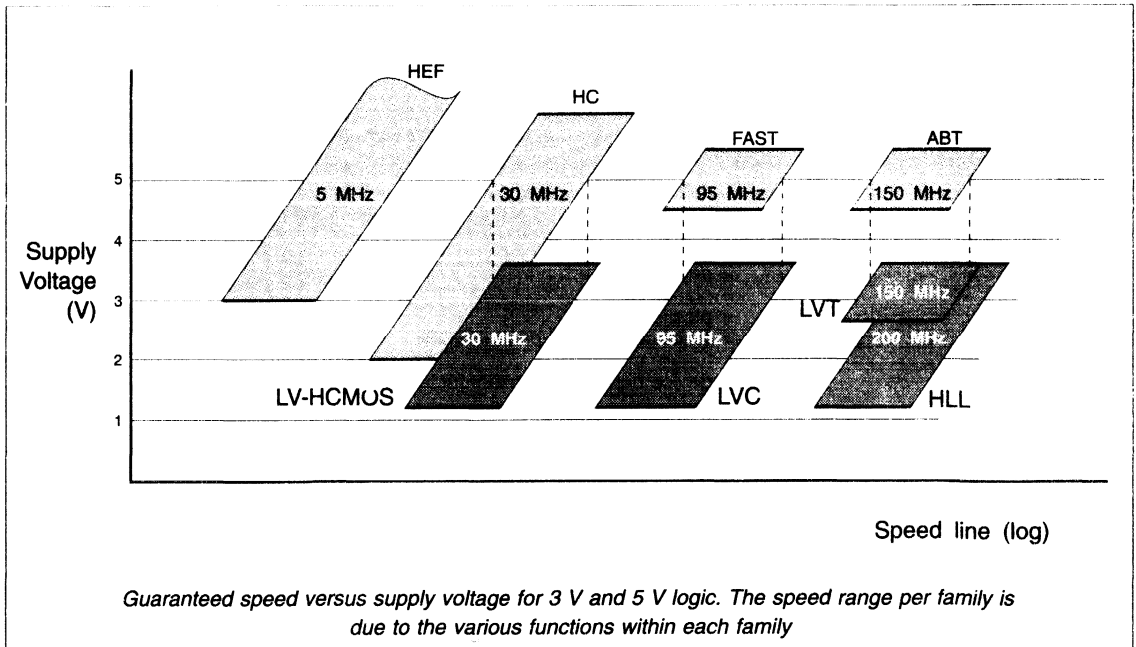
- High speed, Low voltage, Low power
- Fastest 3.3 V logic available

2. LVC

- Low Voltage CMOS
- 3.3 V, compatible with FAST

4. LVT

- Low-Voltage Technology
- A 3.3 V version of ABT



GENERAL PURPOSE

**LOW-VOLTAGE SERIES
Logic**

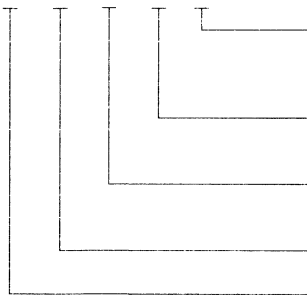
Type number designation

HLL Series

74HL33xxxx

complete type number which can be split as follows:

74 HL 33 xxx x



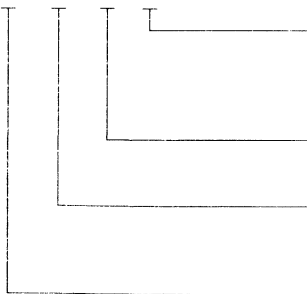
- = package code:
 - D = plastic mini-pack (SO)
 - DB = small plastic mini-pack (SSOP)
- = device number (3 digits, functionally compatible to HC/HCT code)
- = pinout designator; center V_{CC} and GND pins
- HL = HLL series
- 74 = standard operating temperature range -40 to +85 °C

LV, LVC and LVT Series

74LVxxxx, 74LVCxxxx, 74LVTxxxx

complete type number which can be split as follows:

LV
74 LVC xxx x
LVT



- = package code:
 - N = plastic DIL;
 - D = plastic mini-pack (SO)
 - DB = small plastic mini-pack (SSOP)
- = device number (3 digits, functionally compatible to HC/HCT code)
- LV = LV-HCMOS series
- LVC = Low-voltage CMOS series
- LVT = Low-voltage technology series
- 74 = standard operating temperature range -40 to +85 °C

GENERAL PURPOSE

LOW-VOLTAGE SERIES
Logic

Low-voltage ranges — Comparison

Feature	LV-HCMOS	LVC	HLL	LVT
Speed	medium	high	very high	very high
Product range	buffers/drivers switches gates flip-flops decoders octals	buffers/drivers gates flip-flops decoders multiplexers octals 2-byte wide	buffers/drivers octals 2-byte wide	buffers/drivers octals 2-byte wide 4-byte wide
Number of functions planned	30 to 40	50 to 60	20 to 30	20 to 30
Output drive	low	high	high	very high
TTL input	yes	yes	yes	yes
5 V input	no	yes	yes	yes
TTL level outputs	yes	yes	yes	yes
Forced 5 V output capability	no	no	no	yes
Live insertion	no	no	no	yes
5 V equivalent	LS/HC/N74	FAST/ACL/ALS	FCT-C	ABT/BCT/FCT-A
Packages	DIL, SO, SSOP	SO, SSOP, TSSOP	SO, SSOP, TSSOP	SO, SSOP, TSSOP
Applications	glue logic portable systems	glue logic portable systems	portable systems local bus super μ Ps	high-end back planes

IC

Low-voltage ranges — Key parameters

Parameter		LV-HCMOS	LVC	HLL	LVT
V_{CC}	V	1.0 to 3.6	1.2 to 3.6	1.2 to 3.6	2.7 to 3.6
I_{OH}/I_{OL}	mA	6/6	24/24	24/24	32/64
I_{CCQ}	μ A	80	20	80	80
$t_{PD\ D-O}$	ns	18	6.5	4.0	4.5
$t_{PD\ OE-O}$	ns	25	7.0	5.0	5.0
V_{OLP}	V	<0.5	<0.8	<1.0	<0.8
Transmission line driving	Ω	130	50	50	35
Pinning		corner	corner	centre	corner
3 <---> 5 V input		no	yes	yes	yes
3 ---> 5 V output		yes	yes	yes	yes
3 <--- 5 V output		no	no	no	yes
Bus hold		no	no	no	yes
Temp. range	$^{\circ}$ C	-40 to +85	-40 to +85	-40 to +85	-40 to +85

GENERAL PURPOSE

LOW-VOLTAGE SERIES
Logic

Family ratings for the LV-HCMOS series

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Voltages are referenced to GND (ground = 0 V)

parameter	conditions	symbol	min.	max.	unit
DC supply voltage		V_{CC}	-0.5	+5	V
DC input diode current	$V_I < -0.5$ V or $V_I > V_{CC}+0.5$ V	$\pm I_{IK}$	-	20	mA
DC output diode current	$V_O < -0.5$ V or $V_O > V_{CC}+0.5$ V	$\pm I_{OK}$	-	50	mA
DC output source or sink current	$-0.5V < V_O < V_{CC}+0.5$ V				
- standard outputs		$\pm I_O$	-	25	mA
- bus driver outputs		$\pm I_O$	-	35	mA
DC V_{CC} or GND current					
- standard outputs		$\pm I_{CC}; \pm I_{GND}$	-	50	mA
- bus driver outputs		$\pm I_{CC}; \pm I_{GND}$	-	70	mA
Storage temperature range		T_{stg}	-65	+150	°C
Power dissipation per package	for temperature range: -40 to +125 °C;				
- plastic DIL	above +70 °C derate linearly by 12 mW/K	P_{tot}	-	750	mW
- plastic mini-pack (SO)	above +70 °C derate linearly by 8 mW/K	P_{tot}	-	500	mW

Recommended operating conditions for the LV-HCMOS series

Voltages are referenced to GND (ground = 0V)

parameter	symbol	min.	typ.	max.	unit	conditions
DC supply voltage range	V_{CC}	1.2	3.3	3.6	V	
DC input voltage range	V_I	0	-	V_{CC}	V	
DC output voltage range	V_O	0	-	V_{CC}	V	
Operating ambient temperature range	T_{amb}	-40	-	+85	°C	see AC and DC characteristics per device
		-40	-	+125	°C	
Input rise and fall times except for Schmitt trigger inputs	$t_r; t_f$	-	-	1000	ns	$V_{CC} = 1.2$ V
		-	-	700	ns	$V_{CC} = 2.0$ V
		-	-	500	ns	$V_{CC} = 3.0$ V
		-	-	400	ns	$V_{CC} = 3.6$ V

GENERAL PURPOSE

LOW-VOLTAGE SERIES
Logic

DC family characteristics for the LV-HCMOS series

Voltages are referenced to GND (ground = 0 V)

parameter	V _{CC} V	symbol	T _{amb} (°C)						unit	conditions		
			+25			-40 to +85		-40 to +125		V _I	other	
			min.	typ.	max.	min.	max.	min.				max.
HIGH level input voltage	1.2	V _{IH}	0.9	-	-	0.9	-	0.9	-	V		
	2.0		1.4	-	-	1.4	-	1.4	-	V		
	3.0		2.1	-	-	2.1	-	2.1	-	V		
LOW level input voltage	1.2	V _{IL}	-	-	0.3	-	0.3	-	0.3	V		
	2.0		-	-	0.6	-	0.6	-	0.6	V		
	3.0		-	-	0.9	-	0.9	-	0.9	V		
HIGH level output voltage; all outputs	1.2	V _{OH}	1.1	1.2	-	1.0	-	1.0	-	V	V _{IH}	-I _O = 50 µA
	2.0		1.9	2.0	-	1.9	-	1.9	-	V	or	-I _O = 50 µA
	3.0		2.9	3.0	-	2.9	-	2.9	-	V	V _{IL}	-I _O = 50 µA
HIGH level output voltage; standard	3.0	V _{OH}	2.48	2.82	-	2.34	-	2.20	-	V	V _{IH} or V _{IL}	-I _O = 6 mA
HIGH level output voltage; bus driver	3.0	V _{OH}	2.48	2.82	-	2.34	-	2.20	-	V	V _{IH} or V _{IL}	-I _O = 8 mA
LOW level output voltage; all outputs	1.2	V _{OL}	-	0	0.1	-	0.1	-	0.1	V	V _{IH}	I _O = 50 µA
	2.0		-	0	0.1	-	0.1	-	0.1	V	or	I _O = 50 µA
	3.0		-	0	0.1	-	0.1	-	0.1	V	V _{IL}	I _O = 50 µA
LOW level output voltage; standard	3.0	V _{OL}	-	0.25	0.33	-	0.4	-	0.5	V	V _{IH} or V _{IL}	I _O = 6 mA
LOW level output voltage; bus driver	3.0	V _{OL}	-	0.20	0.33	-	0.4	-	0.5	V	V _{IH} or V _{IL}	I _O = 8 mA
Input leakage current	3.6	±I _I	-	-	0.1	-	1.0	-	1.0	µA	V _{CC} or GND	
3-state output OFF-state current	3.6	±I _{OZ}	-	-	0.5	-	5.0	-	10.0	µA	V _{IH} or V _{IL}	V _O = V _{CC} or GND;
Quiescent supply current	3.6	I _{CC}	-	-	2.0	-	20.0	-	40.0	µA	V _{CC}	I _O = 0
	3.6	I _{CC}	-	-	4.0	-	40.0	-	80.0	µA	or	I _O = 0
	3.6	I _{CC}	-	-	8.0	-	80.0	-	160.0	µA	GND	I _O = 0

IC

GENERAL PURPOSE

LOW-VOLTAGE SERIES
Logic

AC family characteristics for the LV-HCMOS series

parameter	V _{CC} V	symbol	T _{amb} (°C)						unit	
			+25			-40 to +85		-40 to +125		
			min.	typ.	max.	min.	max.	min.		max.
Output transition time; standard outputs	1.2	t _{THL} /	-	35	-	-	-	-	-	ns
	2.0	t _{TLH}	-	10	20	-	25	-	30	ns
	3.0		-	7	15	-	19	-	23	ns
Output transition time; bus driver outputs	1.2	t _{THL} /	-	25	-	-	-	-	-	ns
	2.0	T _{TLH}	-	8	16	-	20	-	24	ns
	3.0		-	5	10	-	13	-	15	ns

Family ratings for the HLL series

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Voltages are referenced to GND (ground = 0 V)

parameter	conditions	symbol	min.	max.	unit
DC supply voltage		V _{CC}	-0.5	+4.6	V
DC input diode current	V _I < 0 V	-I _{IK}	-	50	mA
DC input voltage	see note	V _I	-0.5	+5.5	V
DC input voltage for I/Os		V _{I/O}	-0.5	V _{CC} +0.5	V
DC output diode current	V _O > V _{CC} or V _O < 0 V	±I _{OK}	-	75	mA
DC output voltage	see note	V _O	-0.5	V _{CC} +0.5	V
DC output source or sink current	0 V < V _O < V _{CC}	±I _O	-	70	mA
DC V _{CC} or GND current		±I _{CC} ; ±I _{GND}	-	100	mA
Storage temperature		T _{stg}	-60	+150	°C
Power dissipation per package - plastic mini-pack (SO)	above +70 °C derate linearly by 8 mW/K	P _{tot}	-	500	mW

note: The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

Recommended operating conditions for the HLL series

parameter	conditions	symbol	min.	max.	unit
DC supply voltage (for max. speed performance)		V _{CC}	3.0	3.6	V
DC supply voltage (for low-voltage applications)		V _{CC}	1.2	3.6	V
DC input voltage		V _I	0	5.5	V
DC input voltage for I/Os		V _{I/O}	0	V _{CC}	V
DC output voltage		V _O	0	V _{CC}	V
Operating ambient temperature	see DC and AC characteristics per device	T _{amb}	-40	+85	°C
Input rise and fall times	V _{CC} = 3.6 V	t _r , t _f	-	20	ns
	V _{CC} = 1.2 V		-	50	ns

GENERAL PURPOSE

LOW-VOLTAGE SERIES
Logic

DC characteristics for the HLL series

Voltages are referenced to GND (ground = 0 V)

parameter	V _{CC} V	symbol	T _{amb} (°C)					unit	conditions	
			+25			-40 to +85			V _I	other
			min.	typ.	max.	min.	max.			
HIGH level input voltage	3.6	V _{IH}	-	-	-	2.0	-	V		
LOW level input voltage	3.0	V _{IL}	-	-	-	-	0.8	V		
Hysteresis (all inputs)	3.0 to 3.6	V _H	-	0.25	-	-	-	V		
HIGH level output voltage	3.0	V _{OH}	V _{CC} -0.2	V _{CC}	-	V _{CC} -0.2	-	V	V _{IH} or V _{IL}	-I _O = 100 µA -I _O = 24 mA
			V _{CC} -0.4		-	V _{CC} -0.4	-	V		
LOW level output voltage	3.0	V _{OL}	-	-	0.2	-	0.2	V	V _{IH} or V _{IL}	-I _O = 100 µA -I _O = 24 mA
			-	-	0.4	-	0.4	V		
Input leakage current	3.6	±I _I	-	-	-	-	5	µA	V _{CC} or GND	
3-state output OFF-state current	3.6	±I _{OZ}	-	-	-	-	10	µA	V _{IH} or V _{IL}	V _O = V _{CC} or GND
Quiescent supply current	3.6	I _{CC}	-	-	8.0	-	80	µA	V _{CC} or GND	I _O = 0



GENERAL PURPOSE

LOW-VOLTAGE SERIES
Logic

LVHC LVC HLL LVT

BUFFERS/LINE DRIVERS

125	quad buffer/line driver; 3-state; output enable active LOW	
126	quad buffer/line driver; 3-state; output enable active HIGH	
240	octal buffer/line driver; 3-state; inverting	
241	octal buffer/line driver; 3-state; output enable active low or HIGH	
244	octal buffer/line driver; 3-state; output enable active LOW	
540	octal buffer/line driver; 3-state; inverting	
541	octal buffer/line driver; 3-state	
827	10-bit buffer line driver; non-inverting (3-state)	

COUNTERS

161	presettable synchronous 4-bit binary counter; asynchronous reset	
163	presettable synchronous 4-bit binary counter; synchronous reset	
4060	14-stage binary ripple counter with oscillator	

DECODERS/DEMULTIPLEXERS

138	3-to-8 line decoder/demultiplexer; inverting	
139	dual 2-to-4 line decoder/demultiplexer	

D-type FLIP-FLOPS

74	dual D-type flip-flop with set and reset; positive edge-trigger	
174	hex D-type flip-flop with reset; positive-edge trigger	
175	quad D-type flip-flop with reset; positive edge-trigger	
273	octal D-type flip-flop with reset; positive edge-trigger	
373	octal D-type transparent latch; 3-state	
374	octal D-type flip-flop; positive-edge trigger; 3-state	
377	octal D-type flip-flop with data enable; positive-edge trigger	
533	octal D-type transparent latch; 3-state; inverting	
534	octal D-type flip-flop; positive-edge trigger; 3-state; inverting	
573	octal D-type transparent latch; 3-state; bus-oriented pin-out	
574	octal D-type flip-flop; positive-edge trigger; 3-state; bus-oriented pin-out	

AND GATES

08	quad 2-input AND gate	
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EXCLUSIVE-OR GATES

86	quad 2-input EXCLUSIVE-OR gate	
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NAND GATES

00	quad 2-input NAND gate	
38	quad 2-input NAND buffer; open collector	

NOR GATES

02	quad 2-input NOR gate	
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OR GATES

32	quad 2-input OR gate	
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INVERTERS

04	hex inverter	
04U	hex inverter (unbuffered)	

LATCHES

841	10-bit bus interface latch; non-inverting (3-state)	
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GENERAL PURPOSE

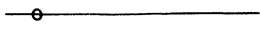
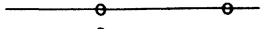
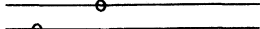
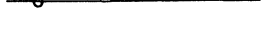
**LOW-VOLTAGE SERIES
Logic**

LVHC LVC HLL LVT

MULTIPLEXERS/DEMULTIPLEXERS

157	quad 2-input multiplexer	
158	quad 2-input multiplexer; inverting	
257	quad 2-input multiplexer; 3-state	
258	quad 2-input multiplexer; 3-state; inverting	

REGISTERS

164	8-bit serial-in/parallel-out shift register	
821	10-bit bus interface register; non-inverting (3-state)	
823	9-bit bus interface register; non-inverting (3-state)	
4094	8-stage shift-and-store bus register	

SCHMITT TRIGGERS

14	hex inverting Schmitt trigger	
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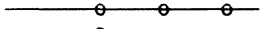
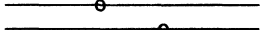
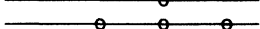
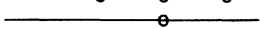
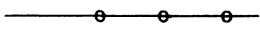
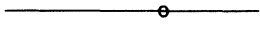
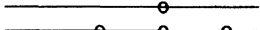
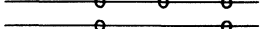
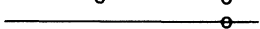
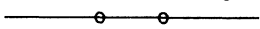


SWITCHES

4066	quad bilateral switches	
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SPECIAL FUNCTIONS

4799	NiMH battery management circuit	
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TRANSCEIVERS

245	octal bus transceiver; 3-state	
543	octal registered transceiver; non-inverting (3-state)	
544	octal registered transceiver; inverting (3-state)	
620	octal bus transceiver; inverting (3-state)	
623	octal bus transceiver; non-inverting (3-state)	
640	octal bus transceiver; 3-state; inverting	
646	octal bus transceiver/register; 3-state	
648	octal bus transceiver/register; 3-state; inverting	
651	octal transceiver/register; inverting (3-state)	
652	octal registered bus transceiver	
657	octal bus transceiver with parity generator/checker (3-state)	
863	9-bit bus transceiver; non-inverting (3-state)	
2952	8-bit transceiver; non-inverting (3-state)	



GENERAL PURPOSE

**CMOS HE4000B SERIES
Logic**

CMOS HE4000B FAMILY SPECIFICATIONS

The LOCMOS HE4000B range is a fully buffered digital integrated circuit family which meets the Jedec-B specifications. The members of this family are plug-in replacements for the well-known CMOS 4000 and 14500 ranges.

The HE family has the same advantages as conventional CMOS circuits, plus the additional LOCMOS advantages.

Advantages of CMOS

- low power dissipation - typically 10 nW per gate (static)
- wide operating supply voltage range
- wide operating temperature ranges:
 - 40 to +85 °C for standard temperature range (HEF)
 - 55 to +125 °C for extended temperature range (HEC)
- high DC fan-out
- inputs and outputs are protected against electrostatic voltages

In addition to these, the **LOCMOS HE4000B** range has:

- buffered outputs on **all** circuits
- higher speed
- higher packing density — essential for MSI/LSI
- excellent noise immunity

Recommended supply voltage range 3 to 15 V.

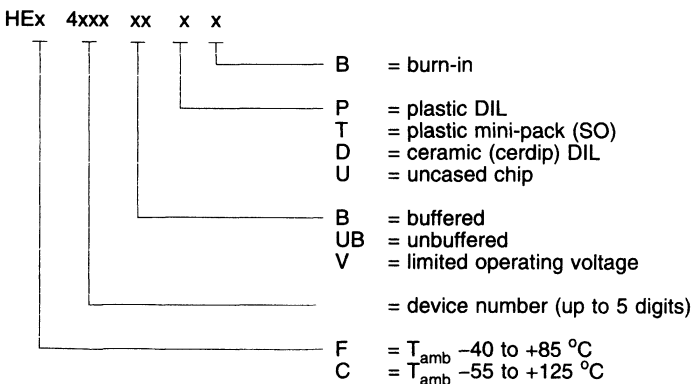
LOCMOS means Local Oxidation Complementary MOS

Inputs and outputs are protected against electrostatic effects in a wide variety of device-handling situations. However, to be totally safe, handling precautions should be taken into account.

Type number designation

Type numbers have a suffix which signifies the type of package and burn-in option.

HEx4xxxxxx complete type number which can be split as follows:



GENERAL PURPOSE

CMOS HE4000B SERIES
Logic

CMOS HE4000B FAMILY SPECIFICATIONS (cont.)

The HE family is designed with standardized output drive characteristics which, combined with relative intensivity to output capacitance loading, simplify system design.

Family ratings

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Supply voltage range V_{DD} -0,5 to +18 V

Voltage on any input V_I -0,5 to ($V_{DD} + 0,5$) V

DC current into any input or output $\pm I$ max. 10 mA

Power dissipation per package:

HEF (plastic and ceramic DIL)

$T_{amb} = -40$ to $+70$ °C

$T_{amb} = +70$ to $+85$ °C

P_{tot} max. 500 mW

derate linearly by 8 mW/K

HEF (plastic SO mini-pack)

$T_{amb} = -40$ to $+70$ °C

$T_{amb} = +70$ to $+85$ °C

P_{tot} max. 400 mW

derate linearly by 6 mW/K

HEC (ceramic DIL)

$T_{amb} = -55$ to $+70$ °C

$T_{amb} = +70$ to $+125$ °C

P_{tot} max. 500 mW

derate linearly by 8 mW/K

Power dissipation per output P max. 100 mW

Storage temperature range T_{stg} -65 to $+150$ °C

Operating ambient temperature range

HEF T_{amb} -40 to $+85$ °C

HEC T_{amb} -55 to $+125$ °C



GENERAL PURPOSE

CMOS HE4000B SERIES

Logic

DC family characteristics for HEF at $V_{SS} = 0$ V

parameter	symbol	$T_{amb} = -40$ °C		$T_{amb} = +25$ °C		$T_{amb} = +85$ °C		V_{DD} V	conditions
		min.	max.	min.	max.	min.	max.		
Quiescent device current for gates	I_{DD} (μ A)	-	1.0	-	1.0	-	7.5	5	all valid input combinations; $V_I = V_{SS}$ or V_{DD} ; $I_O = 0$
		-	2.0	-	2.0	-	15.0	10	
		-	4.0	-	4.0	-	30.0	15	
Quiescent device current for buffers and flip-flops	I_{DD} (μ A)	-	4.0	-	4.0	-	30	5	all valid input combinations; $V_I = V_{SS}$ or V_{DD} ; $I_O = 0$
		-	8.0	-	8.0	-	60	10	
		-	16.0	-	16.0	-	120	15	
Quiescent device current for MSI	I_{DD} (μ A)	-	20	-	20	-	150	5	all valid input combinations; $V_I = V_{SS}$ or V_{DD} ; $I_O = 0$
		-	40	-	40	-	300	10	
		-	80	-	80	-	600	15	
Quiescent device current for LSI	I_{DD} (μ A)	-	50	-	50	-	375	5	all valid input combinations $V_I = V_{SS}$ or V_{DD} ; $I_O = 0$
		-	100	-	100	-	750	10	
		-	200	-	200	-	1500	15	
Output voltage LOW $I_{O1} < 1$ μ A	V_{OL} (V)	-	0.05	-	0.05	-	0.05	5	$V_I = V_{SS}$ or V_{DD} $V_I = V_{SS}$ or V_{DD} $V_I = V_{SS}$ or V_{DD}
		-	0.05	-	0.05	-	0.05	10	
		-	0.05	-	0.05	-	0.05	15	
Output voltage HIGH $I_{O1} < 1$ μ A	V_{OH} (V)	4.95	-	4.95	-	4.95	-	5	$V_I = V_{SS}$ or V_{DD} $V_I = V_{SS}$ or V_{DD} $V_I = V_{SS}$ or V_{DD}
		9.95	-	9.95	-	9.95	-	10	
		14.95	-	14.95	-	14.95	-	15	
Input voltage LOW $I_{O1} < 1$ μ A (buffered stages only)	V_{IL} (V)	-	1.5	-	1.5	-	1.5	5	$V_O = 0.5$ or 4.5 V $V_O = 1.0$ or 9.0 V $V_O = 1.5$ or 13.5 V
		-	3.0	-	3.0	-	3.0	10	
		-	4.0	-	4.0	-	4.0	15	
Input voltage HIGH $I_{O1} < 1$ μ A (buffered stages only)	V_{IH} (V)	3.5	-	3.5	-	3.5	-	5	$V_O = 0.5$ or 4.5 V $V_O = 1.0$ or 9.0 V $V_O = 1.5$ or 13.5 V
		7.0	-	7.0	-	7.0	-	10	
		11.0	-	11.0	-	11.0	-	15	
Input voltage LOW $I_{O1} < 1$ μ A (unbuffered stages only)	V_{IL} (V)	-	1.0	-	1.0	-	1.0	5	$V_O = 0.5$ or 4.5 V $V_O = 1.0$ or 9 V $V_O = 1.5$ or 13.5 V
		-	2.0	-	2.0	-	2.0	10	
		-	2.5	-	2.5	-	2.5	15	
Input voltage HIGH $I_{O1} < 1$ μ A (unbuffered stages only)	V_{IH} (V)	4.0	-	4.0	-	4.0	-	5	$V_O = 0.5$ or 4.5 V $V_O = 1.0$ or 9.0 V $V_O = 1.5$ or 13.5 V
		8.0	-	8.0	-	8.0	-	10	
		12.5	-	12.5	-	12.5	-	15	
Output (sink) current LOW	I_{OL} (mA)	0.52	-	0.44	-	0.36	-	5	$V_O=0.4$; $V_I=0/5$ V $V_O=0.5$; $V_I=0/10$ V $V_O=1.5$; $V_I=0/15$ V
		1.3	-	1.1	-	0.9	-	10	
		3.6	-	3.0	-	2.4	-	15	
Output (source) current HIGH	$-I_{OH}$ (mA)	0.52	-	0.44	-	0.36	-	5	$V_O=4.6$; $V_I=0/5$ V $V_O=9.5$; $V_I=0/10$ V $V_O=13.5$; $V_I=0/15$ V
		1.3	-	1.1	-	0.9	-	10	
		3.6	-	3.0	-	2.4	-	15	
Output (source) current (HIGH)	$-I_{OH}$ (mA)	1.7	-	1.4	-	1.1	-	5	$V_O=2.5$; $V_I=0/5$ V
Input leakage current	$\pm I_{IN}$ (μ A)	-	0.3	-	0.3	-	1.0	15	$V_I = 0$ or 15 V
3-state output leakage current HIGH	I_{OZH} (μ A)	-	1.6	-	1.6	-	12.0	15	output returned to V_{DD}
3-state output leakage current LOW	$-I_{OZL}$ (μ A)	-	1.6	-	1.6	-	12.0	15	output returned to V_{SS}
Input capacitance per unit load	C_I (pF)	-	-	-	7.5	-	-	-	digital inputs

GENERAL PURPOSE

CMOS HE4000B SERIES

Logic

DC family characteristics for HEC at $V_{SS} = 0$ V

parameter	symbol	$T_{amb} = -55$ °C		$T_{amb} = +25$ °C		$T_{amb} = +125$ °C		V_{DD} V	conditions
		min.	max.	min.	max.	min.	max.		
Quiescent device current for gates	I_{DD} (μA)	-	0.25	-	0.25	-	7.5	5	all valid input combinations; $V_I = V_{SS}$ or V_{DD} ; $I_O = 0$
		-	0.5	-	0.5	-	15.0	10	
		-	1.0	-	1.0	-	30.0	15	
Quiescent device current for buffers and flip-flops	I_{DD} (μA)	-	1.0	-	1.0	-	30	5	all valid input combinations; $V_I = V_{SS}$ or V_{DD} ; $I_O = 0$
		-	2.0	-	2.0	-	60	10	
		-	4.0	-	4.0	-	120	15	
Quiescent device current for MSI	I_{DD} (μA)	-	5.0	-	5.0	-	150	5	all valid input combinations; $V_I = V_{SS}$ or V_{DD} ; $I_O = 0$
		-	10.0	-	10.0	-	300	10	
		-	20.0	-	20.0	-	600	15	
Quiescent device current for LSI	I_{DD} (μA)	-	15.0	-	15.0	-	375	5	all valid input combinations $V_I = V_{SS}$ or V_{DD} ; $I_O = 0$
		-	25.0	-	25.0	-	750	10	
		-	50.0	-	50.0	-	1500	15	
Output voltage LOW $ I_{O1} < 1$ μA	V_{OL} (V)	-	0.05	-	0.05	-	0.05	5	$V_I = V_{SS}$ or V_{DD}
		-	0.05	-	0.05	-	0.05	10	
		-	0.05	-	0.05	-	0.05	15	
Output voltage HIGH $ I_{O1} < 1$ μA	V_{OH} (V)	4.95	-	4.95	-	4.95	-	5	$V_I = V_{SS}$ or V_{DD}
		9.95	-	9.95	-	9.95	-	10	
		14.95	-	14.95	-	14.95	-	15	
Input voltage LOW $ I_{O1} < 1$ μA (buffered stages only)	V_{IL} (V)	-	1.5	-	1.5	-	1.5	5	$V_O = 0.5$ or 4.5 V
		-	3.0	-	3.0	-	3.0	10	
		-	4.0	-	4.0	-	4.0	15	
Input voltage HIGH $ I_{O1} < 1$ μA (buffered stages only)	V_{IH} (V)	3.5	-	3.5	-	3.5	-	5	$V_O = 0.5$ or 4.5 V
		7.0	-	7.0	-	7.0	-	10	
		11.0	-	11.0	-	11.0	-	15	
Input voltage LOW $ I_{O1} < 1$ μA (unbuffered stages only)	V_{IL} (V)	-	1.0	-	1.0	-	1.0	5	$V_O = 0.5$ or 4.5 V
		-	2.0	-	2.0	-	2.0	10	
		-	2.5	-	2.5	-	2.5	15	
Input voltage HIGH $ I_{O1} < 1$ μA (unbuffered stages only)	V_{IH} (V)	4.0	-	4.0	-	4.0	-	5	$V_O = 0.5$ or 4.5 V
		8.0	-	8.0	-	8.0	-	10	
		12.5	-	12.5	-	12.5	-	15	
Output (sink) current LOW	I_{OL} (mA)	0.64	-	0.5	-	0.36	-	5	$V_O = 0.4$; $V_I = 0/5$ V
		1.6	-	1.3	-	0.9	-	10	
		4.2	-	3.4	-	2.4	-	15	
Output (source) current HIGH	$-I_{OH}$ (mA)	0.64	-	0.5	-	0.36	-	5	$V_O = 4.6$; $V_I = 0/5$ V
		1.6	-	1.3	-	0.9	-	10	
		4.2	-	3.4	-	2.4	-	15	
Output (source) current (HIGH)	$-I_{OH}$ (mA)	1.7	-	1.4	-	1.1	-	5	$V_O = 2.5$; $V_I = 0/5$ V
Input leakage current	$\pm I_{IN}$ (μA)	-	0.3	-	0.3	-	1.0	15	$V_I = 0$ or 15 V
3-state output leakage current HIGH	I_{OZH} (μA)	-	1.6	-	1.6	-	12.0	15	output returned to V_{DD}
3-state output leakage current LOW	$-I_{OZL}$ (μA)	-	1.6	-	1.6	-	12.0	15	output returned to V_{SS}
Input capacitance per unit load	C_i (pF)	-	-	-	7.5	-	-	-	digital inputs



GENERAL PURPOSE

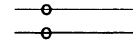
CMOS HE4000B SERIES
Logic

HE4000 SERIES

HEF HEC

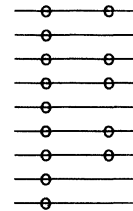
ARITHMETIC FUNCTIONS

4008B 4-bit binary full adder
4531B 13-input parity checker/generator



BUFFERS

4007UB dual complementary pair and inverter
4041B quadruple true/complement buffer
4049B hex inverting buffers
4050B hex non-inverting buffers
4502B strobed hex inverter/buffer
40097B 3-state hex non-inverting buffer
40098B 3-state hex inverting buffer
40240B octuple buffers with 3-state outputs
40244B octal buffers with 3-state outputs



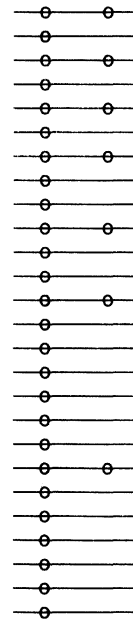
COMPARATORS

4585B 4-bit magnitude comparator



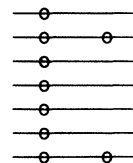
COUNTERS

4017B 5-stage Johnson counter
4018B presettable divide-by-n counter
4020B 14-stage binary counter
4022B 4-stage divide-by-8 Johnson counter
4024B 7-stage binary counter
4029B synchronous up/down counter, binary/decade counter
4040B 12-stage binary counter
4059B programmable divide-by-n counter
4060B 14-stage ripple-carry binary counter/divider and oscillator
4510B BCD up/down counter
4516B binary up/down counter
4518B dual BCD counter
4520B dual binary counter
4521B 24-stage frequency divider
4522B programmable 4-bit BCD down counter
4526B programmable 4-bit binary down counter
4534B real time 5-decade counter
4737B quadruple static decade counter
4737V quadruple static decade counter
4751V universal divider
40160B 4-bit synchronous decade counter; asynchronous reset
40161B 4-bit synchronous binary counter; asynchronous reset
40162B 4-bit synchronous decade counter; synchronous reset
40163B 4-bit synchronous binary counter; synchronous reset
40192B 4-bit up/down decade counter
40193B 4-bit up/down binary counter



DECODERS/DEMULTIPLEXERS

4028B 1-of-10 decoder
4511B BCD to 7-segment latch/decoder/driver
4514B 1-of-16 decoder/demultiplexer with input latches
4515B 1-of-16 decoder/demultiplexer with input latches
4543B BCD to 7-segment latch/decoder/driver
4555B dual 1-of-4 decoder/demultiplexer
4556B dual 1-of-4 decoder/demultiplexer



GENERAL PURPOSE

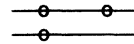
CMOS HE4000B SERIES
Logic

HE4000 SERIES

HEF HEC

DRIVERS

4511B BCD to 7-segment latch/decoder/driver
 4543B BCD to 7-segment latch/decoder/driver



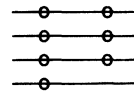
ENCODERS

4532B 8-input priority encoder



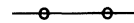
D-type FLIP-FLOPS

4013B dual D-type flip-flop
 40174B hex D-type flip-flop
 40175B quadruple D-type flip-flop
 40374B octal D-type flip-flop with 3-state outputs



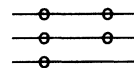
JK FLIP-FLOPS

4027B dual JK flip-flop



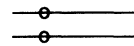
AND GATES

4073B triple 3-input AND gate
 4081B quadruple 2-input AND gate
 4082B dual 4-input AND gate



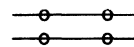
Complex GATES

4085B dual 2-wide 2-input AND-OR-invert gate
 4086B 4-wide 2-input AND-OR-invert gate



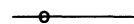
EXCLUSIVE-OR GATES

4030B quadruple EXCLUSIVE-OR gate
 4070B quadruple EXCLUSIVE-OR gate



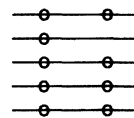
EXCLUSIVE-NOR GATES

4077B quadruple EXCLUSIVE-NOR gate



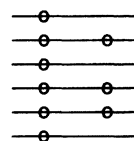
NAND GATES

4011B quadruple 2-input NAND gate
 4011UB quadruple 2-input NAND gate; unbuffered
 4012B dual 4-input NAND gate
 4023B triple 3-input NAND gate
 4068B 8-input NAND gate



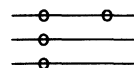
NOR GATES

4000B dual 3-input NOR gate and inverter
 4001B quadruple 2-input NOR gate
 4001UB quadruple 2-input NOR gate; unbuffered
 4002B dual 4-input NOR gate
 4025B triple 3-input NOR gate
 4078B 8-input NOR gate



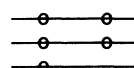
OR GATES

4071B quadruple 2-input OR gate
 4072B dual 4-input OR gate
 4075B triple 3-input OR gate



INVERTERS

4007UB dual complementary pair and inverter
 4069UB hex inverter
 7069UB hex inverter; open drain



GENERAL PURPOSE

CMOS HE4000B SERIES
Logic

HE4000 SERIES

HEF HEC

LATCHES

4042B	quadruple D-latch	
4043B	quadruple R/S latch with 3-state outputs	
4044B	quadruple R/S latch with 3-state outputs	
4508B	dual 4-bit latch	
4511B	BCD to 7-segment latch/decoder/driver	
4543B	BCD to 7-segment latch/decoder/driver	
4724B	8-bit addressable latch	
40373B	octal transparent latch with 3-state output	

MEMORIES

4505B	64-bit, 1-bit per word static read/write RAM	
4720B	256-bit, 1-bit per word RAM	
4720V	256-bit, 1-bit per word RAM	

MULTIPLEXERS/DEMULTIPLEXERS

4019B	quadruple 2-input multiplexer	
4051B	8-channel analog multiplexer/demultiplexer	
4052B	dual 4-channel analog multiplexer/demultiplexer	
4053B	triple 2-channel analog multiplexer/demultiplexer	
4067B	16-channel analog multiplexer/demultiplexer	
4512B	8-input multiplexer with 3-state output	
4519B	quadruple 2-input multiplexer	
4539B	dual 4-input multiplexer	

MULTIVIBRATORS

4047B	monostable/astable multivibrator	
4528B	dual monostable multivibrator	
4538B	dual precision monostable multivibrator	

REGISTERS

4006B	18-stage static shift register	
4014B	8-bit static shift register	
4015B	dual 4-bit static shift register	
4021B	8-bit static shift register	
4031B	64-stage static shift register	
4035B	4-bit universal shift register	
4076B	quadruple D-type register with 3-state outputs	
4094B	8-stage shift-and-store bus register	
4517B	dual 64-bit static shift register	
4557B	1-to-64 bit variable length shift register	
4731B	quadruple 64-bit static shift register	
4731V	quadruple 64-bit static shift register	
40194B	4-bit bidirectional universal shift register	
40195B	4-bit universal shift register	

SCHMITT TRIGGERS

4093B	quadruple 2-input NAND Schmitt trigger	
40106B	hex inverting Schmitt trigger	


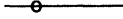
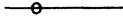


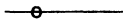

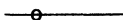
GENERAL PURPOSE

**CMOS HE4000B SERIES
Logic**

HE4000 SERIES

HEF HEC

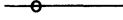
SPECIAL FUNCTIONS

4046B	phase-locked loop	
4104B	quadruple low-to-high voltage translator with 3-state outputs	
4527B	BCD rate multiplier	
4738V	IEC/IEEE bus interface	
4750V	frequency synthesizer	
4752V	AC motor control circuit	
4754V	18-element bar graph LCD driver	
4755V	transceiver for serial data communication	

SWITCHES

4016B	quadruple bilateral switches	
4066B	quadruple bilateral switches	

TIMING CIRCUITS

4541B	programmable timer	
4753B	universal timer module	
4753V	universal timer module	

TRANSCEIVERS

40245B	octuple bus transceiver with 3-state outputs	
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GENERAL PURPOSE**HCMOS-74 SERIES
Logic****HCMOS-74 FAMILY SPECIFICATIONS****General**

These specifications cover the electrical ratings and characteristics that are common to the entire HCMOS PC74 family, unless otherwise specified in the data sheet of an individual device.

Introduction

The HCMOS family of logic ICs is manufactured using a self-aligning 3 μm polycrystalline silicon-gate CMOS process combined with local oxidation of silicon (LOCOS). HCMOS ICs have the low power consumption, high immunity to input noise and wide operating temperature range of earlier silicon-gate CMOS circuits together with the high-speed and drive capability of bipolar, low-power Schottky TTL (LSTTL). They are also immune to latch-up and all types are available in DIL packages and in space-saving SO packages.

Many HCMOS circuits are pin-compatible with existing 54/74 LSTTL and HE4000B CMOS logic ICs. HCT types are ideal replacements for LSTTL. HCT types can also interface between TTL and CMOS ICs.

Three types of HCMOS ICs are available:

74HC CMOS input switching levels 30% V_{CC} and 70% V_{CC} (typical switching threshold 50% V_{CC}), supply voltage 2 to 6 V

74HCT TTL input switching levels 0.8 V and 2 V (typical switching threshold 28% V_{CC}), supply voltage 5 V $\pm 10\%$

74HCU CMOS input switching levels 20% V_{CC} and 80% V_{CC} (typical switching threshold 50% V_{CC}), supply voltage 2 to 6 V; unbuffered to allow operation in the linear mode

The HCMOS family also includes several complex circuits for switching or multiplexing analog signals. These circuits have low crosstalk and feedthrough, and a very large frequency bandwidth. There are also two FIFOs and two PLLs in the HCMOS range, of which one (HC/HCT297) is a fully digital type.

Handling MOS devices

Inputs and outputs are protected against electrostatic effects in a wide variety of device-handling situations. However, to be totally safe, it is desirable to take handling precautions into account.

HCMOS features

- Very low power dissipation
- The switching levels of 74HC types are 30% and 70% of V_{CC}
- DC noise margin of 74HC types three times that of TTL ICs
- Logic output levels 0.1 V and $V_{CC} - 0.1$ V
- All types, except 74HCU are fully buffered
- Typical gate propagation delay of 8 ns
- Can operate up to 60 MHz (typical)
- Fanout capability of 10 LSTTL loads (4 mA); this is increased to 15 LSTTL loads (6 mA) for types with bus-driver outputs
- Wide supply voltage range
- Latch-up free
- Inputs protected against electrostatic discharge
- Functions and pinning identical to most popular LSTTL and CMOS HE4000B families
- Analog switching types operating up to 10 V
- Symmetrical output sourcing and sinking currents and equal output rise and fall times
- All types available in plastic SO packages for surface mounting and plastic DIL packages
- Choice of operating temperature range: -40 to $+85$ $^{\circ}\text{C}$ or -40 to $+125$ $^{\circ}\text{C}$
- Approved to JEDEC standard No. 7A

GENERAL PURPOSE

HCMOS-74 SERIES
Logic

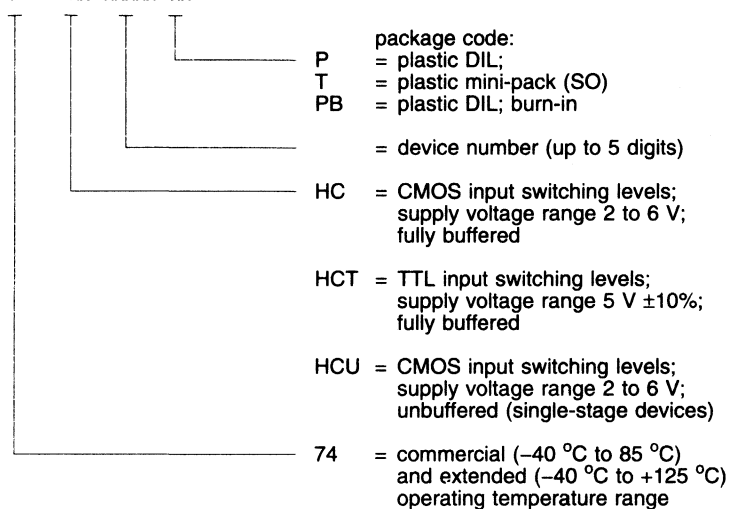
Type number designation

Basic family:

74xxxxxxxxxx

complete type number which can be split as follows:

74 xxx xxxxx xx



GENERAL PURPOSE

HCMOS-74 SERIES
Logic

Family ratings

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Voltages are referenced to GND (ground = 0 V)

parameter	conditions	symbol	min.	max.	unit
DC supply voltage		V_{CC}	-0.5	+7	V
DC input diode current	$V_I < -0.5$ V $V_I > V_{CC}+0.5$ V	$\pm I_{IK}$	-	20	mA
DC output diode current	$V_I < -0.5$ V $V_I > V_{CC}+0.5$ V	$\pm I_{OK}$	-	20	mA
DC output source or sink current	$-0.5V < V_O < V_{CC}+0.5$ V				mA
- standard outputs		$\pm I_O$	-	25	mA
- bus driver outputs		$\pm I_O$	-	35	mA
DC V_{CC} or GND current					mA
- standard outputs		$\pm I_{CC}; \pm I_{GND}$	-	50	mA
- bus driver outputs		$\pm I_{CC}; \pm I_{GND}$	-	70	mA
Storage temperature range		T_{stg}	-65	+150	°C
Power dissipation per package	for temperature range: -40 to +125 °C; 74HC/HCT/HCU				
Plastic DIL	above +70 °C derate linearly by 12 mW/K	P_{tot}	-	750	mW
Plastic mini-pack (SO)	above +70 °C derate linearly by 8 mW/K	P_{tot}	-	500	mW

Recommended operating conditions; Voltages are referenced to GND (ground = 0V)

parameter	symbol	min.	typ.	max.	unit	conditions
DC supply voltage range						
74HC/HCU	V_{CC}	2.0	5.0	6.0	V	
74HCT	V_{CC}	4.5	5.0	5.5	V	
DC input voltage range	V_I	0	-	V_{CC}	V	
DC output voltage range	V_O	0	-	V_{CC}	V	
Operating ambient temperature range						
74HC/HCT/HCU	T_{amb}	-40	-	+85	°C	standard
74HC/HCT/HCU	T_{amb}	-40	-	+125	°C	extended
Input rise and fall times except for Schmitt trigger inputs						
	$t_r; t_f$	-	-	1000	ns	$V_{CC} = 2.0$ V
		-	6.0	500	ns	$V_{CC} = 4.5$ V
		-	-	400	ns	$V_{CC} = 6.0$ V

GENERAL PURPOSE

HCMOS-74 SERIES
Logic

DC family characteristics, 74HC

Voltages are referenced to GND (ground = 0 V)

parameter	V _{CC} V	symbol	T _{amb} (°C)						unit	conditions		
			+25			-40 to +85		-40 to +125		V _I	other	
			min.	typ.	max.	min.	max.	min.				max.
HIGH level input voltage	2.0 4.5 6.0	V _{IH}	1.5 3.15 4.2	1.2 2.4 3.2	- - -	1.5 3.15 4.2	- - -	1.5 3.15 4.2	- - -	V V V		
LOW level input voltage	2.0 4.5 6.0	V _{IL}	- - -	0.8 2.1 2.8	0.5 1.35 1.8	- - -	0.5 1.35 1.8	- - -	0.5 1.35 1.8	V V V		
HIGH level output voltage all outputs	2.0 4.5 6.0	V _{OH}	1.9 4.4 5.9	2.0 4.5 6.0	- - -	1.9 4.4 5.9	- - -	1.9 4.4 5.9	- - -	V V V	V _{IH} or V _{IL}	-I _O = 20 µA -I _O = 20 µA -I _O = 20 µA
HIGH level output voltage standard	4.5 6.0	V _{OH}	3.98 5.48	4.32 5.81	- -	3.84 5.34	- -	3.7 5.2	- -	V V	V _{IH} or V _{IL}	-I _O = 4.0 mA -I _O = 5.2 mA
HIGH level output voltage bus driver	4.5 6.0	V _{OH}	3.98 5.48	4.32 5.81	- -	3.84 5.34	- -	3.7 5.2	- -	V V	V _{IH} or V _{IL}	-I _O = 6.0 mA -I _O = 7.8 mA
LOW level output voltage all outputs	2.0 4.5 6.0	V _{OL}	- - -	0 0 0	0.1 0.1 0.1	- - -	0.1 0.1 0.1	- - -	0.1 0.1 0.1	V V V	V _{IH} or V _{IL}	I _O = 20 µA I _O = 20 µA I _O = 20 µA
LOW level output voltage standard	4.5 6.0	V _{OL}	- -	0.15 0.16	0.26 0.26	- -	0.33 0.33	- -	0.4 0.4	V V	V _{IH} or V _{IL}	I _O = 4.0 mA I _O = 5.2 mA
LOW level output voltage bus driver	4.5 6.0	V _{OL}	- -	0.15 0.16	0.26 0.26	- -	0.33 0.33	- -	0.4 0.4	V V	V _{IH} or V _{IL}	I _O = 6.0 mA I _O = 7.8 mA
Input leakage current	6.0	±I _I	-	-	0.1	-	1.0	-	1.0	µA	V _{CC} or GND	
3-state OFF-state current	6.0	±I _{OZ}	-	-	0.5	-	5.0	-	10.0	µA	V _{IH} or V _{IL}	V _O = V _{CC} or GND;
Quiescent supply current												
SSI	6.0	I _{CC}	-	-	2	-	20	-	40	µA	V _{CC}	I _O = 0
flip-flops	6.0	I _{CC}	-	-	4	-	40	-	80	µA	V _{CC} or GND	I _O = 0
MSI	6.0	I _{CC}	-	-	8	-	80	-	160	µA	GND	I _O = 0
LSI	6.0	I _{CC}	-	-	50	-	500	-	1000	µA		I _O = 0



GENERAL PURPOSE

HCMOS-74 SERIES
Logic

DC family characteristics, 74HCU

Voltages are referenced to GND (ground = 0 V)

parameter	V _{CC} V	symbol	T _{amb} (°C)						unit	conditions		
			+25			-40 to +85		-40 to +125		V _I	other	
			min.	typ.	max.	min.	max.	min.				max.
HIGH level input voltage	2.0	V _{IH}	1.7	1.4	-	1.7	-	1.7	-	V		
	4.5		3.6	2.6	-	3.6	-	3.6	-	V		
	6.0		4.8	3.4	-	4.8	-	4.8	-	V		
LOW level input voltage	2.0	V _{IL}	-	0.6	0.3	-	0.3	-	0.3	V		
	4.5		-	1.9	0.9	-	0.9	-	0.9	V		
	6.0		-	2.6	1.2	-	1.2	-	1.2	V		
HIGH level output voltage	2.0	V _{OH}	1.8	2.0	-	1.8	-	1.8	-	V	V _{IH}	-I _O = 20 µA
	4.5		4.0	4.5	-	4.0	-	4.0	-	V	or	-I _O = 20 µA
	6.0		5.5	6.0	-	5.5	-	5.5	-	V	V _{IL}	-I _O = 20 µA
HIGH level output voltage	4.5	V _{OH}	3.98	4.32	-	3.84	-	3.7	-	V	V _{CC}	-I _O = 4.0 mA
	6.0		5.48	5.81	-	5.34	-	5.2	-	V	or GND	-I _O = 5.2 mA
LOW level output voltage	2.0	V _{OL}	-	0	0.2	-	0.2	-	0.2	V	V _{IH}	I _O = 20 µA
	4.5		-	0	0.5	-	0.5	-	0.5	V	or	I _O = 20 µA
	6.0		-	0	0.5	-	0.5	-	0.5	V	V _{IL}	I _O = 20 µA
LOW level output voltage	4.5	V _{OL}	-	0.15	0.26	-	0.33	-	0.4	V	V _{CC}	I _O = 4.0 mA
	6.0		-	0.16	0.26	-	0.33	-	0.4	V	or GND	I _O = 5.2 mA
Input leakage current	6.0	±I _I	-	-	0.1	-	1.0	-	1.0	µA	V _{CC} or GND	
Quiescent supply current SSI	6.0	I _{CC}	-	-	2.0	-	20.0	-	40.0	µA	V _{CC} or GND	I _O = 0

GENERAL PURPOSE

HCMOS-74 SERIES
Logic

DC family characteristics, 74HCT

Voltages are referenced to GND (ground = 0 V)

parameter	V _{CC} V	symbol	T _{amb} (°C)						unit	conditions		
			+25			-40 to +85		-40 to +125		V _I	other	
			min.	typ.	max.	min.	max.	min.				max.
HIGH level input voltage	4.5 - 5.5	V _{IH}	2.0	1.6	-	2.0	-	2.0	-	V		
LOW level input voltage	4.5 - 5.5	V _{IL}	-	1.2	0.8	-	0.8	-	0.8	V		
HIGH level output voltage all outputs	4.5	V _{OH}	4.4	4.5	-	4.4	-	4.4	-	V	V _{IH} or V _{IL}	-I _O = 20 µA
HIGH level output voltage standard	4.5	V _{OH}	3.98	4.32	-	3.84	-	3.7	-	V	V _{IH} or V _{IL}	-I _O = 4.0 mA
HIGH level output voltage bus driver	4.5	V _{OH}	3.98	4.32	-	3.84	-	3.7	-	V	V _{IH} or V _{IL}	-I _O = 6.0 mA
LOW level output voltage all outputs	4.5	V _{OL}	-	0	0.1	-	0.1	-	0.1	V	V _{IH} or V _{IL}	I _O = 20 µA
LOW level output voltage standard	4.5	V _{OL}	-	0.15	0.26	-	0.33	-	0.4	V	V _{IH} or V _{IL}	I _O = 4.0 mA
LOW level output voltage bus driver	4.5	V _{OL}	-	0.16	0.26	-	0.33	-	0.4	V	V _{IH} or V _{IL}	I _O = 6.0 mA
Input leakage current	5.5	±I _I	-	-	0.1	-	1.0	-	1.0	µA	V _{CC} or GND	
3-state OFF-state current	5.5	±I _{OZ}	-	-	0.5	-	5.0	-	10.0	µA	V _{IH} or V _{IL}	V _O = V _{CC} or GND; per input pin; other pins at V _{CC} or GND; I _O = 0
Quiescent supply current												
SSI	5.5	I _{CC}	-	-	2	-	20	-	40	µA	V _{CC}	I _O = 0
flip-flops	5.5	I _{CC}	-	-	4	-	40	-	80	µA	or GND	I _O = 0
MSI	5.5	I _{CC}	-	-	8	-	80	-	160	µA	GND	I _O = 0
LSI	5.5	I _{CC}	-	-	50	-	500	-	1000	µA	GND	I _O = 0
A.Q.S.C. (see note below)	4.5 - 5.5	ΔI _{CC}	-	100	360	-	450	-	490	µA	V _{CC} -2.1V	other inputs at V _{CC} or GND; I _O = 0



Note:
Additional quiescent supply current (A.Q.S.C.) per input pin for unit load coefficient is 1. This A.Q.S.C. is determined by the ΔI_{CC} unit load, which has to be multiplied by the unit load coefficient as given in the individual data sheets. For dual supply systems, the theoretical worst-case (V_I = 2.4 V; V_{CC} = 5.5 V) specification is: ΔI_{CC} = 0.65 mA (typical) and 1.8 mA (maximum) across temperature.

GENERAL PURPOSE

HCMOS-74 SERIES

Logic

AC family characteristics

GND = 0 V; $C_L = 50$ pF; $t_r = t_f = 6$ ns

74HC

parameter	V_{CC} V	symbol	T_{amb} (°C)							unit
			+25			-40 to +85		-40 to +125		
			min.	typ.	max.	min.	max.	min.	max.	
Output transition time standard outputs	2.0	$t_{THL}/$	-	19	75	-	95	-	110	ns
	4.5	t_{TLH}	-	7	15	-	19	-	22	ns
	6.0		-	6	13	-	16	-	19	ns
Output transition time bus driver outputs	2.0	$t_{THL}/$	-	14	60	-	75	-	90	ns
	4.5	T_{TLH}	-	5	12	-	15	-	18	ns
	6.0		-	4	10	-	13	-	15	ns

74HCU

parameter	V_{CC} V	symbol	T_{amb} (°C)							unit
			+25			-40 to +85		-40 to +125		
			min.	typ.	max.	min.	max.	min.	max.	
Output transition time	2.0	$t_{THL}/$	-	19	75	-	95	-	110	ns
	4.5	t_{TLH}	-	17	15	-	19	-	22	ns
	6.0		-	6	13	-	16	-	19	ns

74HCT

parameter	V_{CC} V	symbol	T_{amb} (°C)							unit
			+25			-40 to +85		-40 to +125		
			min.	typ.	max.	min.	max.	min.	max.	
Output transition time standard outputs	4.5	$t_{THL}/$ t_{TLH}	-	7	15	-	19	-	22	ns
Output transition time bus driver outputs	4.5	$t_{THL}/$ T_{TLH}	-	5	12	-	15	-	18	ns

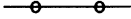
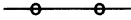
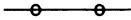

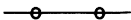

GENERAL PURPOSE

HCMOS-74 SERIES
Logic

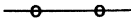
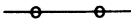

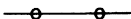


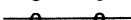





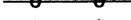
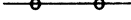


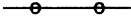
HCMOS-74 SERIES

HC HCT

ARITHMETIC FUNCTIONS

181	4-bit arithmetic logic unit	
182	look-ahead carry generator	
280	9-bit odd/even parity generator/checker	
283	4-bit binary full adder with fast carry	
583	4-bit full adder with fast carry	
7080	16-bit even/odd parity generator/checker	


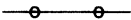










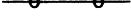
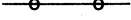










BUFFERS/LINE DRIVERS

125	quad buffer/line driver; 3-state; output enable active LOW	
126	quad buffer/line driver; 3-state; output enable active HIGH	
240	octal buffer/line driver; 3-state; inverting	
241	octal buffer/line driver; 3-state; output enable active low or HIGH	
244	octal buffer/line driver; 3-state; output enable active LOW	
365	hex buffer/line driver; 3-state	
366	hex buffer/line driver; 3-state; inverting	
367	hex buffer/line driver; 3-state	
368	hex buffer/line driver; 3-state; inverting	
540	octal buffer/line driver; 3-state; inverting	
541	octal buffer/line driver; 3-state	
7540	octal Schmitt trigger buffer/line driver; 3-state; inverting	
7541	octal Schmitt trigger buffer/line driver; 3-state	
9014	nine-wide Schmitt trigger buffer/line driver; inverting	
9015	nine-wide Schmitt trigger buffer/line driver	
9114	nine-wide Schmitt trigger buffer; open drain output; inverting	
9115	nine-wide Schmitt trigger buffer; open drain output	

COMPARATORS

85	4-bit magnitude comparator	
688	8-bit magnitude comparator	

COUNTERS

93	4-bit binary ripple counter	
160	presettable synchronous BCD decade counter; asynchronous reset	
161	presettable synchronous 4-bit binary counter; asynchronous reset	
162	presettable synchronous BCD decade counter; synchronous reset	
163	presettable synchronous 4-bit binary counter; synchronous reset	
190	presettable synchronous BCD decade up/down counter	
191	presettable synchronous 4-bit binary up/down counter	
192	presettable synchronous BCD decade up/down counter	
193	presettable synchronous 4-bit binary up/down counter	
390	dual decade ripple counter	
393	dual 4-bit binary ripple counter	
4017	Johnson decade counter with 10 decoded outputs	
4020	14-stage binary ripple counter	
4024	7-stage binary ripple counter	
4040	12-stage binary ripple counter	
4059	programmable divide-by-n counter	
4060	14-stage binary ripple counter with oscillator	
4510	BCD up/down counter	
4516	binary up/down counter	
4518	dual synchronous BCD counter	
4520	dual synchronous 4-bit binary counter	
6323A	programmable ripple counter with oscillator; 3-state	
40102	8-bit synchronous BCD down counter	
40103	8-bit synchronous binary down counter	



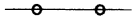

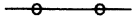


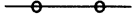

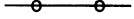
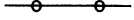
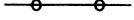
GENERAL PURPOSE

HCMOS-74 SERIES
Logic



HCMOS-74 SERIES

HC HCT

DECODERS/DEMULPLEXERS

42	BCD to decimal decoder (1-of-10)	
137	3-to-8 line decoder/demultiplexer with address latches	
138	3-to-8 line decoder/demultiplexer; inverting	
139	dual 2-to-4 line decoder/demultiplexer	
154	4-to-16 line decoder/demultiplexer	
237	3-to-8 line decoder/demultiplexer with address latches	
238	3-to-8 line decoder/demultiplexer	
4511	BCD to 7-segment latch/decoder/driver	
4514	4-to-16 line decoder/demultiplexer with input latches	
4515	4-to-16 line decoder/demultiplexer with input latches	




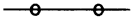
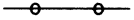


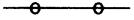
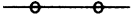

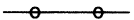
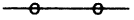
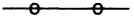

DRIVERS

4511	BCD to 7-segment latch/decoder/driver	
4543	BCD-to-7 segment latch/decoder/driver for LCDs	


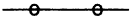


ENCODERS

147	10-to-4 line priority encoder	
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D-type FLIP-FLOPS

74	dual D-type flip-flop with set and reset; positive edge-trigger	
173	quad D-type flip-flop; positive-edge trigger; 3-state	
174	hex D-type flip-flop with reset; positive-edge trigger	
175	quad D-type flip-flop with reset; positive edge-trigger	
273	octal D-type flip-flop with reset; positive edge-trigger	
373	octal D-type transparent latch; 3-state	
374	octal D-type flip-flop; positive-edge trigger; 3-state	
377	octal D-type flip-flop with data enable; positive-edge trigger	
533	octal D-type transparent latch; 3-state; inverting	
534	octal D-type flip-flop; positive-edge trigger; 3-state; inverting	
563	octal D-type transparent latch; 3-state; inverting; bus-oriented pin-out	
564	octal D-type flip-flop; positive-edge trigger; 3-state; inverting; bus-oriented pin-out	
573	octal D-type transparent latch; 3-state; bus-oriented pin-out	
574	octal D-type flip-flop; positive-edge trigger; 3-state; bus-oriented pin-out	


JK FLIP-FLOPS

73	dual JK flip-flop with reset; negative-edge trigger; supply on centre pins	
107	dual JK flip-flop with reset; negative-edge trigger	
109	dual JK flip-flop with set and reset; positive-edge trigger	
112	dual JK flip-flop with set and reset; negative edge-trigger	

AND GATES

08	quad 2-input AND gate	
11	triple 3-input AND gate	
21	dual 4-input AND gate	

Complex GATES

58	dual AND-OR gate	
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EXCLUSIVE-OR GATES

86	quad 2-input EXCLUSIVE-OR gate	
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GENERAL PURPOSE

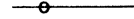
**HCMOS-74 SERIES
Logic**

HCMOS-74 SERIES

HC HCT

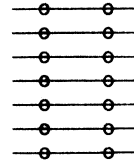
EXCLUSIVE-NOR GATES

7266 quad 2-input EXCLUSIVE-NOR gate



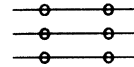
NAND GATES

00 quad 2-input NAND gate
03 quad 2-input NAND gate; open drain
10 triple 3-input NAND gate
20 dual 4-input NAND gate
30 8-input NAND gate
132 quad 2-input NAND Schmitt trigger
133 13-input NAND gate



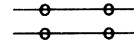
NOR GATES

02 quad 2-input NOR gate
27 triple 3-input NOR gate
4002 dual 4-input NOR gate



OR GATES

32 quad 2-input OR gate
4075 triple 3-input OR gate



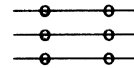
INVERTERS

04 hex inverter (unbuffered)



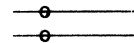
LATCHES

75 quad bistable transparent latch
259 8-bit addressable latch
354 8-input multiplexer/register with transparent latches; 3-state



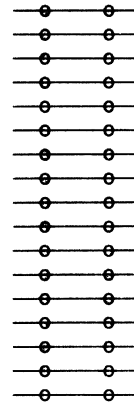
LEVEL SHIFTERS

4049 hex inverting HIGH-to-LOW level shifter
4050 hex HIGH-to-LOW level shifter



MULTIPLEXERS/DEMULTIPLEXERS

151 8-input multiplexer
153 dual 4-input multiplexer
157 quad 2-input multiplexer
158 quad 2-input multiplexer; inverting
251 8-input multiplexer; 3-state
253 dual 4-input multiplexer; 3-state
257 quad 2-input multiplexer; 3-state
258 quad 2-input multiplexer; 3-state; inverting
354 8-input multiplexer/register with transparent latches; 3-state
356 8-input multiplexer/register; 3-state
4051 8-channel analog multiplexer/demultiplexer
4052 dual 4-channel analog multiplexer/demultiplexer
4053 triple 2-channel analog multiplexer/demultiplexer
4067 16-channel analog multiplexer/demultiplexer
4351 8-channel analog multiplexer/demultiplexer with latch
4352 dual 4-channel analog multiplexer/demultiplexer with latch
4353 triple 2-channel analog multiplexer/demultiplexer with latch




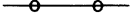

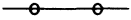

GENERAL PURPOSE

HCMOS-74 SERIES
Logic

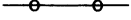




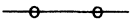
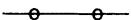



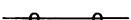






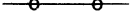
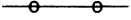

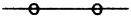
HCMOS-74 SERIES

HC HCT



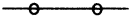

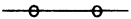




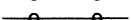

MULTIVIBRATORS

123	dual retriggerable monostable multivibrator with reset	
221	dual non-retriggerable monostable multivibrator with reset	
423	dual retriggerable monostable multivibrator with reset	
4538	dual retriggerable precision monostable multivibrator	
5555	programmable delay timer with oscillator	

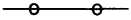

REGISTERS

164	8-bit serial-in/parallel-out shift register	
165	8-bit parallel-in/serial-out shift register	
166	8-bit parallel-in/serial-out shift register; with reset	
194	4-bit bidirectional universal shift register	
195	4-bit parallel access shift register	
299	8-bit universal shift register; 3-state	
354	8-input multiplexer/register with transparent latches; 3-state	
356	8-input multiplexer/register; 3-state	
594	8-bit shift register with output register	
595	8-bit serial-in/serial or parallel-out shift register with output latches; 3-state	
597	8-bit shift register with input latches	
670	4 x 4 register file; 3-state	
4015	dual 4-bit serial-in/parallel-out shift register	
4094	8-stage shift-and-store bus register	
7030	9-bit x 64-word FIFO register; 3-state	
7403	4-bit x 64-word FIFO register; 3-state	
7404	5-bit x 64-word FIFO register; 3-state	
7597	8-bit shift register with input latches	
7731	quad 64-bit static shift register	
40104	4-bit bidirectional universal shift register; 3-state	
40105	4-bit x 16 word FIFO register	


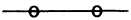

SCHMITT TRIGGERS

14	hex inverting Schmitt trigger	
132	quad 2-input NAND Schmitt trigger	
7014	hex inverting Schmitt trigger	
7132	quad adjustable precision Schmitt trigger	
7245	octal bus Schmitt trigger transceiver; 3-state	
7540	octal Schmitt trigger buffer/line driver; 3-state; inverting	
7541	octal Schmitt trigger buffer/line driver; 3-state	
9014	nine-wide Schmitt trigger buffer/line driver; inverting	
9015	nine-wide Schmitt trigger buffer/line driver	
9114	nine-wide Schmitt trigger buffer; open drain output; inverting	
9115	nine-wide Schmitt trigger buffer; open drain output	

SPECIAL FUNCTIONS

297	digital phase-locked-loop filter	
4046A	phase-locked loop with VCO	
7046A	PLL with lock detector	
9046A	high-performance PLL	

SWITCHES

4016	quad bilateral switches (uncompensated switches)	
4066	quad bilateral switches	
4316	quad bilateral switches; separate analog ground	

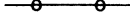
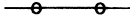
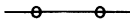




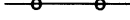
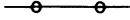
GENERAL PURPOSE

HCMOS-74 SERIES
Logic

HCMOS-74 SERIES

HC HCT

TRANSCEIVERS

242	quad bus transceiver; 3-state; inverting	
243	quad bus transceiver; 3-state	
245	octal bus transceiver; 3-state	
640	octal bus transceiver; 3-state; inverting	
643	octal bus transceiver; 3-state; true/inverting	
646	octal bus transceiver/register; 3-state	
648	octal bus transceiver/register; 3-state; inverting	
652	octal registered bus transceiver	
7245	octal bus Schmitt trigger transceiver; 3-state	



GENERAL PURPOSE

ABT74 AND MULTIBYTE SERIES
Logic

ABT74 and MULTIBYTE FAMILY SPECIFICATIONS

General

These family specifications cover the common electrical ratings and characteristics of the entire 74ABT and MULTIBYTE families, unless otherwise specified in the individual device data sheet.

Introduction

The 74ABT and MULTIBYTE Advanced BiCMOS families combine the low power dissipation and low noise of BiCMOS with the high speed and high output drive of our bipolar logic devices. The basic families of devices designated as 74ABTxxx and MBxxxx will operate at BiCMOS input logic levels for high noise immunity, negligible quiescent supply and input current. They operate from a power supply of 4.5 to 5.5 V.

Handling BiCMOS devices

Inputs and outputs are protected against electrostatic effects in a wide variety of device-handling situations. However, to be totally safe, it is desirable to take appropriate handling precautions into account.

ABT Features

- Fastest in industry apart from ECL devices
- Ideal for bus driver applications
- Very short propagation delays
- 64 mA sink current; 32 mA source current
- Supply voltage range: 5 V ±10%
- Standard TTL pin-out
- Latch-up protection exceeds 500 mA
- Wide operating temperature range: -40 to +85 °C
- All devices available in DIL and SO packages
- SSOP packages

MULTIBYTE Features

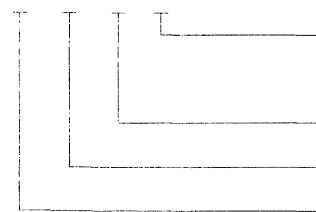
- Double- and quadruple-byte functionality
- TTL compatible I/Os
- 50 µA I_{CCZ}
- +64/-32 mA output drive
- High performance, JEDEC registered 52-pin and 100-pin QFP packages
- Very low noise immunity
- Very low simultaneous switching propagation delay degradation
- Very low skew

Type number designation

Basic family:

74ABTxxx complete type number which can be split as follows:

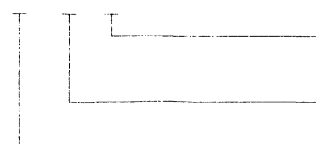
74 ABT xxx x



- N = package code:
N = plastic DIL;
D = plastic mini-pack (SO)
- xxx = 3 digits device number
- ABT = advanced BiCMOS TTL process
- 74 = standard operating temperature range
-40 to +85 °C

MBxxxx complete type number which can be split as follows:

MB xxxx x



- B = package code:
B = plastic quad flat pack (QFP) package
- xxxx = 4 digits device number
- MB = Designates MULTIBYTE products

GENERAL PURPOSE

ABT74 AND MULTIBYTE SERIES
Logic

Family ratings

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Voltages are referenced to GND (ground = 0 V)

parameter	conditions	symbol	min.	max.	unit
DC supply voltage		V_{CC}	-0.5	+7	V
DC input diode current	$V_I < 0$ V	$-I_{IK}$	-	18	mA
DC input voltage		V_I	-1.2	+7	V
DC output diode current	$V_O < 0$ V	$-I_{OK}$	-	50	mA
DC output voltage	output OFF or HIGH	V_O	-0.5	+5.5	V
DC output current	output LOW	I_O	-	128	mA
storage temperature range		T_{stg}	-65	+150	°C



Recommended operating conditions

Voltages are referenced to GND (ground = 0 V)

parameter	symbol	min.	max.	unit
DC supply voltage	V_{CC}	4.5	5.5	V
Input voltage	V_I	0	V_{CC}	V
HIGH level input voltage	V_{IH}	2.0	-	V
LOW level input voltage	V_{IL}	-	0.8	V
HIGH level output current	$-I_{OH}$	-	32	mA
LOW level output current	I_{OL}	-	64	mA
Input transition rise or fall rate	$\Delta V/\Delta t$	0	5	ns/V
Operating ambient temperature range	T_{amb}	-40	+85	°C

GENERAL PURPOSE

ABT74 AND MULTIBYTE SERIES

Logic

DC family characteristics

Voltages are referenced to GND (ground = 0 V)

parameter	V _{CC} V	symbol	T _{amb} (°C)					unit	conditions	
			+25			-40 to +85			V _I	other
			min.	typ.	max.	min.	max.			
Input clamp voltage	4.5	-V _{IK}	-	0.9	1.2	-	1.2	V		-I _{IK} = 18 mA
HIGH level output voltage	4.5	V _{OH}	2.5	2.9	-	2.5	-	V	V _{IH} or	-I _O = 3 mA
	5.0		3.0	3.4	-	3.0	-	V	V _{IL}	-I _O = 3 mA
	4.5		2.0	2.4	-	2.0	-	V		-I _O = 32 mA
LOW level output voltage	4.5	V _{OL}	-	0.42	0.55	-	0.55	V	V _{IH} or V _{IL}	I _{OL} = 64 mA
Input leakage current	5.5	I _I	-	±0.01	±0.1	-	±0.1	µA	GND or 5.5 V	
3-state output HIGH current	5.5	-I _{OZH}	-	5.0	50	-	50	µA	V _{IH} or V _{IL}	V _O = 2.7 V
3-state output LOW current	5.5	I _{OZL}	-	5.0	50	-	50	µA	V _{IH} or V _{IL}	V _O = 0.5 V
Short-circuit output current	5.5	-I _O	50	100	180	50	180	mA		V _O = 2.5 V see note 1
Quiescent supply current	5.5	I _{CCH}	-	0.5	50	-	50	µA	V _{CC} or	outputs HIGH
	5.5	I _{CCL}	-	24	30	-	30	mA	GND	outputs LOW
	5.5	I _{CCZ}	-	0.5	50	-	50	µA		outputs 3-state
Additional supply current per input pin see note 2	5.5	ΔI _{CC}	-	0.5	1.5	-	1.5	mA	V _{CC} or GND	outputs enabled; one input at 3.4 V
	5.5	ΔI _{CC}	-	0.5	50	-	50	µA	V _{CC} or GND	outputs 3-state; one data input at 3.4 V
	5.5	ΔI _{CC}	-	0.5	1.5	-	1.5	mA	V _{CC} or GND	outputs 3-state; one enable input at 3.4 V

Note 1:

Not more than one output should be tested at a time and the duration of the test should not exceed 1 second.

Note 2:

This is the increase in supply current for each input at 3.4 V.

GENERAL PURPOSE

ABT74 AND MULTIBYTE SERIES
Logic

ABT74 AND MULTIBYTE SERIES

ABT MB

BUFFERS/LINE DRIVERS

125	quad buffer; 3-state	—○—
126	quad buffer; 3-state	—○—
240	octal inverting buffer; 3-state	—○—
240-1	octal inverting buffer; 30 Ω termination resistor; 3-state	—○—
241	octal buffer/line driver; 3-state	—○—
244	octal buffer/line driver; 3-state	—○—
244-1	octal buffer/line driver; 3-state	—○—
540	octal buffer; inverting; 3-state	—○—
541	octal buffer/line driver; 3-state	—○—
827	10-bit buffer/line driver; non-inverting; 3-state	—○—
827-1	10-bit buffer/line driver; non-inverting; 3-state	—○—
2240	16-bit inverting buffer; 3-state	—○—
2241	16-bit buffer/line driver; 3-state	—○—
2244	16-bit buffer/line driver; 3-state	—○—
2541	16-bit buffer/line driver; 3-state	—○—
2827	20-bit buffer/line driver; non-inverting; 3-state	—○—

D-type FLIP-FLOPS/LATCHES

273	octal D flip-flop	—○—
373	octal D-type transparent latch; 3-state	—○—
374	octal D-type flip-flop; positive-edge trigger; 3-state	—○—
377	octal D-type flip-flop with enable	—○—
534	octal D-type flip-flop; inverting; 3-state	—○—
573	octal D-type transparent latch; 3-state	—○—
574	octal D-type flip-flop; 3-state	—○—
821	10-bit D-type flip-flop; positive-edge trigger; 3-state	—○—
823	9-bit D-type flip-flop with reset and enable; 3-state	—○—
841	10-bit bus interface latch; 3-state	—○—
843	9-bit bus interface latch with set and reset; 3-state	—○—
845	8-bit bus interface latch with set and reset; 3-state	—○—
2373	16-bit D-type transparent latch; 3-state	—○—
2374	16-bit D-type flip-flop; positive-edge trigger; 3-state	—○—
2377	16-bit D-type flip-flop with enable	—○—
2821	20-bit D-type flip-flop; positive-edge trigger; 3-state	—○—
2823	18-bit D-type flip-flop with reset and enable; 3-state	—○—
2841	20-bit bus interface latch; 3-state	—○—

TRANSCEIVERS

245	octal transceiver with direction pin; 3-state	—○—
543	octal latched transceiver with dual enable; 3-state	—○—
544	octal latched transceiver with dual enable; inverting; 3-state	—○—
620	octal transceiver with dual enable; inverting; 3-state	—○—
623	octal transceiver with dual enable; non-inverting; 3-state	—○—
640	octal transceiver with direction pin; inverting; 3-state	—○—
646	octal bus transceiver/register; 3-state	—○—
648	octal bus transceiver/register; inverting; 3-state	—○—
652	transceiver/register; non-inverting; 3-state	—○—
657	octal transceiver with parity generator/checker; 3-state	—○—
833	octal transceiver with parity generator/checker; 3-state	—○—
834	octal inverting transceiver with parity generator/checker; 3-state	—○—
853	8-bit transceiver with 9-bit parity checker/generator and flag latch; 3-state	—○—
861	10-bit bus transceiver; 3-state	—○—
863	9-bit bus transceiver; 3-state	—○—
899	9-bit dual latch transceiver with 8-bit parity generator/checker; 3-state	—○—



GENERAL PURPOSE

ABT74 AND MULTIBYTE SERIES
Logic

ABT74 AND MULTIBYTE SERIES

ABT MB

2052	16-bit registered transceiver; 3-state	—	○
2245	16-bit transceiver with direction pin; 3-state	—	○
2543	16-bit latched transceiver with dual enable; 3-state	—	○
2623	16-bit transceiver with dual enable; non-inverting; 3-state	—	○
2646	16-bit bus transceiver/register; 3-state	—	○
2652	16-bit transceiver/register; non-inverting; 3-state	—	○
2952	octal registered transceiver; 3-state	—	○
2953	octal registered transceiver; inverting; 3-state	—	○

GENERAL PURPOSE

TTL74 SERIES
Logic

TTL FAMILY CHARACTERISTICS COMPARISON

Logic family	SSI gates propagation delay	flip-flops toggle rate	MSI ALU 4-bit add time
FAST TTL (F) 74F00 Series SSI and LSI FAST Series offers higher speeds than Schottky TTL and uses only 25% of the power.	3 ns at 4 mW	100 MHz	9 ns
ADVANCED LOW POWER SCHOTTKY (ALS) 74ALS00 Series SSI and MSI replaces LS with a 50% power saving and greater than twice the speed.	5 ns at 1 mW	60 MHz	12 ns



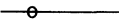
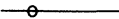
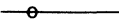
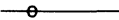

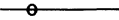


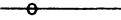
GENERAL PURPOSE

TTL74 SERIES
Logic


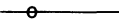
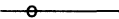



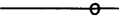

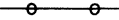


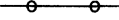

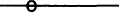
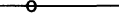
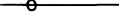
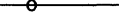

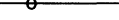


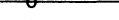












N74 SERIES

F ALS

ARITHMETIC FUNCTIONS

181	4-bit arithmetic logic unit	
182	look-ahead carry generator	
280A	9-bit odd/even parity generator/checker	
280B	9-bit odd/even parity generator/checker	
283	4-bit full adder with fast carry	
381	4-bit arithmetic logic unit	
382	4-bit arithmetic logic unit	
385	quad serial adder/subtractor	
583	4-bit BCD adder	


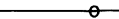
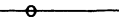
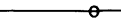
BUFFERS/LINE DRIVERS

06	hex inverter buffer/driver (open collector)	
07	hex buffer/line driver (open collector)	
125	quad buffer (3-state)	
126	quad buffer (3-state)	
240	octal inverter buffer (3-state)	
240A	octal inverter buffer (3-state)	
240A-1	octal inverter buffer (3-state)	
241	octal buffer (3-state)	
241A	octal buffer (3-state)	
241A-1	octal buffer (3-state)	
244	octal buffer (3-state)	
244A	octal buffer (3-state)	
244A-1	octal buffer (3-state)	
365	hex buffer/driver (3-state)	
366	hex inverter buffer (3-state)	
367	hex buffer/driver (3-state)	
368	hex inverter buffer (3-state)	
455	octal buffer with parity generator checker	
456	octal buffer with parity generator checker	
540	octal buffer/line driver (3-state)	
541	octal non-inverting buffer/line driver (3-state)	
655A	octal inverting buffer with parity generator/checker	
656A	octal buffer with parity generator checker	
756	octal inverter buffer (open collector)	
757	octal buffer (open collector)	
760	octal buffer (open collector)	
827	10-bit buffer line driver, non-inverting (3-state)	
828	10-bit buffer line driver, inverting (3-state)	
1240	octal buffer; inverting (3-state); light load	
1241	octal buffer; non-inverting; (3-state); light load	
1244	octal buffer (3-state)	
2240	octal inverter buffer with 30 Ω termination network (3-state)	
2241	octal buffer with 30 Ω termination network (3-state)	
2244	octal buffer with 30 Ω termination network (3-state)	

COMPARATORS

85	4-bit magnitude comparator	
521	8-bit identify comparator	
524	8-bit register comparator (open collector)	

COUNTERS

161A	synchronous 4-bit binary counter	
161B	synchronous 4-bit binary counter	
163A	synchronous 4-bit binary counter	
163B	synchronous 4-bit binary counter	

GENERAL PURPOSE

TTL74 SERIES
Logic

N74 SERIES

F ALS

169	synchronous 4-bit binary up/down counter	
191	presettable 4-bit binary up/down counter	
192	presettable BCD/decade up/down counter	
193	presettable 4-bit binary up/down counter	
269	8-bit binary counter	
393	dual 4-bit binary ripple counter	
569	4-bit binary up/down synchronous counter (3-state)	
579	8-bit binary up/down counter, common I/O (3-state)	
779	8-bit bidirectional binary counter (3-state)	
1779	8-bit bidirectional binary counter (3-state)	

DECODERS/DEMULPLEXERS

138	3-line to 8-line decoder/demultiplexer	
139	dual 2-line to 4-line decoder/demultiplexer	
154	4-line to 16-line decoder/demultiplexer	
537	1-of-10 decoder (3-state)	
538	1-of-8 decoder (3-state)	
539	dual 1-of-4 decoder (3-state)	

DRIVERS

804	hex 2-input NAND driver	
805	hex 2-input NOR driver	
808	hex 2-input AND driver	
832	hex 2-input OR driver	
1804	hex 2-input NAND driver	
1805	hex 2-input NOR driver	
1808	hex 2-input AND driver	
1832	hex 2-input OR driver	
3037	quad 2-input NAND, 30 Ohm transmission line driver	
3038	quad 2-input NAND, 30 Ohm transmission line driver; open col.	
3040	dual 4-input NAND, 30 Ohm transmission line driver	
5300	fiber optic LED driver	
5302	fiber optic dual LED/clock driver	
30244	octal 30 Ohm transmission-line/backplane driver	
30245	octal transceiver/30 Ohm transmission line driver; open collector	

ENCODERS

148	8-line to 3-line priority encoder	
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D-type FLIP-FLOPS

74	dual D-type edge-triggered flip-flop	
74A	dual D-type edge-triggered flip-flop	
173	quad D-type flip-flop (3-state)	
174	hex D-type flip-flop with reset	
175	quad D-type edge-triggered flip-flop with reset	
273	octal D-type flip-flop with reset	
374	octal D-type flip-flop (3-state)	
377	octal D-type flip-flop with clock enable	
378	hex D-type flip-flop with clock enable	
379	quad D flip-flop with enable	
534	octal D-type flip-flop (3-state)	
564	octal D flip-flop (3-state) broadside pinout	
564A	octal D-type flip-flop; inverting (3-state)	
574	octal D flip-flop (3-state) broadside pinout	
574A	octal D-type flip-flop (3-state); same as 'ALS374 with broadside pin-out	
5074	synchronizing dual D-type flip-flop with metastable	



GENERAL PURPOSE

TTL74 SERIES
Logic

N74 SERIES

F ALS

	immune characteristics	
50728	cascaded synchronizing dual D-type flip-flop with metastable immune characteristics	
50729	synchronizing dual D-type flip-flop with edge-triggered set and reset and metastable immune characteristics	

JK FLIP-FLOPS

109	dual JK positive-edge triggered flip-flop	
109A	dual JK positive-edge triggered flip-flop	
112	dual JK negative-edge triggered flip-flop	
113	dual JK positive-edge triggered flip-flop	
114	dual JK negative-edge triggered flip-flop	
50109	dual synchronizing JK flip-flop; positive-edge triggered with metastable immune characteristics	

AND GATES

08	quad 2-input AND gate	
11	triple 3-input AND gate	
11A	triple 3-input AND gate	

Complex GATES

51	dual 2-wide 2-input AND-OR-invert gate	
64	4-2-3-2-input AND-OR-invert gate	

EXCLUSIVE-OR GATES

86	quad 2-input EXCLUSIVE-OR gate	
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NAND GATES

00	quad 2-input NAND gate	
00A	quad 2-input NAND gate	
10	triple 3-input NAND gate	
10A	triple 3-input NAND gate	
20	dual 4-input NAND gate	
20A	dual 4-input NAND gate	
30	8-input NAND gate	
30A	8-input NAND gate	
37	quad 2-input NAND buffer	
38	quad 2-input NAND buffer (open collector)	
38A	quad 2-input NAND buffer (open collector)	
40	dual 4-input NAND buffer	
132	quad 2-input NAND Schmitt trigger	
133	13-input NAND gate	

NOR GATES

02	quad 2-input NOR gate	
27	triple 3-input NOR gate	
260	dual 5-input NOR gate	

OR GATES

32	quad 2-input OR gate	
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INVERTERS

04	hex inverter	
04B	hex inverter	

LATCHES

256	dual 4-bit addressable latch	
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GENERAL PURPOSE

TTL74 SERIES
Logic

N74 SERIES

F ALS

259	8-bit addressable latch	
373	octal transparent latch (3-state)	
533	inverting octal D-type latch (3-state)	
563A	octal transparent latch; inverting (3-state)	
573	octal transparent latch (3-state) broadside pinout	
573B	octal transparent latch (3-state); same as 'ALS373 with broadside pin-out	
604	dual 8-bit register (3-state)	
841	10-bit bus interface latch; non-inverting (3-state)	
842	10-bit bus interface latch; inverting (3-state)	
843	9-bit bus interface latch; non-inverting (3-state)	
844	9-bit latch bus interface, inverting (3-state)	
845	8-bit bus interface latch; non-inverting (3-state)	
846	8-bit latch bus interface, inverting (3-state)	
1604	dual octal latch	

MEMORIES

189A	64-bit TTL bipolar RAM (16x4); inverting (3-state)	
219A	64-bit TTL bipolar RAM (16x4); non-inverting (3-state)	
410	register stack; 16x4 RAM; 3-state output register	

MULTIPLEXERS

151	8-line to 1-line multiplexer	
151A	8-line to 1-line multiplexer	
153	dual 4-line to 1-line multiplexer	
157	quad 2-input data selector/multiplexer; non-inverting	
157A	quad 2-input data selector/multiplexer; non-inverting	
158	quad 2-input data selector/multiplexer; inverting	
158A	quad 2-input data selector/multiplexer; inverting	
251	8-line to 1-line multiplexer (3-state)	
251A	8-line to 1-line multiplexer (3-state)	
253	dual 4-line to 1-line multiplexer (3-state)	
257	quad 2-line to 1-line data selector/multiplexer (3-state)	
257A	quad 2-line to 1-line data selector/multiplexer (3-state)	
258	quad 2-line to 1-line data selector/multiplexer (3-state)	
258A	quad 2-line to 1-line data selector/multiplexer (3-state)	
353	dual 4-input multiplexer (3-state)	
711	quintuple 2-input multiplexer (3-state)	
711A	quintuple 2-input multiplexer (3-state)	
711-1	quintuple 2-input multiplexer with 30 Ohm series termination resistors (3-state)	
712	quintuple 3-input multiplexer	
712A	quintuple 3-input multiplexer	
712-1	quintuple 3-input multiplexer with 30 Ohm series termination resistors	
723	quad 3-input multiplexer (3-state)	
723A	quad 3-input multiplexer (3-state)	
723-1	quad 3-input multiplexer with 30 Ohm series termination resistors (3-state)	
725	quad 4-input multiplexer	
725A	quad 4-input multiplexer	
725-1	quad 4-input multiplexer with 30 Ohm series termination resistors	
733	quad data multiplexer; non-inverting (3-state)	

REGISTERS

164	8-bit serial-in/parallel-out shift register	
166	8-bit serial/parallel-in/serial-out shift register	



GENERAL PURPOSE

TTL74 SERIES
Logic

N74 SERIES

F ALS

194	4-bit bidirectional universal shift register	—○—
195	4-bit parallel access shift register	—○—
198	8-bit bidirectional universal shift register	—○—
199	8-bit parallel-access shift register	—○—
225	16x5 asynchronous FIFO (3-state)	—○—
298	quad 2-input multiplexer with storage	—○—
299	octal shift/storage register (3-state)	—○—
322	octal shift/storage register (3-state)	—○—
323	octal shift/storage register (3-state)	—○—
350	4-bit shifter (3-state)	—○—
395	4-bit cascadable shift register (3-state)	—○—
398	quad 2-port register true	—○—
399	quad 2-port register true	—○—
410	register stack; 16x4 RAM; 3-state output register	—○—
595	8-bit shift register with output latches (3-state)	—○—
597	8-bit shift register with input latches	—○—
598	8-bit shift register with input latches (3-state)	—○—
670	4x4 register file (3-state)	—○—
674	16-bit serial/parallel-in, serial out shift register (3-state)	—○—
676	16-bit serial/parallel-in, serial out shift register (3-state)	—○—
821	10-bit bus interface register, non-inverting (3-state)	—○—
822	10-bit bus interface register; inverting (3-state)	—○—
823	9-bit bus interface register; non-inverting (3-state)	—○—
824	9-bit bus interface register; inverting (3-state)	—○—
825	9-bit bus interface register; non-inverting (3-state)	—○—
826	9-bit bus interface register; inverting (3-state)	—○—
835	8-bit shift register; 2:1 MUX-in; latched 'B' inputs; serial-out	—○—

SCHMITT TRIGGERS

14	hex inverter Schmitt trigger	—○—
132	quad 2-input NAND Schmitt trigger	—○—

SPECIAL FUNCTIONS

764	dual port RAM controller	—○—
764-1	DRAM dual-ported controller	—○—
765	dual port RAM controller without latch	—○—
765-1	DRAM dual-ported controller without latch	—○—
786	4-input asynchronous bus arbiter	—○—
1762	1 M-bit memory address controller	—○—
1763	1 M-bit intelligent DRAM controller	—○—
1764	1 M-bit DRAM dual-ported controller with latch	—○—
1764-1	1 M-bit DRAM dual-ported controller with latch	—○—
1765	1 M-bit DRAM dual-ported controller without latch	—○—
1765-1	1 M-bit DRAM dual-ported controller without latch	—○—
1766	burst mode DRAM controller	—○—

TRANSCEIVERS

242	quad bus inverting transceiver (3-state)	—○—
243	quad transceiver (3-state)	—○—
245	octal bus transceiver (3-state)	—○—
245A	octal bus transceiver (3-state)	—○—
245A-1	octal bus transceiver (3-state)	—○—
543	octal registered transceiver; non-inverting (3-state)	—○—
543-1	octal registered transceiver; non-inverting (3-state)	—○—
544	octal registered transceiver; inverting (3-state)	—○—
544-1	octal registered transceiver; inverting (3-state)	—○—

GENERAL PURPOSE

TTL74 SERIES
Logic

N74 SERIES

F ALS

545	octal bus transceiver (3-state)	
552	octal registered transceiver with status flags	
620	octal bus transceiver; inverting (3-state)	
620A	octal bus transceiver; inverting (3-state)	
620A-1	octal bus transceiver; inverting (3-state)	
621	octal bus transceiver; non-inverting (open collector)	
623	octal bus transceiver; non-inverting (3-state)	
623A	octal bus transceiver; non-inverting (3-state)	
623A-1	octal bus transceiver; non-inverting (3-state)	
640	octal bus transceiver, inverting (3-state)	
641	octal bus transceiver; non-inverting (open collector)	
642	octal bus transceiver; inverting (open collector)	
645A	octal transceiver (3-state)	
645A-1	octal transceiver (3-state)	
646	octal bus transceiver and register; non-inverting (3-state)	
646-1	octal transceiver/register; non-inverting (3-state)	
646A	octal bus transceiver and register; non-inverting (3-state)	
647	octal bus transceiver and register; non-inverting (open collector)	
648	octal bus transceiver and register; inverting (3-state)	
648-1	octal transceiver/register; inverting (3-state)	
648A	octal bus transceiver and register; inverting (3-state)	
649	octal bus transceiver and register; inverting (open collector)	
651	octal transceiver/register; inverting (3-state)	
651-1	octal transceiver/register; inverting (3-state)	
651A	octal transceiver/register; inverting (3-state)	
652	octal transceiver/register; non-inverting (3-state)	
652-1	octal transceiver/register; non-inverting (3-state)	
652A	octal transceiver/register; non-inverting (3-state)	
653	octal transceiver/register, inverting (open collector) (3-state)	
657	octal bus transceiver with parity generator/checker (3-state)	
776	octal bidirectional latched bus transceiver (open collector)	
777	triple bidirectional latched bus transceiver (3-state) (open collector)	
807	octal shift/count registered transceiver with adder and parity (3-state)	
861	10-bit bus transceiver, non-inverting	
862	10-bit bus transceiver, inverting	
863	9-bit bus transceiver, non-inverting (3-state)	
864	9-bit bus transceiver, inverting (3-state)	
899	dual 9-bit latch transceiver with 8-bit parity generator/checker (3-state)	
1243	quad transceiver (3-state); light load	
1245	octal bus transceiver (3-state); light load	
2952	8-bit transceiver; non-inverting (3-state)	
2953	8-bit transceiver; inverting (3-state)	
3893	quad FutureBus backplane transceiver (3-state, open collector)	
8960	octal latched bidirectional FutureBus transceiver; inverting (open collector)	
8961	octal latched bidirectional FutureBus transceiver; non-inverting (open collector)	
8962	9-bit latched bidirectional FutureBus transceiver; inverting (open collector)	
8963	9-bit latched bidirectional FutureBus transceiver; non-inverting (open collector)	
30245	octal transceiver/30 Ohm transmission line driver; open collector	



GENERAL PURPOSE

ECL 100K SERIES
Logic

ECL 100K FAMILY SPECIFICATIONS

To satisfy the needs of new generations of computer and telecommunication systems in standard and LSI circuit design, a new technological process has been developed using oxide lateral isolation. The process is called SUBILO and permits the manufacture of integrated circuits with ultra-high speeds and high integration density.

Instead of conventional planar junction isolation technology, SUBILO uses a process that results in a considerable reduction in transistor area and an increased integration density.

By using an increase in silicon oxide instead of isolation diffusion "p", and removing the part between the emitter and isolation oxide, SUBILO technology results in a further reduction of transistor area. At the same time, the collector-base capacitance decreases, which is an important improvement in the dynamic performance of the transistor.

Family ratings

Limiting values in accordance with the Absolute Maximum System (IEC 134)

parameter	symbol	min.	max.	unit
DC supply voltage range	$-V_{EE}$	-0.5	7.0	V
Input voltage (V_{IN} should never be more negative than V_{EE})	V_{IN}	0.5	V_{EE}	V
Output source current (continuous)	$-I_O$	-	55	mA
Storage temperature range	T_{stg}	-65	+150	°C
Junction temperature	T_J	-	+150	°C

DC operating conditions

parameter	symbol	min.	typ.	max.	unit	conditions
Circuit ground	V_{CC}	0	0	0	V	
DC supply voltage	$-V_{EE}$	4.8	4.5	4.2	V	
DC supply voltage when operating with the 10K or the 100KH ECL family	$-V_{EE}$	5.7	-	-	V	
HIGH level input voltage	$-V_{IH}$	1150	-	-	mV	$V_{EE} = -4.2$ V
		1165	-	880	mV	$V_{EE} = -4.5$ V
		1165	-	-	mV	$V_{EE} = -4.8$ V
LOW level input voltage	$-V_{IL}$	-	-	1475	mV	$V_{EE} = -4.2$ V
		1810	-	1475	mV	$V_{EE} = -4.5$ V
		-	-	1490	mV	$V_{EE} = -4.8$ V
Operating ambient temperature range	T_{amb}	0	+25	+85	°C	

GENERAL PURPOSE**ECL 100K SERIES
Logic****ECL 100K SERIES****ARITHMETIC FUNCTIONS**

- 100179 high speed carry look ahead generator
 100180 fast 6-bit adder
 100181 4-bit ALU binary/decimal

BUFFERS/INVERTERS

- 100122 9-bit buffer gate

BUS AND LINE DRIVERS

- 100112 quadruple double fan-out OR/NOR gate
 100113 quadruple fan-out OR/NOR gate
 100123 hex bus driver
 100126 9-bit buffer gate

COMPARATORS

- 100160 dual 9-bit parity generator/8-bit comparator
 100166 9-bit comparator

COUNTERS

- 100136 multipurpose counting register

DECODERS/DEMULTIPLEXERS

- 100170 universal demultiplexer/decoder

ENCODERS

- 100165 universal priority encoder

D-type FLIP-FLOPS AND LATCHES

- 100131 triple D-type master-slave flip-flop
 100150 hex D-type latch
 100151 hex D-type master-slave flip-flop
 100155 quadruple 2-way multiplexer latch
 100175 5-bit 100K to 10K interface with latch
 100231 triple D-type master-slave flip-flop (high-speed)

Complex GATES

- 100117 triple 1-2-2 input OR/AND-OR/NAND gate
 100118 quintuple 2-4-4-4-5 input OR/AND-OR/NAND gate

EXCLUSIVE-OR/NOR GATES

- 100107 quintuple EXCLUSIVE OR/NOR gate with compare

OR/NOR GATES

- 100101 triple 5-input OR/NOR gate
 100102 quintuple 2-input OR/NOR gate with common enable

MULTIPLEXERS

- 100155 quadruple 2-way multiplexer latch
 100163 dual 8-bit multiplexer
 100164 16-input multiplexer
 100171 triple bit 4-way multiplexer

RECEIVERS

- 100114 quintuple differential line receiver



GENERAL PURPOSE**ECL 100K SERIES**
Logic

ECL 100K SERIES

REGISTERS

- 100141** 8-bit universal shift register
100158 8-bit shift matrix

TRANSLATORS AND TRANSCEIVERS

- 100124** hex TTL to ECL translator
100125 hex ECL to TTL translator
100175 5-bit 100K to 10K interface with latch
100255 5-bit ECL/TTL interface
100790 9-bit transceiver
100982 hex ECL-TTL translating transceiver with registers
100984 quadruple ECL-TTL translating transceiver with registers
100990 9-bit transceiver

PROMs

- 100149** 1024-bit ECL bipolar PROM (256x4)
100149A 1024-bit ECL bipolar PROM (256x4)

PALs

- 10020EV8-4** ECL 100K GAL-type programmable array logic

GENERAL PURPOSE

Programmable Logic Devices (PLDs)

PHD — PROGRAMMABLE HIGH-SPEED DECODERS

PHD16N8-5	programmable high-speed decoder logic (16x16x8); $t_{PD} = 5$ ns
PHD48N22-7	programmable high-speed decoder logic (48x73x22) $t_{PD} = 7.5$ ns

PAL-TYPE — PROGRAMMABLE (AND-) ARRAY LOGIC

Combinatorial PAL-type devices

PLUS16L8-7	PAL-type device; $t_{PD} = 7.5$ ns
PLUS16L8D	PAL-type device; $t_{PD} = 10$ ns
PLUS20L8-7	PAL-type device; $t_{PD} = 7.5$ ns
PLUS20L8D	PAL-type device; $t_{PD} = 10$ ns

Registered PAL-type devices

PLUS16R4-7	PAL-type device; $t_{PD} = 7.5$ ns; 74 MHz
PLUS16R4D	PAL-type device; $t_{PD} = 10$ ns; 60 MHz
PLUS16R6-7	PAL-type device; $t_{PD} = 7.5$ ns; 74 MHz
PLUS16R6D	PAL-type device; $t_{PD} = 10$ ns; 60 MHz
PLUS16R8-7	PAL-type device; $t_{PD} = 7.5$ ns; 74 MHz
PLUS16R8D	PAL-type device; $t_{PD} = 10$ ns; 60 MHz
PLUS20R4-7	PAL-type device; $t_{PD} = 7.5$ ns; 74 MHz
PLUS20R4D	PAL-type device; $t_{PD} = 10$ ns; 60 MHz
PLUS20R6-7	PAL-type device; $t_{PD} = 7.5$ ns; 74 MHz
PLUS20R6D	PAL-type device; $t_{PD} = 10$ ns; 60 MHz
PLUS20R8-7	PAL-type device; $t_{PD} = 7.5$ ns; 74 MHz
PLUS20R8D	PAL-type device; $t_{PD} = 10$ ns; 60 MHz

Universal PAL-type devices with output macro cell (OMC)

PLC18V8Z25	zero-power GAL-type EPLD; $t_{PD} = 25$ ns; 30 MHz
PLC18V8ZIA	zero-power GAL-type EPLD; $t_{PD} = 25$ ns; 30 MHz; industrial temperature range
PLC18V8Z35	zero-power GAL-type EPLD; $t_{PD} = 35$ ns; 21 MHz
PLC18V8ZI	zero-power GAL-type EPLD; $t_{PD} = 40$ ns; 21 MHz; industrial temperature range
PLQ22V10-7	BiCMOS GAL-type device; $t_{PD} = 7.5$ ns; 125 MHz
PL22V10-10	CMOS EEPLD GAL-type device; $t_{PD} = 10$ ns; 77 MHz
PL22V10-12	CMOS EEPLD GAL-type device; $t_{PD} = 12$ ns; 67 MHz
PL22V10-15	CMOS EEPLD GAL-type device; $t_{PD} = 15$ ns; 53 MHz
PL22V10I15	CMOS EEPLD GAL-type device; $t_{PD} = 15$ ns; 53 MHz; industrial temperature range
10H20EV8-4	ECL 10KH GAL-type programmable array logic; $t_{PD} = 4.5$ ns; 208 MHz
10020EV8-4	ECL 100K GAL-type programmable array logic; $t_{PD} = 4.5$ ns; 208 MHz

PLA — PROGRAMMABLE LOGIC ARRAYS

PLS153	programmable logic array (18x42x10); $t_{PD} = 40$ ns
PLS153A	programmable logic array (18x42x10); $t_{PD} = 30$ ns
PLUS153B	programmable logic array (18x42x10); $t_{PD} = 15$ ns
PLUS153D	programmable logic array (18x42x10); $t_{PD} = 12$ ns
PLUS153-10	programmable logic array (18x42x10); $t_{PD} = 10$ ns
PLS173	programmable logic array (22x42x10); $t_{PD} = 30$ ns
PLUS173B	programmable logic array (22x42x10); $t_{PD} = 15$ ns
PLUS173D	programmable logic array (22x42x10); $t_{PD} = 12$ ns
PLUS173-10	programmable logic array (22x42x10); $t_{PD} = 10$ ns
PLS100	programmable logic array (16x48x8); $t_{PD} = 50$ ns
PLS101	programmable logic array (16x48x8); $t_{PD} = 50$ ns; open collector



GENERAL PURPOSE

Programmable Logic Devices (PLDs)

PLS — PROGRAMMABLE LOGIC SEQUENCERS

PLS155	programmable logic sequencer (16x45x12); 14 MHz
PLS157	programmable logic sequencer (16x45x12); 14 MHz
PLS159A	programmable logic sequencer (16x45x12); 18 MHz
PLS167	programmable logic sequencer (14x48x6); 14 MHz
PLS167A	programmable logic sequencer (14x48x6); 20 MHz
PLS168	programmable logic sequencer (12x48x8); 14 MHz
PLS168A	programmable logic sequencer (12x48x8); 20 MHz
PLS179	programmable logic sequencer (20x45x12); 18 MHz
PLC42VA12	CMOS programmable multi-function PLD (42x105x12); 25 MHz
PLC415-16	CMOS programmable logic sequencer (17x68x8); 16 MHz
PLC415-33	CMOS programmable logic sequencer (17x68x8); 33 MHz
PLS105	programmable logic sequencer (16x48x8); 14 MHz
PLS105A	programmable logic sequencer (16x48x8); 20 MHz
PLUS105-45	programmable logic sequencer (16x48x8); 45 MHz
PLUS105-55	programmable logic sequencer (16x48x8); 55 MHz
PLUS405-37	programmable logic sequencer (16x64x8); 37 MHz
PLUS405-45	programmable logic sequencer (16x64x8); 45 MHz
PLUS405-55	programmable logic sequencer (16x64x8); 55 MHz

PMD — PROGRAMMABLE MULTI-LEVEL/MACRO DEVICES

PML — Programmable macro logic (Foldback-array architecture)

PLHS501	Bipolar programmable macro logic; $t_{PD} = 22$ ns
PML2552-35	CMOS programmable macro logic (EPLD); power down mode = 10 mA; $t_{PD} = 35$ ns; 50 MHz
PML2552-10	CMOS programmable macro logic (EPLD); power down mode = 10 mA; $t_{PD} = 50$ ns; 35 MHz
PML2852-35	CMOS programmable macro logic (EPLD); power down mode = 10 mA; $t_{PD} = 35$ ns; 50 MHz
PML2852-10	CMOS programmable macro logic (EPLD); power down mode = 10 mA; $t_{PD} = 50$ ns; 35 MHz

PLV — Programmable clustered GAL-type logic (22V10 superset architecture)

PLV750-20	CMOS GAL-type (EPLD), $t_{PD} = 20$ ns/50 MHz ($2 \times 22V10$)
PLV750-25	CMOS GAL-type (EPLD), $t_{PD} = 25$ ns/45 MHz ($2 \times 22V10$)
PLV750L25	CMOS low-power (12 mA) GAL-type (EPLD), $t_{PD} = 25$ ns/45 MHz ($2 \times 22V10$)
PLV750L30	CMOS low-power (12 mA) GAL-type (EPLD), $t_{PD} = 30$ ns/40 MHz ($2 \times 22V10$)
PLV2500H25	CMOS multiple GAL-type (EPLD), $t_{PD} = 25$ ns/36 MHz
PLV2500H30	CMOS multiple GAL-type (EPLD), $t_{PD} = 30$ ns/31 MHz
PLV2500L30	CMOS low-power (5 mA) multiple GAL-type (EPLD), $t_{PD} = 30$ ns/25 MHz
PLV2500L35	CMOS low-power (5 mA) multiple GAL-type (EPLD), $t_{PD} = 35$ ns/23 MHz
PLV5000-25	CMOS multiple GAL-type (EPLD), $t_{PD} = 25$ ns/33 MHz
PLV5000-30	CMOS multiple GAL-type (EPLD), $t_{PD} = 30$ ns/27 MHz
PLV5000L30	CMOS low-power (40 mA) multiple GAL-type (EPLD), $t_{PD} = 30$ ns/27 MHz
PLV5000L35	CMOS low-power (40 mA) multiple GAL-type (EPLD), $t_{PD} = 35$ ns/22 MHz

Notes

PAL is a registered trademark of Monolithic Memories, Inc., a wholly owned subsidiary of Advanced Micri Devices, Inc.
 GAL is a registered trademark of LATTICE.

EPLD = CMOS PLD with EPROM-cell programming technology (UV-light erasable)

EEPLD = CMOS PLD with EEPROM-cell programming technology (electrically erasable)

Design support with Philips Semiconductors software package 'SNAP/SLICE' and 3rd-party software packages

GENERAL PURPOSE

Memories

EPROMs

27C64A-12	64K CMOS EPROM (8K×8); one time programmable
27C64A-15	64K CMOS EPROM (8K×8); one time programmable
27C64A-20	64K CMOS EPROM (8K×8); one time programmable
27C64AI12	64K CMOS EPROM (8K×8); one time programmable; industrial temp. range -40 to +85 °C
27C64AI15	64K CMOS EPROM (8K×8); one time programmable; industrial temp. range -40 to +85 °C
27C64AI20	64K CMOS EPROM (8K×8); one time programmable; industrial temp. range -40 to +85 °C
27C256-12	256K CMOS EPROM (32K×8); one time programmable
27C256-15	256K CMOS EPROM (32K×8); one time programmable
27C256-20	256K CMOS EPROM (32K×8); one time programmable
27C256-90	256K CMOS EPROM (32K×8); one time programmable
27C256I12	256K CMOS EPROM (32K×8); one time programmable; industrial temp. range -40 to +85 °C
27C256I15	256K CMOS EPROM (32K×8); one time programmable; industrial temp. range -40 to +85 °C
27C256I20	256K CMOS EPROM (32K×8); one time programmable; industrial temp. range -40 to +85 °C
27C256I90	256K CMOS EPROM (32K×8); one time programmable; industrial temp. range -40 to +85 °C
27C512-12	512K CMOS EPROM (64K×8); one time programmable
27C512-15	512K CMOS EPROM (64K×8); one time programmable
27C512-20	512K CMOS EPROM (64K×8); one time programmable
27C512I12	512K CMOS EPROM (64K×8); one time programmable; industrial temp. range -40 to +85 °C
27C512I15	512K CMOS EPROM (64K×8); one time programmable; industrial temp. range -40 to +85 °C
27C512I20	512K CMOS EPROM (64K×8); one time programmable; industrial temp. range -40 to +85 °C

EEPROMs

PCA8581	128×8-bit EEPROM with I ² C-bus interface; supply voltage 4.5 to 5.5 V
PCA8581C	128×8-bit EEPROM with I ² C-bus interface; supply voltage 2.5 to 6 V
PCF8582C-2	256×8-bit CMOS EEPROM with I ² C-bus interface; extended temperature; low supply voltage; single bit error correction for extended number of erase/write cycles
PCD8582D-2	256×8-bit CMOS EEPROM with I ² C-bus interface; low supply voltage; single bit error correction for extended number of erase/write cycles
PCF8582E-2	256×8-bit CMOS EEPROM with I ² C-bus interface; extended temperature; single bit error correction for extended number of erase/write cycles
PCA8582F-2	256×8-bit CMOS EEPROM with I ² C-bus interface; automotive temperature; single bit error correction for extended number of erase/write cycles
PCF8594C-2	512×8-bit CMOS EEPROM with I ² C-bus interface; extended temperature; low supply voltage; single bit error correction for extended number of erase/write cycles
PCD8594D-2	512×8-bit CMOS EEPROM with I ² C-bus interface; low supply voltage; single bit error correction for extended number of erase/write cycles
PCF8594E-2	512×8-bit CMOS EEPROM with I ² C-bus interface; extended temperature; single bit error correction for extended number of erase/write cycles
PCA8594F-2	512×8-bit CMOS EEPROM with I ² C-bus interface; automotive temperature; single bit error correction for extended number of erase/write cycles
PCF8598C-2	1k×8-bit CMOS EEPROM with I ² C-bus interface; extended temperature; low supply voltage; single bit error correction for extended number of erase/write cycles
PCD8598D-2	1k×8-bit CMOS EEPROM with I ² C-bus interface; low supply voltage; single bit error correction for extended number of erase/write cycles
PCF8598E-2	1k×8-bit CMOS EEPROM with I ² C-bus interface; extended temperature; single bit error correction for extended number of erase/write cycles
PCA8598F-2	1k×8-bit CMOS EEPROM with I ² C-bus interface; automotive temperature; single bit error correction for extended number of erase/write cycles
PCF29F64	8k×8-bit static CMOS EEPROM with page-erase option; extended temperature



GENERAL PURPOSE

Memories

BIPOLAR PROMs

N82S23	256-bit TTL bipolar PROM (32×8)
N82S23A	256-bit TTL bipolar PROM (32×8)
N82US23	256-bit TTL bipolar PROM (32×8)
N82S123	256-bit TTL bipolar PROM (32×8)
N82S123A	256-bit TTL bipolar PROM (32×8)
10149	1024-bit ECL bipolar PROM (256×4)
10149A	1024-bit ECL bipolar PROM (256×4)
100149	1024-bit ECL bipolar PROM (256×4)
100149A	1024-bit ECL bipolar PROM (256×4)
N82S126	1024-bit TTL bipolar PROM (256×4)
N82S126A	1024-bit TTL bipolar PROM (256×4)
N82S129	1024-bit TTL bipolar PROM (256×4)
N82S129A	1024-bit TTL bipolar PROM (256×4)
N82S130	2048-bit TTL bipolar PROM (512×4)
N82S130A	2048-bit TTL bipolar PROM (512×4)
N82S131	2048-bit TTL bipolar PROM (512×4)
N82S131A	2048-bit TTL bipolar PROM (512×4)
N82LS135	2048-bit TTL bipolar PROM (256×8)
N82S135	2048-bit TTL bipolar PROM (256×8)
N82S115	4096-bit TTL bipolar PROM (512×8)
N82S137	4096-bit TTL bipolar PROM (1024×4)
N82S137A	4096-bit TTL bipolar PROM (1024×4)
N82S137B	4096-bit TTL bipolar PROM (1024×4)
N82S141	4096-bit TTL bipolar PROM (512×8)
N82S141A	4096-bit TTL bipolar PROM (512×8)
N82S147	4096-bit TTL bipolar PROM (512×8)
N82S147A	4096-bit TTL bipolar PROM (512×8)
N82S147B	4096-bit TTL bipolar PROM (512×8)
N82S181	8192-bit TTL bipolar PROM (1024×8)
N82S181A	8192-bit TTL bipolar PROM (1024×8)
N82S181C	8192-bit TTL bipolar PROM (1024×8)
N82S183	8192-bit TTL bipolar PROM (1024×8)
N82S185A	8192-bit TTL bipolar PROM (2048×4)
N82S185B	8192-bit TTL bipolar PROM (2048×4)
N82S191	16384-bit TTL bipolar PROM (2048×8)
N82S191A	16384-bit TTL bipolar PROM (2048×8)
N82S191C	16384-bit TTL bipolar PROM (2048×8)
N82HS195	16384-bit TTL bipolar PROM (4096×4)
N82HS195A	16384-bit TTL bipolar PROM (4096×4)
N82HS195B	16384-bit TTL bipolar PROM (4096×4)
N82HS321	32768-bit TTL bipolar PROM (4096×8)
N82HS321A	32768-bit TTL bipolar PROM (4096×8)
N82HS321B	32768-bit TTL bipolar PROM (4096×8)
N82HS641	65536-bit TTL bipolar PROM (8192×8)
N82HS641A	65536-bit TTL bipolar PROM (8192×8)
N82HS641B	65536-bit TTL bipolar PROM (8192×8)

GENERAL PURPOSE

Memories

CMOS RAMs

PCF8571	128×8-bit static RAM with I ² C bus interface
PCD5101	256×4-bit static RAM; 2.5 V supply; 1 V data retention
PCF8570	256×8-bit static RAM with I ² C bus interface
PCD5114	1024×4-bit static RAM; 2.5 V supply; 1 V data retention

BIPOLAR RAMs

N74F189A	64-bit TTL bipolar RAM (16×4)
N74F219A	64-bit TTL bipolar RAM (16×4)
N74F410	64-bit TTL bipolar RAM (16×4)

RAM/DRAM CONTROLLERS

N74F764	DRAM dual-ported controller
N74F764-1	DRAM dual-ported controller
N74F765	DRAM dual-ported controller without latch
N74F765-1	DRAM dual-ported controller without latch
N74F1762	4 M-bit memory address controller
N74F1763	1 M-bit intelligent DRAM controller
N74F1764	1 M-bit DRAM dual-ported controller with latch
N74F1764-1	1 M-bit DRAM dual-ported controller with latch
N74F1765	1 M-bit DRAM dual-ported controller without latch
N74F1765-1	1 M-bit DRAM dual-ported controller without latch
N74F1766	burst-mode DRAM controller
74HCT7030	9-bit × 64 word FIFO register; 3-state
74HCT40105	4-bit × 16 word FIFO register
74HC7030	9-bit × 64 word FIFO register; 3-state
74HC40105	4-bit × 16 word FIFO register



GENERAL PURPOSE

Microcontrollers

8051-BASED 8-BIT MICROCONTROLLERS

80C51 family of CMOS 8-bit microcontrollers

type number	ROM/ EPROM	RAM	speed (MHz)	major features	remarks
PCx80C31 SC80C31 PCx80C51 SC80C51 SC87C51	0 0 4k ROM 4k ROM 4k EPROM	128 128 128 128 128	30 33 30 33 33	four 8-bit I/O ports; two 16-bit counter/timers; UART; boolean processor; 64k ROM and 64k RAM external addressing; 12 to 33 MHz speed versions; CMOS and TTL compatible	OTP package; extended temp.
P80C32 P80C52 P87C52	0 8k ROM 8k EPROM	256 256 256	20 20 20	four 8-bit I/O ports; three 16-bit counter/timers; UART; boolean processor; 64k ROM and 64k RAM external addressing; 16 MHz and 20 MHz speed versions; CMOS and TTL compatible	OTP package
SC80C451 SC83C451 SC87C451	0 4k ROM 4k EPROM	128 128 128	16 16 16	seven 8-bit I/O ports (LCC version) or six 8-bit and one 4-bit I/O ports (DIL version); two 16-bit counter/timers; UART; 64k ROM and 64k RAM external addressing; 12 and 16 MHz speed versions	OTP package
P83C524 P87C524	16k ROM 16k EPROM	512 512	20 20	four 8-bit I/O ports; three 16-bit counter/timers; watchdog timer; UART; I ² C-bus; 64k ROM and 64k RAM external addressing; 16 and 20 MHz speed versions; CMOS and TTL compatible	OTP package; ROM code protection; extended temp.
P80C528 P83C528 P87C528	0 32k ROM 32k EPROM	512 512 512	16 16 20	four 8-bit I/O ports; three 16-bit counter/timers; watchdog timer; UART; I ² C-bus; 64k ROM and 64k RAM external addressing; 16 and 20 MHz speed versions; CMOS and TTL compatible	OTP package; ROM code protection; extended temp.
P80CE528 P83CE528	0 32k ROM	512 512	16 16	four 8-bit I/O ports; three 16-bit counter/timers; watchdog timer; UART; I ² C-bus; 64k ROM and 64k RAM external addressing; 16 and 20 MHz speed versions; CMOS and TTL compatible; reduced electro magnetic emission	ROM code protection; extended temp.
P80C550 P83C550 P87C550	0 4k ROM 4k EPROM	128 128 128	16 16 16	three 8-bit I/O ports; one 8-bit input port; 8 channels of 8-bit ADC; two 16-bit counter/timers; watchdog timer; UART; 64k ROM and 64k RAM external addressing; 16 MHz speed; CMOS and TTL compatible	OTP package; extended temp.
PCx80C552 S80C552 PCx83C552 S83C552 S87C552	0 0 8k ROM 8k ROM 8k EPROM	256 256 256 256 256	30 30 30 30 24	five 8-bit I/O ports; one 8-bit input port; 8 channels of 10-bit ADC; two 8-bit DAC PWM outputs; three 16-bit counter/timers; UART; I ² C-bus; 64k ROM and 64k RAM external addressing; 16 to 30 MHz speed versions	OTP package; extended temp.
P80CE558 P83CE558 P89CE558	0 32k ROM 32k EEPROM	1k 1k 1k	16 16 16	five 8-bit I/O ports; one 8-bit input port; 8 channels of 10-bit ADC; two 8-bit DAC PWM outputs; three 16-bit counter/timers; UART; I ² C-bus; 64k ROM and 64k RAM external addressing; PLL oscillator; reduced electro magnetic emission	mult. in-circuit programming (P89..only); EEP(ROM) code protection; extended temp.
PCx80C562 S80C562 PCx83C562 S83C562	0 0 8k ROM 8k ROM	256 256 256 256	16 16 16 16	five 8-bit I/O ports; one 8-bit input port; 8 channels of 8-bit ADC; two 8-bit DAC PWM outputs; three 16-bit counter/timers; watchdog timer; UART; 64k ROM and 64k RAM external addressing; 12 and 16 MHz speed versions	87C552 for development; extended temp.

GENERAL PURPOSE

Microcontrollers

80C51 family of CMOS 8-bit microcontrollers

type number	ROM/ EPROM	RAM	speed (MHz)	major features	remarks
P80C575 P83C575 P87C575	0 8k ROM 8k EPROM	256 256 256	16 16 16	four 8-bit I/O ports; three 16-bit counter/timers; programmable counter array (PCA); watchdog timer; four analog comparators; power-fail detect; oscillator-fail detect; UART;	OTP package; automotive temp. range
P80C592 P83C592 P87C592	0 16k ROM 16k EPROM	512 512 512	16 16 16	five 8-bit I/O ports; one 8-bit input port; 8 channels of 10-bit ADC; two 8-bit DAC PWM outputs; three 16-bit counter/timers; UART; CAN interface; 64k ROM and 64k RAM external addressing;	OTP package; extended temp.; ROM code protection
P80CE598 P83CE598 P87CE598	0 32k ROM 32k EPROM	512 512 512	16 16 16	five 8-bit I/O ports; one 8-bit input port; 8 channels of 10-bit ADC; two 8-bit DAC PWM outputs; three 16-bit counter/timers; UART; CAN interface; 64k ROM and 64k RAM external addressing; reduced electro magnetic emission	OTP package; extended temp.; ROM code protection
P80C652 S80C652 P83C652 S83C652 S87C652	0 0 8k ROM 8k ROM 8k EPROM	256 256 256 256 256	24 24 24 24 20	four 8-bit I/O ports; two 16-bit counter/timers; UART; I ² C-bus; 64k ROM and 64k RAM external addressing; 16 to 24 MHz speed versions	OTP package; extended temp.; ROM code protection
P80C654 P83C654 S83C654 S87C654	0 16k ROM 16k ROM 16k EPROM	256 256 256 256	24 24 24 20	four 8-bit I/O ports; two 16-bit counter/timers; UART; I ² C-bus; 64k ROM and 64k RAM external addressing; 16 to 24 MHz speed versions	OTP package; extended temp.; ROM code protection
P80CE654 P83CE654	0 16k ROM	256 256	16 16	four 8-bit I/O ports; two 16-bit counter/timers; UART; I ² C-bus; 64k ROM and 64k RAM external addressing; reduced electro magnetic emission	extended temp.; ROM code protection
P87C750	1k EPROM	64	16	two 8-bit I/O ports; one 3-bit I/O port; 16-bit auto-reload counter/timer; boolean processor; I ² C-bus; CMOS and TTL compatible; 12 and 16 MHz speed versions	OTP package
S83C751 S87C751	2k ROM 2k EPROM	64 64	16 16	two 8-bit I/O ports; one 3-bit I/O port; 16-bit auto-reload counter/timer; boolean processor; I ² C-bus; CMOS and TTL compatible; 12 and 16 MHz speed versions	OTP package
S83C752 S87C752	2k ROM 2k EPROM	64 64	16 16	two 8-bit I/O ports; one 5-bit I/O port; five channel multiplexed 8-bit ADC 8-bit PWM output; 16-bit auto-reload counter/timer; boolean processor; I ² C-bus; CMOS and TTL compatible; 12 and 16 MHz speed versions	OTP package extended temp.
P80C851 S80C851 P83C851 S83C851	0 and 256 EEPROM 4k ROM and 256 EEPROM	128 128 128 128	16 16 16 16	four 8-bit I/O ports; two 16-bit counter/timers; UART; 64k ROM and 64k RAM external addressing; 16 MHz speed; boolean processor; CMOS and TTL compatible;	extended temp.; ROM code protection
P83C852	6k ROM + 2k EEPROM	256	6	one 2-bit I/O port; two 16-bit timers; cryptographic calculations unit; security features; EEPROM with 10000 erase/write cycles per byte, 10 years data retention and error correction	smart card applications



GENERAL PURPOSE

Microcontrollers

80C51 family of CMOS 8-bit microcontrollers

type number	ROM/ EPROM	RAM	speed (MHz)	major features	remarks
P83C053	8k ROM	192	12	128×10 display RAM; 60×18×14 character generator ROM; OSD controller; 3 digital video outputs; 37 I/O lines; 14-bit PWM; eight 6-bit PWMs; triple multiplexed DAC	television and video applications
P83C054	16k ROM	192	12		
P87C054	16k EPROM	192	12		
P87C055	16k EPROM	256	12		

P80CLxxx family of CMOS 8-bit microcontrollers

type number	ROM	RAM	speed (MHz)	major features	remarks
P80CL31 P80CL51	0 4k	128 128	12 12	four 8-bit I/O ports; two 16-bit counter/timers; UART; boolean processor; 64k ROM and 64k RAM external addressing; 32 kHz to 12 MHz speed; IDLE and STOP for low power consumption; wake-up facility; 8 external programmable interrupts	1.8 to 6 V supply voltage
P80CL32 P80CL52	0 8k	256 256	12 12	four 8-bit I/O ports; three 16-bit counter/timers; UART; boolean processor; 64k ROM and 64k RAM external addressing; 16 MHz and 20 MHz speed versions; 8 external programmable interrupts	1.8 to 6 V supply voltage
P80CL410 P83CL410	0 4k	128 128	12 12	four 8-bit I/O ports; two 16-bit counter/timers; I ² C-bus; 64k ROM and 64k RAM external addressing; 32 kHz to 12 MHz speed; IDLE and STOP for low power consumption; wake-up facility; 8 external programmable interrupts	1.8 to 6 V supply voltage
P83CL580	6k	256	12	five 8-bit I/O ports; three 16-bit counter/timers; I ² C-bus; 64k ROM and 64k RAM external addressing; UART; PWM output; 4-input 8-bit ADC; 32 kHz to 12 MHz speed; IDLE and STOP for low power consumption; wake-up facility; 7 external programmable interrupts; watchdog timer	2.5 to 6 V supply voltage
P83CL781	16k	256	12	four 8-bit I/O ports; three 16-bit counter/timers; I ² C-bus; 64k ROM and 64k RAM external addressing; UART; 32 kHz to 12 MHz speed; IDLE and STOP for low power consumption; wake-up facility; 8 external programmable interrupts	1.8 to 6 V supply voltage
P83CL782	16k	256	12	fast version of the CL781: 12 MHz at 3.1 V	1.8 to 6 V supply voltage

8051 family of 8-bit NMOS microcontrollers

type number	ROM	RAM	speed (MHz)	major features	remarks
MAx8031 SCN8031	0 0	128 128	15 15	four 8-bit I/O ports; two 16-bit counter/timers; UART; boolean processor; 64k ROM and 64k RAM external addressing; 12 and 15 MHz speed versions;	extended temp.
MAx8051 SCN8051	4k 4k	128 128	15 15		
MAx8032 SCN8032 MAx8052 SCN8052	0 0 8k 8k	256 256 256 256	15 15 15 15	four 8-bit I/O ports; three 16-bit counter/timers; UART; boolean processor; 64k ROM and 64k RAM external addressing; 12 and 15 MHz speed versions;	extended temp.

GENERAL PURPOSE

Microcontrollers

8048-BASED 8-BIT MICROCONTROLLERS

8048 family of 8-bit NMOS microcontrollers

type number	ROM	RAM	speed (MHz)	major features	remarks
SCN8048	1k	64	11	three 8-bit I/O ports; one 8-bit counter/timer	extended temp.
SCN8039	0	128	11	three 8-bit I/O ports; one 8-bit counter/timer	extended temp.
SCN8049	2k	128	11		

PCx8400 family of 8-bit CMOS microcontrollers

type number	ROM	RAM	speed (MHz)	major features	remarks
PCF84C12A	1k	64	16	one 8-bit I/O port; one 5-bit I/O port; one 8-bit counter/timer	2.5 to 5.5 V supply voltage
PCF84C22A	2k	64	16		
PCF84C42A	4k	64	16		
PCF84C21A	2k	64	16	two 8-bit I/O ports; one 4-bit I/O port; one 8-bit counter/timer; I ² C-bus	2.5 to 5.5 V supply voltage
PCF84C41A	4k	128	16		
PCF84C81A	8k	256	16		
PCF84C85A	8k	256	16	four 8-bit I/O ports; one 1-bit I/O port; one 8-bit counter/timer; I ² C-bus	2.5 to 5.5 V supply voltage
PCF84C121	1k 8 EEPROM	64	10	one 8-bit I/O port; one 5-bit I/O port; one 8-bit counter/timer	2.5 to 5.5 V supply voltage
PCA84C122	1k	32	5	12 to 20 I/O lines; 8-bit timer with 5-bit pre-scaler; watchdog timer; 27 mA IR-LED drive output; remote control transmitter applications	2.0 to 5.5 V supply voltage
PCA84C222	2k	32	5		
PCA84C422	4k	32	5		
PCA84C822	8k	64	5		
PCA84C430	4k	128	10	three 8-bit I/O ports; 24 LCD driver outputs; one 8-bit counter/timer; I ² C-bus	2.5 to 5.5 V supply voltage
PCA84C440	4k	128	10	three 8-bit I/O ports; one 5-bit I/O port; 8-bit counter/timer; five 6-bit DACs; 14-bit DAC for voltage synthesized tuning (VST); 3-bit DAC + comparator for AFC; OSD of 2 rows of 16 characters; 64 characters for OSD	RC osc; I ² C-bus LC osc; I ² C-bus RC oscillator LC oscillator RC osc; I ² C-bus LC osc; I ² C-bus RC oscillator LC oscillator RC osc; I ² C-bus LC osc; I ² C-bus RC oscillator LC oscillator
PCA84C441	4k	128	10		
PCA84C443	4k	128	10		
PCA84C444	4k	128	10		
PCA84C640	6k	128	10		
PCA84C641	6k	128	10		
PCA84C643	6k	128	10		
PCA84C644	6k	128	10		
PCA84C840	8k	192	10		
PCA84C841	8k	192	10		
PCA84C843	8k	192	10		
PCA84C844	8k	192	10		
PCF84C633A	6k	256	16	three 8-bit I/O ports; one 4-bit I/O port; 20 LCD output lines (64 segments drive); 8-bit counter/timer; 16-bit timer with counter/compare register; 16-bit up/down counter/timer	2.5 to 5.5 V supply voltage



GENERAL PURPOSE

Microcontrollers

MAx8400 family of 8-bit NMOS microcontrollers

type number	ROM	RAM	speed (MHz)	major features	remarks
MAx8421	2k	64	6	one 8-bit I/O port (10 mA drive); one 8-bit I/O port (20 mA drive); one 3-bit I/O port; 8-bit counter/timer; I ² C-bus	extended temp.
MAx8441	4k	128	6		
MAx8461	6k	128	6		

PCD3300 family of 8-bit CMOS microcontrollers

type number	ROM EEPROM	RAM	speed (MHz)	major features	remarks
PCD3315A	1.5k —	160	16	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer	1.8 to 6 V supply voltage
PCD3343A	3k —	224	16	two 8-bit I/O ports; one 3-bit I/O port; 8-bit counter/timer; I ² C-bus	1.8 to 6 V supply voltage
PCD3344A	2k —	224	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	2.5 to 6 V supply voltage
PCD3346	4k 256	128	10	two 8-bit I/O ports; one 3-bit I/O port; two 8-bit counter/timers; I ² C-bus	1.8 to 6 V supply voltage
PCD3347	1.5k —	64	3.58	one 8-bit I/O port; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	2.5 to 6 V supply voltage
PCD3348A	8k —	256	16	two 8-bit I/O ports; one 3-bit I/O port; two 8-bit counter/timers; I ² C-bus	1.8 to 6 V supply voltage
PCD3349A	4k —	224	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	2.5 to 6 V supply voltage
PCD3350A	8k 256	256	16	four 8-bit I/O ports; one 2-bit I/O port; two 8-bit counter/timers; DTMF tone generator; 3.58 MHz clock for DTMF; real-time clock	1.8* to 6 V supply voltage
PCD3351A	2k 128	64	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	1.8* to 6 V supply voltage
PCD3352A	4k 128	128	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	1.8* to 6 V supply voltage
PCD3353A	6k 128	128	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	1.8* to 6 V supply voltage
PCD3354A	8k 256	256	16	four 8-bit I/O ports; one 4-bit I/O port; two 8-bit counter/timers; DTMF tone generator; 3.58 MHz clock for DTMF	1.8* to 6 V supply voltage

* 1.8 V supply voltage with some restrictions

GENERAL PURPOSE

Microcontrollers

16/32-BIT CMOS MICROCONTROLLERS/MICROPROCESSORS

type number	ROM/ EPROM	RAM	speed (MHz)	major features	remarks
SCC68070	0	0	17.5	16 MB address range; UART; I ² C-bus; 2 DMA channels; MMU; 16-bit counter/timer; two 16-bit match/count/capture registers; 15 and 17.5 MHz speed versions	68000-bus interface; extended temperature
P90C100	0	512	15	16 MB address range; two 16-bit I/O ports; one 8-bit I/O port; UART; I ² C-bus; one 16-bit counter/timer; two match/count/capture registers	68000/80C51-bus interface; extended temp; 3.3 to 6 V (P9xC101 only)
P93C100	34k ROM	512	15		
P97C100	32k EPROM	512	15		
P90C101	0	512	15		
P93C101	34k ROM	512	15		



PERIPHERAL ICs

SCN2672	programmable video timing controller (PVTC)
SCN2672T	programmable video timing controller (Turbo-PVTC)
SCN2674	advanced video display controller (AVDC)
SCN2674T	advanced video display controller (Turbo-AVDC)
SCC63484	advanced CRT controller (ACRTC)
SCC66470/03	video and system controller; 68000-bus compatible

GENERAL PURPOSE

Analog products

AMPLIFIERS

Operational amplifiers

LM124	quad low-power operational amplifier; -55 to +125 °C
LM224	quad low-power operational amplifier; -25 to +85 °C
LM324	quad low-power operational amplifier; 0 to +70 °C
LM324A	quad low-power operational amplifier; improved LM324; 0 to +70 °C
AU2902	quad low-power operational amplifier; automotive temperature range
LM2902	quad low-power operational amplifier; -40 to +85 °C
SA534	quad low-power operational amplifier; -40 to +85 °C
LM158	dual low-power operational amplifier; -55 to +125 °C
LM258	dual low-power operational amplifier; -25 to +85 °C
LM358	dual low-power operational amplifier; 0 to +70 °C
LM358A	dual low-power operational amplifier; improved LM358; 0 to +70 °C
AU2904	dual low-power operational amplifier; automotive temperature range
LM2904	dual low-power operational amplifier; -40 to +85 °C
NE532	dual low-power operational amplifier; 0 to +70 °C
SA532	dual low-power operational amplifier; -40 to +85 °C
SE532	dual low-power operational amplifier; -55 to +125 °C
MC1458	dual general purpose operational amplifier; 0 to +70 °C
SA1458	dual general purpose operational amplifier; -40 to +85 °C
MC1558	dual general purpose operational amplifier; -55 to +125 °C
NE531	high slew rate operational amplifier; 0 to +70 °C
SE531	high slew rate operational amplifier; -55 to + 125 °C
NE4558	dual general purpose operational amplifier; 0 to +70 °C
SA4558	dual general purpose operational amplifier; -40 to +85 °C
SE4558	dual general purpose operational amplifier; -55 to + 125 °C
NE5230	low-voltage operational amplifier; 0 to +70 °C
SA5230	low-voltage operational amplifier; -40 to +85 °C
NE5234	matched quad high-performance low-voltage (1.8 V) operational amplifier; 0 to +70 °C
SA5234	matched quad high-performance low-voltage (1.8 V) operational amplifier; -40 to +85 °C
NE5512	dual high-performance operational amplifier; 0 to +70 °C
SA5512	dual high-performance operational amplifier; -40 to +85 °C
NE5514	quad high-performance operational amplifier; 0 to +70 °C
SE5514	quad high-performance operational amplifier; -55 to + 125 °C
NE5532	internally compensated dual low-noise operational amplifier; 0 to +70 °C
SE5532	internally compensated dual low-noise operational amplifier; -55 to + 125 °C
NE5532A	internally compensated dual low-noise operational amplifier; guaranteed-low noise voltage spec; 0 to +70 °C
SE5532A	internally compensated dual low-noise operational amplifier; guaranteed-low noise voltage spec; -55 to + 125 °C
NE5533	dual low-noise operational amplifier; 0 to +70 °C
NE5533A	dual low-noise operational amplifier; guaranteed-low noise voltage spec; 0 to +70 °C
NE5534	single low-noise operational amplifier; 0 to +70 °C
SA5534	single low-noise operational amplifier; -40 to +85 °C
SE5534	single low-noise operational amplifier; -55 to + 125 °C
NE5534A	single low-noise operational amplifier; guaranteed-low noise voltage spec; 0 to +70 °C
SA5534A	single low-noise operational amplifier; guaranteed-low noise voltage spec; -40 to +85 °C
SE5534A	single low-noise operational amplifier; guaranteed-low noise voltage spec; -55 to + 125 °C

GENERAL PURPOSE

Analog products

µA741C	general purpose operational amplifier; 0 to +70 °C
SA741C	general purpose operational amplifier; -40 to +85 °C
µA741	general purpose operational amplifier; -55 to + 125 °C
µA747C	dual operational amplifier; 0 to +70 °C
TCA520B	low-power/low-voltage operational amplifier
TCA520D	low-power/low-voltage operational amplifier; TCA520B in SMD package

High frequency and video amplifiers

NE5200	dual gain stage RF amplifier; 0 to +70 °C
SA5200	dual gain stage RF amplifier; -40 to +85 °C
NE5204A	wide band high frequency amplifier; 350 MHz; 0 to +70 °C
SA5204A	wide band high-frequency amplifier; 350 MHz; -40 to +85 °C
NE5205A	wide band high frequency amplifier; 550 MHz; 0 to +70 °C
SA5205A	wide band high-frequency amplifier; 550 MHz;; -40 to +85 °C
NE5209	850 MHz voltage-controlled amplifier; 0 to +70 °C
SA5209	850 MHz voltage-controlled amplifier; -40 to +85 °C
NE5219	700 MHz voltage-controlled amplifier; 0 to +70 °C
SA5219	700 MHz voltage-controlled amplifier; -40 to +85 °C
NE5539	350 MHz operational amplifier; 0 to +70 °C
SE5539	350 MHz operational amplifier; -55 to + 125 °C
NE592	120 MHz video amplifier with adjustable gain; 0 to +70 °C
NE5592	dual 110 MHz video amplifier with adjustable gain; 0 to +70 °C
µA733C	differential video amplifier; 120 MHz bandwidth; 0 to +70 °C
µA733	differential video amplifier; 120 MHz bandwidth; -55 to + 125 °C

Transconductance amplifiers

NE5517	dual operational transconductance amplifier; 0 to +70 °C
NE5517A	dual operational transconductance amplifier; improved NE5517; 0 to +70 °C

Fibre optic amplifiers

NE5210	transimpedance amplifier; 280 MHz bandwidth; 0 to +70 °C
NE5211	transimpedance amplifier; 180 MHz bandwidth; 0 to +70 °C
SA5211	transimpedance amplifier; 180 MHz bandwidth; -40 to +85 °C
NE5212A	transimpedance amplifier; 140 MHz bandwidth; 0 to +70 °C
SA5212A	transimpedance amplifier; 140 MHz bandwidth; -40 to +85 °C
SE5212A	transimpedance amplifier; 140 MHz bandwidth; -55 to +125 °C
NE5214	fibre-optic post-amplifier with link status indicator; 75 MHz; 0 to +70 °C
SA5214	fibre-optic post-amplifier with link status indicator; 75 MHz; -40 to +85 °C
NE5217	fibre-optic post-amplifier with link status indicator; Schmitt trigger function; 0 to +70 °C
SA5217	fibre-optic post-amplifier with link status indicator; Schmitt trigger function; -40 to +85 °C
SA5222	low power low noise FDDI transimpedance amplifier; 140 MHz;; -40 to +85 °C
NE5224	FDDI fibre-optic postamplifier; 120 MHz; 100k ECL output; 0 to +70 °C
SA5224	FDDI fibre-optic postamplifier; 120 MHz; 100k ECL output; -40 to +85 °C
NE5225	FDDI fibre-optic postamplifier; 120 MHz; 10k ECL output; 0 to +70 °C
SA5225	FDDI fibre-optic postamplifier; 120 MHz; 10k ECL output; -40 to +85 °C

DATA CONVERSION

See also **Radio/Audio** and **Video** sections

Sample-and-hold amplifiers

LF198	sample-and-hold amplifier; -55 to + 125 °C
LF298	sample-and-hold amplifier; -25 to +85 °C
LF398	sample-and-hold amplifier; 0 to +70 °C
NE5537	low leakage sample-and-hold amplifier; 0 to +70 °C
SE5537	low leakage sample-and-hold amplifier; -55 to + 125 °C



GENERAL PURPOSE

Analog products

ADCs

ADC0803-1C	8-bit CMOS ADC; 1 MHz; 0 to +70 °C
ADC0803-1LC	8-bit CMOS ADC; 1 MHz; -40 to +85 °C
ADC0804-1C	8-bit CMOS ADC; 1 MHz; 0 to +70 °C
ADC0804-1LC	8-bit CMOS ADC; 1 MHz; -40 to +85 °C
ADC0820	8-bit, high speed, CMOS ADC with track/hold; microprocessor compatible; 0 to +70 °C; -40 to +85 °C
NE5037	6-bit ADC (parallel outputs); low-cost; 9 µs conversion time; 0 to +70 °C

DACs

AM6012	12-bit multiplying DAC; 250 ns settling time; 0 to +70 °C
DAC08	8-bit high-speed multiplying DAC; -55 to + 125 °C
DAC08A	8-bit high-speed multiplying DAC; -55 to + 125 °C
DAC08C	8-bit high-speed multiplying DAC; 0 to +70 °C
DAC08E	8-bit high-speed multiplying DAC; 0 to +70 °C
DAC08H	8-bit high-speed multiplying DAC; 0 to +70 °C
MC1408-8	8-bit multiplying DAC; 0 to +70 °C
MC1508-8	8-bit multiplying DAC; -55 to + 125 °C
MC3410	10-bit high-speed multiplying DAC; improved MC3410C; 0 to +70 °C
MC3410C	10-bit high-speed multiplying DAC; 0 to +70 °C
NE5018	8-bit microprocessor-compatible DAC; 0 to +70 °C
SE5018	8-bit microprocessor-compatible DAC; -55 to + 125 °C
NE5019	8-bit microprocessor-compatible DAC; improved NE5018; 0 to +70 °C
NE5020	10-bit microprocessor-compatible DAC; 0 to +70 °C
NE5410	10-bit high-speed multiplying DAC; 0 to +70 °C
SE5410	10-bit high-speed multiplying DAC; -55 to + 125 °C
PCF8591	8-bit AD and DA converter; I ² C bus

Comparators

LM111	voltage comparator; -55 to + 125 °C
LM211	voltage comparator; -25 to +85 °C
LM311	voltage comparator; 0 to +70 °C
LM219	dual voltage comparator; -25 to +85 °C
LM319	dual voltage comparator; 0 to +70 °C
LM139	quad voltage comparator; -55 to + 125 °C
LM139A	quad voltage comparator; improved LM139; -55 to + 125 °C
LM239	quad voltage comparator; -25 to +85 °C
LM239A	quad voltage comparator; improved LM239; -25 to +85 °C
LM339	quad voltage comparator; 0 to +70 °C
LM339A	quad voltage comparator; improved LM339; 0 to +70 °C
AU2901	quad voltage comparator; automotive temperature range
LM2901	quad voltage comparator; -40 to +85 °C
MC3302	quad voltage comparator; -40 to +85 °C
LM193	low power dual voltage comparator; -55 to + 125 °C
LM193A	low power dual voltage comparator; improved LM193; -55 to + 125 °C
LM293	low power dual voltage comparator; -25 to +85 °C
LM293A	low power dual voltage comparator; improved LM293; -25 to +85 °C
LM393	low power dual voltage comparator; 0 to +70 °C
LM393A	low power dual voltage comparator improved LM393; 0 to +70 °C
AU2903	dual low-power voltage comparator; automotive temperature range
LM2903	low-power dual voltage comparator; -40 to +85 °C
NE521	high speed dual differential comparator/sense amplifier; higher speed NE522; 0 to +70 °C
SE521	high speed dual differential comparator/sense amplifier; higher speed NE522; -55 to + 125 °C
NE522	high speed dual differential comparator/sense amplifier; 0 to +70 °C
NE527	voltage comparator; 0 to +70 °C
NE529	voltage comparator; high speed NE527; 0 to +70 °C
SE529	voltage comparator; high speed NE527; -55 to + 125 °C

GENERAL PURPOSE

Analog products

INTERFACE

Position measurement

NE5521	linear variable differential transformer (LVDT) signal conditioner; 0 to +70 °C
SA5521	linear variable differential transformer (LVDT) signal conditioner; -40 to +85 °C
SE5521	linear variable differential transformer (LVDT) signal conditioner; -55 to +125 °C

Peripheral drivers

NE590	addressable peripheral drivers; open-collector outputs; 0 to +70 °C
NE591	addressable peripheral drivers; open-emitter outputs; 0 to +70 °C
NE5090	addressable relay driver; 0 to +70 °C
SA5090	addressable relay driver; -40 to +85 °C
SAA1029	universal industrial logic and interface circuit
TEA1017	13-bit series-parallel converter and display driver



PHASE-LOCKED LOOPS

NE564	phase-locked loop; 5 V supply; up to 50 MHz; TTL compatible input/output; 0 to +70 °C
SE564	phase-locked loop; 5 V supply; up to 50 MHz; TTL compatible input/output; -55 to +125 °C
NE566	function generator (programmable VCO with square and triangular wave outputs); 0 to +70 °C
SE566	function generator (programmable VCO with square and triangular wave outputs); -55 to +125 °C
NE567	tone/frequency decoder PLL; 0 to +70 °C
SE567	tone/frequency decoder PLL; -55 to +125 °C
NE568A	phase-locked loop; up to 150 MHz; 0 to +70 °C
SA568A	phase-locked loop; up to 150 MHz; -40 to +85 °C
74HCT4046A	phase-locked loop with VCO
74HC4046A	phase-locked loop with VCO

TIMERS

ICM7555C	general purpose CMOS timer; 0 to +70 °C
ICM7555I	general purpose CMOS timer; -40 to +85 °C
ICM7555M	general purpose CMOS timer; -55 to +125 °C
NE555	timer; 0 to +70 °C
SA555	timer; -40 to +85 °C
SE555	timer; -55 to +125 °C
SE555C	timer; -55 to +125 °C
NE556	dual timer; 0 to +70 °C
SA556	dual timer; -40 to +85 °C
SE556	dual timer; -55 to +125 °C
NE556-1	dual timer; lower V_{OL} spec; 0 to +70 °C
NE558	quad timer; 0 to +70 °C

SYSTEM CONTROL

TEA5500	coded locking circuit for security systems
TEA5501	coded locking circuit for security systems (one-shot output; 6.5 k codes)

GENERAL PURPOSE**Display drivers**

NE587	LED decoder/driver; for 7-segments common anode LED displays
NE594	vacuum fluorescent display driver; 8 outputs; 0 to +70 °C
SA594	vacuum fluorescent display driver; 8 outputs; -40 to +85 °C
PCF1303	18-element bar graph LCD driver; analog input
PCF2100	LCD driver; 40 segments; 1:2 multiplex rate
PCF2111	LCD driver; 64 segments; 1:2 multiplex rate
PCF2112	LCD driver; 32 segments; 1:1 multiplex rate
PCF2115	LCD controller/driver for 2-line × 24 or 4-line × 12 character displays; character generator MUX 1:32 or 1:16; 32 row, 60 column; on-chip bias and V _{LCD} generation; low power; will be upgraded to PCF2116A
PCF8566	universal LCD driver for low multiplex rates; 1:1 to 1:4; 24 segments; I ² C-bus
PCF8568	LCD row driver for dot matrix displays; 1:8, 1:16, 1:24 or 1:32 multiplex rate; on-chip LCD bias generation; I ² C-bus
PCF8569	LCD column driver for dot matrix graphic displays; 40 columns; 1:8 or 1:16 multiplex rate
PCF8576	universal LCD driver for low multiplex rates; 1:1 to 1:4; 40 segments; I ² C-bus
PCF8577C	LCD direct/duplex driver with I ² C-bus interface; 32/64 segments; 2.5 to 6 V supply
PCF8578	LCD row/column driver for dot matrix graphic displays; 40 outputs; 1:8, 1:16, 1:24 or 1:32 multiplex rate; 2.5 to 6 V supply; I ² C-bus
PCF8579	LCD column driver for dot matrix graphic displays; 40 outputs; 1:8, 1:16, 1:24 or 1:32 multiplex rate; 2.5 to 6 V supply; I ² C-bus
SAA1064	4-digit LED driver with I ² C-bus interface

GENERAL PURPOSE**Motor control**

NE5570	brushless DC motor controller; 0 to + 70 °C
SA5570	brushless DC motor controller; -40 to +85 °C
TDA5040	DC motor drive circuit with magnetic-field detector
TDA5140A	brushless DC motor drive circuit; 0.85 A output current
TDA5141	brushless DC motor drive circuit; 1.8 A output current
TDA5141A	brushless DC motor drive circuit; 1.8 A output current
TDA5142	brushless DC motor drive circuit; external power stages
TDA5143	brushless DC motor drive circuit; 0.85 A output current
TDA5144	brushless DC motor drive circuit; 1.8 A output current
TDA5144A	brushless DC motor drive circuit; 1.8 A output current
TDA5145	brushless DC motor control circuit; bidirectional; 1.8 A output current
TDA5340	VCM and spindle driver; $V_S = 5\text{ V}$
TDA5341	VCM and spindle driver; $V_S = 5\text{ V}$; bus and FLL for speed control
TDA7072	single power driver; for CD servo systems
TDA7072A	single BTL power driver; 0.6 A output current; short-circuit proof
TDA7073	dual power driver; for CD servo systems
TDA7073A	dual BTL power driver; 0.6 A output current; short-circuit proof



GENERAL PURPOSE

Power supply ICs

SMPS CONTROLLERS

NE5560	switched-mode power supply control circuit; 0 to +70 °C
SE5560	switched-mode power supply control circuit; -55 to + 125 °C
NE5561	switched-mode power supply control circuit; low-cost; 0 to +70 °C
SE5561	switched-mode power supply control circuit; low-cost; -55 to + 125 °C
NE5562	switched-mode power supply control circuit; full featured; 0 to +70 °C
SE5562	switched-mode power supply control circuit; full featured; -55 to + 125 °C
NE5568	switched-mode power supply control circuit; low-cost; high spec NE5561; 0 to +70 °C
SG3524	SMPS controller; 0 to +70 °C
TCA280B	general purpose triggering circuit
TDA1023	proportional-control triac triggering circuit
TDA1060	control circuit for SMPS
TDA1060A	control circuit for SMPS
TDA1060B	control circuit for SMPS
TDA8380	control circuit for switched-mode power supplies
TDA8385	control IC for self-oscillating power supply (SOPS)
TEA1039	control circuit for switched-mode power supply
UC3842	current-mode pulse width modulation controller; 0 to +70 °C

VOLTAGE REGULATORS

TDA3601Q	Multiple output voltage regulator; six regulated outputs; active HIGH reset
TDA3601AQ	Multiple output voltage regulator; six regulated outputs; active LOW reset
TDA3602	Multiple output voltage regulator; three regulated outputs
µA723C	precision voltage regulator; 0 to +70 °C
µA723	precision voltage regulator; -55 to + 125 °C
UAA1300	voltage regulator with watchdog for microprocessor/controller systems

SUPPLY VOLTAGE MONITORS

PCF1252-0	power-fail detector and reset generator; trip voltage = 4.75 V
PCF1252-1	power-fail detector and reset generator; trip voltage = 4.55 V
PCF1252-2	power-fail detector and reset generator; trip voltage = 4.25 V

BATTERY MANAGEMENT

SAA1500	remaining energy indicator
TEA1041	battery voltage low-level indicator
TEA1088	SMPS battery charger control circuit
TEA1100	monitor and control circuit for SMPS charging systems
TEA1101	battery monitor for NiCd and NiMH chargers

APPLICATION-SPECIFIC

Clocks and watches

ANALOG WATCH CIRCUITS

PCA14xx family of 32 kHz analog watch circuits

type number	period (S)	pulse width (ms)	drive (%)	detection criterion	EEPROM	battery EOL detection	remarks
PCA1461	1	7.8	max. 100 81	P = 1 N = 2	✓	✓	1.5 V and 2.1 V Li
PCA1462	1	5.8	max. 100 81	P = 1 N = 2	✓	✓	1.5 V and 2.1 V Li
PCA1463	1	3.9	max. 100 81	P = 1 N = 2	✓	✓	1.5 V and 2.1 V Li
PCA1464	0.5	3.9	81	P = 1 N = 2			no oscillator 3 V Li
PCA1465	1	5.8	max. 100	P = 1 N = 2	✓		1.5 V
PCA1466	5	5.8	max. 100 81	P = 1 N = 2			1.5 V and 2.1 V Li
PCA1467	1	7.8	100	P = 1 N = 2	✓		
PCA1468	1	7.8	100	P = 1 N = 2		✓	
PCA1482	1	5.8	75	P = 2 N = 3	✓	✓	
PCA1483	1	5.8	75	P = 2 N = 3	✓		
PCA1484	20	5.8	75	P = 2 N = 3	✓		$C_{in} = 8 \text{ pF}$ 2.1 V $C_{out} = 12 \text{ pF}$
PCA1485	1	5.8	75	P = 1 N = 2	✓	✓	
PCA1486	1	5.8	75	P = 1 N = 2	✓		
PCA1487	1	7.8	75	P = 2 N = 3	✓	✓	

IC

APPLICATION-SPECIFIC

Clocks and watches

PCA16xx family of 32 kHz analog watch circuits

type number	period (S)	pulse width (ms)	drive (%)	EEPROM	remarks
PCA1602	1	7.8	75	✓	
PCA1603	20	7.8	100	✓	
PCA1604	5	7.8	75	✓	
PCA1605	5	4.8	75	✓	
PCA1606	10	6.8	100	✓	
PCA1607	5	5.8	100 75	✓	1.5 V and 2.1 V Li
PCA1608	5	7.8	100 75	✓	1.5 V and 2.1 V Li
PCA1611	1	6.8	75	✓	
PCA1624	12	3.9	75 56	✓	1.5 V and 2.1 V Li
PCA1625	5	5.8	75	✓	
PCA1626	20	5.8	100	✓	
PCA1627	20	5.8	100 75	✓	1.5 V and 2.8 V Li
PCA1628	20	5.8	75	✓	
PCA1629	5	6.8	75	✓	
PCA1672	1	7.8	56		3 V Li
PCA1673	1	5.8	56		3 V Li
PCA1675	1/16	5.8	100		no oscillator
PCA1676	10	5.8	56		3 V Li
PCA1677	10	7.8	100		1.5 V

DIGITAL CLOCKS

PCF1171C	4.19 MHz digital LCD car clock; 4-digits
PCF1172C	4.19 MHz digital LCD car clock; 3-1/2 digits
PCF1174C	4.19 MHz 4-digit static-LCD car clock; EEPROM
PCF1175C	4.19 MHz 4-digit duplex-LCD car clock; EEPROM
PCF1178C	4.19 MHz 4-digit duplex-LCD car clock; EEPROM; mirrored version of PCF1175; different colon and set frequency
PCF1179C	4.19 MHz 4-digit duplex-LCD car clock; EEPROM
PCF8573	clock calendar with serial I/O; I ² C-bus; timebase from 32 kHz crystal
PCF8583	clock calendar with 256 x 8-bit static RAM; I ² C-bus; 32 kHz or 50 Hz timebase

APPLICATION-SPECIFIC

Data communication

BUS CONTROL/LANs/CANs

- NE8392A** coaxial transceiver interface (CTI) for Ethernet (10base5) and Thin Ethernet (10base2) local area networks; 0 to +70 °C
- NE86C92** twisted-pair transceiver interface; IEEE 802.3 10BASE-T Ethernet spec.; 0 to +70 °C
- PCA82C200** stand-alone CAN controller; controller area network serial link
- PCA82C250** interface between CAN controller and physical bus; up to 1 Mbaud speed; fully compatible with ISO/DIS 11898; slope control to reduce RFI; supports >30 nodes

I²C-BUS CONTROLLERS AND I/O EXPANDERS

- PCF8574** remote 8-bit I/O expander for I²C-bus; 8 slave addresses
- PCF8574A** remote 8-bit I/O expander for I²C-bus; 8 different slave addresses
- PCF8584** I²C-bus controller; master/slave interface; parallel-bus/I²C-bus converter; replaces PCD8584
- P82B715** I²C-bus extender



LINE DRIVERS/RECEIVERS

- AM26LS31** quad high-speed differential line driver; 0 to +70 °C
- AM26LS32** quad high-speed differential line receiver; 0 to +70 °C
- AM26LS33** quad high-speed differential line receiver; 0 to +70 °C
- MC145406** EIA-232-D and CCITT V.28 driver/receiver; 0 to +70 °C
- NE5170** octal line driver; 0 to +70 °C
- NE5180** octal differential line receiver with input noise filter; 0 to +70 °C
- NE5181** octal differential line receiver; 0 to +70 °C

UARTs/USARTs/MODEMS

- NE5050** power line modem; 0 to +70 °C
- SA5050** power line modem; -40 to +85 °C
- NE5080** high-speed FSK modem transmitter; 0 to +70 °C
- NE5081** high-speed FSK modem receiver; 0 to +70 °C
- SCC2691** universal asynchronous receiver/transmitter (UART)
- SCC2692** dual asynchronous receiver/transmitter (DUART)
- SC26C92** dual asynchronous receiver/transmitter (DUART)
- SCC68692** dual asynchronous receiver/transmitter (DUART)
- SC26C94** quad universal asynchronous receiver/transmitter (QUART)
- SC68C94** quad universal asynchronous receiver/transmitter (QUART)
- SCC2698B** enhanced octal universal asynchronous receiver/transmitter (octal UART)
- SCN2651** programmable communications controller (PCI)
- SCN2652** multi-protocol communications controller (MPCC)
- SCN2661** enhanced programmable communications interface (EPCI)
- SCN68661** enhanced programmable communications interface (EPCI)
- SCN2681** dual asynchronous receiver/transmitter (DUART)
- SCN2681T** dual asynchronous receiver/transmitter (DUART)
- SCN68681** dual asynchronous receiver/transmitter (DUART)
- SCN26562** dual universal serial communications controller (DUSCC); NMOS
- SC26C562** dual universal serial communications controller (DUSCC); CMOS
- SCN68562** dual universal serial communications controller (DUSCC); NMOS
- SC68C562** dual universal serial communications controller (DUSCC); CMOS
- SC26C460** input/output processor (IOP)
- SC68C460** input/output processor (IOP)

APPLICATION-SPECIFIC

Radio communication

PRESCALERS

NE701	divide by 128/129 - 64/65 dual modulus low-power ECL prescaler; 0 to +70 °C
SA701	divide by 128/129 - 64/65 dual modulus low-power ECL prescaler; -40 to +85 °C
SA702	divide by 64/65/72 triple modulus low-power ECL prescaler; -40 to +85 °C
SA703	divide by 128/129/144 triple modulus low-power ECL prescaler; -40 to +85 °C

RF AMPLIFIERS

NE5200	dual gain stage RF amplifier; 0 to +70 °C
SA5200	dual gain stage RF amplifier; -40 to +85 °C
NE5204A	wide band high frequency amplifier; 350 MHz; 0 to +70 °C
SA5204A	wide band high-frequency amplifier; 350 MHz; -40 to +85 °C
NE5205A	wide band high frequency amplifier; 550 MHz; 0 to +70 °C
SA5205A	wide band high-frequency amplifier; 550 MHz;; -40 to +85 °C
NE5209	850 MHz voltage-controlled amplifier; 0 to +70 °C
SA5209	850 MHz voltage-controlled amplifier; -40 to +85 °C
NE5219	700 MHz voltage-controlled amplifier; 0 to +70 °C
SA5219	700 MHz voltage-controlled amplifier; -40 to +85 °C
NE5539	350 MHz operational amplifier; 0 to +70 °C
SE5539	350 MHz operational amplifier; -55 to + 125 °C

FREQUENCY SYNTHESIZERS

SA7025	low-voltage 1 GHz fractional-N synthesizer; -40 to +85 °C
SA8025	low-voltage 2 GHz fractional-N synthesizer; -40 to +85 °C
TDD1742	low-power frequency synthesizer (LOPSY)
UMA1014	low-power synthesizer for mobile radio communications; 1 GHz
UMA1015	dual 1 GHz frequency synthesizer
UMA1016A	frequency synthesizer for spread spectrum applications; 0.5 - 1 GHz; division ratio 27
UMA1016B	frequency synthesizer for spread spectrum applications; 0.5 - 1 GHz; division ratio 16
UMA1016C	frequency synthesizer for spread spectrum applications; 0.5 - 1 GHz; division ratio 31
UMA1005	dual low-power fractional-N synthesizer; 30 MHz
UMA1018	GSM frequency synthesizer
UMA1020	dual frequency synthesizer; 2 GHz

MIXERS/MODULATORS/DEMODULATORS; FRONT-END CIRCUITS

MC1496	balanced modulator/demodulator; 0 to +70 °C
NE600	RF gain-stage and mixer; 1 GHz; 0 to +70 °C
SA600	RF gain-stage and mixer; 1 GHz; -40 to +85 °C
NE602A	double-balanced mixer and oscillator; 0 to +70 °C
SA602A	double-balanced mixer and oscillator; -40 to +85 °C
NE612A	double-balanced mixer and oscillator; relaxed 602A spec.; 0 to +70 °C
SA612A	double-balanced mixer and oscillator; relaxed 602A spec.; -40 to +85 °C
SA620	RF gain-stage, VCO and mixer; -40 to +85 °C
UAA2072	900 MHz front-end for GSM applications

FM IF SYSTEMS

MC3361	low-power FM IF system; -40 to +85 °C
NE604A	high performance low-power FM IF system; 0 to +70 °C
SA604A	high performance low-power FM IF system; -40 to +85 °C
NE614A	low-power FM IF system; relaxed 604A spec.; 0 to +70 °C
SA614A	low-power FM IF system; relaxed 604A spec.; -40 to +85 °C
NE624	high performance low-power FM IF system; 604A with faster RSSI response; 0 to +70 °C

APPLICATION-SPECIFIC

Radio communication

SA624	high performance low-power FM IF system; 604A with faster RSSI response; -40 to +85 °C
NE605	high performance low-power mixer FM IF system; 0 to +70 °C
SA605	high performance low-power mixer FM IF system; -40 to +85 °C
NE615	high performance low-power mixer FM IF system; relaxed 605 spec.; 0 to +70 °C
SA615	high performance low-power mixer FM IF system; relaxed 605 spec.; -40 to +85 °C
NE625	high performance low-power mixer FM IF system; 605 with faster RSSI response; 0 to +70 °C
SA625	high performance low-power mixer FM IF system; 605 with faster RSSI response; -40 to +85 °C
NE627	high performance low-power mixer FM IF system; 625 with frequency check; 0 to +70 °C
SA627	high performance low-power mixer FM IF system; 625 with frequency check; -40 to +85 °C
SA606	low-voltage high performance mixer FM IF system; -40 to +85 °C
SA616	low-voltage high performance mixer FM IF system; relaxed 606 spec.; -40 to +85 °C
SA607	low-voltage high performance mixer FM IF system; 606 + frequency check; -40 to +85 °C
SA617	low-voltage high performance mixer FM IF system; relaxed 607 spec.; -40 to +85 °C
SA608	low-voltage high performance mixer FM IF system; 607 with reverse phase limiter output; -40 to +85 °C
SA626	low-voltage high performance mixer FM IF system with high-speed RSSI; -40 to +85 °C
SA636	low-voltage high performance mixer FM IF system with high-speed RSSI and wideband data output; -40 to +85 °C
SA637	low voltage digital IF receiver; -40 to +85 °C



AUDIO/DATA PROCESSORS

OM4707/4708	AMPS + TACS cellular radio chipset evaluation kits
OM4709	source code software package for AMPS + TACS cellular radio chipset
PCD5032	adaptive differential pulse code modulation (ADPCM) CODEC; I ² C-bus; for digital cordless phones
PCD5040	DECT burst-mode controller (BMC); I ² C-bus
PCD5041	DECT burst-mode controller (BMC); I ² C-bus
NE5750	audio processor system for RF communication; 0 to +70 °C
SA5750	audio processor system for RF communication; -40 to +85 °C
NE5751	audio processor system with I ² C-bus for RF communication; 0 to +70 °C
SA5751	audio processor system with I ² C-bus for RF communication; -40 to +85 °C
SA5752	audio processor system for RF communication; -40 to +85 °C
SA5753	audio processor system with I ² C-bus for RF communication; -40 to +85 °C
UMF1000	data processor for cellular radio (DPROC); supports AMPS and TACS; I ² C-bus
UMF1000LT	data processor for cellular radio (DPROC); supports AMPS and TACS; I ² C-bus; 2.9 V supply

COMPANDORS

NE570	compandor; 0 to +70 °C
NE571	compandor; relaxed 570 spec.; 0 to +70 °C
SA571	compandor; relaxed 570 spec.; -40 to +85 °C
NE572	programmable analog compandor; 0 to +70 °C
SA572	programmable analog compandor; -40 to +85 °C
NE575	low-voltage dual expander/single compandor or automatic level controller; 0 to +70 °C
SA575	low-voltage dual expander/single compandor or automatic level controller; -40 to +85 °C
NE576	low-power compandor; low voltage; few external components; 0 to +70 °C
SA576	low-power compandor; low voltage; few external components; -40 to +85 °C
NE577	low-power compandor; 576 with programmable unity gain; 0 to +70 °C
SA577	low-power compandor; 576 with programmable unity gain; -40 to +85 °C
NE578	low-power compandor; 577 with power-down (170 µA) and DTMF summing capability; 0 to +70 °C
SA578	low-power compandor; 577 with power-down (170 µA) and DTMF summing cap.; -40 to +85 °C

COMPLEMENTARY DEVICES

PCF5012	14-bit bitstream ADC/DAC; will be renamed to PCF5012A
NE630	single-pole double-throw switch; DC to 1 GHz; 0 to +70 °C
SA630	single-pole double-throw switch; DC to 1 GHz; -40 to +85 °C
NE5044	programmable seven-channel RC encoder; 0 to +70 °C
TDA8781	wideband logarithmic amplifier; DC to 15 MHz; RSSI output

APPLICATION-SPECIFIC

Telecommunication

TELEPHONE SETS

Diallers

DTMF diallers

PCD3311C DTMF/modem/musical-tone generator; parallel data input; I²C-bus
PCD3312C DTMF/modem/musical-tone generator; I²C-bus

Pulse diallers

PCD3321C pulse dialler circuit with redial; 3x4 keypad; 23 digits redial; two automatic access pauses; mark/space ratio 3:2 and 2:1
PCD3326C pulse dialler circuit with redial; 3x4 keypad; 23 digits redial; mark/space ratio 2:1
PCD3327C pulse dialler circuit with redial; 3x4 keypad; 23 digits redial; variant of PCD3325C for ceramic resonator; automatic reset of access pause

Pulse/DTMF diallers

PCD3310 pulse and DTMF dialler with redial; 4x5 keypad; pulse dialling mark/space ratio 2:1; PABX register; notepad; flash; access pause control
PCD3310A pulse and DTMF dialler with redial; variant of PCD3310 with mark/space ratio 3:2
PCD3310F pulse and DTMF dialler with redial; variant of PCD3310 with DTMF timing of 60/90 ms
PCD3310G pulse and DTMF dialler with redial; variant of PCD3310 in which the '*' and '#' keys do not transmit a tone during switch-over to data mode

Repertory diallers

PCD3315/512 repertory pulse dialler with redial; 10, 16 and 20 Hz dial frequency options
PCD3315/513 PCD3315/512 with Norwegian and Swedish key options; 10 Hz dial frequency
PCD3341 CMOS repertory dialler telephone set controller; 4x4 keypad; 18-digit auto dial; 10 number storage; LCD control; I²C bus
PCD3344/004 up to 20 number repertory pulse/DTMF dialler with redial (max. 30 digits); music on hold; LCD control; specification options
PCD3344/011 up to 20 numbers of max 36 digits repertory pulse/DTMF dialler with redial; on-hook dialling; electronic note pad
PCD3344/047 up to 13 numbers of max 36 digits repertory pulse/DTMF dialler with redial;
PCD3347/001 pulse/DTMF dialler; France
PCD3347/020 pulse/DTMF dialler; Germany
PCD3349/018 up to 80 numbers of max. 20 digits feature phone pulse/DTMF dialler; feature phones

Repertory diallers/ringers

PCD3330-1 multi-standard repertory dialler/ringer with EEPROM
PCD3331-1 multi-standard pulse/tone dialler/ringer
PCD3332-1 multi-standard pulse/tone dialler/ringer

Tone ringers

PCD3360 programmable multi-tone telephone ringer

Speech transmission

PCA1070 multi-standard programmable transmission circuit
TEA1060 versatile telephone transmission circuit with dialler interface; low impedance input for dynamic or magnetic microphone
TEA1061 versatile telephone transmission circuit with dialler interface; high impedance input for electret or piezoelectric microphone
TEA1062 low-voltage telephone transmission circuit with dialler interface; high impedance input for dynamic, magnetic, piezoelectric or electret microphone
TEA1062A low-voltage speech transmission circuit with dialler interface
TEA1064A low-voltage versatile telephone transmission circuit with dialler interface and transmit level dynamic limiting; 20 to 45 dB earpiece output
TEA1064B TEA1064A with one-ground arrangement
TEA1065 versatile telephone transmission circuit with dialler interface; high impedance input for electret or

APPLICATION-SPECIFIC

Telecommunication

- TEA1066** piezoelectric microphone; electronic switching between dialling and speech
TEA1067 versatile telephone transmission circuit with dialler interface
TEA1068 low-voltage versatile telephone transmission circuit with dialler interface; supports all microphone types
TEA1068 versatile telephone transmission circuit with dialler interface; supports all microphone types

Call progress ICs

- NE5900** call progress decoder
TEA1083 call progress monitor for line-powered telephone sets
TEA1083A call progress monitor for line-powered telephone sets

Listening-in

- TEA1085** listening-in circuit for line-powered telephone sets; toggle function mute
TEA1085A listening-in circuit for line-powered telephone sets; logic level mute
TEA1093 hands-free listening-in circuit
TEA1096 line interface and listening-in circuit; adjustable supply voltage
TEA1096A line interface and listening-in circuit; DC volume control

**Microcontrollers**

see also **Microcontrollers** section

PCD3300 family of 8-bit CMOS microcontrollers

type number	ROM/EEPROM	RAM	speed (MHz)	major features	remarks
PCD3315A	1.5k —	160	16	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer	1.8 to 6 V supply voltage
PCD3343A	3k —	224	16	two 8-bit I/O ports; one 3-bit I/O port; 8-bit counter/timer; I ² C-bus	1.8 to 6 V supply voltage
PCD3344A	2k —	224	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	2.5 to 6 V supply voltage
PCD3346	4k 256	128	10	two 8-bit I/O ports; one 3-bit I/O port; two 8-bit counter/timers; I ² C-bus	2.5 to 6 V supply voltage
PCD3347	1.5k —	64	3.58	one 8-bit I/O port; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	2.5 to 6 V supply voltage
PCD3348A	8k —	256	16	two 8-bit I/O ports; one 3-bit I/O port; two 8-bit counter/timers; I ² C-bus	1.8 to 6 V supply voltage
PCD3349A	4k —	224	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF	2.5 to 6 V supply voltage
PCD3350A	8k 256	256	16	four 8-bit I/O ports; one 2-bit I/O port; two 8-bit counter/timers; DTMF tone generator; 3.58 MHz clock for DTMF; melody output	2.5 to 6 V supply voltage
PCD3351A	2k 128	64	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF; melody output	2.5 to 6 V supply voltage
PCD3352A	4k 128	128	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF; melody output	2.5 to 6 V supply voltage
PCD3353A	6k 128	128	3.58	two 8-bit I/O ports; one 4-bit I/O port; 8-bit counter/timer; DTMF tone generator; 3.58 MHz clock for DTMF; melody output	2.5 to 6 V supply voltage

APPLICATION-SPECIFIC

Telecommunication

type number	ROM/ EEPROM	RAM	speed (MHz)	major features	remarks
PCD3354A	8k 256	256	16	four 8-bit I/O ports; one 4-bit I/O port; two 8-bit counter/timers; DTMF tone generator; 3.58 MHz clock for DTMF; melody output	2.5 to 6 V supply voltage

Power supply ICssee also **Power supply ICs** section**TEA1081** supply circuit with power-down for telephone set peripherals**CORDLESS TELEPHONES**

We have several preprogrammed microcontrollers for cordless applications; please contact us.

see also **Radio communication** section**RADIO PAGERS****PCA5000A** paging decoder; POCSAG paging systems; supports alert-only and display pagers**PCF5001** POCSAG decoder**UAA2050** low power digital UHF paging receiver**UAA2080** advanced pager receiver; 25 to 512 MHz**MISCELLANEOUS ICs****PCD4440** analog voice scrambler/descrambler; I²C-bus**PCF1254** infrared remote control transmitter (low voltage); identification and security systems**TDA8000** smart card couplerSee **Support circuits for Telecom, Radio/Audio and Video** section for:

- Clock/calendar ICs
- I²C-bus I/O expanders
- Memories

See **Display drivers** section

APPLICATION-SPECIFIC

Radio/Audio

RADIO RECEIVERS

AM receivers

TDA1072A	AM receiver circuit; for car radios
TDA1572	AM receiver; for AM stereo car radios
TEA5551	single-chip AM radio; dual AF amplifier; for pocket receivers with headphones
TEA6200	AM upconversion radio receiver; 10.7 MHz IF

AM/FM receivers

TEA5570	RF/IF circuit for AM/FM radio
TEA5591	AM/FM radio receiver circuit
TEA5591A	AM/FM radio receiver circuit
TEA5594	AM/FM radio receiver circuit; for electronically-tuned radios
TDA5710	AM/FM radio receiver circuit
TEA5711	AM/FM stereo radio circuit
TEA5712	AM/FM stereo DTS radio circuit

FM receivers (See also Radio Communications section; FM IF systems)

TDA1574	integrated FM tuner for radio receivers
TDA1575	FM tuner circuit; for radio receivers
TDA1576	FM/IF amplifier/demodulator circuit
TDA1596	IF amplifier/demodulator for FM radio receivers
TDA1599	IF amplifier/demodulator for FM radio receivers
TDA7000	FM radio circuit
TDA7010	FM radio circuit
TDA7021	FM radio circuit; stereo/mono
TDA7088	FM receiver circuit for battery supply; with search tuning
TDB1080	IF limiting amplifier, FM detector and audio amplifier
TEA6100	FM/IF system and microcomputer-based tuning interface; I ² C-bus

Frequency/voltage synthesizers

HEF4750V	frequency synthesizer
SAA1057	radio tuning PLL frequency synthesizer
TDD1742	low power frequency synthesizer (LOPSY)
TSA6057	radio tuning PLL frequency synthesizer; I ² C-bus
TSA6060	fast radio tuning PLL frequency synthesizer; I ² C-bus; RDS

ARI and RDS signal decoders

SAA6579	radio data system demodulator (RDS); 57 kHz integrated filter
SAF7579	radio data system (RDS) demodulator
TDA1579	decoder for traffic warning (VWF) radio transmissions; AM carriers; ARI system
TDA1581	decoder for traffic warning (VWF) radio transmissions; AM carriers; ARI system

Antenna diversity

TEA6101	Antenna diversity circuit
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Satellite radio receiver circuits

SAA7500	digital satellite radio broadcasting tuner decoder (SAT-2)
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Stereo decoders

TDA1578A	time multiplex PLL stereo decoder for hi-fi and car radios
TDA1591	PLL stereo decoder and noise blanker; interference suppression
TDA1592	PLL stereo decoder and noise blanker; interference suppression
TDA7040	low-voltage PLL stereo decoder
TEA5580	PLL stereo decoder; medium-fi and car radios
TEA5581	PLL stereo decoder; source selector switch; medium-fi and car radios



APPLICATION-SPECIFIC

Radio/Audio

Interference suppressors

TDA1001B	interference and noise suppression circuit for FM receivers
TDA1591	PLL stereo decoder and noise blanker; interference suppression
TDA1592	PLL stereo decoder and noise blanker; interference suppression

AUDIO CIRCUITS**Bus-controlled**

TEA6300	car radio preamplifier and source selector with sound and fader controls; I ² C bus
TEA6320	sound fader control circuit; I ² C-bus; loudness function; zero-cross detection
TEA6330	sound fader control circuit for car radios; I ² C-bus
TEA6360	Five-band equalizer; I ² C-bus

DC-controlled

TDA1029	signal-sources switch; 4 x two channels
TDA1074A	dual tandem electronic potentiometer circuit
TDA1524A	stereo tone/volume control circuit
TDA1526	stereo tone/volume control circuit

Audio amplifiers

TDA1013B	4 W audio power amplifier with DC volume control
TDA1015	1 to 4 W audio power amplifier; with preamplifier
TDA1015T	0.5 W audio power amplifier; with preamplifier
TDA1016	recording/playback and 2 W audio power amplifier; preamplifier; automatic level control; short-circuit and thermal protection
TDA1020	12 W car radio power amplifier; with preamplifier
TDA1308	class AB stereo headphone driver for portable digital audio applications; 80 mW
TDA1514A	50 W high-performance hi-fi amplifier; mute/standby
TDA1515BQ	24 W BTL or 2x12 W stereo car radio power amplifier; loudspeaker protection; externally adjustable gain
TDA1516BQ	22 W BTL or 2x11 W stereo car radio power amplifier; 20/26 dB gain stereo/BTL
TDA1516CQ	22 W BTL car radio power amplifier; 20 dB gain
TDA1517	2x6 W stereo car radio power amplifier; 20 dB gain
TDA1518BQ	22 W BTL or 2x11 W stereo car radio power amplifier; 40/46 dB gain stereo/BTL
TDA1519	2x6 W stereo car radio power amplifier; 40 dB gain
TDA1519A	22 W BTL or 2x11 W stereo car radio power amplifier; 40/46 dB gain stereo/BTL
TDA1519B	12 W BTL or 2x6 W stereo car radio power amplifier; 40/46 dB gain stereo/BTL
TDA1521	2x12 W hi-fi stereo audio power amplifier; automatic mute
TDA1521A	2x6 W hi-fi stereo audio power amplifier; automatic mute
TDA1521Q	2x12 W hi-fi stereo audio power amplifier; automatic mute
TDA1551Q	2 x 22 W BTL car radio power amplifier with diagnostic facility; I ² C-bus; 20/26 dB gain stereo/BTL
TDA1552Q	2x22 W BTL stereo car radio power amplifier; double BTL amplifier
TDA1553Q	2x22 W stereo BTL car radio power amplifier with loudspeaker protection; 26 dB gain
TDA1553CQ	2x22 W stereo BTL car radio power amplifier; loudspeaker protection; mute/standby switch
TDA1554Q	4x11 W single-ended or 2x22 W power amplifier
TDA1555Q	4x11 W single-ended or 2x22 W power amplifier with distortion detector
TDA1556Q	2x22 W stereo BTL differential amplifier; loudspeaker protection; 26 dB gain
TDA1557Q	2x22 W stereo BTL car radio power amplifier with speaker protection; loudspeaker protection; 46 dB gain
TDA1558Q	2x22 W or 4x11 W single-ended car radio power amplifier; 40/46 dB gain stereo/BTL
TDA2611A	5 W audio power amplifier; adjustable input impedance
TDA2613	6 W hi-fi audio power amplifier; automatic mute
TDA2614	6 W hi-fi audio power amplifier; automatic mute
TDA2615	2x6 W hi-fi audio power amplifier; automatic mute
TDA2616	2x12 W hi-fi audio power amplifiers with mute; SIL9P
TDA2616Q	2x12 W hi-fi audio power amplifiers with mute; DBS9P
TDA7050	low-voltage mono/stereo power amplifier; 150 mW BTL or 2x75 mW
TDA7052	1 W BTL mono audio amplifier
TDA7052A	1 W BTL mono audio amplifier with DC volume control

APPLICATION-SPECIFIC

Radio/Audio

TDA7052AT	0.5 W BTL mono audio amplifier with DC volume control
TDA7053	2x1 W portable/mains-fed stereo power amplifier
TDA7056	3 W mono BTL audio output amplifier
TDA7056A	3 W mono BTL audio output amplifier with DC volume control
TDA7057Q	2x3 W stereo BTL audio output amplifier
TDA7072	single power driver; for CD servo systems
TDA7072A	single BTL power driver; 0.6 A output current
TDA7073	dual power driver; for CD servo systems
TDA7073A	dual BTL power driver; 0.6 A output current

Dolby circuits

TEA0665	Dolby B and C type noise reduction circuit; preamplifier; electronic switch
TEA0675	dual Dolby B-type noise reduction circuit for playback applications; music scan; head amplifiers; head switching
TEA0678	dual Dolby B-type noise reduction circuit for playback applications; music scan; head amplifiers; head switching; differential outputs

**Data conversion; ADCs, DACs**

SAA7322	stereo mid-performance bitstream conversion DAC; relaxed spec
SAA7323	stereo mid-performance bitstream conversion DAC; full spec
SAA7350	stereo high-performance bitstream conversion DAC
SAA7351	stereo high-performance bitstream conversion DAC
SAA7360	bitstream conversion stereo ADC for digital audio
TDA1305	bitstream continuous calibration filter DAC
TDA1306	economy filter DAC
TDA1309	low-voltage AD/DA converter
TDA1310A	continuous calibration DAC
TDA1311A	continuous calibration DAC
TDA1312A	continuous calibration DAC
TDA1313	continuous calibration DAC
TDA1541	dual 16-bit DAC
TDA1541A	dual 16-bit DAC
TDA1541A/R1	dual 16-bit DAC
TDA1541A/S1	dual 16-bit DAC; single crown
TDA1541A/S2	dual 16-bit DAC; double crown
TDA1543	dual 16-bit DAC (economy version) (I ² S input format)
TDA1543A	dual 16-bit economy DAC (economy version) (Japanese input format)
TDA1544A	stereo low-noise 16-bit DAC
TDA1545A	continuous calibration DAC; 16-bit
TDA1547	dual top-performance bitstream DAC
TDA1549	bitstream continuous calibration DAC

CompondorsSee **Radio communication** section**Digital audio systems**

SAA2520	stereo filter codec; for MPEG layer 1
SAA2521	masking threshold processor; for MPEG layer 1
SAA7274	audio digital input circuit (ADIC)
SAA7310	CMOS decoder for Compact Disc systems
SAA7341	CMOS decoder for Compact Disc with digital filter and DAC
SAA7345	CMOS decoder for Compact Disc with SRAM and digital filter
SAA7346	compact disc electronic shock absorbing RAM addresser
SAA7366	bitstream conversion ADC; for digital audio
TDA1301	digital servo control for 2-stage 3-spot CD mechanism
TDA1302A	diode amplifier laser supply
TDA1303	digital servo driver
TDA1307	high-performance bitstream digital filter
TDA1315	digital-audio input/output

APPLICATION-SPECIFIC**Radio/Audio**

TDA7072	single power driver; for CD servo systems
TDA7072A	single power driver; for CD servo systems; short-circuit protected
TDA7073	dual power driver; for CD servo systems
TDA7073A	dual power driver; for CD servo systems; short-circuit protected
TDA8808	photo-diode signal processor for Compact Disc players
TDA8808A	photo-diode signal processor for Compact Disc players
TDA8809	radial error signal processor for Compact Disc players
TDA8900	photo diode signal and radial error processor for Compact Disc

Audio cassette recorder circuits

TDA1602A	double-deck playback/record IC (DDPR); stereo; for high quality 12 V portables; performs all recorder functions
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POWER SUPPLY ICs

See also **Power supply ICs** section

Voltage stabilizers

TDA3601Q	Multiple output voltage regulator
TDA3601AQ	Multiple output voltage regulator
TDA3602	Multiple output voltage regulator

Supply voltage management

SAA1500	remaining energy indicator
TEA1041	battery voltage low-level indicator
TEA1088	SMPS battery charger control circuit
TEA1100	monitor and control circuit for SMPS charging systems

MISCELLANEOUS ICs

See **Support circuits for Telecom, Radio/Audio and Video** section for:

- Clock/calendar ICs
- I²C-bus I/O expanders
- Memories
- Remote controllers

See **Display drivers** section

APPLICATION-SPECIFIC

Video

TUNING and TUNER ICs

Tuning

SAB3035	computer interface for tuning and control (CITAC); 8 DACs; I ² C-bus
SAB3036	computer interface for tuning and control (CITAC); I ² C-bus
SAB3037	computer interface for tuning and control (CITAC); 4 DACs; I ² C-bus
SAB6456A	sensitive 1.3 GHz divide-by-64/divide-by-256 switchable prescaler
SAB6457A	divide-by-64/divide-by-256 switchable prescaler
TSA5511	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 8 bus-controlled ports
TSA5511T	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 5 bus-controlled ports
TSA5511AT	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 5 bus-controlled ports
TSA5512	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 8 bus-controlled ports
TSA5512T	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 6 bus-controlled ports
TSA5512AT	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 6 bus-controlled ports
TSA5514	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 7 bus-controlled ports
TSA5514AT	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 7 bus-controlled ports
TSA5515	1.3 GHz bidirectional I ² C-bus controlled synthesizer; 3 bus-controlled ports
TSA6380	1 GHz 3-wire serial-bus controlled synthesizer
TSA6382	1 GHz 3-wire serial-bus controlled synthesizer
TSA6383	1 GHz 3-wire serial-bus controlled synthesizer

Tuner

SAA1300	tuner switching circuit; I ² C-bus; five 85 mA outputs
TDA5030A	TV VHF mixer/oscillator/UHF preamplifier
TDA5330	VHF, UHF and hyperband mixer/oscillator for TV and VCR 3-band tuners
TDA5331	VHF, UHF and hyperband mixer/oscillator for TV and VCR 3-band tuners
TDA5332	double mixer/oscillator for TV and VCR tuners
TDA5333	double mixer/oscillator for TV and VCR tuners
TDA5630	3-band mixer/oscillator; 9 V
TDA5631	3-band mixer/oscillator; 9 V; TDA5630 with reversed pinning
TDA5634	UHF mixer/oscillator; 9 V

VISION AND SOUND IF ICs

Vision IF demodulators

TDA2549	IF amplifier and demodulator for multistandard TV receivers
TDA3840	TV IF amplifier and demodulator with TV signal identification
TDA3841	TV IF amplifier and demodulator
TDA3842	multistandard TV IF amplifier and demodulator with TV signal identification
TDA3850	multistandard TV IF amplifier and demodulator (MAC incl.) with input source switch and TV signal identification
TDA3851	multistandard TV IF amplifier and demodulator with input source switch
TDA3852	multistandard TV IF amplifier and demodulator (MAC incl.) with TV signal identification
TDA3853	TV IF amplifier and demodulator with TV signal identification
TDA8340	television IF amplifier and demodulator; n-p-n tuners; DIL16
TDA8340Q	television IF amplifier and demodulator; n-p-n tuners; QUIL16
TDA8341	television IF amplifier and demodulator; p-n-p tuners; DIL16
TDA8341Q	television IF amplifier and demodulator; p-n-p tuners; QUIL16
TDA8349A	multistandard IF amplifier and demodulator
TDA9800	VIF-PLL demodulator and FM-PLL detector
TDA9802	multistandard VIF-PLL demodulator and FM-PLL detector
TDA9803	multistandard VIF-PLL demodulator
TDA9804	VIF-PLL demodulator with internal or external AGC and FM-PLL detector

Sound IF

QSS demodulators

TDA2545A	quasi-split-sound circuit; gain-controlled IF amplifier
TDA2546A	quasi-split-sound circuit with 5,5 MHz demodulation



APPLICATION-SPECIFIC

Video

TDA2556	quasi-split-sound circuit with dual sound demodulators; FM
TDA3845	quasi-split-sound circuit and AM demodulator; supports FM/AM sound
TDA3856	quasi-split-sound processor for all standards; supports FM/AM sound
TDA3857	quasi-split-sound processor with two FM demodulators; supports all FM TV sound standards;
TDA3858	quasi-split-sound processor for all standards; supports AM/FM sound
TDA3866	quasi-split-sound processor for all standards;
TDA3867	as TDA3857, but AM output level 2.5 dB
TDA3868	quasi-split sound processor for all standards

AM demodulators

TDA3843	sound-IF circuit for TV AM-sound standard L and L'
TDA9830	sound-IF circuit for TV AM-sound standard L and L'; audio source switch

FM demodulators

TBA120U	sound IF amplifier/demodulator for TV; FM demodulator; AF amplifier
TDA2555	dual TV sound demodulator circuit; FM demodulator; 8-stage limiting amplifier
TDA2557	dual TV sound demodulator circuit; FM demodulator; 5-stage limiting amplifier
TDA3825	single FM TV-sound demodulator circuit; external AF input and mute
TDA3826	single FM TV-sound demodulator circuit; with mute and 6 dB AF amplifier
TDA3827	TV-sound demodulator circuit with SCART switches and AF control
TDA9820	multi standard/dual channel TV FM intercarrier sound demodulator; FM-PLL
TDA9821	dual channel TV FM-PLL intercarrier sound demodulator

NICAM circuits

TDA8732	NICAM-728 demodulator (NIDEM); supports PAL B, G and I
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SOUND ICs

Sound decoding

Stereo decoder/dual language

TDA3803A	stereo/dual TV sound decoder circuit
TDA3833	BTSC-stereo/SAP/DBX decoder and DBX expander
TDA8415	TV and VTR stereo/dual sound processor with integrated filters and I ² C-bus control; function and software compatible with TDA8405
TDA8416	TV and VTR stereo/dual sound processor with integrated filters and I ² C-bus control; with 2 slave addresses
TDA8417	TV and VTR stereo/dual sound processor with integrated filters and I ² C-bus control
TDA9840	TV and VTR stereo/dual sound processor with digital identification and I ² C-bus control
TDA9845	TV and VTR stereo/dual sound processor with integrated filters
TDA9847	
TEA5582	PLL stereo decoder (BTSC sound system)

NICAM

SAA7280	terrestrial digital sound decoder (TDSD); NICAM 728 decoder; I ² C-bus
SAA7282	NICAM decoder including audio DACs (TDSD2)

Sound control

See also **Radio/Audio** section

TDA1029	signal-sources switch; dual 4-input unity gain AF channels
TDA3810	spatial, stereo and pseudo-stereo sound circuit
TDA8421	hi-fi stereo audio processor; I ² C-bus
TDA8424	hi-fi stereo audio processor; I ² C-bus
TDA8425	hi-fi stereo audio processor; I ² C-bus
TDA8426	hi-fi stereo audio processor; I ² C-bus
TDA9860	universal hi-fi audio processor for TV; I ² C-bus
TEA6360	5-band equalizer; I ² C-bus

APPLICATION-SPECIFIC

Video

Sound ADCs and DACsSee also **Radio/Audio** section

- PCF8591** 8-bit A/D and D/C converter; I²C-bus; programmable bus address; four multiplexed analogue inputs; one analogue output
- SAD1009** universal DAC (UDAC); serial input and output for 16-bit words; 7 PWM outputs; 9 programmable output ports
- TDA1534** 14-bit analog-to-digital converter (ADC); -84 dB THD; 86 dB S/N ratio

Sound outputSee **Radio/Audio** section

VISION ICs

Colour decoders and video control

- SAA4980** monolithic integrated 16:9 compressor
- SAA7151B** digital multistandard decoder with SCART interface (DMSD2 - SCART)
- SAA7152** digital comb filter; compatible with SAA7151B + SAA7157 system
- SAA7157** clock signal generation circuit (SCGC) for digital TV system; PLL or VCO operation modes
- SAA7191B** digital multistandard colour decoder, square pixel (DMSD-SQP); I²C-bus; supports PAL, NTSC-M and SECAM
- SAA7197** clock signal generation circuit (SCGC) for desktop video systems; PLL or VCO operation modes
- SAA7199B** digital video encoder, GENLOCK-capable
- SAA9051** digital multistandard TV decoder (S-DMSD) with separate chrominance and luminance inputs; I²C-bus; supports PAL, NTSC, SECAM and B/W
- SAA9057B** clock signal generation circuit for digital TV systems (CGC); PLL or VCO operation modes
- TDA3504** video control combination circuit; supports PAL/SECAM -(R-Y) and -(B-Y) signals
- TDA3505** video control combination circuit with automatic cut-off control; supports PAL/SECAM -(R-Y) and -(B-Y) signals
- TDA3506** video control combination circuit with automatic cut-off control; supports PAL/SECAM +(B-Y) and +(R-Y) signals
- TDA3561A** PAL decoder
- TDA3565** PAL decoder
- TDA3566A** PAL/NTSC decoder
- TDA3567** NTSC decoder
- TDA3569B** NTSC decoder with fast RGB blanking
- TDA3590A** SECAM processor circuit;
- TDA3592A** SECAM-PAL transcoder
- TDA4510** PAL decoder
- TDA4555** multistandard decoder; supports -(R-Y) and -(B-Y) signals
- TDA4556** multistandard decoder; supports +(R-Y) and +(B-Y) signals
- TDA4557** multistandard colour decoder
- TDA4563** colour transient improvement circuit (CTI) without Y-delay
- TDA4565** colour transient improvement circuit; switchable delay time from 730 to 1000 ns in steps of 90 ns
- TDA4566** colour transient improvement circuit; switchable delay time from 550 to 820 ns in steps of 90 ns
- TDA4568** luminance signal delay circuit; switchable delay time from 550 to 820 ns in steps of 90 ns
- TDA4570** NTSC decoder
- TDA4580** video control combination circuit with automatic cut-off control
- TDA4632** SECAM colour decoder with negative colour difference output signals
- TDA4650** multistandard colour decoder with negative colour difference output signals difference outputs;
- TDA4655** multistandard colour decoder
- TDA4657** PAL/SECAM colour decoder
- TDA4661** baseband delay line
- TDA4662** PAL delay line
- TDA4670** picture signal improvement (PSI) circuit; I²C-bus
- TDA4671** picture signal improvement (PSI) circuit; I²C-bus
- TDA4680** video processor with automatic cut-off and white level control; I²C-bus
- TDA4681** video processor with automatic cut-off control; I²C-bus; NTSC, Japan
- TDA4685** video processor with automatic cut-off control; I²C-bus
- TDA4686** video processor with automatic cut-off control; I²C-bus



APPLICATION-SPECIFIC

Video

TDA4687	video processor with automatic cut-off control; I ² C-bus
TDA8440	switch for CTV receivers; video/audio; I ² C-bus
TDA8443A	I ² C-bus controlled YUV/RGB switch; two-channels; RGB/YUV matrix; I ² C-bus or DC control; 3-state outputs; seven slave addresses
TDA8480	RGB gamma-correction processor; I ² C-bus
TDA8490	SECAM decoder
TDA8540	4x4 video switch matrix; I ² C-bus
TDA9045	video processor and input-selector
TDA9141	PAL/NTSC/SECAM decoder/sync processor; alignment-free; I ² C-bus
TDA9160	PAL/NTSC/SECAM decoder/sync processor; I ² C-bus

Video ADCs and DACs

SAA7164	video and enhancement DAC with Y-peaking capability
SAA7165	video enhancement and D/A processor (VEDA2)
SAA7169	35 MHz triple 9-bit D/A converter for high-speed video
SAA9065	video enhancement and digital-analog processor; I ² C-bus; triple 8-bit video DAC with input formatter
SAA9079	7-bit analogue-to-digital converter (ADC 7); 22 MHz sampling rate; 3-state TTL outputs
TDA8702	8-bit video digital-to-analog converter; 30 MHz conversion rate; 150 MHz bandwidth; TTL-compatible
TDA8703	8-bit high-speed analog-to-digital converter; 40 MHz sampling rate; TTL-compatible
TDA8706	6-bit analog-to-digital converter with multiplexer and clamp; three analog inputs; TTL compatible
TDA8708	video analog input interface; 8-bit video ADC; 30 MHz sampling rate; 1-out-of-3 video input selector; TTL compatible
TDA8708A	video analog input interface; 8-bit video ADC; 32 MHz sampling rate; 1-out-of-3 video input selector; TTL compatible
TDA8709	video analog input interface; 8-bit video ADC; 30 MHz sampling rate; 1-out-of-3 video input selector; clamp function with '16' or '128' selection
TDA8709A	video analog input interface; 8-bit video ADC; 32 MHz sampling rate; 1-out-of-3 video input selector; clamp function with '16' or '128' selection
TDA8712	8-bit high-performance, high-speed video DAC; 30 MHz (max.); TTL compatible; -55 to +125 °C
TDA8713	8-bit high-speed analog-to-digital converter; 50 MHz sampling rate; TTL compatible
TDA8715	8-bit high-speed analog-to-digital converter; 50 MHz sampling rate; ECL 10KH compatible
TDA8716	8-bit high-speed ADC; 100 MHz clock; ECL compatible
TDA8771	triple 8-bit video digital-to-analog converter; 35 MHz sampling rate
TDA8772	triple 8-bit video digital-to-analog converter; 35/85 MHz sampling rate
TDE8712	8-bit video digital-to-analog converter; 50 MHz conversion rate; TTL compatible; -55 to +125 °C
TDE8715	8-bit high-speed analog-to-digital converter; 50 MHz sampling rate; ECL 10KH compatible; -55 to +125 °C

Memory-based features

Scan conversion

SAA4940H	noise reduction IC
SAA4950	memory controller
SAA7158	back-end IC for memory-based features and video DAC
SAA7186	digital video scaler; scales video pictures to random size window

Picture-in-picture

SAB9070	I ² C-bus controlled PIP controller (PIP8)
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Video output

TDA6101Q	video output amplifier; 8 MHz small signal bandwidth
TDA6101BQ	video output amplifier; 8 MHz small signal bandwidth
TDA6111Q	video output amplifier; 16 MHz small signal bandwidth

APPLICATION-SPECIFIC

Video

SYNC, DEFLECTION AND SMPS ICs

Sync and deflection

TDA1082	east-west correction driver circuit; differential inputs
TDA2577A	synchronization circuit with vertical oscillator and driver stages; separates vertical and horizontal sync pulses from composite video signal
TDA2578A	synchronization circuit with vertical oscillator and driver stages; separates vertical and horizontal sync pulses from composite video signal; 50/60 Hz detector
TDA2579B	horizontal/vertical synchronization circuit; 50/60 Hz detector
TDA2579C	horizontal/vertical synchronization circuit; 60 Hz detector
TDA2593	horizontal combination
TDA2595	horizontal combination; transmitter identification and protection circuits
TDA2653A	vertical deflection circuit; supports 50/60 Hz operation
TDA2654	vertical deflection circuit; momochrome 110°; tiny-vision colour 90°
TDA2658	vertical deflection circuit; supports 50/60 Hz operation
TDA3653B	vertical deflection and guard circuit (90°); SIL9 package
TDA3653C	vertical deflection and guard circuit (90°); SIL9P package
TDA3654	vertical deflection and guard circuit (110°) SIL9P package
TDA3654Q	vertical deflection and guard circuit (110°) DBS9P package
TDA4691	sync processor with clock
TDA4800	vertical deflection circuit for monitors applications
TDA4810	sync processor and horizontal driver for monitors
TDA4820	sync separation circuit for video applications
TDA4860	vertical deflection power amplifier for monitors; 2 A _{p-p}
TDA4861	vertical deflection power amplifier for monitors; 2.8 A _{p-p}
TDA4865	full bridge current driven vertical deflection booster; 2 A _{p-p}
TDA8350Q	DC-coupled vertical deflection and east-west output circuit
TDA8351	DC deflection vertical output
TDA8433	deflection processor for computer-controlled TV receivers; I ² C-bus
TDA9150	programmable deflection controller; I ² C-bus; self adaptive slope
TDA9151	programmable deflection controller; I ² C-bus; self adaptive or programmable fixed slope



Power supply

SMPS controllers

TDA8380	control circuit for switched mode power supplies
TEA1039	control circuit for switched mode power supply

PPS controllers

TDA2582	control circuit for power supplies; phase controlled
TDA2582Q	control circuit for power supplies; phase controlled
TDA8385	control IC for self-oscillating power supply (SOPS)

SMALL SIGNAL COMBI ICs

Black-white TV

TDA8303A	small signal combination; sound IF; DC volume control; audio pre-amplifier; for PNP tuners
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Colour TV

TDA4501	small signal combination with sound circuit for colour TV
TDA4502A	small signal combination with video switch for colour TV
TDA4504B	small signal combination for multistandard colour TV (positive and negative modulation)
TDA4505E	small signal combination IC for colour TV
TDA8302	small signal combination IC for colour TV; 60 Hz; video switch
TDA8304	small signal combination IC for colour TV; 50/60 Hz identification; video switch
TDA8305A	small signal combination IC for colour TV
TDA8360	one-chip PAL
TDA8361	one-chip PAL/NTSC
TDA8362	multistandard TV processor; one-chip small-signal CTV functions

APPLICATION-SPECIFIC

Video

TDA8395 SECAM decoder; alignment-free; integrated filters; for use with baseband delay

CONTROL ICs

Microcontrollers

See also **Microcontrollers** section

84C44x, 84C64x and 84C84x 8-bit microcontroller with OSD and VST

type number	ROM	RAM	oscillator for OSD		I ² C-bus	common on-chip features
			RC	LC		
PCA84C440	4K8	128	✓		✓	8-bit timer/event counter
PCA84C441	4k8	128		✓	✓	three 8-bit I/O ports
PCA84C443	4k8	128	✓			one 5-bit I/O port
PCA84C444	4k8	128		✓		five 6-bit DACs
PCA84C640	6k8	128	✓		✓	14-bit DAC
PCA84C641	6k8	128		✓	✓	3-bit DAC + comparator for AFC
PCA84C643	6k8	128	✓			OSD 2 rows of 16 characters
PCA84C644	6k8	128		✓		64 characters for OSD
PCA84C840	8k8	192	✓		✓	
PCA84C841	8k8	192		✓	✓	
PCA84C843	8k8	192	✓			
PCA84C844	8k8	192		✓		

P83C053 microcontroller for television and video (MTV); 192x8 RAM; 8Kx8 ROM; 128x10 display RAM; 60x18x14 character generator ROM; 80C51 instruction set; OSD controller; 3 digital video outputs; 37 I/O lines; 14-bit PWM; 8 6-bit PWMs; triple multiplexed DAC

P83C054 microcontroller for television and video (MTV); 192x8 RAM; 16Kx8 ROM; 128x10 display RAM; 60x18x14 character generator ROM; 80C51 instruction set; OSD controller; 3 digital video outputs; 37 I/O lines; 14-bit PWM; 8 6-bit PWMs; triple multiplexed DAC

P87C054 microcontroller for television and video (MTV); 192x8 RAM; 16Kx8 OTPROM; 128x10 display RAM; 60x18x14 character generator ROM; 80C51 instruction set; OSD controller; 3 digital video outputs; 37 I/O lines; 14-bit PWM; 8 6-bit PWMs; triple multiplexed DAC

P87C055 microcontroller for television and video (MTV); 256x8 RAM; 16Kx8 OTPROM; 128x10 display RAM; 60x18x14 character generator ROM; 80C51 instruction set; OSD controller; 3 digital video outputs; 37 I/O lines; 14-bit PWM; 8 6-bit PWMs; triple multiplexed DAC

On-screen display (OSD)

PCA8510 standalone OSD

TELETEXT ICs

SAA5191 teletext video processor; adaptive data slicer and sync separator

SAA5231 teletext video processor; adaptive data slicer and sync separator

SAA5243E enhanced computer-controlled teletext circuit (ECCT); 625-line system; I²C-bus; West European language version

SAA5243H enhanced computer-controlled teletext circuit (ECCT); 625-line system; I²C-bus; East European language version

SAA5243L enhanced computer-controlled teletext circuit (ECCT); 625-line system; I²C-bus; Arabic and Hebrew version

SAA5243R enhanced computer-controlled teletext circuit (ECCT); 625-line system; I²C-bus; Baltic and Cyrillic version

APPLICATION-SPECIFIC

Video

SAA5243T	enhanced computer-controlled teletext circuit (ECCT); 625-line system; I ² C-bus; West European and Turkish version
SAA5244A	integrated VIP and teletext (IVT1.1); shrunk-package version of SAA5244
SAA5245A	enhanced computer-controlled teletext circuit (ECCT); 525-line system; I ² C-bus; American version
SAA5246AE	integrated VIP and teletext (IVT); I ² C-bus; 625-line system; West European language version
SAA5246AH	integrated VIP and teletext (IVT); I ² C-bus; 625-line system; East European language version
SAA5246AI	integrated VIP and teletext (IVT); I ² C-bus; 625-line system; Greek language version
SAA5246AJ	integrated VIP and teletext (IVT); I ² C-bus; 625-line system; Yugoslavian language version
SAA5246AK	integrated VIP and teletext (IVT); I ² C-bus; 625-line system; Arabic and French language version
SAA5246AL	integrated VIP and teletext (IVT); I ² C-bus; 625-line system; Arabic and Hebrew language version
SAA5246AS	integrated VIP and teletext (IVT); I ² C-bus; 625-line system; Thai characters version
SAA5246AT	integrated VIP and teletext (IVT); I ² C-bus; 625-line system; West European and Turkish language version
SAA5247B	integrated VIP and teletext with background memory controller (IVT1.1BMC); I ² C-bus
SAA5248E	single-chip teletext and VPS decoder (IVT1.0VPS); I ² C-bus
SAA5249E	integrated VIP and teletext with background memory controller (IVT1.1BMC); I ² C-bus; West European language version
SAA5249H	integrated VIP and teletext with background memory controller (IVT1.1BMC); I ² C-bus; East European language version
SAA5249T	integrated VIP and teletext with background memory controller (IVT1.1BMC); I ² C-bus; Euro-Turkish language version
SAA5250	interface for data acquisition and control (for multistandard teletext systems)
SAA5252	line 21 decoder (LITOD)
SAA5254E	integrated VIP and teletext (IVT1.1); West European language version
SAA5254H	integrated VIP and teletext (IVT1.1); East European language version
SAA5254T	integrated VIP and teletext (IVT1.1); Euro-Turkish language version
SAA5260E	integrated VIP and teletext decoder (IVT2.0); I ² C-bus; 625-line system; West European language version
SAA5270	high-end teletext and OSD 625-line decoder (IVT3.0); 16:9/4:3; 100/50 Hz DRCS
SAA5355	single-chip colour crt controller (FTFROM); 525-line level-3 videotex decoder
SAA9042A	teletext IC for analog and digital TV; West European language version
SAA9042B	teletext IC for analog and digital TV; East European language version
SAA9042C	teletext IC for analog and digital TV; Euro-Turkish language version



MODULATOR ICs

TDA8720	I ² C-bus controlled RF modulator with on-board PLL frequency synthesizer
TDA8721	3-wire serial-bus controlled RF modulator with on-board PLL frequency synthesizer
TDA8725	antenna signal processor

SATELLITE TV ICs

SAA1760	MAC video processing
SAA1770	MAC digital processing
SAA7280	terrestrial digital sound decoder (TDSD)
TDA8730	PLL FM demodulator for DBS signals
TDA8734	MACAN; analog signal input conditioner interface for use in multistandard MAC decoder
TDA8735	PLL frequency synthesizer for TDA8741 applications
TDA8740	satellite sound circuit with noise reduction
TDA8741	satellite sound circuit with noise reduction
TDA8742	satellite sound circuit with noise reduction
TDA9821	dual channel TV FM intercarrier sound demodulator
TSA0555	2.5 GHz bi-directional I ² C-bus controlled synthesizer; for satellite tuning

MISCELLANEOUS ICs

NE592	video amplifier; 120 MHz bandwidth; adjustable gain; 0 to +70 °C
NE5204A	wideband high-frequency amplifier; 350 MHz bandwidth; 0 to +70 °C

APPLICATION-SPECIFIC

Video

SA5204A	wideband high-frequency amplifier; 350 MHz bandwidth; -40 to +85 °C
NE5205A	wideband high-frequency amplifier; 550 MHz bandwidth; 0 to +70 °C
SA5205A	wideband high-frequency amplifier; 550 MHz bandwidth; -40 to +85 °C
NE5209	wideband variable gain amplifier; 850 MHz bandwidth; voltage-controlled gain; 0 to +70 °C
SA5209	wideband variable gain amplifier; 850 MHz bandwidth; voltage-controlled gain; -40 to +85 °C
NE5219	wideband variable gain amplifier; 700 MHz bandwidth; voltage-controlled gain; 0 to +70 °C
SA5219	wideband variable gain amplifier; 700 MHz bandwidth; voltage-controlled gain; -40 to +85 °C
NE5539	high frequency operational amplifier; 350 MHz bandwidth; 0 to +70 °C
SE5539	high frequency operational amplifier; 350 MHz bandwidth; -55 to +125 °C
NE5592	video amplifier; dual amplifier; 110 MHz bandwidth; adjustable gain; 0 to +70 °C
μA733C	differential video amplifier; 120 MHz bandwidth; 0 to +70 °C
μA733	differential video amplifier; 120 MHz bandwidth; -55 to +125 °C
TDA2501	PAL - NTSC encoder; encodes R-Y and B-Y signals onto one subcarrier
TDA2506	SECAM encoder; converts D _R ' and D _B ' signals into sequential signals
TDA2507	FM modulator controller;
TDA6800	video modulator circuit
TDA8442	I ² C-bus interface for colour decoders; four 6-bit DACs; one high-current and two switching output ports
TDA8444	octuple 6-bit DAC with I ² C-bus
TDA8501	PAL/NTSC encoder
TDA8505	SECAM encoder

VCR/RECORDER ICs

See also **Tuning and tuner ICs, Vision and sound IF ICs, Sound ICs** in this section

SAA1310	control interface for VHS recorders; PAL and NTSC compatible
SAA4700	VPS dataline processor; I ² C-bus; 40-bit dataline register; line 16 decoding
SAA5233	VPS/PDC decoder
SAD1009	universal DAC (UDAC); serial input and output for 16-bit words; 7 PWM outputs; 9 programmable output ports
TDA2507	FM modulator controller
TDA3755	PAL/NTSC/SECAM synchronization processor for video recorders; VHS systems
TDA3791	band selector and window detector
TDA4720	SECAM identification and chrominance correction circuit; VHS video recorders
TDA4725	SECAM-L chrominance processor for VHS video recorders
TDA5140A	brushless DC motor drive circuit; 0.6 A output current
TDA5142	brushless DC motor drive circuit; 0.15 A output current
TDA6800	video modulator circuit
TDA9610	audio FM processor for VHS hi-fi audio; I ² C-bus
TDA9715	Y/C one-chip processor (VHS standard)
TEA7650	Video signal processor for CD-video/laser vision

CAMERA ICs

SAA1043	universal sync generator; programmable for eight standards
SAA1101	universal sync generator (USG); programmable to seven standards

MONITOR ICs

Sync

TDA2593	horizontal combination
TDA2595	horizontal combination; transmitter identification and protection circuits
TDA4810	sync processor and horizontal driver for monitors
TDA4850	horizontal and vertical deflection controller for VGA/XGA and multi-frequency monitors
TDA4851	horizontal and vertical deflection controller for VGA/XGA and autosync monitors; low jitter
TDA4852	horizontal and vertical deflection controller for autosync monitors
TDA8433	deflection processor for computer-controlled TV receivers; I ² C-bus

APPLICATION-SPECIFIC

Video

Deflection

TDA2653A	vertical deflection circuit; supports 50/60 Hz operation
TDA2654	vertical deflection circuit; monochrome 110°; tiny-vision colour 90°
TDA2658	vertical deflection circuit; supports 50/60 Hz operation
TDA4800	vertical deflection circuit for monitor applications
TDA4860	vertical deflection power amplifier for monitors; 2 A _{p-p}
TDA4861	vertical deflection power amplifier for monitors; 2.8 A _{p-p}
TDA4865	full bridge current driven vertical deflection booster; 2 A _{p-p}
TDA8351	DC deflection vertical output

SMPS

TDA8380	control circuit for switched mode power supplies
TEA1039	control circuit for switched mode power supply

Video control

TDA4881	advanced monitor video controller; DC controllable
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Miscellaneous ICs

TDA8442	I ² C-bus interface for colour decoders; four 6-bit DACs; one high-current and two switching output ports
TDA8444	octuple 6-bit DAC with I ² C-bus

MISCELLANEOUS ICs

See **Support circuits for Telecom, Radio/Audio and Video** section for:

- Clock/calendar ICs
- I²C-bus I/O expanders
- Memories
- Remote controllers

See **Display drivers** section



APPLICATION-SPECIFIC

Support circuits for Telecom, Radio/Audio and Video

CLOCK/CALENDAR

- PCF8573** clock calendar with serial I/O; I²C-bus; timebase from 32 kHz crystal
PCF8583 clock calendar with 256 x 8-bit static RAM; I²C-bus; 32 kHz or 50 Hz timebase

I²C-BUS CONTROLLERS AND I/O EXPANDERS

- PCF8574** remote 8-bit I/O expander for I²C-bus; 8 slave addresses
PCF8574A remote 8-bit I/O expander for I²C-bus; 8 different slave addresses
PCF8584 I²C-bus controller; master/slave interface; parallel-bus/I²C-bus converter; replaces PCD8584
P82B715 I²C-bus extender

DISPLAY DRIVERS

see Display drivers section

MEMORIES

Static RAMs

- PCF8570** 256x8-bit static RAM with I²C bus interface
PCF8571 128x8-bit static RAM with I²C bus interface
PCD5101 256x4-bit static RAM; 2.5 V supply; 1 V data retention
PCD5114 1024x4-bit static RAM; 2.5 V supply; 1 V data retention

EEPROMs

- PCA8581** 128x8-bit EEPROM with I²C-bus interface; supply voltage 4.5 to 5.5 V
PCA8581C 128x8-bit EEPROM with I²C-bus interface; supply voltage 2.5 to 6 V
PCF8582C-2 256x8-bit CMOS EEPROM with I²C-bus interface; extended temperature; low supply voltage; single bit error correction for extended number of erase/write cycles
PCD8582D-2 256x8-bit CMOS EEPROM with I²C-bus interface; low supply voltage; single bit error correction for extended number of erase/write cycles
PCF8582E-2 256x8-bit CMOS EEPROM with I²C-bus interface; extended temperature; single bit error correction for extended number of erase/write cycles
PCA8582F-2 256x8-bit CMOS EEPROM with I²C-bus interface; automotive temperature; single bit error correction for extended number of erase/write cycles
PCF8594C-2 512x8-bit CMOS EEPROM with I²C-bus interface; extended temperature; low supply voltage; single bit error correction for extended number of erase/write cycles
PCD8594D-2 512x8-bit CMOS EEPROM with I²C-bus interface; low supply voltage; single bit error correction for extended number of erase/write cycles
PCF8594E-2 512x8-bit CMOS EEPROM with I²C-bus interface; extended temperature; single bit error correction for extended number of erase/write cycles
PCA8594F-2 512x8-bit CMOS EEPROM with I²C-bus interface; automotive temperature; single bit error correction for extended number of erase/write cycles
PCF8598C-2 1kx8-bit CMOS EEPROM with I²C-bus interface; extended temperature; low supply voltage; single bit error correction for extended number of erase/write cycles
PCD8598D-2 1kx8-bit CMOS EEPROM with I²C-bus interface; low supply voltage; single bit error correction for extended number of erase/write cycles
PCF8598E-2 1kx8-bit CMOS EEPROM with I²C-bus interface; extended temperature; single bit error correction for extended number of erase/write cycles
PCA8598F-2 1kx8-bit CMOS EEPROM with I²C-bus interface; automotive temperature; single bit error correction for extended number of erase/write cycles
PCF29F64 8kx8-bit static CMOS EEPROM with page-erase option; extended temperature

APPLICATION-SPECIFIC**Support circuits for Telecom, Radio/Audio and Video**

REMOTE CONTROLLERS

PCA84C122	8-bit microcontroller for remote control transmitter; 1K ROM; 32 bytes RAM; 12 or 16 I/O lines; 8-bit programmable timer/counter with 5-bit pre-scaler; watchdog timer
PCA84C222	8-bit microcontroller for remote control transmitter; 2K ROM; 32 bytes RAM; 12 or 16 I/O lines; 8-bit programmable timer/counter with 5-bit pre-scaler; watchdog timer
PCA84C422	8-bit microcontroller for remote control transmitter; 4K ROM; 32 bytes RAM; 12 or 16 I/O lines; 8-bit programmable timer/counter with 5-bit pre-scaler; watchdog timer
PCA84C822	8-bit microcontroller for remote control transmitter; 8K ROM; 64 bytes RAM; 12 or 20 I/O lines; 8-bit programmable timer/counter with 5-bit pre-scaler; watchdog timer
SAA3004	remote control transmitter; 450 kHz; for infrared remote control; up to 448 commands
SAA3006	high performance transmitter (RC-5) for infrared remote control; up to 2048 commands
SAA3007	high performance transmitter (455 kHz) for infrared remote control; up to 1280 commands; low voltage
SAA3008	infrared remote control transmitter (RECS 80 low voltage); 38 kHz; up to 1280 commands
SAA3010	infrared remote control transmitter RC-5; low voltage; up to 2048 commands
SAA3027	infrared remote control transmitter RC-5; low current; up to 2048 commands
SAA3049	infrared remote control decoder
SAF1039	transmitter for infrared remote control
TDA3047	infrared receiver; for infrared remote control; active HIGH output signal
TDA3048	infrared receiver; for infrared remote control; active LOW output signal
UAA1301	UHF/VHF remote control receiver



APPLICATION-SPECIFIC

Support circuits for Telecom, Radio/Audio and Video

PHILIPS SEMICONDUCTORS
CONCISE CATALOGUE 1993

Discrete Semiconductors — Part 1



PHILIPS SEMICONDUCTORS
CONCISE CATALOGUE 1993



DISCRETE SEMICONDUCTORS — PART 1

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Voltage reference	SC7.52
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Trigger devices

Triacs	SC7.73
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DISCRETE SEMICONDUCTORS — PART 1

Contents

Letter Symbols

application	EHT stack application Number of phases of the application mode of an EHT rectifier diode stack.	h_{FE}	dc current gain The value as specified by level (minTypMax) of the static ratio of the collector current to the base current of a bipolar transistor in common emitter configuration at specified collector current, collector-emitter voltage and junction temperature.
channel-type	channel type Code indicating the material type of the channel(s) of a field-effect transistor.	$(I^2)t$	Joule-Integral The maximum capability of a thyristor, triac or diode to absorb energy (in J) at specified time duration. NOTE - When considered from the point of view of the circuit protected by a fuse, the value of the Joule-Integral over the operating time of the fuse is referred to a specific energy, i.e. the energy released as heat in 1 ohm of circuit resistance.
C_d	diode capacitance The value as specified by level (minTypMax) of the capacitance (in F) between the terminals of a diode or optoelectronic device at specified reverse voltage and frequency.	I_B	base current (dc) The direct base current (in A) of a bipolar transistor, as a variable.
C_{iss}	input capacitance The value as specified by level (minTypMax) of the guaranteed capacitance (in F) between gate and source connections, with drain-source connections short-circuited for ac voltage, of a field-effect transistor at specified frequency, drain-source voltage, and gate-source voltage.	I_C	collector current (dc) The direct collector current (in A) of a bipolar transistor or transistor part of an electronic device, as a variable.
C_{oss}	output capacitance The value as specified by level (minTypMax) of the guaranteed capacitance (in F) between drain and source connections, with gate-source connections short-circuited for ac voltage, of a field-effect transistor at specified frequency, drain-source voltage, and gate-source voltage.	I_{C-max}	collector current (dc) max The maximum direct collector current (in A) of a bipolar transistor or optoelectronic device.
C_{rs}	feedback capacitance The value as specified by level (minTypMax) of the capacitance (in F) between the drain and the gate with the input short-circuited to ac, of a field-effect transistor at specified frequency, drain-source voltage and gate-source voltage.	I_D	drain current (dc) The direct current (in A) flowing through the drain of a field-effect transistor, as a variable.
dt	duration The time (in s) during which an input quantity (current, voltage, etc.) is applied to a component, as a variable.	I_{D-max}	drain current (dc) The maximum direct drain current (in A) of a field effect transistor.
$di_{T/dt-max}$	rate of rise on-state curr The maximum limiting rate of rise of on-state current (in A/s) after triggering with a specified gate current to a specified on-state current at a stated rate of rise of the gate current.	I_{DSS}	drain current (dc) The value as specified by level (minMax) of the direct drain current (in A) of a field-effect transistor at specified drain-source voltage and source short-circuited to the gate.
$dV_{D/dt-max}$	rate of rise of off-state volt The maximum rate of rise (in V/s) of the off-state voltage that will not trigger the device at a specified off-state voltage and junction temperature.	I_F	forward current The direct current (in A) flowing through a diode or diode part of an electronic device, in the forward direction, as a variable.
E_{RSM}	non-rep peak rev aval energy The maximum non-repetitive peak reverse avalanche mode pulse energy (in J) of a rectifier diode, at specified reverse current and maximum junction temperature prior to the application of the pulse and with inductive load switched off.	$I_{F(AV)}$	average forward current The maximum average forward current (in A) of a rectifier diode or signal diode at specified temperature of a temperature type.
f_T	transition frequency The value as specified by level (minTypMax) of the frequency (in Hz) at which the small-signal current gain has decreased to unity when the output is short-circuited at specified collector current and collector-emitter voltage.	$I_{F(AV)/air}$	average forward current The maximum average forward current (in A) of a rectifier diode or signal diode at specified temperature of a temperature type.
F	spot noise figure The value as specified by level (minTypMax) of the spot noise figure (in dB) of a bipolar transistor at specified collector current, collector-emitter voltage, source impedance and frequency.	$I_{F(AV)/oil}$	average forward current The maximum average forward current (in A) of a rectifier diode or signal diode at specified temperature of a temperature type.
FET-appl	FET-application range Code of the application range of a power field-effect transistor.	I_{F-max}	forward current lim The maximum limiting direct current (in A) flowing through a diode, or diode part of an optoelectronic device, in the forward direction.
g_{fs}	transfer conductance The value as specified by level (minTypMax) of the nominal value of the real part of the transfer admittance (in S) of a forward biased field-effect transistor at specified drain current and drain-source voltage.	I_{FRM}	rep peak forward current The maximum repetitive peak forward current (in A) flowing through a diode or diac at specified forward voltage. NOTE - Including all repetitive transient currents.
		I_{FSM}	non-rep peak forward current The maximum non-repetitive peak forward current (in A) of a diode at specified junction temperature and specified duration prior to the application of the pulse.



Letter Symbols (cont.)

I_{GSS}	gate cut-off current The value as specified by level (minTypMax) of the reverse gate current (in A) of a field-effect transistor with the drain short-circuited to the source and at specified gate-source voltage and temperature of a temperature type.	P_{max}	power dissipation The maximum power (in W) of an electric/electronic or electromechanical component which may be dissipated continuously at specified temperature of a temperature type.
I_{GT-min}	gate trigger current The minimum gate current (in A) required to switch a thyristor or triac from the off-state to the on-state at specified off-state voltage and junction temperature.	P_{tot}	power dissipation The maximum power (in W) which may be dissipated continuously in a breakover diode, in unidirectional operation, mounted on an infinite heatsink and with a temperature of a temperature type.
I_H	holding current The minimum operating d.c. on-state current (in A) required to hold a breakover diode in the on-state at a specified temperature of a temperature type.	P_{RSM}	non-rep peak reverse power dis The maximum non-repetitive peak reverse power dissipation (in W) of a voltage regulator diode, at specified time duration and junction temperature prior to the application of the pulse.
I_{R max}	reverse current The maximum continuous reverse direct current (in A) of a diode, optoelectronic device, thyristor or triac at specified reverse voltage and temperature of a temperature type.	P_{TM}	peak power dissipation The maximum peak power (in W) which may be dissipated in a breakover diode, during 1 ms and when mounted in free air with ambient temperature.
I_{RSM}	non-rep peak reverse current The non-repetitive peak reverse current (in A) of a stabilizer diode, as a variable.	P_{ZSM}	non-rep peak reverse power dis The maximum amplitude (in W) of a single non-repetitive square power pulse dissipated in a rectifier diode, signal diode or stabilistor, operating in the breakdown region, at specified pulse duration and junction temperature prior to the application of the pulse.
I_{T(AV)-max}	average on-state current The maximum limiting average dc current (in A) flowing from anode to cathode in the on-state of a thyristor during one mains cycle at a specified mounting base temperature.	r_{diff max}	differential resistance The maximum differential resistance (in ohm), being the quotient of the delta V _F and delta I _F , of a voltage reference diode at specified working current.
I_{T(RMS)-max}	rms on-state current The maximum limiting rms on-state current (in A) flowing from the anode to the cathode in a thyristor or triac.	R_{DS(on)}	drain-source on-state res The value as specified by level (minTypMax) of the dc resistance (in ohm) between the drain and source terminals of a field-effect transistor with a specified gate-source voltage applied to bias the device to the on-state, a specified drain current and temperature of a temperature type.
I_{TRM}	rep peak on-state current The maximum limiting peak on-state current (in A), including all repetitive transient currents, in a triac or thyristor.	shape	pulse shape Code of the shape of a pulse applied to an electric/electronic or electromechanical component as a variable.
I_{TSM}	non-rep peak on-state current The maximum limiting non-repetitive peak on-state current (in A) in a thyristor or triac, at specified current and mounting-base temperature.	S_F	temperature coefficient S_F The maximum temperature coefficient (in mV/K) of a stabilistor at specified forward current and forward voltage.
I_{TSM1}	transient peak current 8/20 The limiting maximum transient peak on-state current (in A) of a breakover diode, at a virtual front time of 8 us and a virtual time to half-value of 20 us.	S_Z	temperature coefficient S_Z The maximum temperature coefficient (in %/K) of a voltage reference diode or voltage stabilizer diode, at specified working current.
I_{TSM2}	transient peak current 10/320 The limiting maximum transient peak on-state current (in A) of a breakover diode, at a virtual front time of 10 us and a virtual time to half-value of 320 us.	t_{off}	turn-off time The value as specified by level (minTypMax) of the time (in s), measured between the 90% value of the gate-source voltage change and the 10% value of the drain current swing of a field-effect transistor at reference conditions.
I_Z	working current The direct working current (in A) applied continuously to a voltage reference diode or voltage regulator diode, as a variable.	t_{on}	turn-on time The value as specified by level (minTypMax) of the time (in s), measured between the 10% value of the gate-source voltage change and the 90% value of the drain current swing of a field-effect transistor at reference conditions.
I_{Z max}	working current The maximum direct reverse current (in A) which may be applied continuously to a voltage reference diode, voltage regulator diode or transient suppressor diode.	t_p	duration The time (in s) during which an input quantity (current, voltage, etc.) is applied to a component, as a variable.
mult-dio-confi	diode configuration Code of the mode of configuration of a breakover diode, rectifier diode, signal diode or variable capacitance diode.		
near-conv-type	nearest conventional type Type number of the nearest conventional type, with comparable electrical specification, as the surface-mounted diode or transistor under consideration.		
polarity	transistor polarity The abbreviated name of the type of semiconductor material forming the junctions of a bipolar transistor.		

Letter Symbols (cont.)

t_{q-max}	commutated turn-off time The maximum time interval (in s) between the instant when the on-state current has decreased to zero after external switching of the anode-cathode voltage and the instant when the specified on-state voltage which the thyristor is capable of supporting without turning on, passes through zero with a specified rate of rise of on-state voltage.	V_F	forward voltage The value as specified by level (minTypMax) of the forward voltage (in V) across a diode or diode part of an optoelectronic device, at specified forward current and temperature of a temperature type.
t_{rr}	reverse recovery time The maximum reverse recovery time (in s) of a diode, when switched from a specified forward current to a specified reverse voltage at a specified change of forward current and junction temperature.	V_{GT-min}	gate trigger voltage The minimum gate voltage (in V) required to switch a triac or thyristor from the off-state to the on-state at a specified off-state voltage and junction temperature.
t_{rr-max}	reverse recovery time The maximum reverse recovery time (in s) of a diode, when switched from a specified forward current to a specified reverse voltage at a specified change of forward current and junction temperature.	V_R	reverse voltage The direct voltage (in V) applied to a diode or optoelectronic device in reverse direction, as a variable.
t_1	virtual front time The virtual front time t_1 (in s) of an impulse applied to a stabilizer diode, as a variable. NOTE - If oscillations are present on the front, the 10% and 90% values should be derived from a mean curve drawn through these oscillations in an analogous manner to that used for oscillatory lightning impulses.	V_{R-max}	reverse voltage The maximum voltage (in V) which may be applied continuously to a diode or diode part of an optoelectronic device in the reverse direction at specified temperature of a temperature type.
t_2	virtual time to half-value The virtual time to half-value t_2 (in s) of an impulse current applied to a stabilizer diode, as a variable.	V_{RRM}	rep peak reverse voltage The maximum repetitive peak reverse voltage (in V) across a diode or reverse blocking thyristor.
T_j	junction temperature The junction temperature (in Cel) of a transistor, diode, trigger device, optoelectronic device or IC as a variable.	$V_{RWM max}$	crest working reverse voltage The maximum peak reverse voltage (in V), across a rectifier diode. NOTE - Excluding all repetitive and non-repetitive transient voltages.
T_{tp}	tie point temperature The temperature (in Cel) of the tie point of a voltage regulator diode, as a variable.	V_{-CEsat}	collector-emitter sat voltage The value as specified by level (minTypMax) of the collector-emitter saturation voltage (in V) of a bipolar transistor at specified collector current, base current and junction temperature. NOTE - This is the voltage between collector and emitter terminals when both the base-emitter and base-collector junctions are forward biased.
$V_{(BO)}$	breakover voltage The value as specified by level (miNoMax) of the voltage (in V) appearing across a breakover diode prior to switching to the on-state, at a specified breakdown current not higher than the switching current and at specified temperature of a temperature type.	V_{CBO}	collector-base voltage V_{CBO} The maximum voltage (in V) between collector and base terminals of a bipolar transistor at open emitter terminal.
$V_{(BR)}$	breakdown voltage The minimum operating breakdown voltage (in V) at which a breakover diode will commence avalanche breakdown, at specified breakdown current and temperature of a temperature type.	V_{CE}	collector-emitter voltage The direct voltage (in V) between the collector and emitter terminals of a bipolar transistor, as a variable.
$V_{(CL)R}$	clamping voltage The maximum clamping voltage (in V) of a transient suppressor diode at specified non-repetitive peak reverse current, virtual front time and virtual time to half-value.	V_{CEsat}	collector-emitter sat voltage The value as specified by level (minTypMax) of the collector-emitter saturation voltage (in V) of a bipolar transistor at specified collector current, base current and junction temperature. NOTE - This is the voltage between collector and emitter terminals when both the base-emitter and base-collector junctions are forward biased.
V_{ref}	working voltage The value as specified by level (miNoMax) of the working voltage (in V) of a voltage regulator diode or voltage reference diode at specified working current.	V_{CEO}	collector-emitter volt V_{CEO} The maximum voltage (in V) between collector and emitter terminals of a bipolar transistor at open base terminal.
V_D	off-state voltage max. The limiting maximum continuous voltage (in V) across a breakover diode in the off-state condition.	V_{CESM}	collector-emitter peak voltage The maximum peak collector-emitter voltage (in V) of a bipolar transistor when the base terminal is short-circuited to the emitter terminal.
V_{D-max}	off-state voltage The maximum limiting continuous voltage (in V) between the thyristor or triac anode and cathode in the off-state, excluding repetitive and non-repetitive voltages.	V_{DS}	drain-source voltage The direct voltage (in V) between drain and source terminals of a field-effect transistor, as a variable.
V_{DRM}	rep peak off-state voltage The maximum limiting repetitive peak off-state voltage (in V) across a thyristor or triac including all repetitive voltages but excluding all non-repetitive transient voltages.	V_{DS-max}	drain-source voltage I_{lm} The maximum limiting direct voltage (in V) between drain and source terminals of a field-effect transistor.
		V_{GS}	gate-source voltage The direct voltage (in V) between gate and source terminals of a field-effect transistor, as a variable.



Letter Symbols (cont.)

$V_{GS(off)}$	gate-source cut-off voltage The value as specified by level (minTypMax) of the gate-source cut-off voltage (in V) of a depletion field-effect transistor at specified drain current, drain-source voltage and temperature of a temperature type.
$V_{GS(th)}$	gate-source threshold volt The value as specified by level (minTypMax) of the direct threshold voltage (in V) between gate and source terminals of an enhancement field-effect transistor at specified drain current and drain-source voltage.
Y_{fs}	transfer admittance The value as specified by level (minTypMax) of the modulus of the transfer admittance (in S) of a field effect transistor at specified frequency, drain current, gate-source voltage and drain-source voltage.

Details

Outline/Packaging

SPQ = Smallest Packing Quantity
 PQ = Packing Quantity

case	material	mounting techn.	packing shape	SPQ	PQ
DO-4	METAL	STUD	BULK PACK	25	250
DO-5	METAL	STUD	BULK PACK	10	100
DO-41	GLASS	LEADED	REEL PACK,AXIAL,STAN	5000	5000
FO41B	CERAMIC	LEADED	BULK PACK	1	40
FO45	CERAMIC	LEADED	BULK PACK	1	40
			BULK PACK	20	60
FO46	CERAMIC	LEADED	BULK PACK	20	60
FO57			BULK PACK	1	40
FO57C	CERAMIC	LEADED	BULK PACK	1	40
FO57D	CERAMIC	LEADED	BULK PACK	1	40
FO67	CERAMIC	LEADED	BULK PACK	1	40
FO83	CERAMIC	LEADED	BULK PACK	1	40
FO85			BULK PACK	10	150
FO91	CERAMIC	LEADED	BULK PACK	1	40
FO91B	CERAMIC	LEADED	BULK PACK	1	40
FO93	CERAMIC	LEADED	BULK PACK	1	40
			BULK PACK	2	40
FO96	CERAMIC	LEADED	BULK PACK	1	40
FO102			BULK PACK	10	150
FO125			BULK PACK	1	40
FO150			BULK PACK	1	10
FO151			BULK PACK	50	50
			BULK PACK	25	100
			TRADE PACK	1	1
FO163	CERAMIC	LEADED	BULK PACK	1	40
FO229	CERAMIC	LEADED	BULK PACK	1	40
SOD1			BULK PACK	150	150
SOD4			BULK PACK	10	100
			BULK PACK	25	100
			BULK PACK	25	250
			BULK PACK,CECC	25	250
SOD53			BULK PACK	1000	6000
			REEL PACK,RADIAL	2000	10000
			AMMOPACK,RADIAL	4500	22500
			REEL PACK,RADIAL,REV	2000	10000
SOD57	GLASS	LEADED	BULK PACK	250	250
			BULK PACK	1000	1000
			BULK PACK	1500	1500
			REEL PACK,AXIAL,STAN	2000	2000
			REEL PACK,AXIAL,STAN	4000	4000
			REEL PACK,AXIAL,STAN	5000	5000
			AMMOPACK,AXIAL,52MM	3000	3000
			AMMOPACK,AXIAL,SMALL	50	50
			AMMOPACK,AXIAL,SMALL	200	200
SOD61	GLASS	LEADED	REEL PACK,AXIAL,STAN	5000	5000
			AMMOPACK,AXIAL,SMALL	50	50
SOD63			BULK PACK	1000	2000
			AMMOPACK,RADIAL	2500	12500
SOD64	GLASS	LEADED	BULK PACK	250	250
			BULK PACK	1000	1000
			BULK PACK	1500	1500
			BULK PACK	5000	5000
			REEL PACK,AXIAL,STAN	4000	4000
			AMMOPACK,AXIAL,SMALL	200	200
SOD68	GLASS	LEADED	BULK PACK	1000	1000
			BULK PACK	2000	2000
			REEL PACK,AXIAL,STAN	10000	10000
			REEL PACK,SMD,7"	2500	2500



Outline/Packaging (cont.)

Details

case	material	mounting techn.	packing shape	SPQ	PQ
SOD69	PLASTIC	LEADED	REEL PACK,RADIAL	5000	5000
			REEL PACK,AXIAL,26MM	10000	10000
			AMMOPACK,AXIAL,52MM	10000	10000
			REEL PACK,RADIAL,REV	5000	5000
			AMMOPACK,AXIAL,26MM	5000	5000
			AMMOPACK,AXIAL,SMALL	1000	1000
SOD80	GLASS	SMD	BULK PACK	600	600
			BULK PACK	1000	10000
SOD81	GLASS	LEADED	REEL PACK,AXIAL,STAN	10000	10000
			REEL PACK,SMD,7"	2500	2500
			REEL PACK,SMD,LARGE	10000	10000
			BULK PACK	10	1000
			REEL PACK,AXIAL,STAN	5000	5000
			AMMOPACK,AXIAL,52MM	5000	5000
SOD83	GLASS	LEADED	AMMOPACK,AXIAL,26MM	5000	5000
			AMMOPACK,AXIAL,SMALL	500	500
			REEL PACK,AXIAL,CECC	5000	5000
			REEL PACK,AXIAL,STAN	1	1
			REEL PACK,AXIAL,STAN	2000	2000
			AMMOPACK,AXIAL,SMALL	50	50
SOD84	GLASS	LEADED	REEL PACK,AXIAL,STAN	5000	5000
			AMMOPACK,AXIAL,52MM	2500	2500
SOD87	GLASS	SMD	AMMOPACK,AXIAL,SMALL	200	200
			BULK PACK	1000	6000
			REEL PACK,SMD,7"	2000	2000
SOD88A	GLASS	LEADED	REEL PACK,SMD,LARGE	8000	8000
			REEL PACK,AXIAL,STAN	5000	5000
SOD91	GLASS	LEADED	AMMOPACK,AXIAL,SMALL	50	50
			REEL PACK,AXIAL,STAN	10000	10000
SOD101	PLASTIC	LEADED	AMMOPACK,AXIAL,52MM	10000	10000
			AMMOPACK,AXIAL,26MM	5000	5000
			AMMOPACK,AXIAL,SMALL	1000	1000
			BULK PACK	100	100
			BULK PACK	100	2000
			BULK PACK	1000	2000
SOD102	PLASTIC	SMD	BULK PACK	1000	2000
			BULK PACK	1000	2000
SOD104	PLASTIC	SMD	BULK PACK	3	30
			REEL PACK,SMD,7"	3000	3000
SOD112	PLASTIC	SMD	REEL PACK,SMD,LARGE	10000	10000
			BULK PACK	50	1000
SOD123	PLASTIC	SMD	BULK PACK,CECC	50	1000
			BULK PACK	500	25000
SOT5	PLASTIC	SMD	REEL PACK,AXIAL,STAN	5000	5000
			REEL PACK,SMD,7"	3000	3000
			BULK PACK,SMD LOW PR	500	25000
			REEL PACK,SMD LOW PR	1000	1000
			REEL PACK,SMD LOW PR	3000	3000
			REEL PACK,SMD LOW PR	3000	3000
			REEL PACK,SMD LOW PR	10000	10000
			REEL PACK,RADIAL	2000	2000
			REEL PACK,RADIAL	2000	10000
			AMMOPACK,RADIAL	2000	10000
			HORIZONTAL RAIL PACK	50	1000
			HORIZONTAL RAIL PACK	1000	1000
SOT37	PLASTIC	LEADED	BULK PACK	500	9000
			REEL PACK,SMD LOW PR	3000	3000
			REEL PACK,SMD LOW PR	10000	10000
SOT38	PLASTIC	LEADED	BULK PACK	22	880
			BULK PACK	20	60
SOT48	PLASTIC	LEADED	BULK PACK	1	10
			BULK PACK	100	100

Details

Outline/Packaging (cont.)

case	material	mounting techn.	packing shape	SPQ	PQ
SOT54	PLASTIC	LEADED	BULK PACK	50	500
			BULK PACK	600	600
			BULK PACK	900	900
			BULK PACK	1000	1000
			BULK PACK	1000	5000
			REEL PACK,RADIAL	2000	2000
			REEL PACK,RADIAL	2000	10000
			AMMOPACK,RADIAL	2000	2000
			AMMOPACK,RADIAL	1000	5000
			AMMOPACK,RADIAL	2000	10000
			HORIZONTAL RAIL PACK	50	1000
			REEL PACK,RADIAL,REV	2000	10000
				1000	5000
				1000	5000
	2000	10000			
SOT55	PLASTIC	LEADED	BULK PACK	20	40
			BULK PACK	15	60
			TRADE PACK	4	4
			TRADE PACK	4	32
SOT56	PLASTIC	LEADED	BULK PACK	20	60
			BULK PACK	25	75
			TRADE PACK	4	48
SOT82	PLASTIC	LEADED	HORIZONTAL RAIL PACK	50	1000
			HORIZONTAL RAIL PACK	1000	1000
SOT89	PLASTIC	SMD	BULK PACK	250	20000
			REEL PACK,SMD,7"	1000	1000
			REEL PACK,SMD,7",REV	1000	1000
			REEL PACK,SMD,LARGE	4000	4000
SOT908	PLASTIC	LEADED	HORIZONTAL RAIL PACK	63	3150
SOT93	PLASTIC	LEADED	HORIZONTAL RAIL PACK	63	6237
			BULK PACK	25	500
			BULK PACK	25	1000
			HORIZONTAL RAIL PACK	25	150
			HORIZONTAL RAIL PACK	25	500
			HORIZONTAL RAIL PACK	500	500
SOT97	PLASTIC	LEADED	HORIZONTAL RAIL PACK	49	2450
SOT97F		LEADED	HORIZONTAL RAIL PACK	49	2450
SOT100	CERAMIC	LEADED	BULK PACK	10	150
			BULK PACK	100	700
SOT103	PLASTIC	LEADED	BULK PACK	50	3500
			BULK PACK	500	5000
SOT115	METAL	LEADED	BULK PACK	25	100
			TRADE PACK	5	5
SOT119	CERAMIC	LEADED	BULK PACK	20	40
			TRADE PACK	4	32
			BULK PACK	20	60
SOT120	CERAMIC	LEADED	BULK PACK	20	40
			TRADE PACK	5	5
SOT121	CERAMIC	LEADED	TRADE PACK	4	32
			BULK PACK	20	40
			BULK PACK	20	60
			BULK PACK	25	75
			TRADE PACK	4	32
			TRADE PACK	4	48
SOT122	CERAMIC	LEADED	BULK PACK	20	40
			BULK PACK	20	60
			BULK PACK	25	75
			TRADE PACK	4	32
			TRADE PACK	4	48
			BULK PACK	20	40
SOT123	CERAMIC	LEADED	BULK PACK	20	40
			BULK PACK	20	60
			BULK PACK	4	200
			TRADE PACK	5	5
			TRADE PACK	4	32
SOT132			BULK PACK	12	36
			BULK PACK	2	40



Outline/Packaging (cont.)

Details

case	material	mounting techn.	packing shape	SPQ	PQ
SOT139			BULK PACK	2	50
SOT143	PLASTIC	SMD	BULK PACK	20	60
			BULK PACK,SMD LOW PR	500	25000
			REEL PACK,SMD LOW PR	3000	3000
			REEL PACK,SMD LOW PR	10000	10000
SOT147	CERAMIC	LEADED	BULK PACK	20	40
			TRADE PACK	4	32
SOT148			BULK PACK	20	80
			TRADE PACK	1	1
SOT160	CERAMIC	LEADED	BULK PACK	25	75
SOT161	CERAMIC	LEADED	BULK PACK	20	40
			TRADE PACK	4	32
SOT171	CERAMIC	LEADED	BULK PACK	20	40
			TRADE PACK	4	32
SOT172	CERAMIC	LEADED	BULK PACK	20	40
			BULK PACK	20	60
			BULK PACK	25	75
			TRADE PACK	4	48
SOT173	CERAMIC	LEADED	BULK PACK	50	3500
			REEL PACK,SMD,7"	1000	1000
			REEL PACK,SMD,LONG L	600	600
SOT179	CERAMIC	LEADED	BULK PACK	20	60
SOT181	PLASTIC	LEADED	BULK PACK	4	100
			BULK PACK	30	150
SOT183			BULK PACK	15	75
SOT186	PLASTIC	LEADED	HORIZONTAL RAIL PACK	50	300
			HORIZONTAL RAIL PACK	50	1000
			HORIZONTAL RAIL PACK	1000	1000
SOT186A	PLASTIC	LEADED	HORIZONTAL RAIL PACK	50	1000
SOT194			HORIZONTAL RAIL PACK	50	1000
SOT195	PLASTIC	LEADED	BULK PACK	150	150
			BULK PACK	500	4000
			TRADE PACK	10	10
			TRADE PACK	100	1000
SOT197			BULK PACK	2	50
SOT199	PLASTIC	LEADED	BULK PACK	50	1000
			HORIZONTAL RAIL PACK	25	150
			HORIZONTAL RAIL PACK	25	500
			HORIZONTAL RAIL PACK	500	500
			HORIZONTAL RAIL PACK	33	660
			HORIZONTAL RAIL PACK	50	1000
SOT200	PLASTIC	LEADED	BULK PACK	2	50
SOT211	PLASTIC	LEADED	BULK PACK	500	1000
SOT212	PLASTIC	LEADED	HORIZONTAL RAIL PACK	63	2520
SOT223	PLASTIC	SMD	BULK PACK	250	20000
			BULK PACK	500	20000
			REEL PACK,SMD,7"	1000	1000
			REEL PACK,SMD,LARGE	4000	4000
SOT227	PLASTIC	LEADED	BULK PACK	3	30
			BULK PACK	5	50
			BULK PACK	10	100
			BULK PACK	20	100
			BULK PACK	25	100
			BULK PACK	100	100
			BULK PACK	50	1000
			BULK PACK	1000	5000
			HORIZONTAL RAIL PACK	10	100
			HORIZONTAL RAIL PACK	100	100
SOT228	PLASTIC	LEADED	HORIZONTAL RAIL PACK	55	2200
SOT229	PLASTIC	LEADED	HORIZONTAL RAIL PACK	55	2750
SOT230	PLASTIC	LEADED	HORIZONTAL RAIL PACK	55	2750

Details

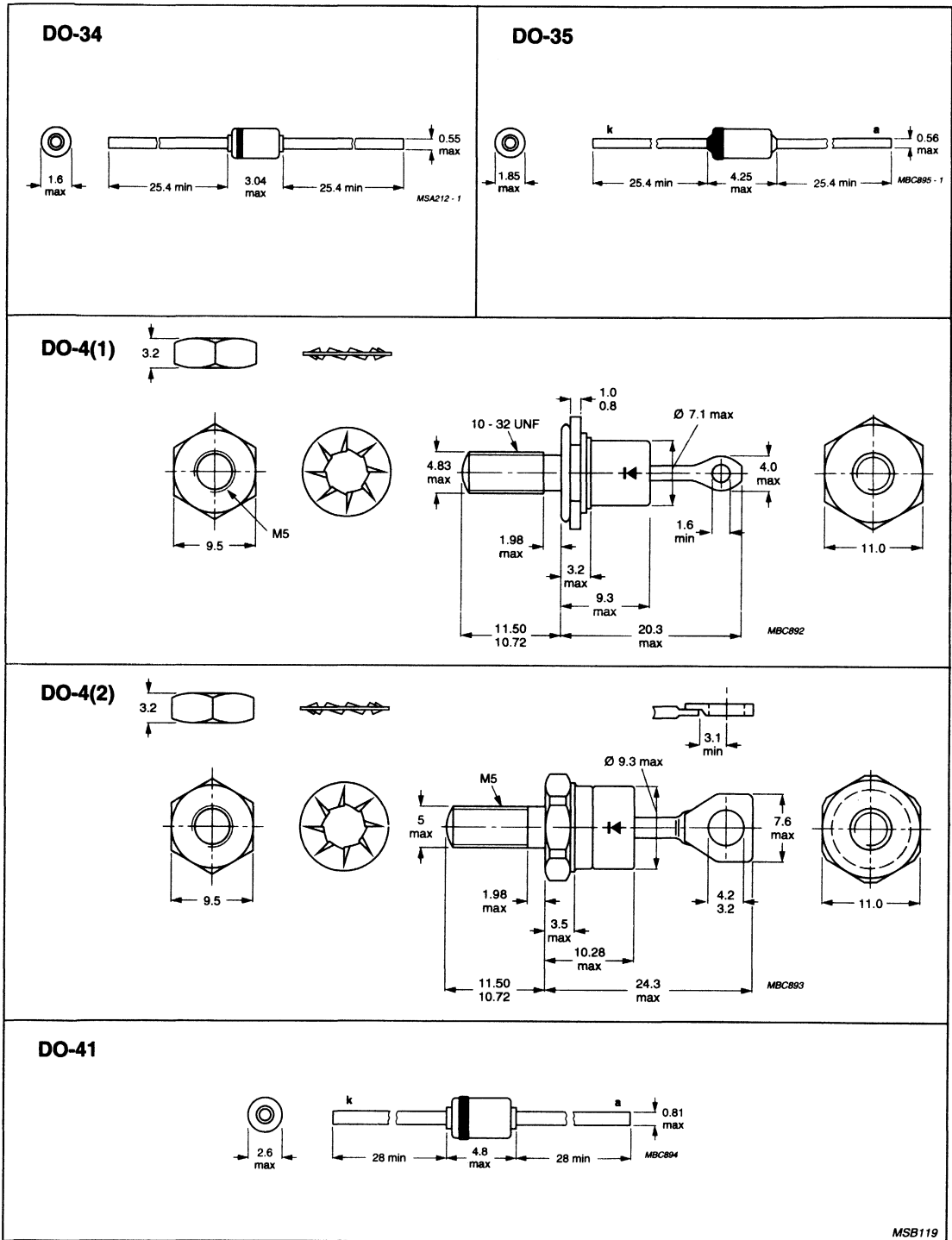
Outline/Packaging (cont.)

case	material	mounting techn.	packing shape	SPQ	PQ
SOT231	PLASTIC	LEADED	HORIZONTAL RAIL PACK	55	2200
			HORIZONTAL RAIL PACK	55	4455
SOT242			BULK PACK	20	80
			TRADE PACK	1	1
SOT246	PLASTIC	LEADED	BULK PACK	2	50
			BULK PACK	15	75
SOT253			BULK PACK	100	200
			BULK PACK	50	2000
SOT262	CERAMIC	LEADED	BULK PACK	2	16
SOT263	PLASTIC	LEADED	HORIZONTAL RAIL PACK	50	1000
SOT268	CERAMIC	LEADED	BULK PACK	20	40
SOT271	PLASTIC	LEADED	HORIZONTAL RAIL PACK	42	1680
			HORIZONTAL RAIL PACK	42	3402
			MARKING BRANDING AS	42	3402
			BULK PACK	20	40
SOT273	CERAMIC	LEADED	TRADE PACK	4	32
			BULK PACK	20	40
SOT279	CERAMIC	LEADED	BULK PACK	20	40
SOT289	CERAMIC	LEADED	BULK PACK	20	40
			TRADE PACK	4	32
TO-5			HORIZONTAL RAIL PACK	55	2200
TO-18	METAL	LEADED	BULK PACK	1	1
			BULK PACK	1	12
			TRADE PACK	1	1
TO-39	METAL	LEADED	BULK PACK	50	1000
			BULK PACK	25	100
TO-46			TRADE PACK	5	5
			BULK PACK	1000	5000
			REEL PACK,RADIAL	2000	10000
TO-126			AMMOPACK,RADIAL	2000	10000
			REEL PACK,RADIAL	2000	10000
TO-220	PLASTIC	LEADED	BULK PACK	10	100
			BULK PACK	25	250
			BULK PACK	25	600
			HORIZONTAL RAIL PACK	50	600
			HORIZONTAL RAIL PACK	50	1000
			HORIZONTAL RAIL PACK	1000	1000
			BULK PACK	5	50
			BULK PACK	10	300
TO-238			BULK PACK	10	300



DISCRETE SEMICONDUCTORS

Package outlines

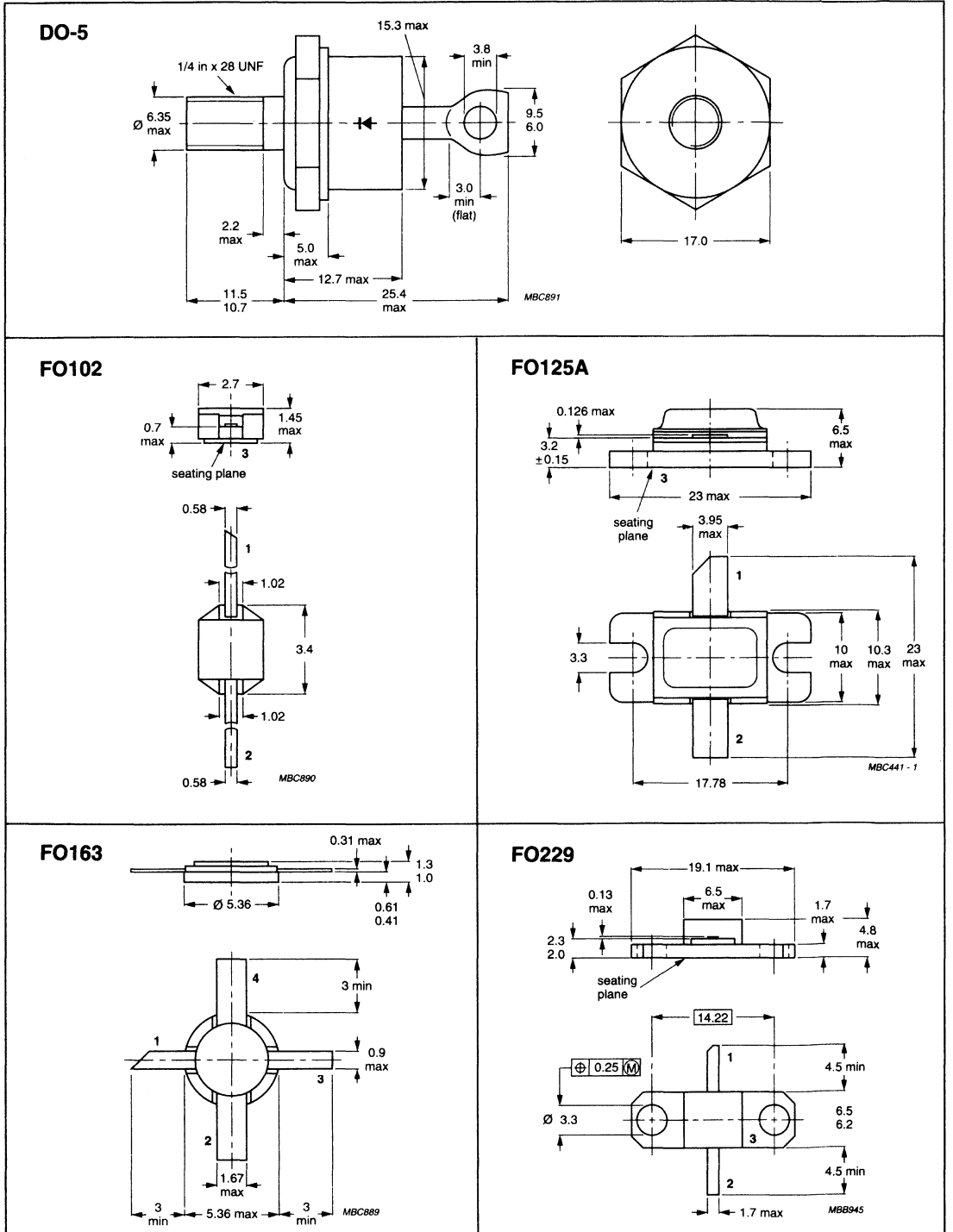


SC

MSB119

DISCRETE SEMICONDUCTORS

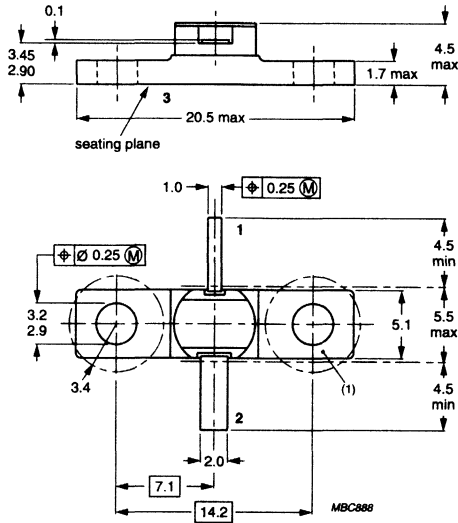
Package outlines



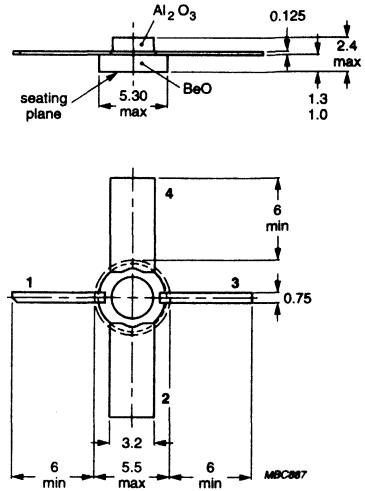
DISCRETE SEMICONDUCTORS

Package outlines

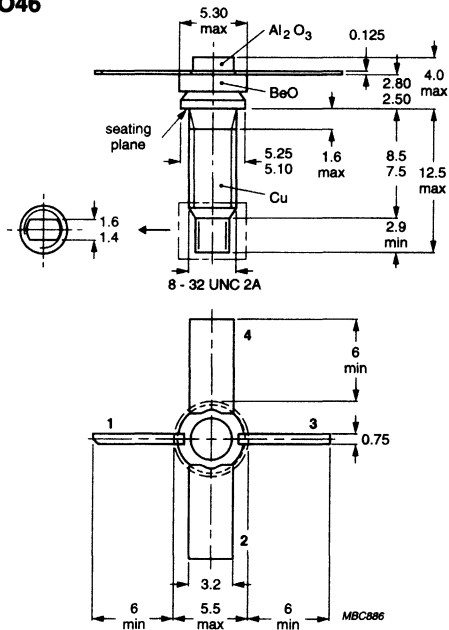
FO41B



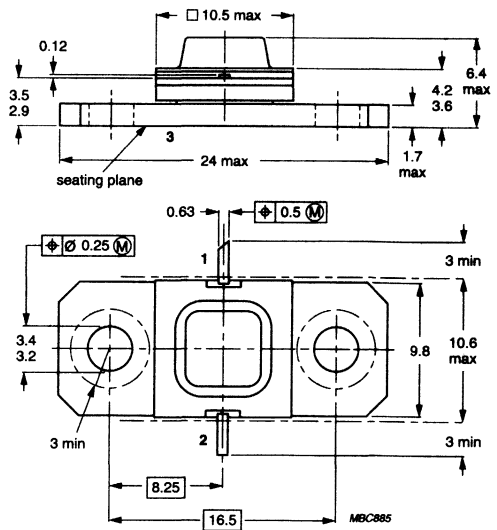
FO45



FO46

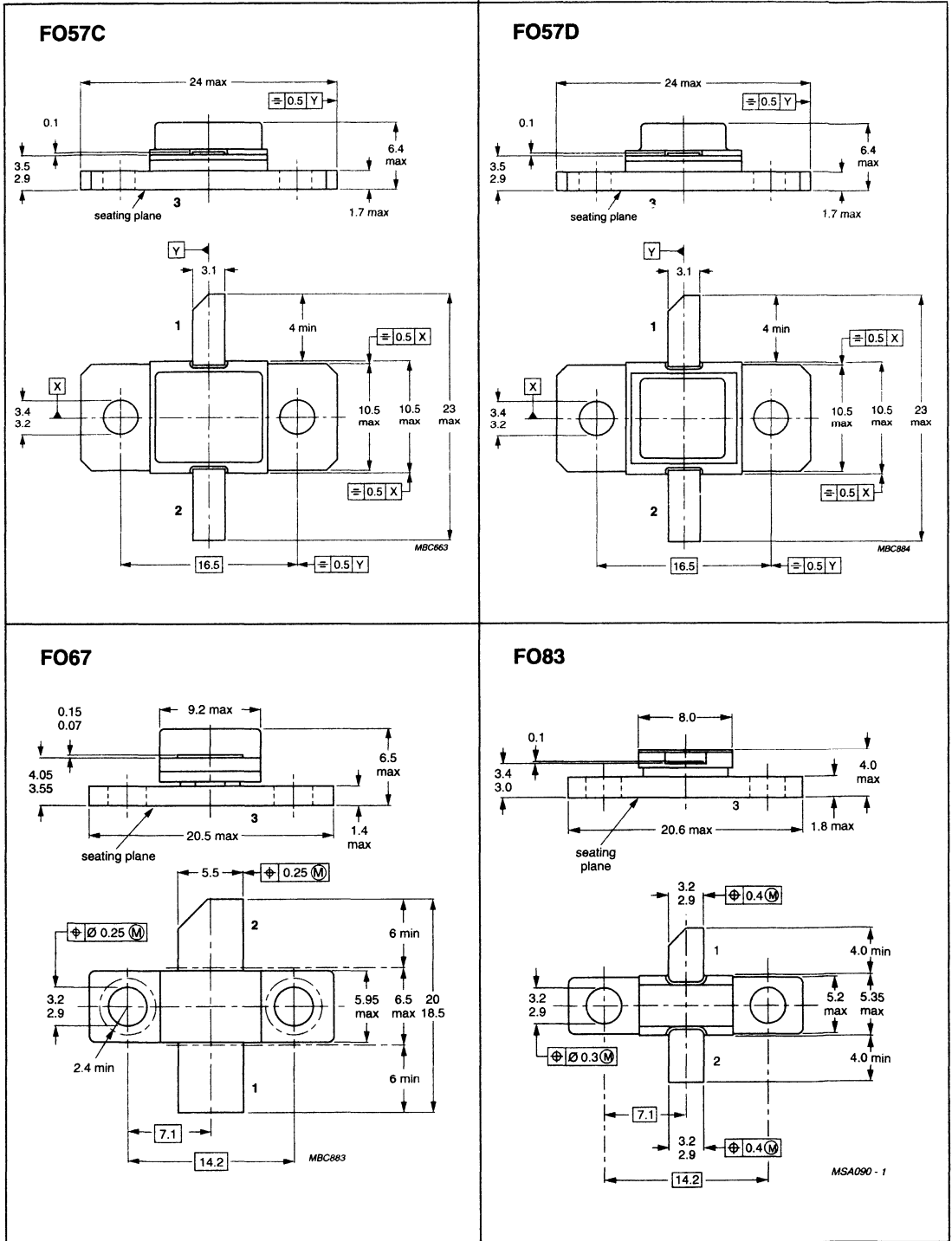


FO57



DISCRETE SEMICONDUCTORS

Package outlines

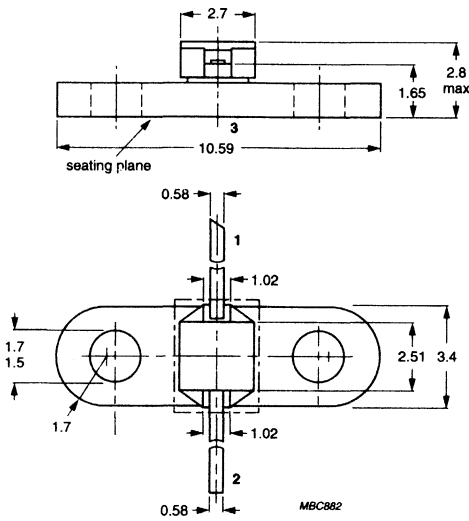


DISCRETE SEMICONDUCTORS

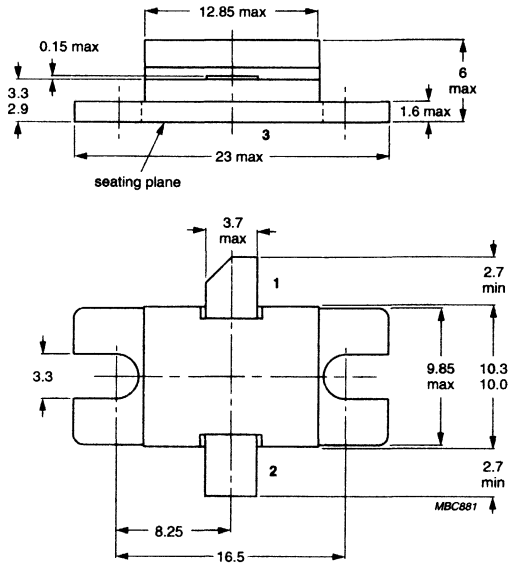
Package outlines



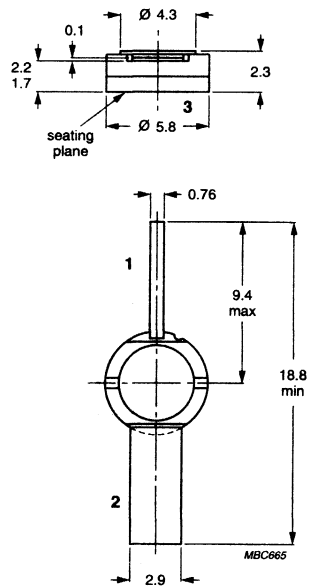
FO85



FO91

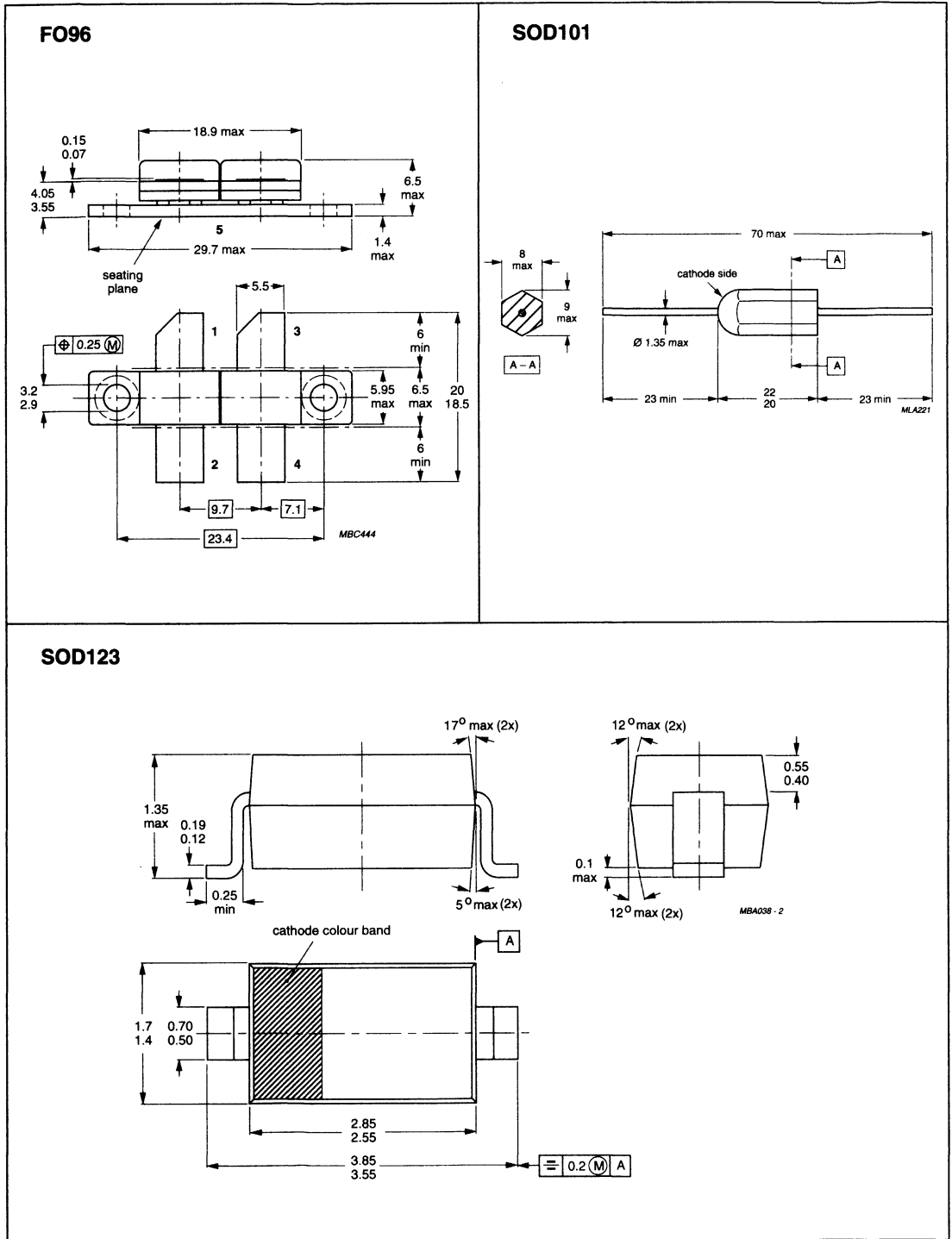


FO93



DISCRETE SEMICONDUCTORS

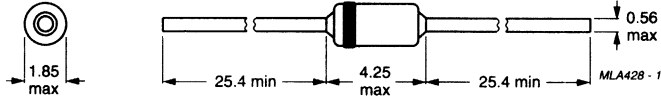
Package outlines



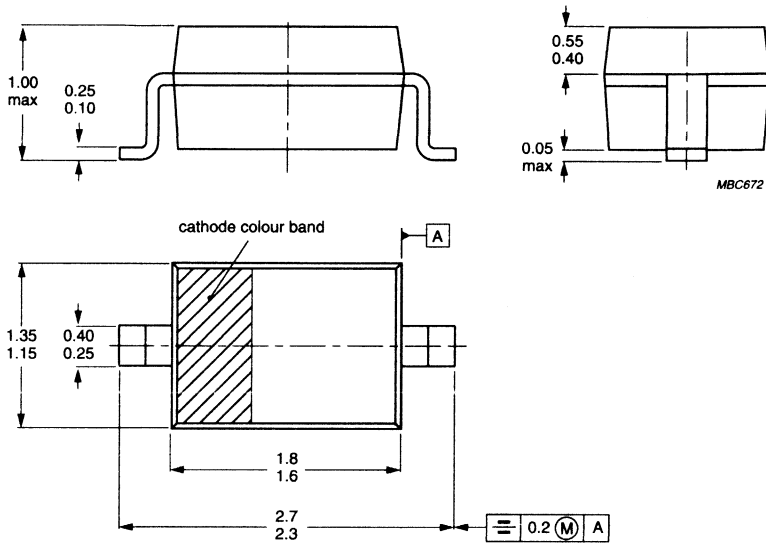
DISCRETE SEMICONDUCTORS

Package outlines

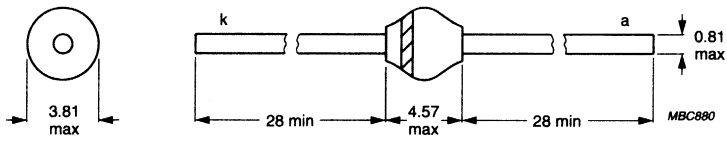
SOD27



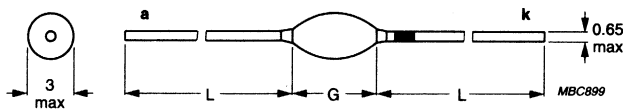
SOD323



SOD57

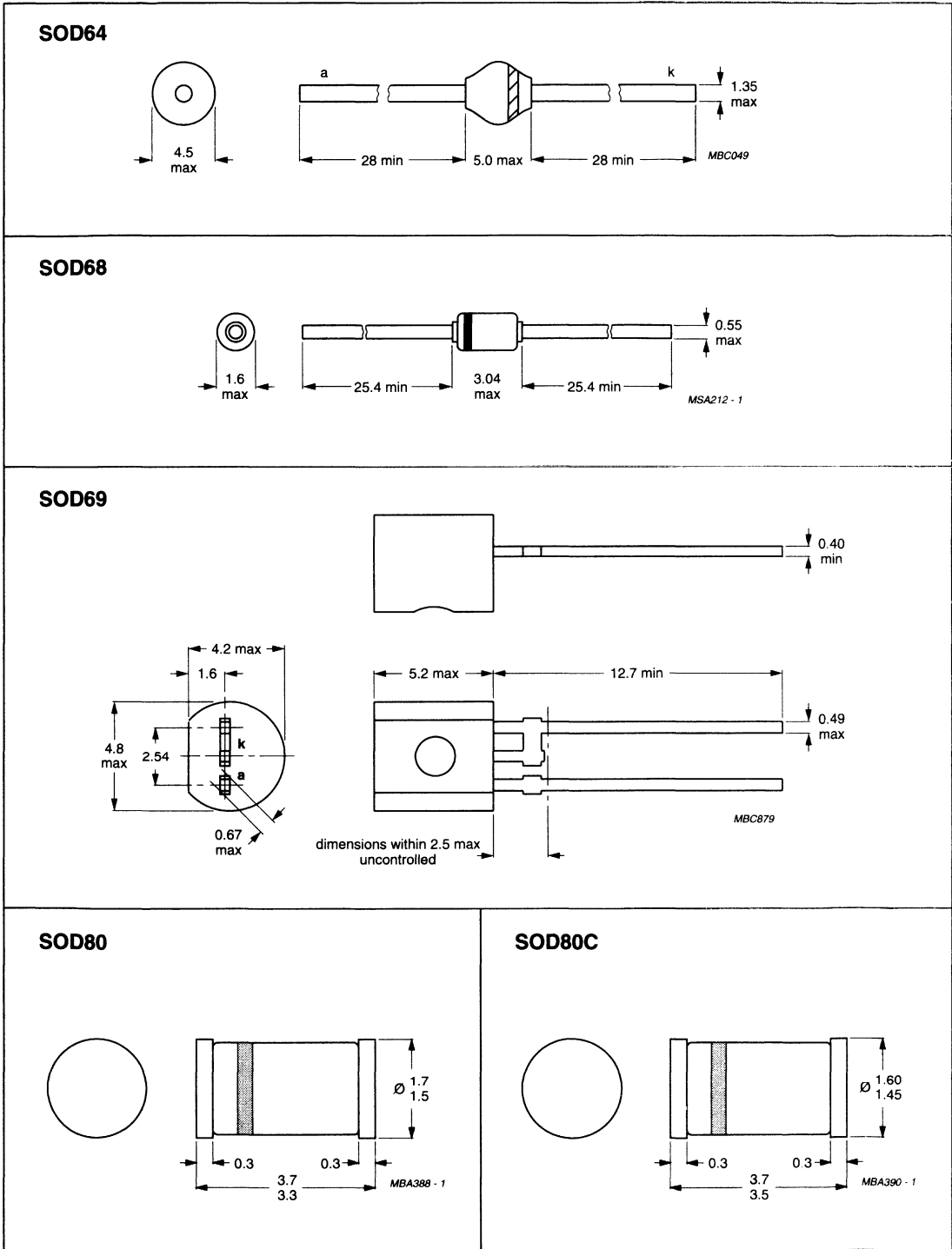


SOD61



DISCRETE SEMICONDUCTORS

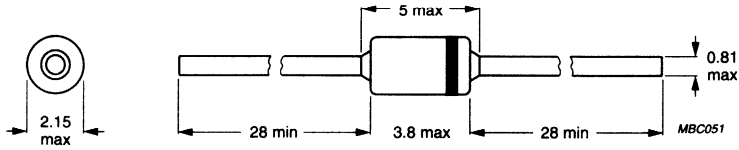
Package outlines



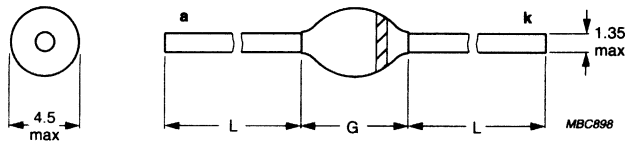
DISCRETE SEMICONDUCTORS

Package outlines

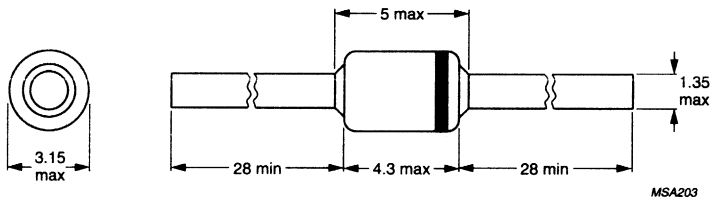
SOD81



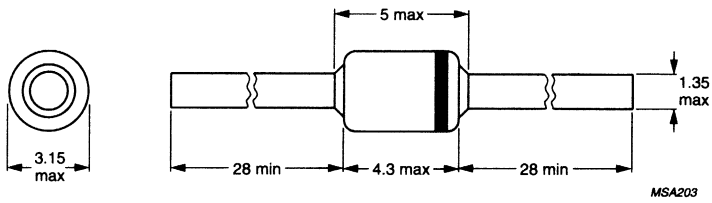
SOD83



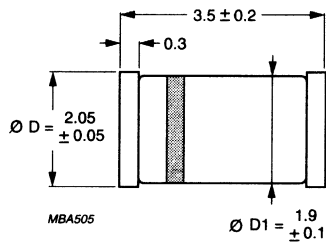
SOD84



SOD84A

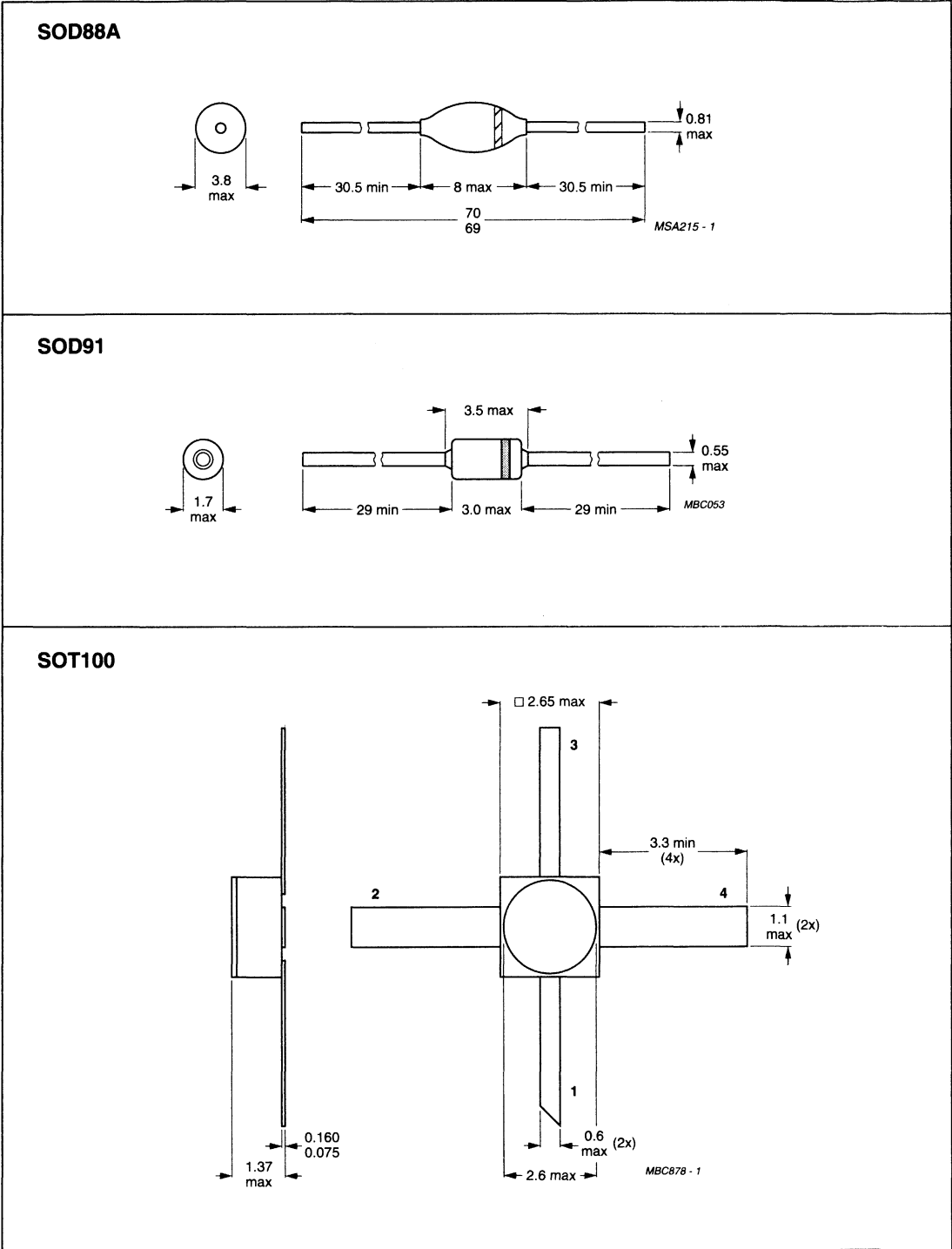


SOD87



DISCRETE SEMICONDUCTORS

Package outlines

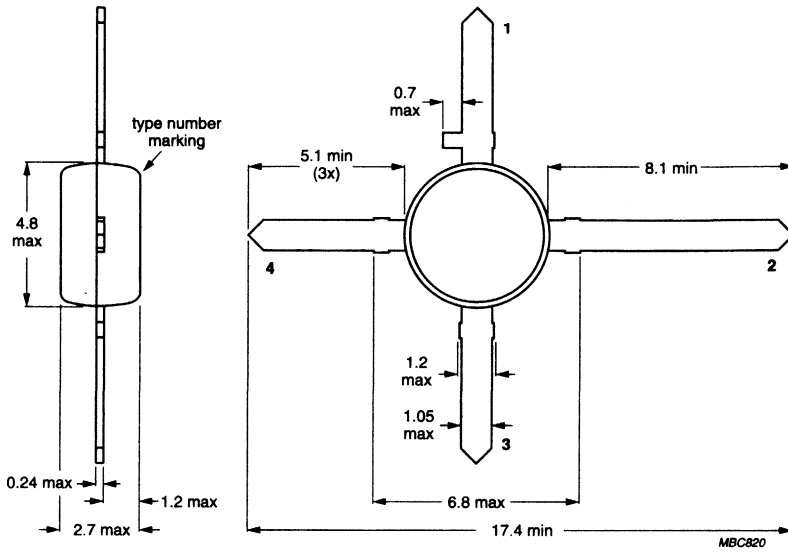


DISCRETE SEMICONDUCTORS

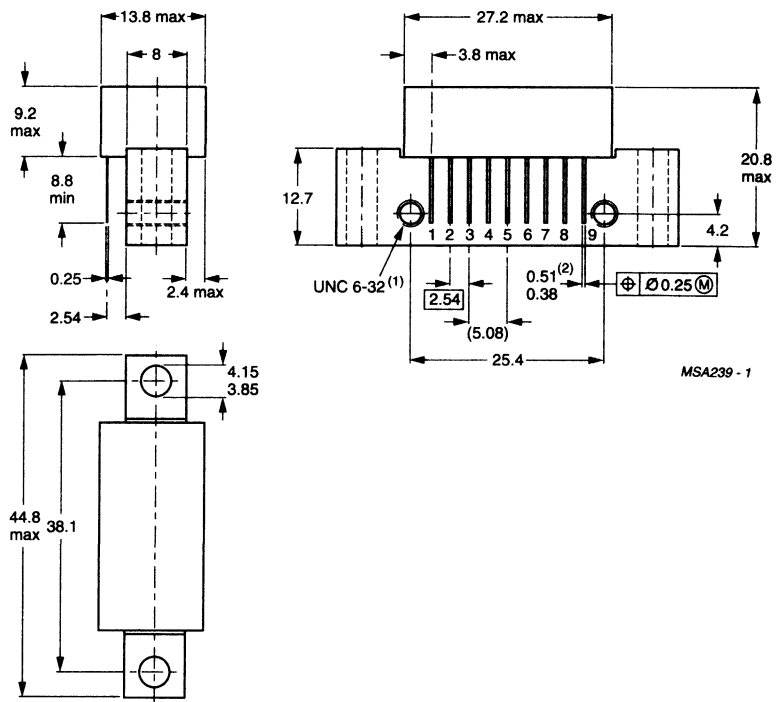
Package outlines



SOT103



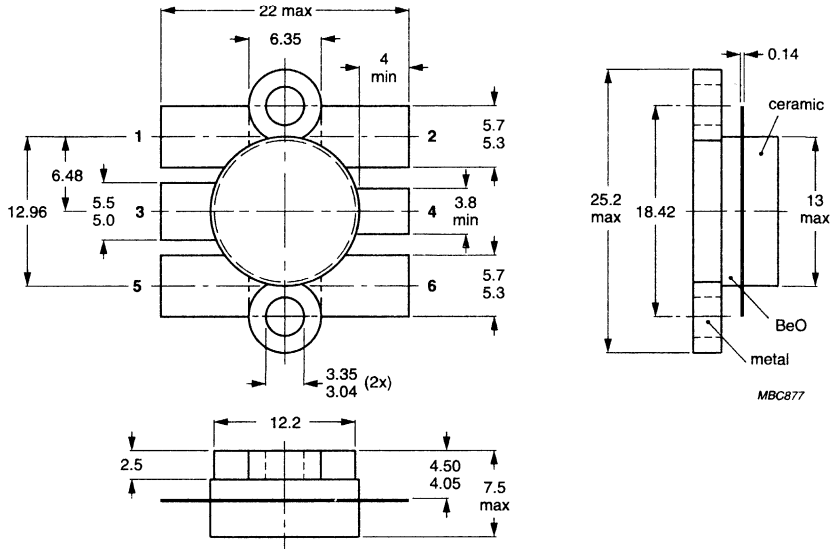
SOT115



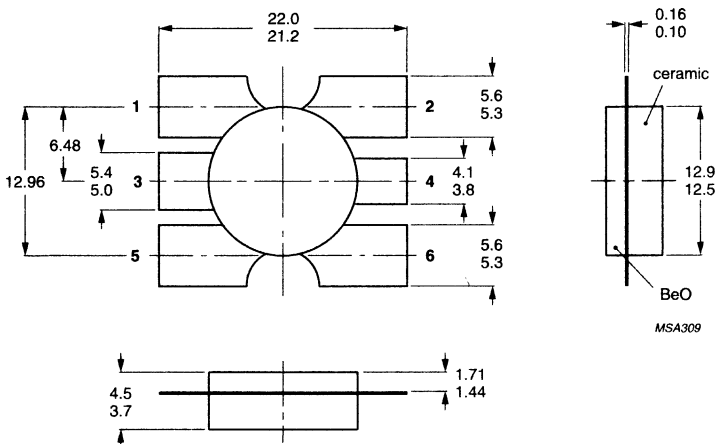
DISCRETE SEMICONDUCTORS

Package outlines

SOT119



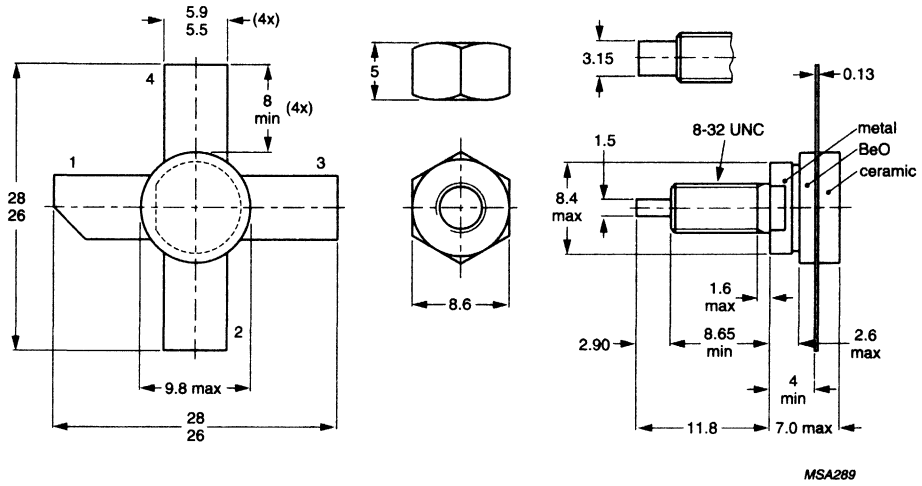
SOT119D3



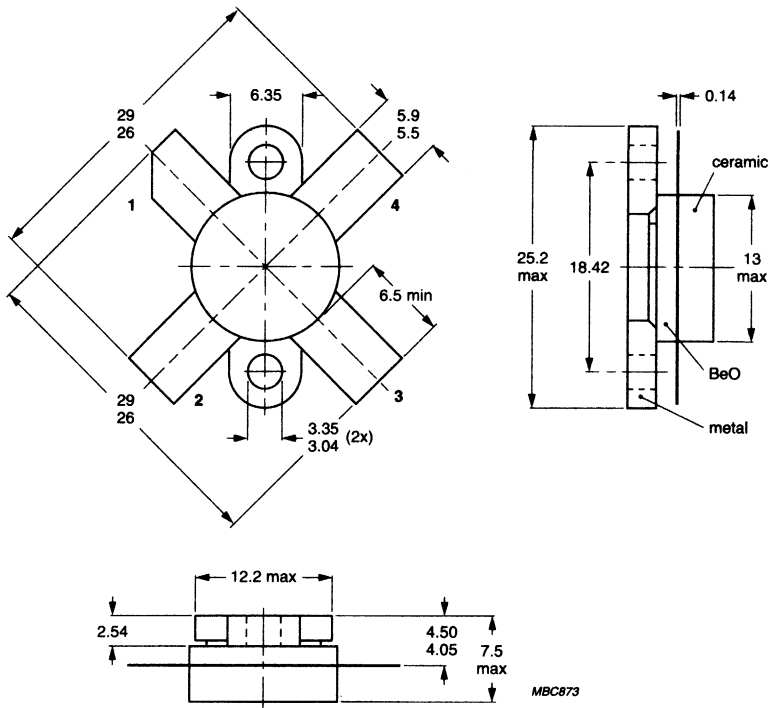
DISCRETE SEMICONDUCTORS

Package outlines

SOT120

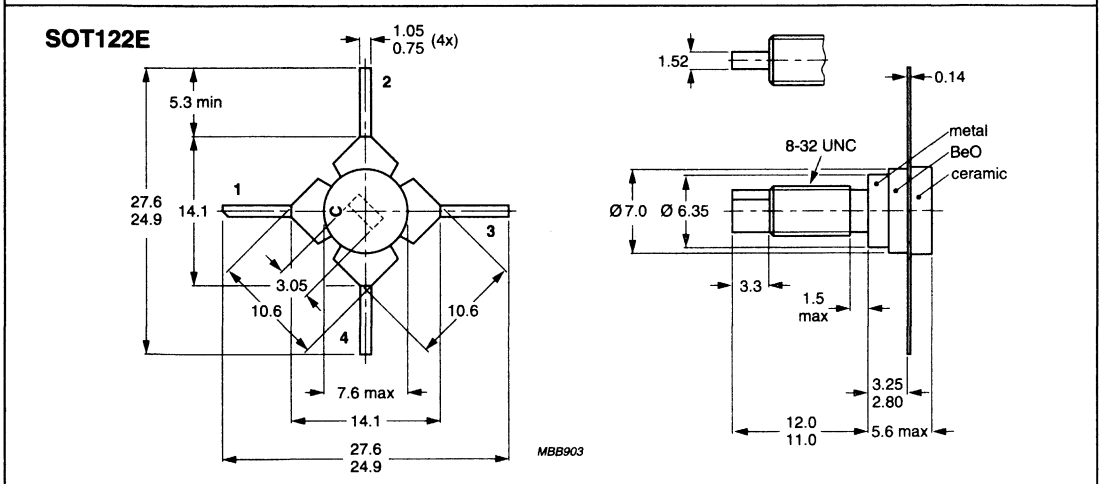
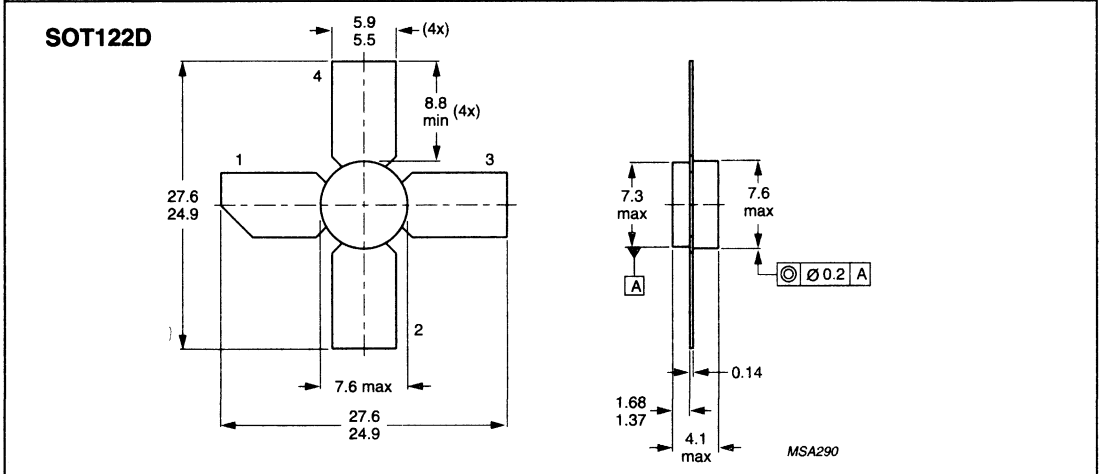
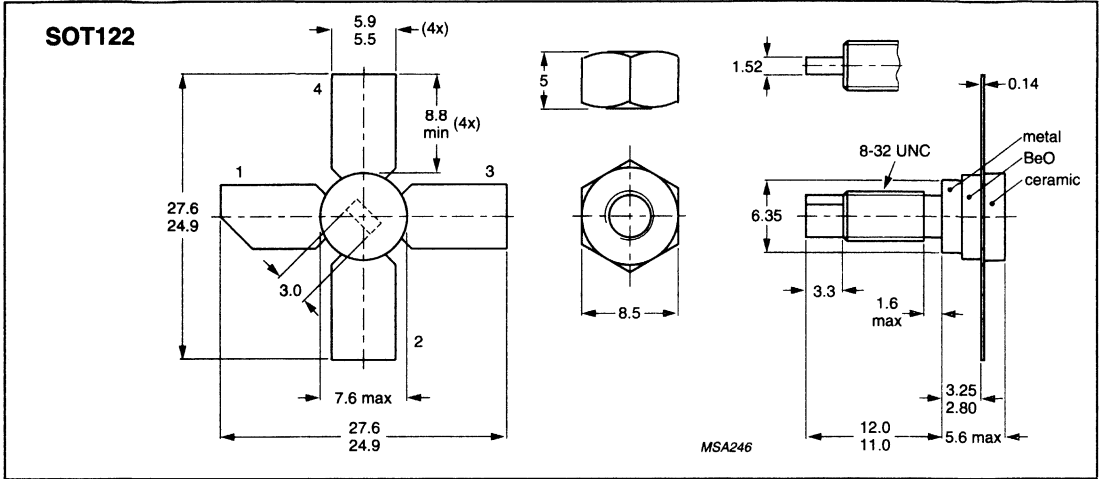


SOT121



DISCRETE SEMICONDUCTORS

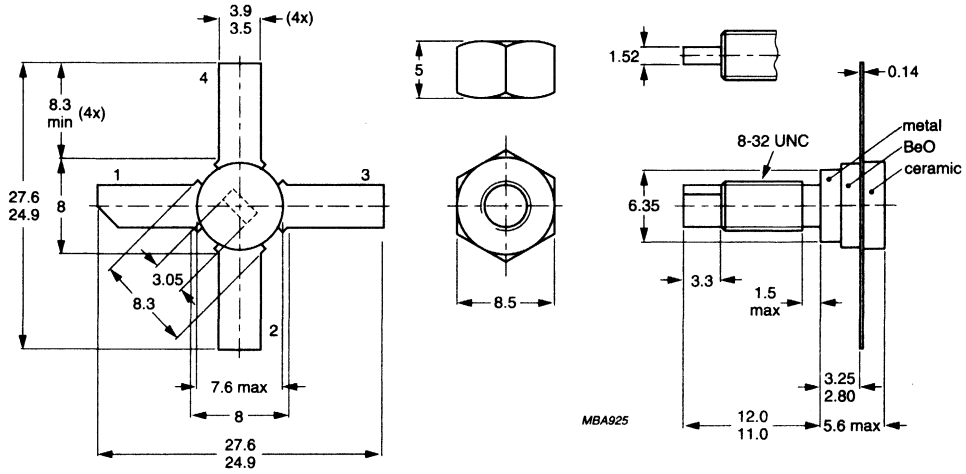
Package outlines



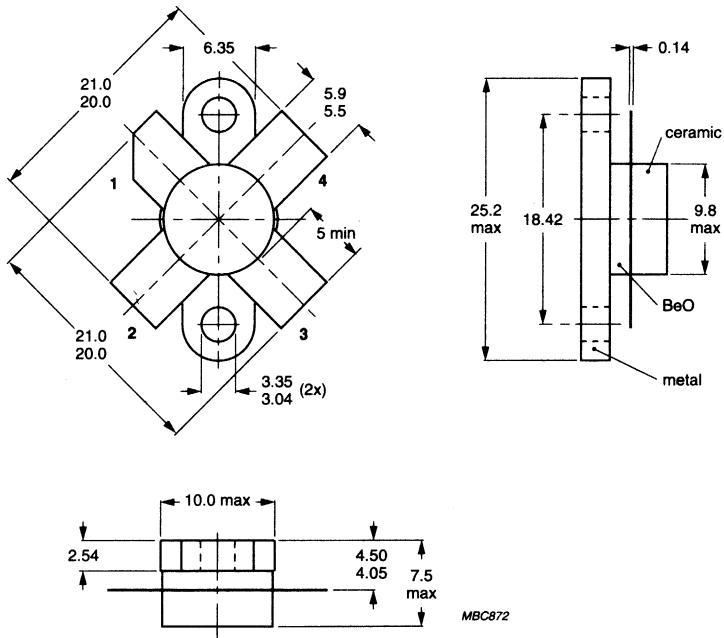
DISCRETE SEMICONDUCTORS

Package outlines

SOT122F

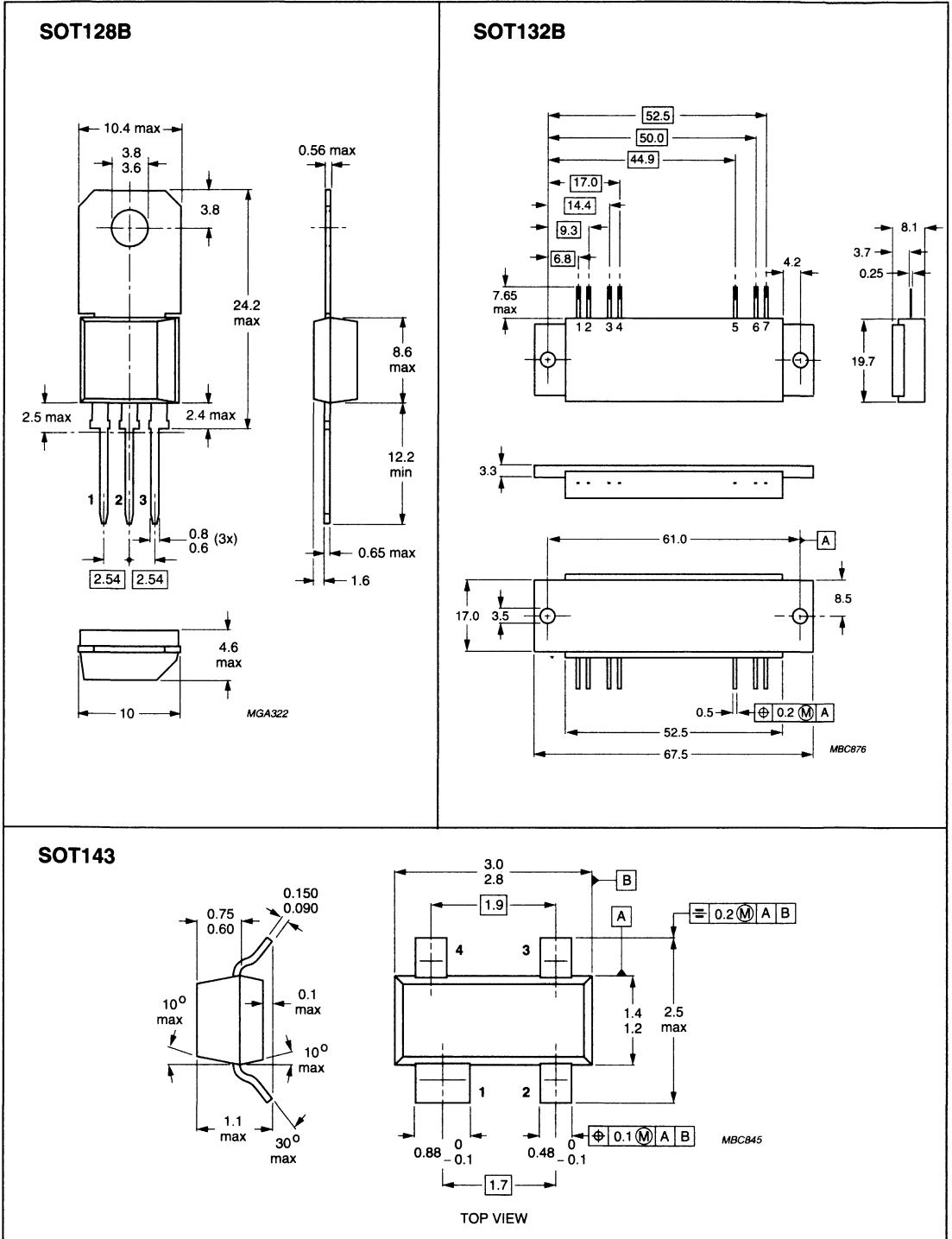


SOT123



DISCRETE SEMICONDUCTORS

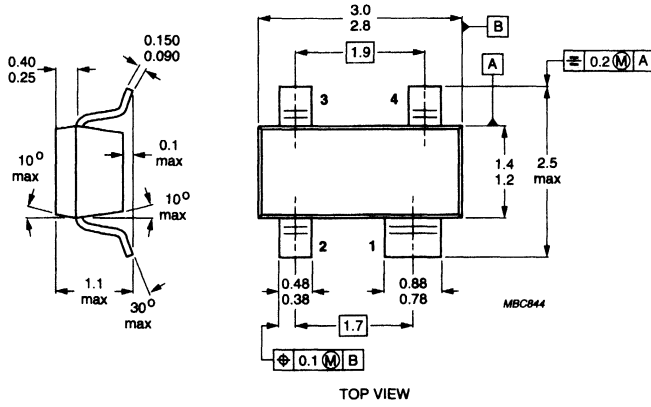
Package outlines



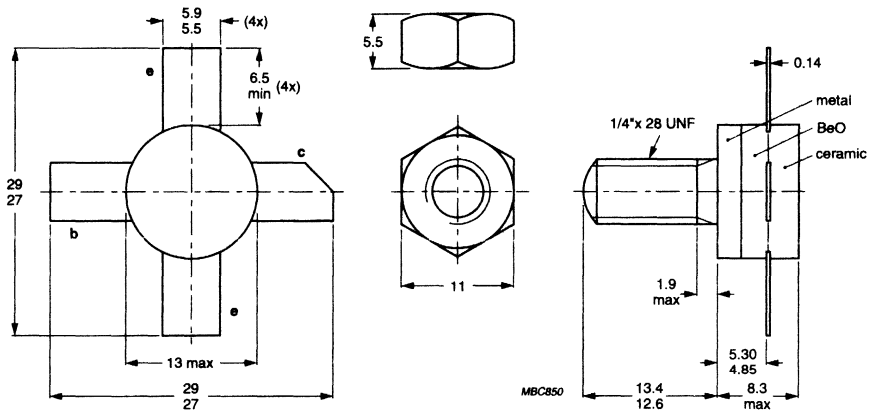
DISCRETE SEMICONDUCTORS

Package outlines

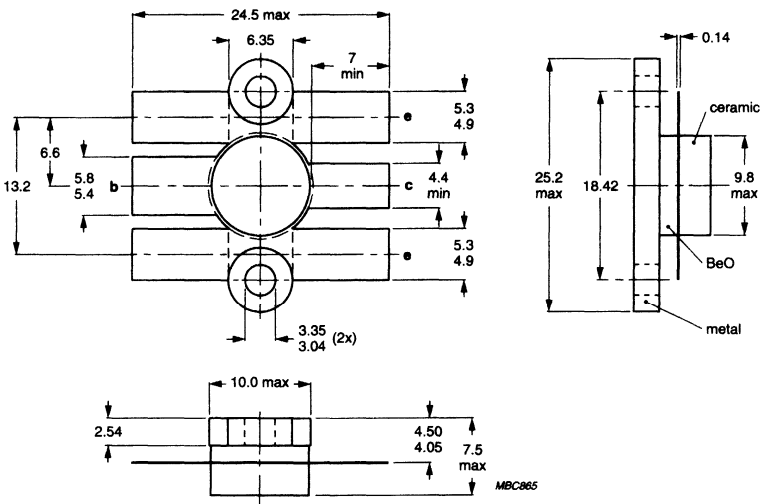
SOT143R



SOT147



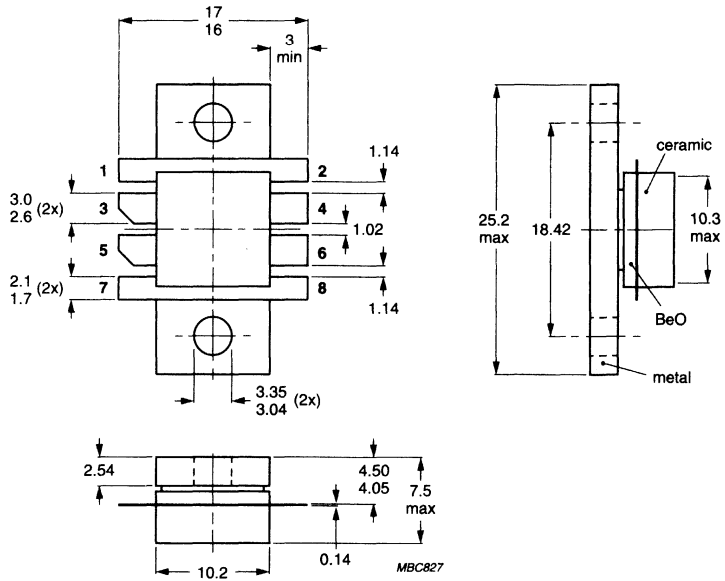
SOT160



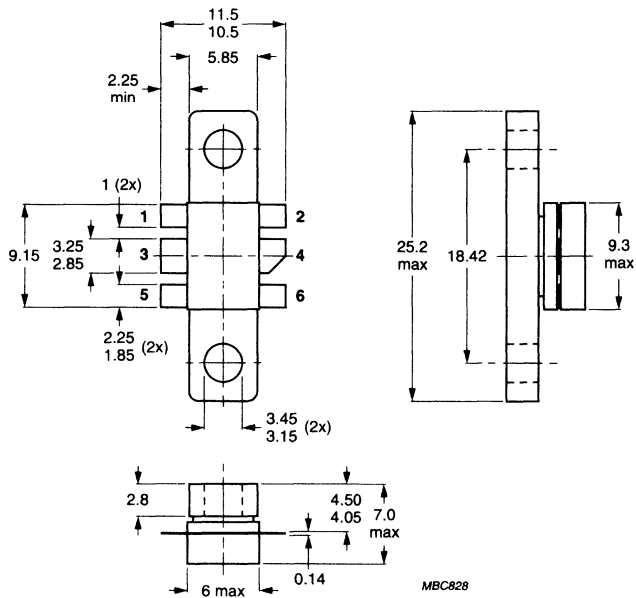
DISCRETE SEMICONDUCTORS

Package outlines

SOT161



SOT171

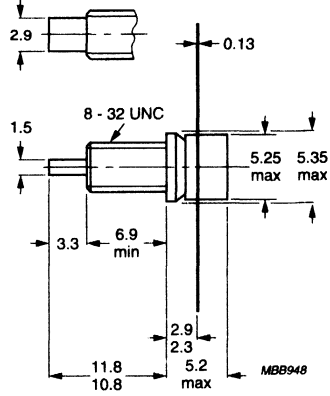
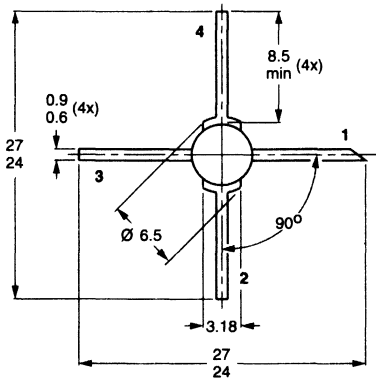


DISCRETE SEMICONDUCTORS

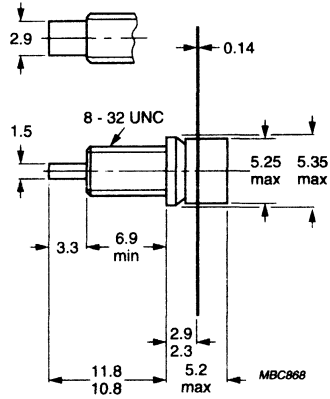
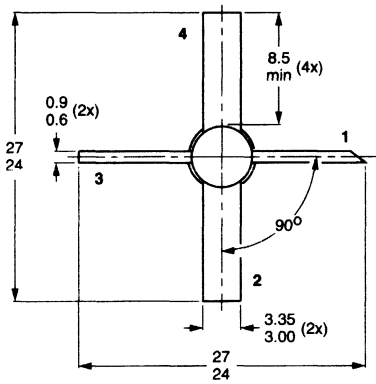
Package outlines



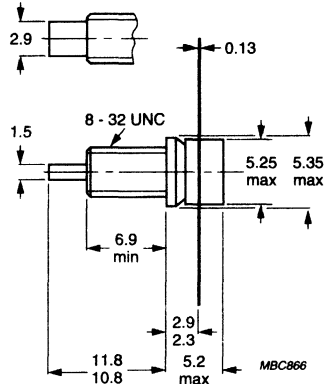
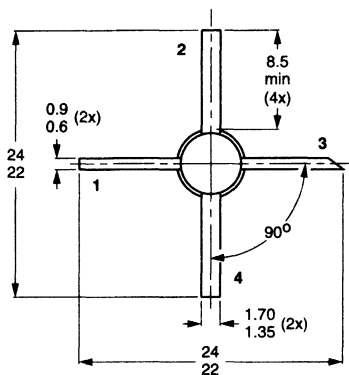
SOT172



SOT172A1

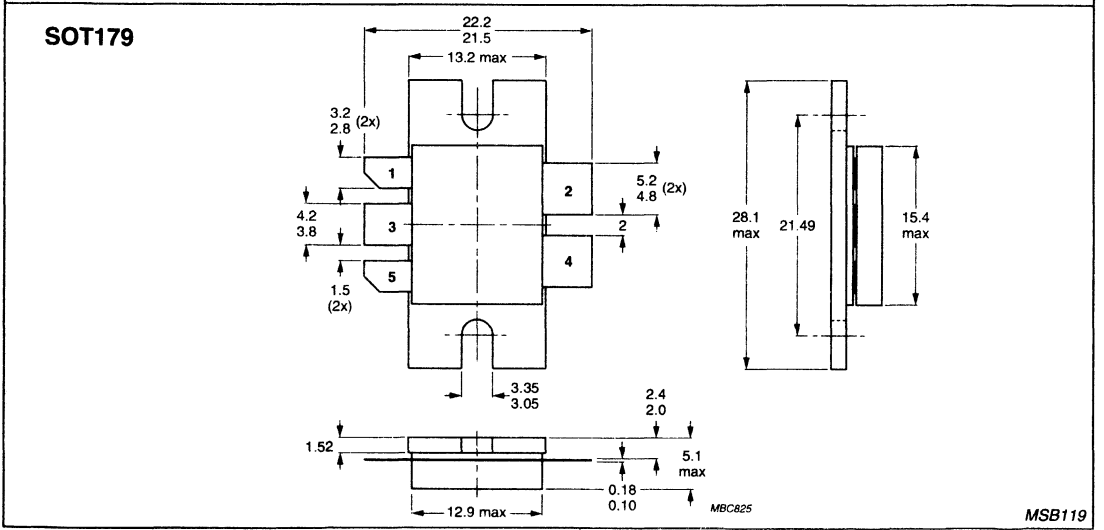
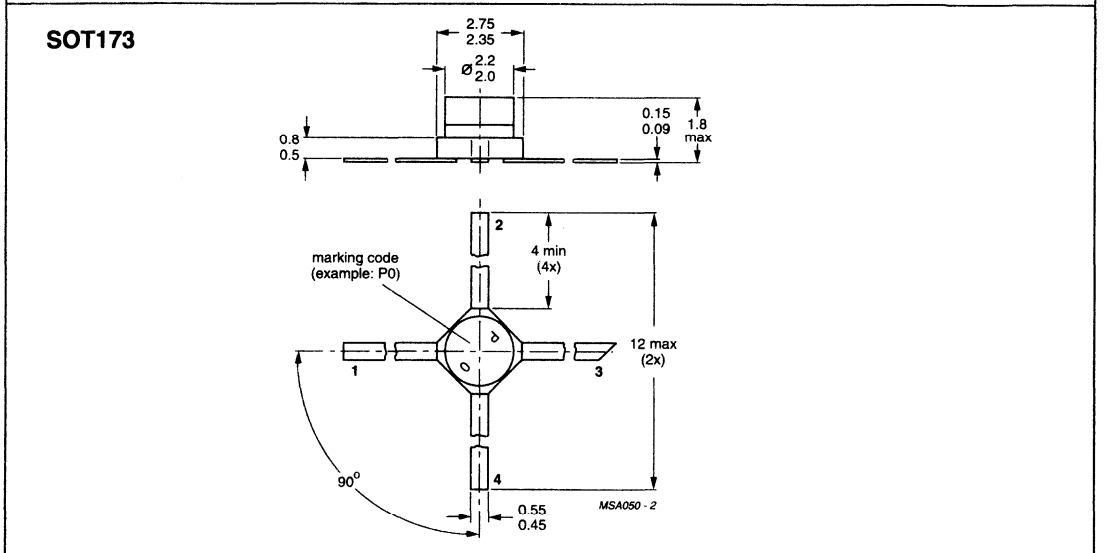
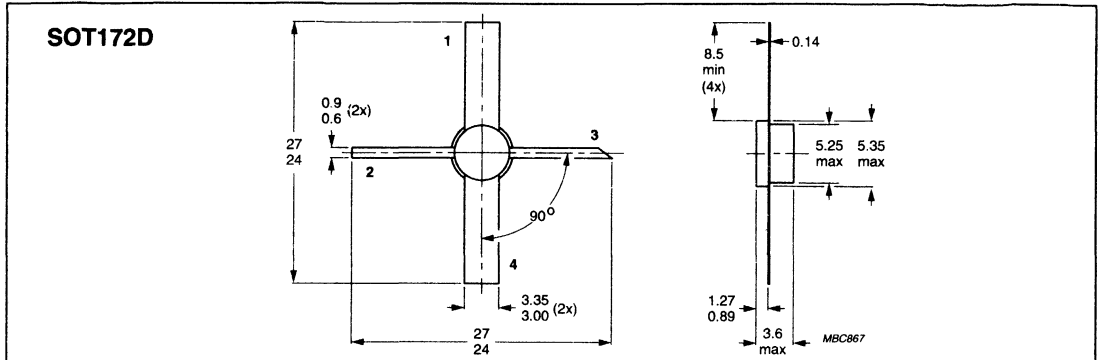


SOT172A2



DISCRETE SEMICONDUCTORS

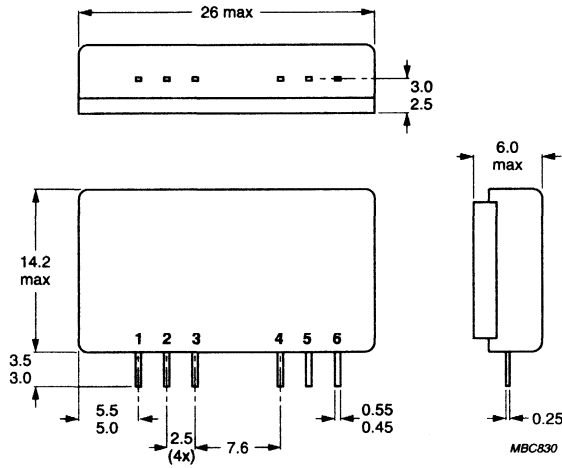
Package outlines



DISCRETE SEMICONDUCTORS

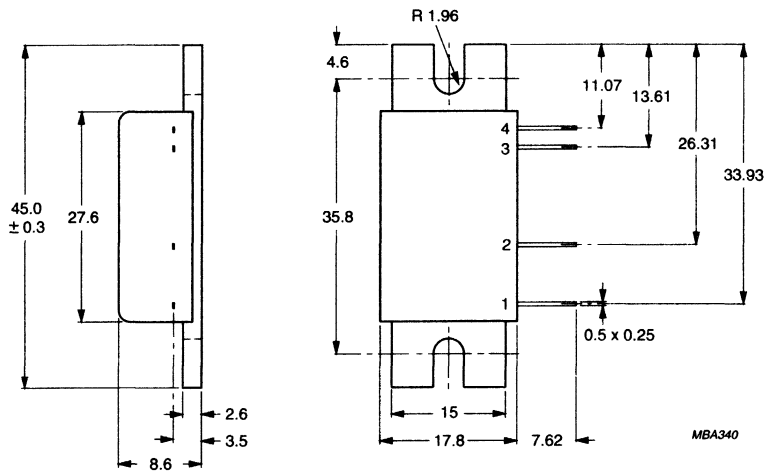
Package outlines

SOT181



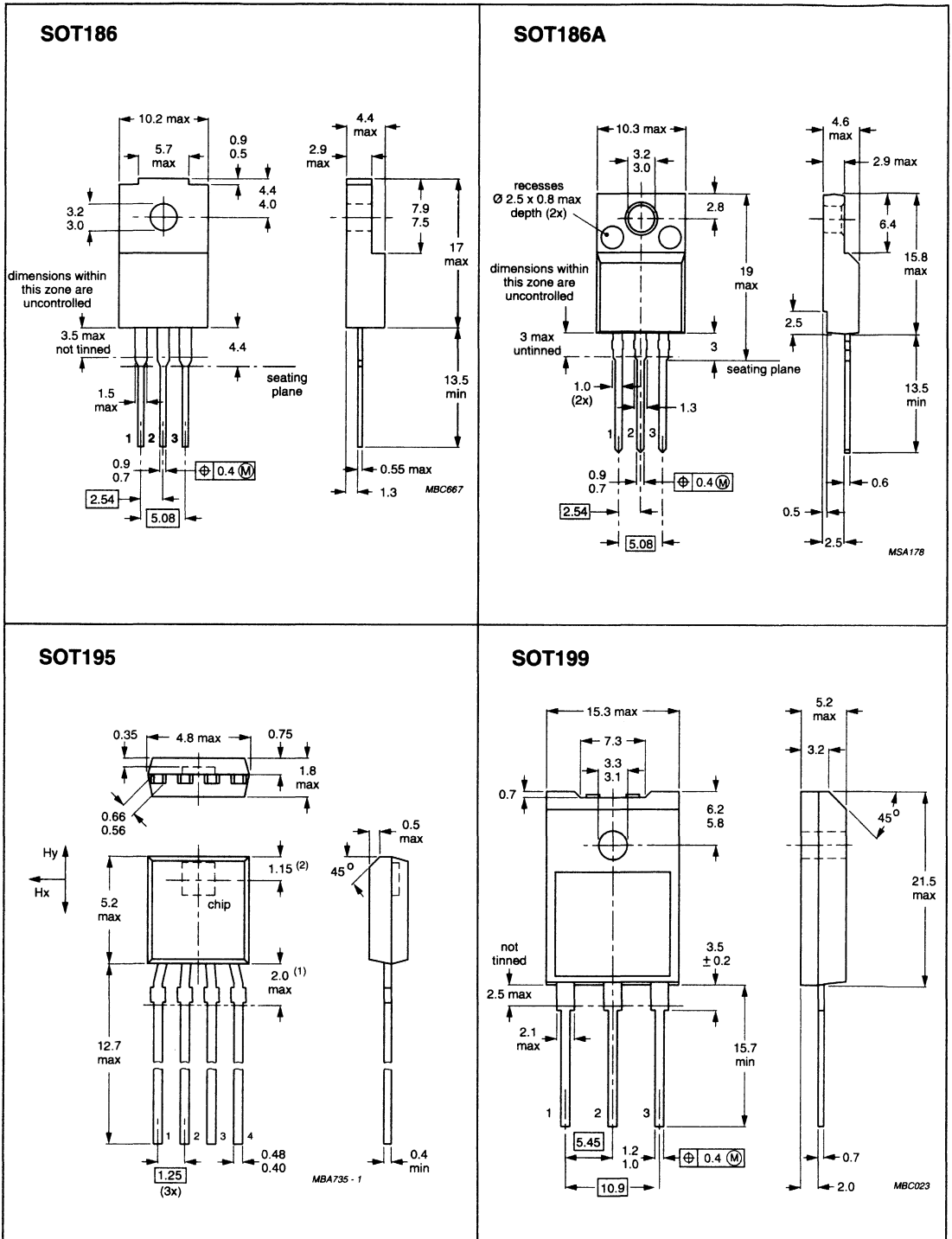
SC

SOT183A



DISCRETE SEMICONDUCTORS

Package outlines

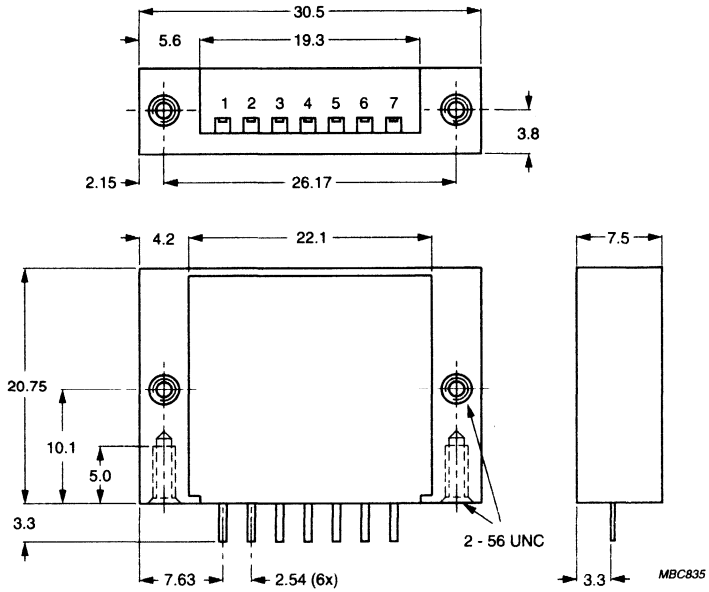


DISCRETE SEMICONDUCTORS

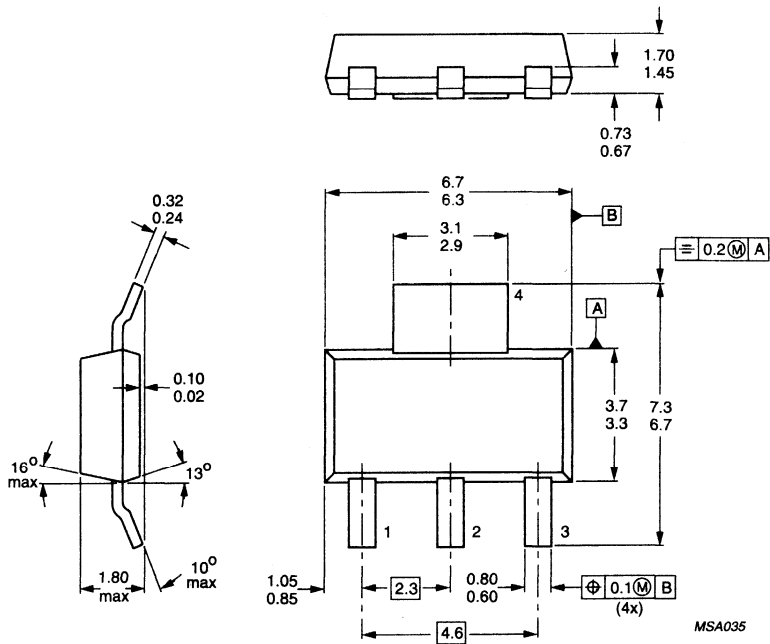
Package outlines

SC

SOT200

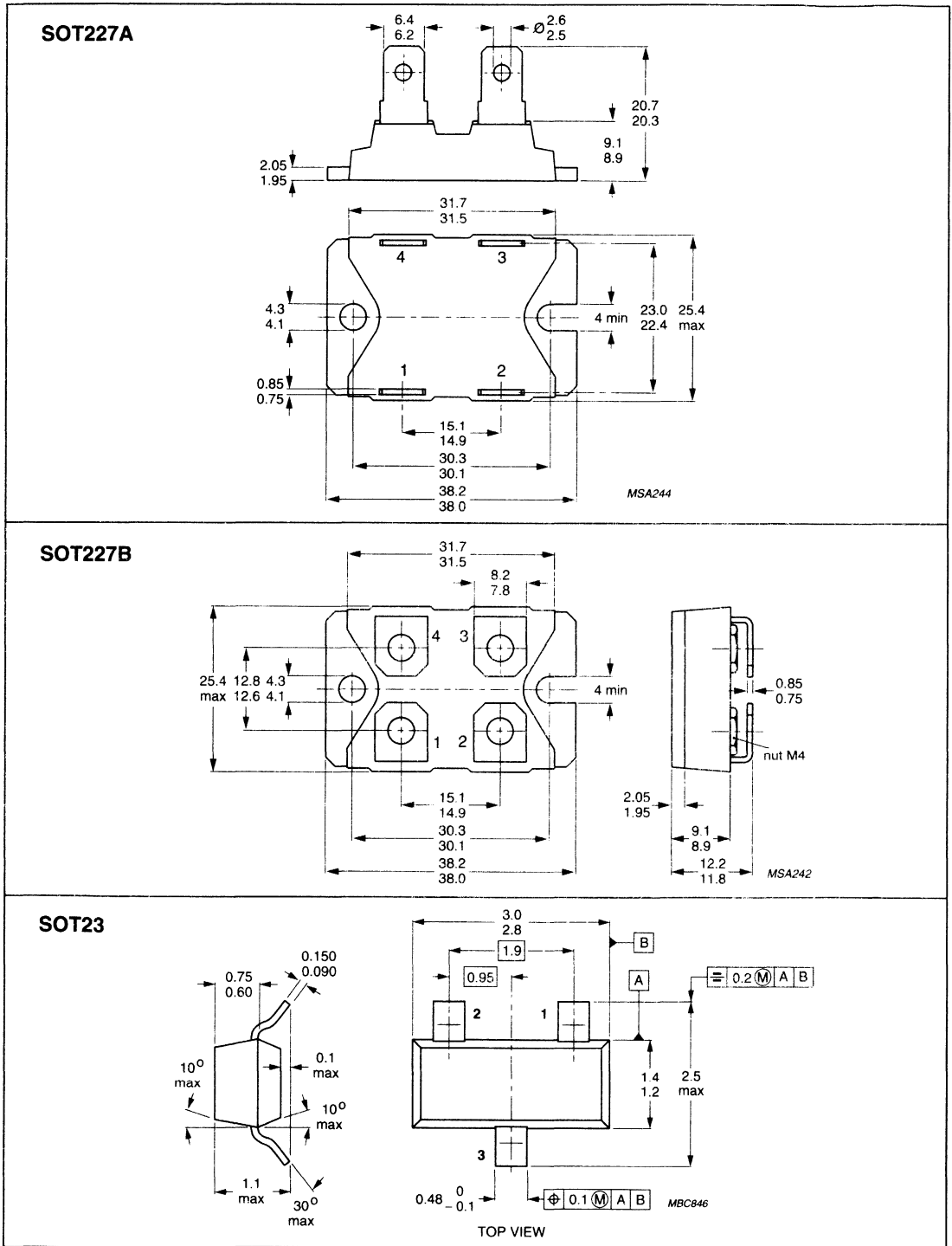


SOT223



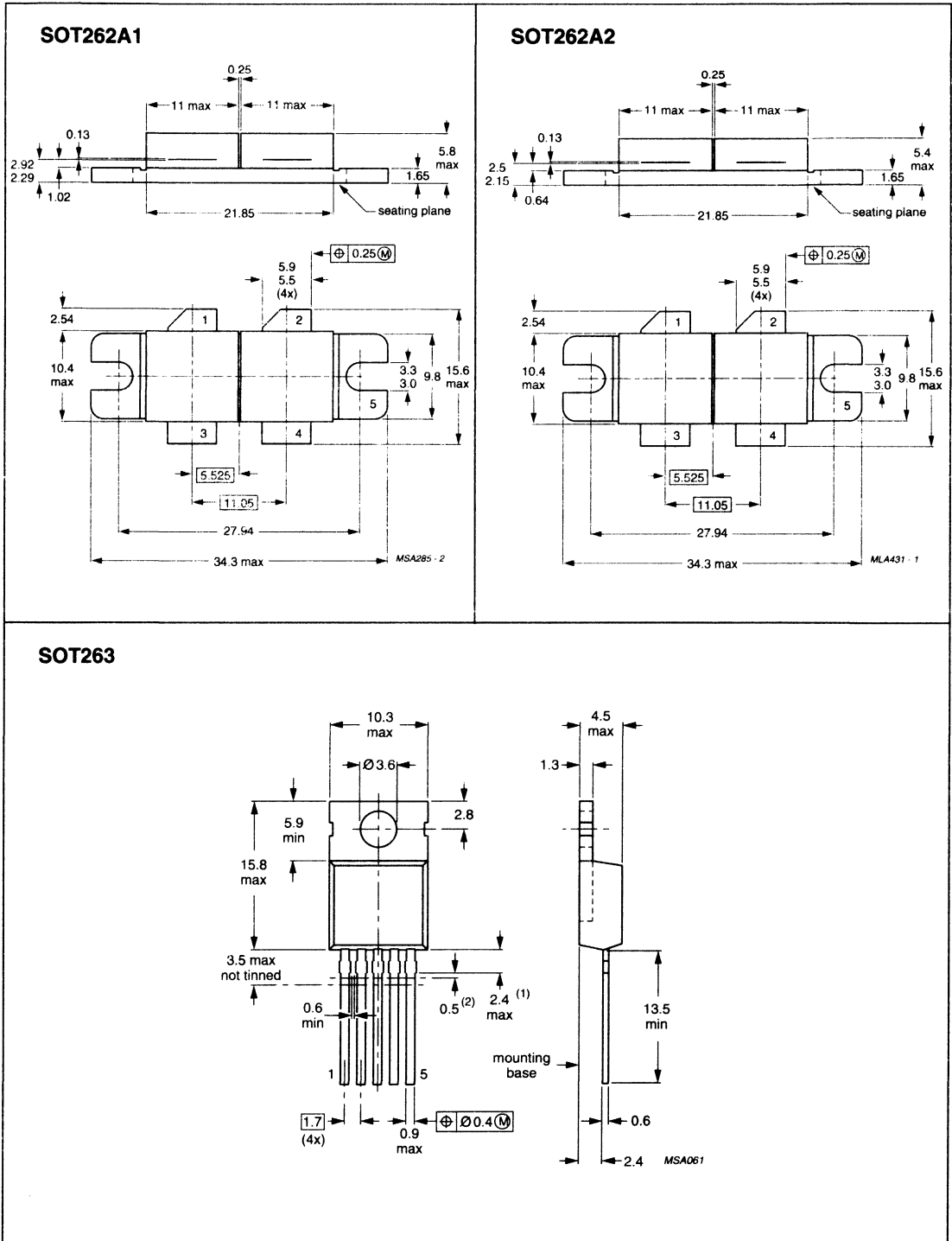
DISCRETE SEMICONDUCTORS

Package outlines



DISCRETE SEMICONDUCTORS

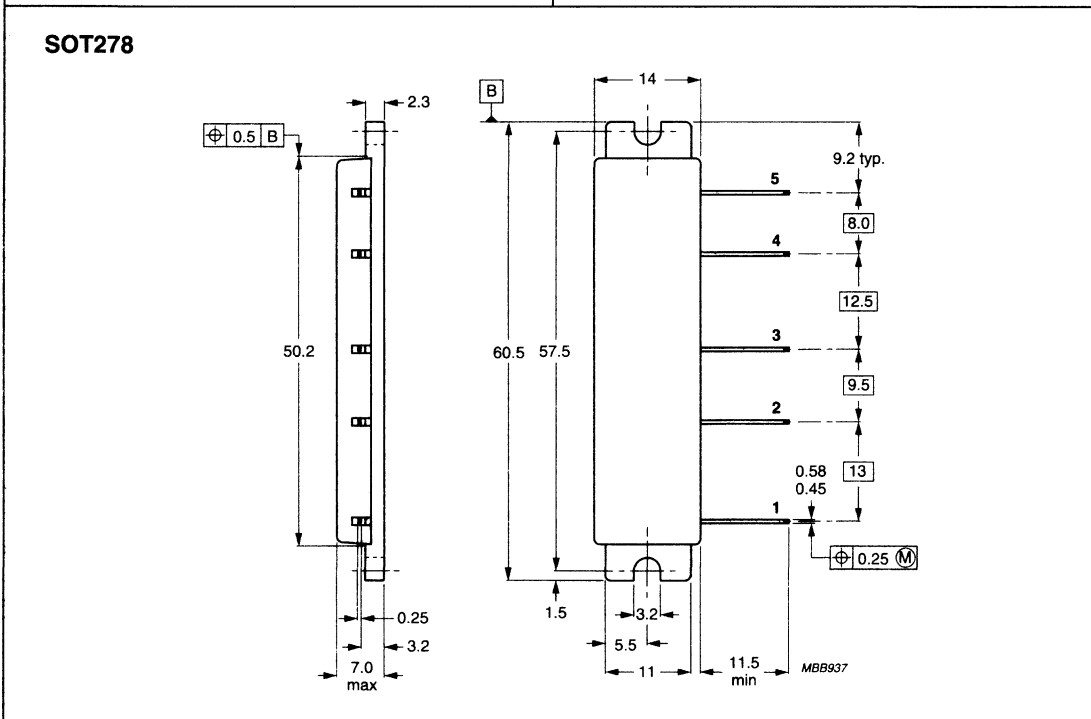
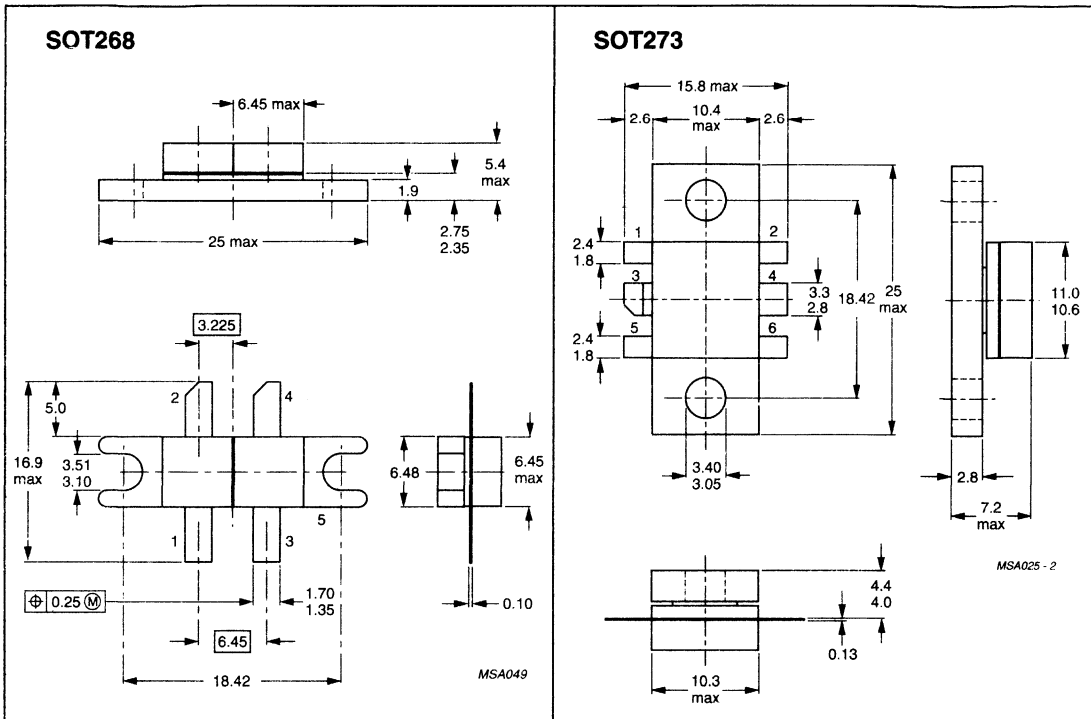
Package outlines



SC

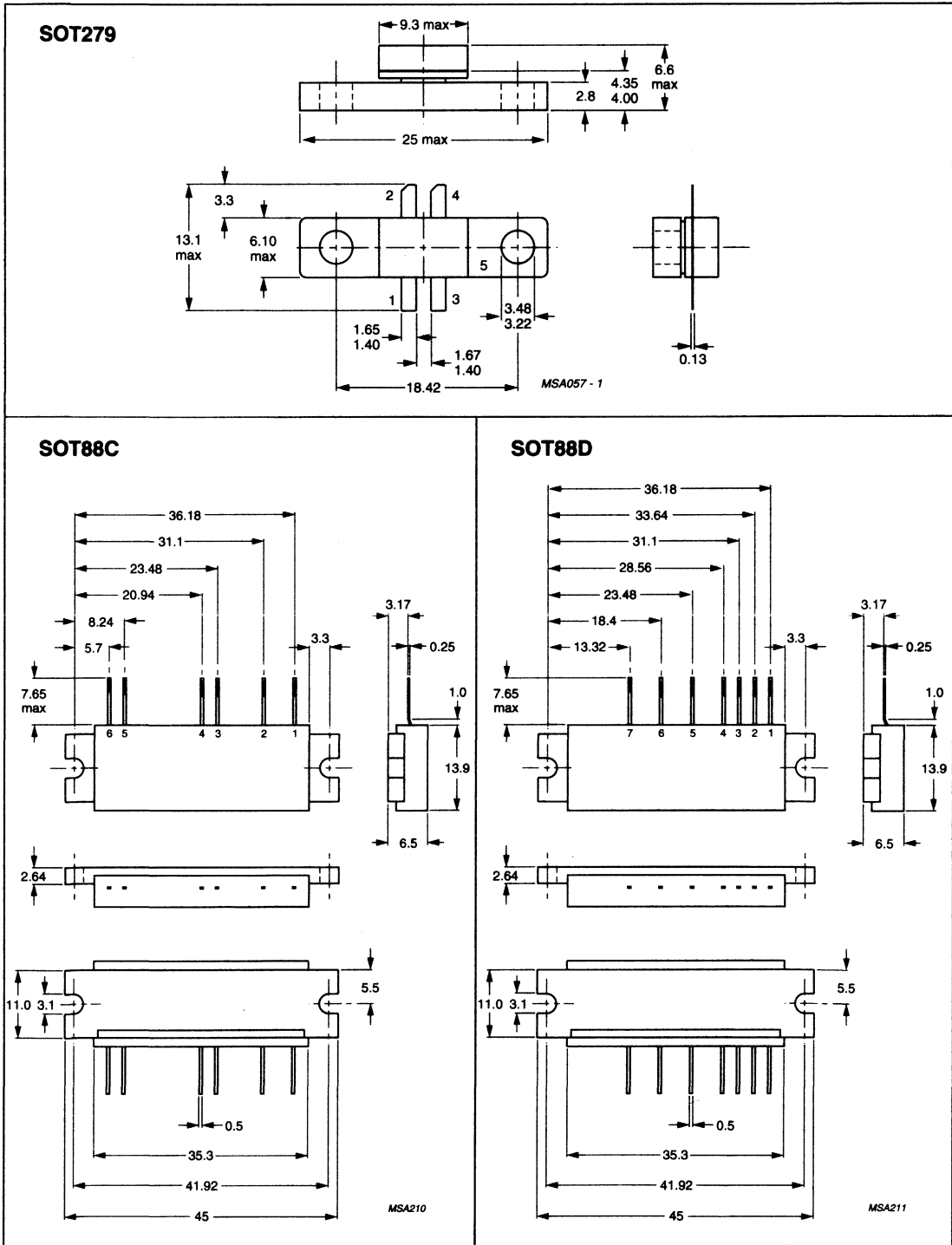
DISCRETE SEMICONDUCTORS

Package outlines



DISCRETE SEMICONDUCTORS

Package outlines

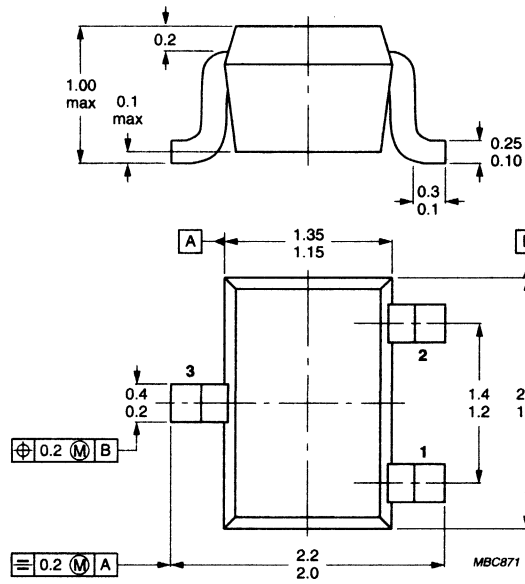


DISCRETE SEMICONDUCTORS

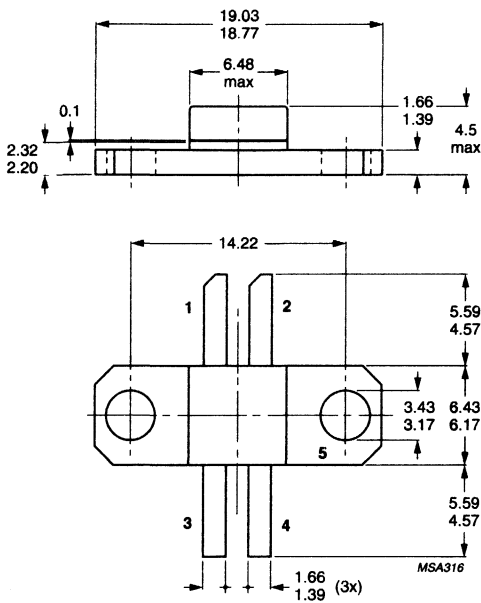
Package outlines



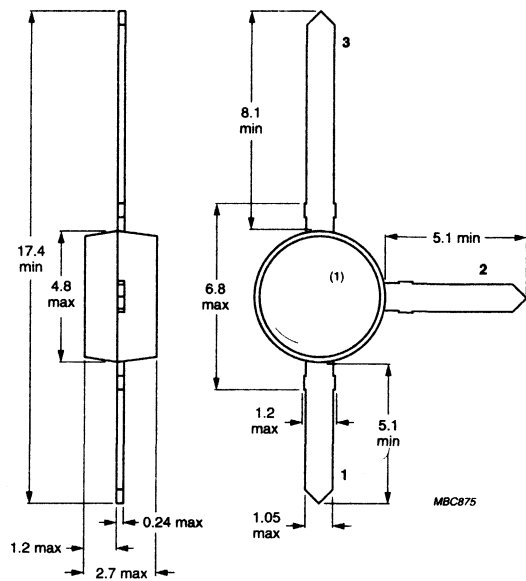
SOT323



SOT324

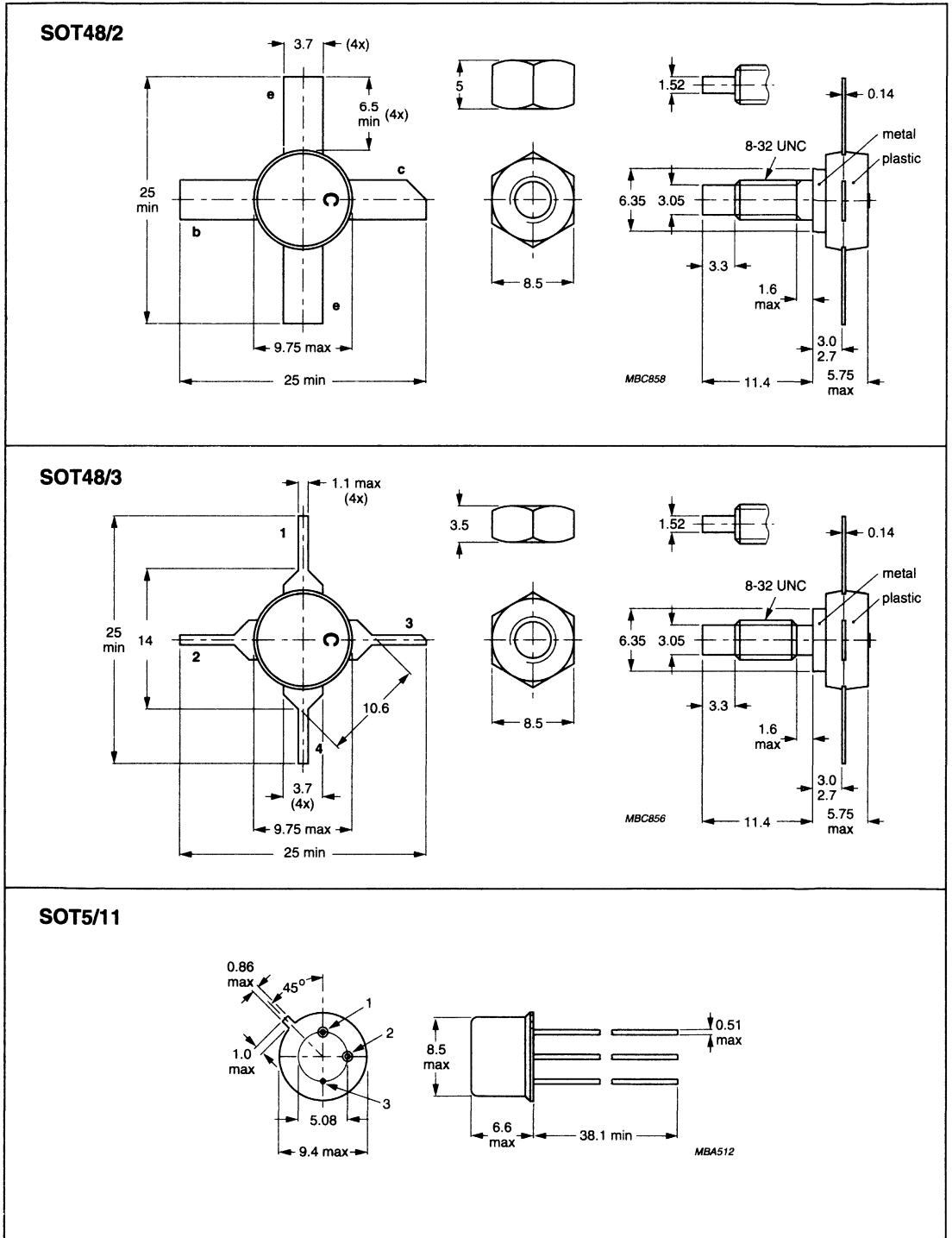


SOT37



DISCRETE SEMICONDUCTORS

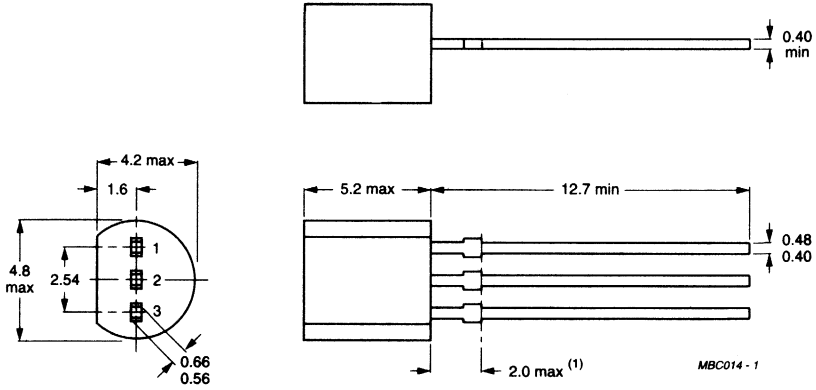
Package outlines



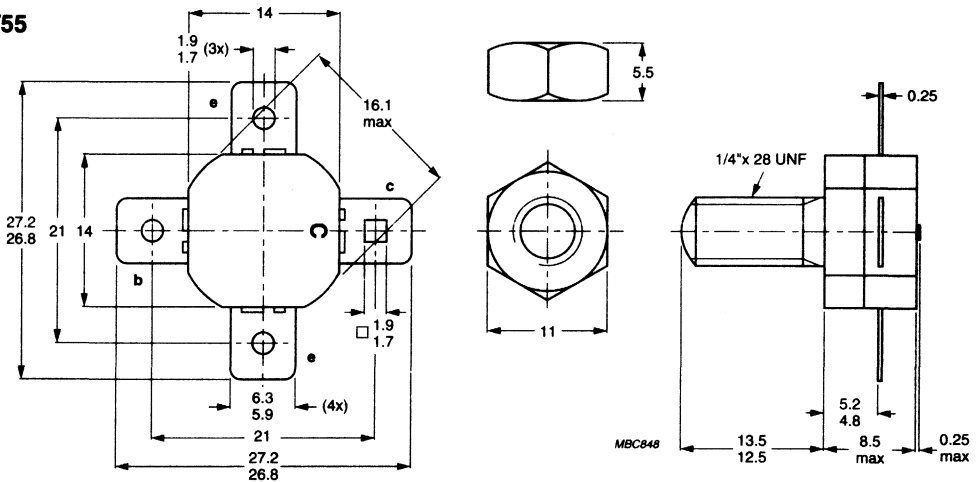
DISCRETE SEMICONDUCTORS

Package outlines

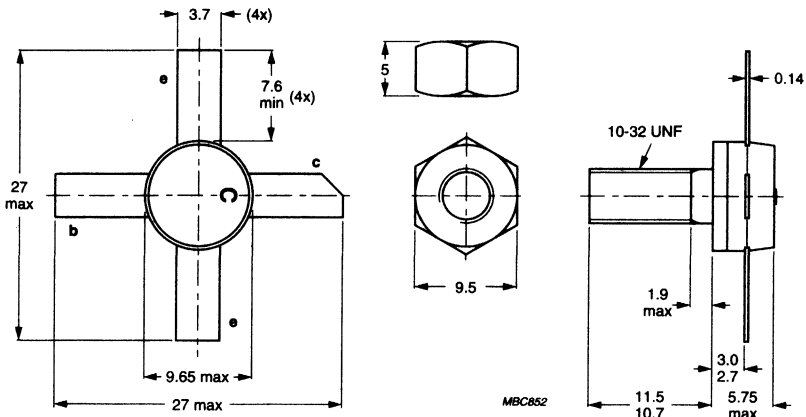
SOT54



SOT55

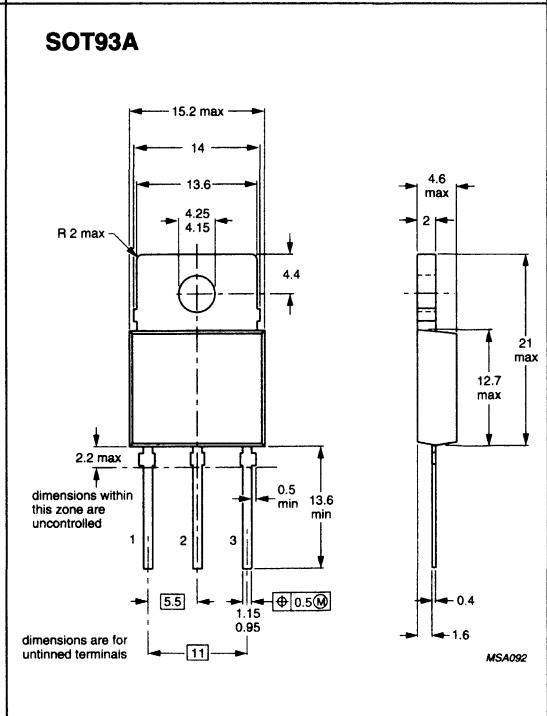
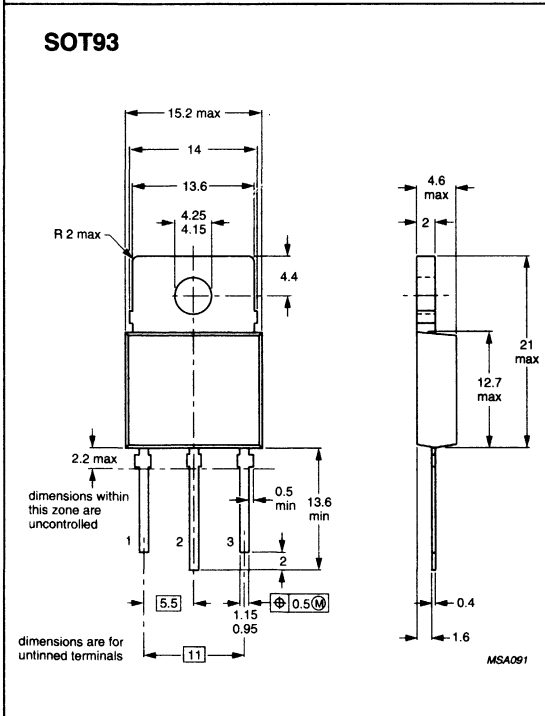
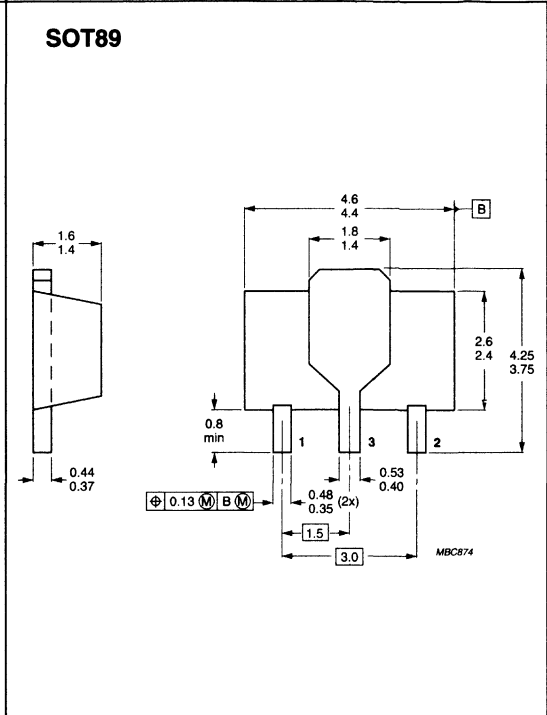
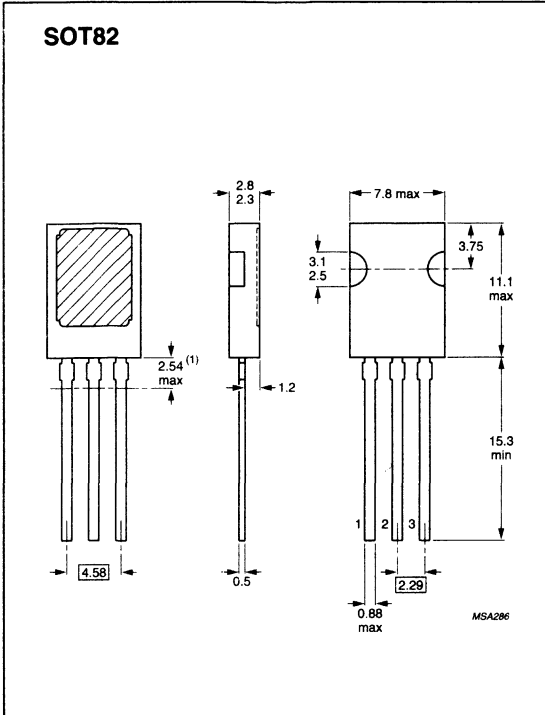


SOT56



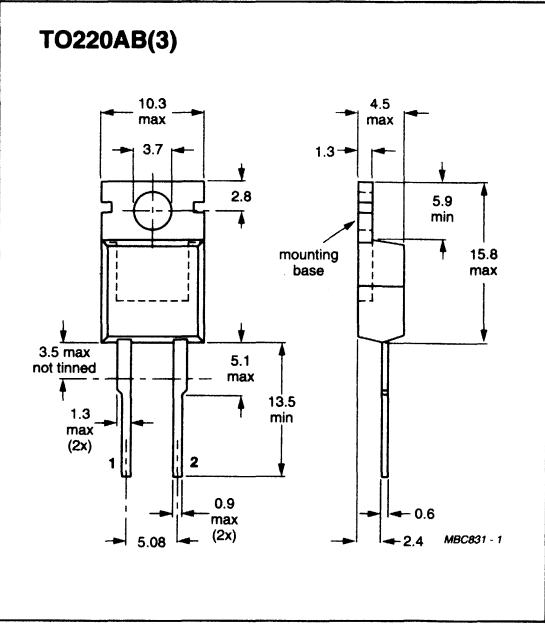
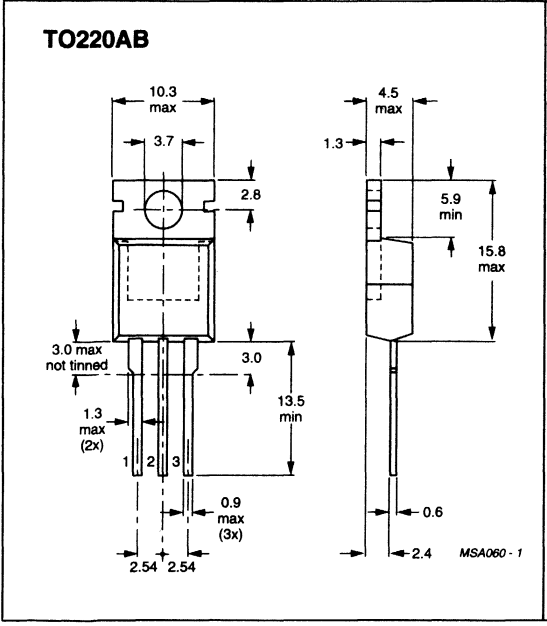
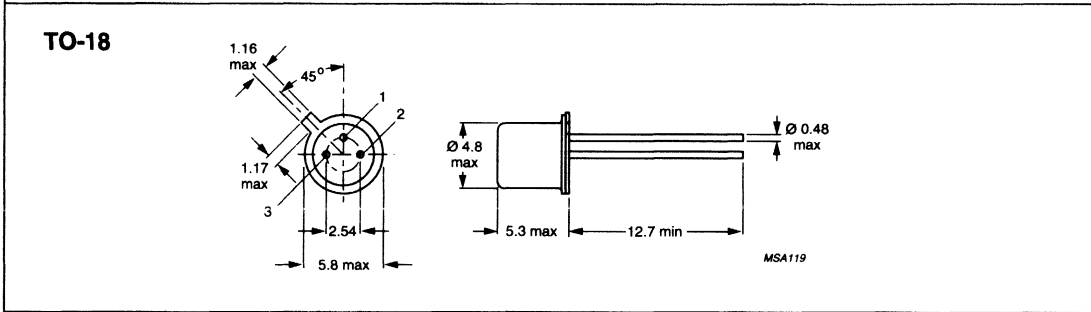
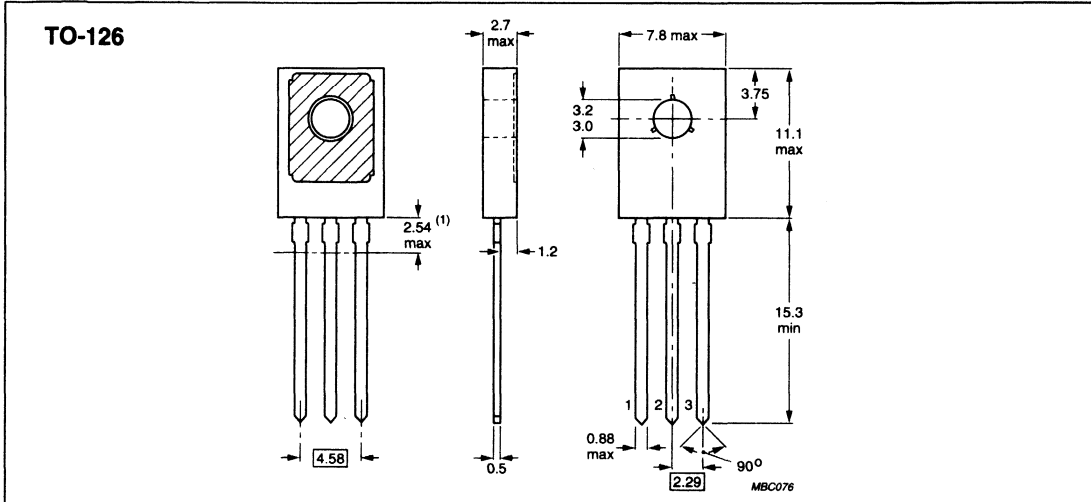
DISCRETE SEMICONDUCTORS

Package outlines



DISCRETE SEMICONDUCTORS

Package outlines



DISCRETE SEMICONDUCTORS

Package outlines

TO220AC

Dimensions: 10.3 max (width), 3.5 max not tinned (lead length), 1.3 max (lead thickness), 3.3 max (lead width), 13.5 min (lead length), 5.08 (lead spacing), 0.9 max (2x) (lead thickness), 2.4 (lead width), 4.5 max (mounting base width), 1.3 (mounting base thickness), 11.0 max (total height), 1.3 (mounting base height), 1.3 (mounting base height), 0.6 (lead diameter), MSA329

TO-39(a)

Dimensions: 0.86 max (lead length), 45° (lead angle), 1.0 max (lead thickness), 5.08 (lead spacing), 9.4 max (lead width), 8.5 max (package height), 6.6 max (lead spacing), 12.7 min (lead length), 0.51 max (lead diameter), MSA241

TO-39(b)

Dimensions: 0.86 max (lead length), 45° (lead angle), 1.0 max (lead thickness), 5.1 (lead spacing), 9.4 max (lead width), 8.5 max (package height), 6.6 max (lead spacing), 12.7 min (lead length), 0.48 max (lead diameter), MBA511

TO-48(1)

Dimensions: 4.2 (top width), 3.2 (top width), 7.6 max (top height), 3.1 min (top width), 3.4 max (mounting base width), 12.4 max (mounting base length), 1.9 (lead length), 1.6 (lead length), 6.35 max (lead length), 2.26 max (lead length), 11.50 (total length), 10.72 (total length), 30.3 max (total length), 1/4 inch x 28 UNF (mounting base thread), ML4873

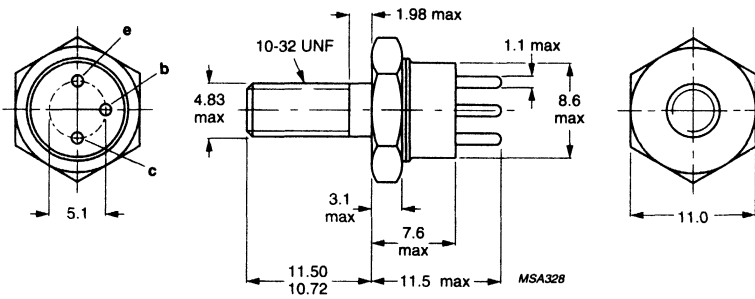
TO-48(2)

Dimensions: 4.2 (top width), 3.2 (top width), 7.6 max (top height), 3.1 min (top width), 3.4 max (mounting base width), 12.4 max (mounting base length), 1.9 (lead length), 1.6 (lead length), 6 max (lead length), 2.26 max (lead length), 11.50 (total length), 10.72 (total length), 30.3 max (total length), M6 (mounting base thread), MBC841

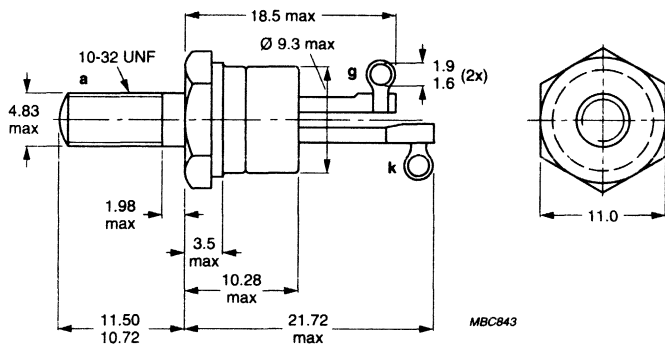
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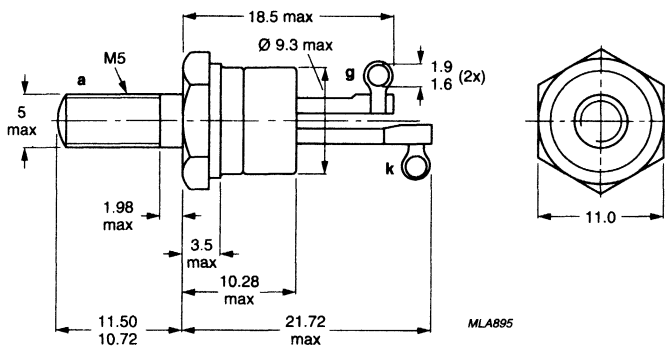
TO-60



TO-64(1)

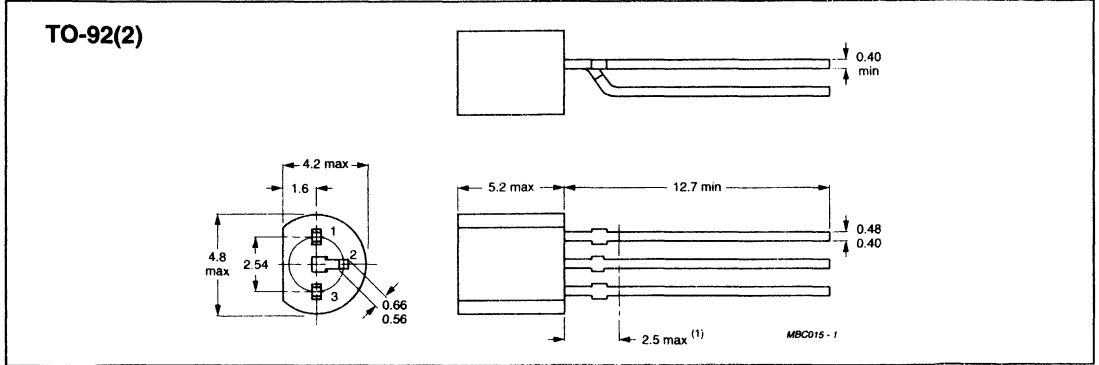
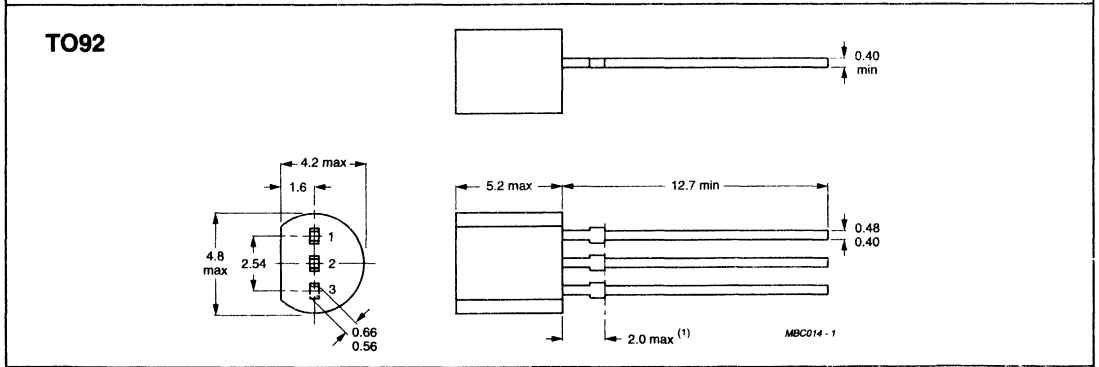
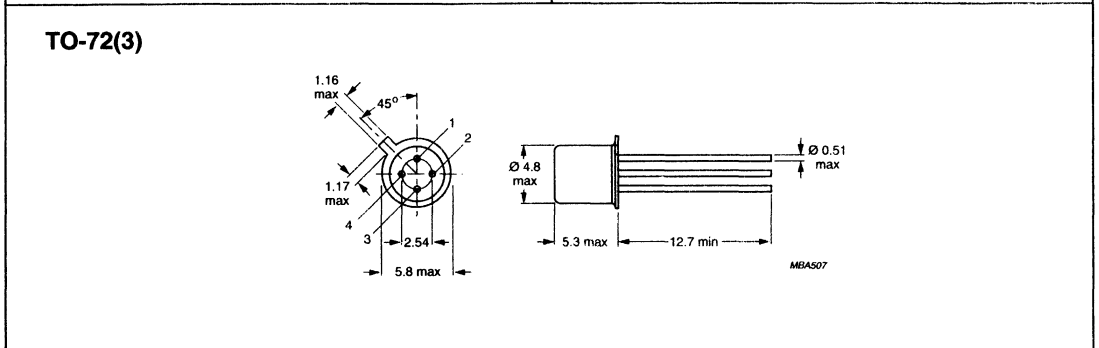
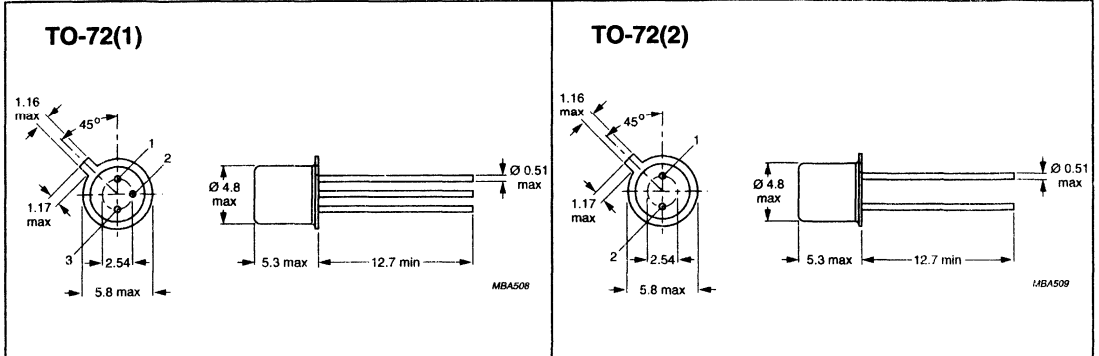


TO-64(2)



DISCRETE SEMICONDUCTORS

Package outlines



DISCRETE SEMICONDUCTORS

Package outlines

WIDEBAND AMPLIFIER MODULES

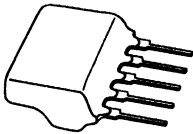


Fig. a

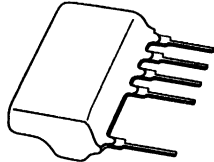


Fig. b

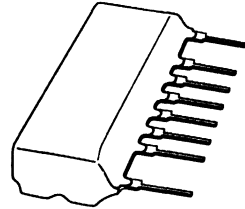


Fig. c

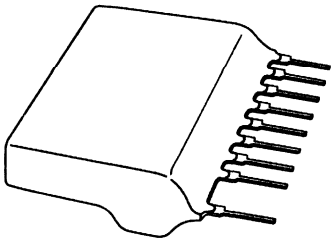


Fig. d

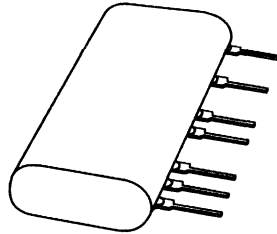


Fig. e

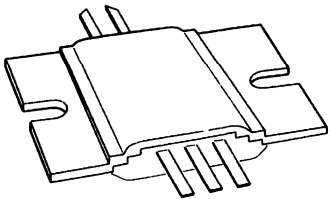


Fig. f

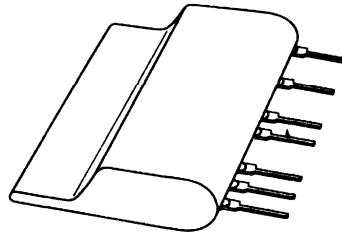


Fig. g

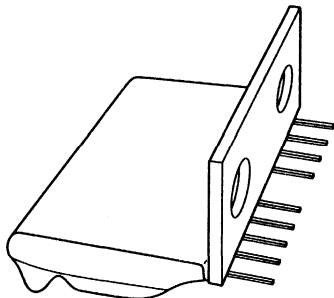


Fig. h

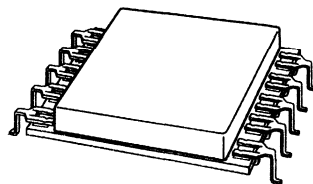
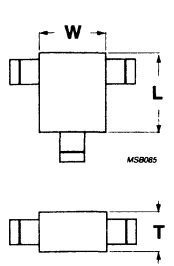
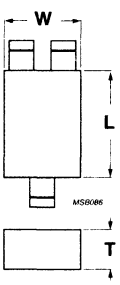
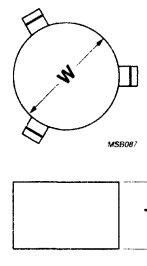
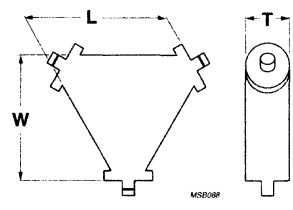
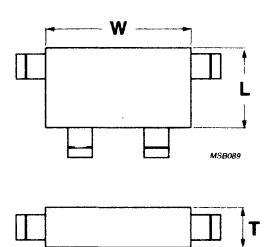
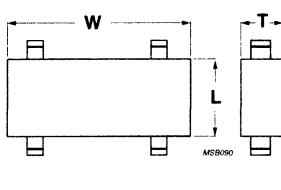
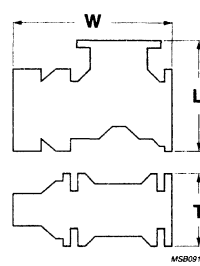
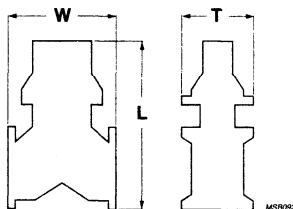
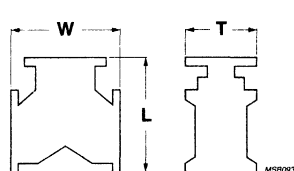
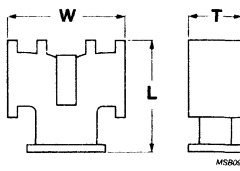
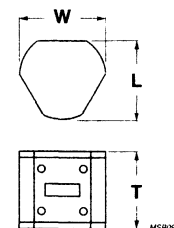
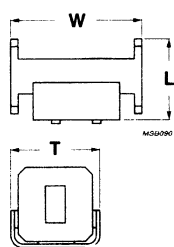
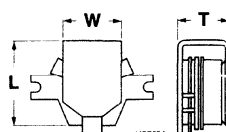


Fig. i

SC

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Package outlines

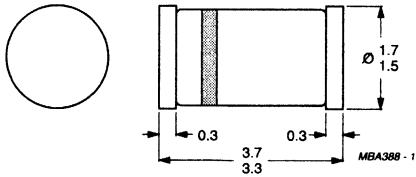
CIRCUITORS AND ISOLATORS			
 <p>Fig. 1</p>	 <p>Fig. 2</p>	 <p>Fig. 3</p>	 <p>Fig. 4</p>
 <p>Fig. 5</p>	 <p>Fig. 6</p>	 <p>Fig. 7</p>	
 <p>Fig. 8</p>	 <p>Fig. 9</p>	 <p>Fig. 10</p>	
 <p>Fig. 11</p>	 <p>Fig. 12</p>	 <p>Fig. 13</p>	

DISCRETE SEMICONDUCTORS

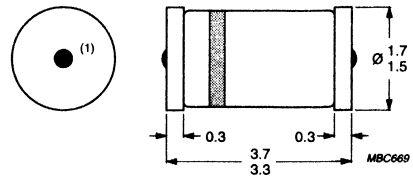
Package outlines

PACKAGES FOR SEMICONDUCTOR SENSORS

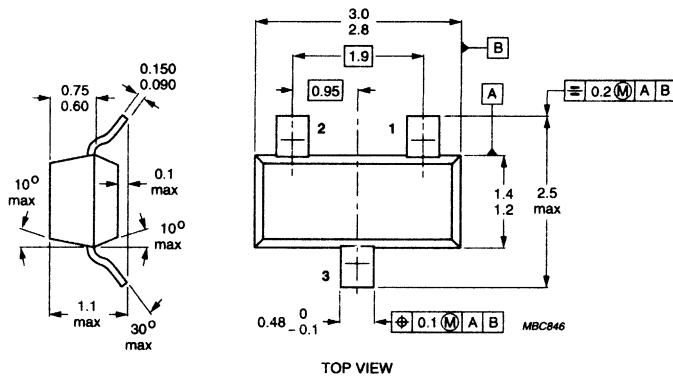
SOD80



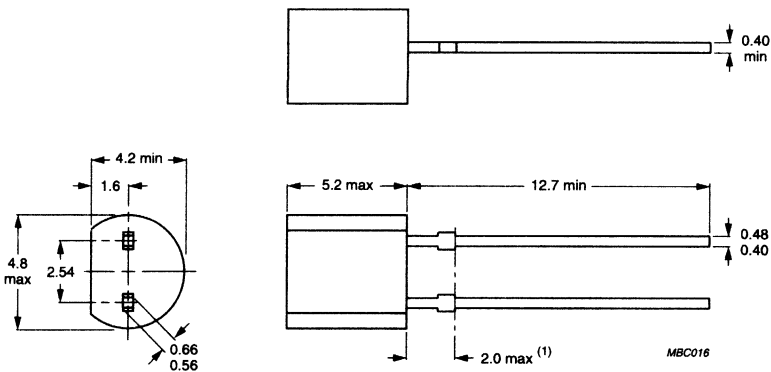
SOD80(KTY85)



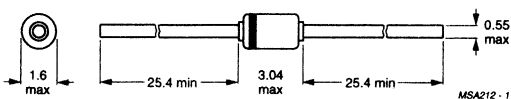
SOD23



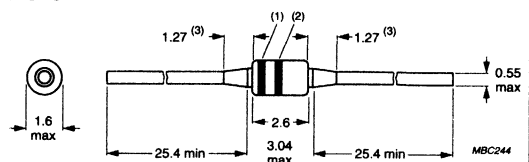
SOD70



SOD68



DO-34

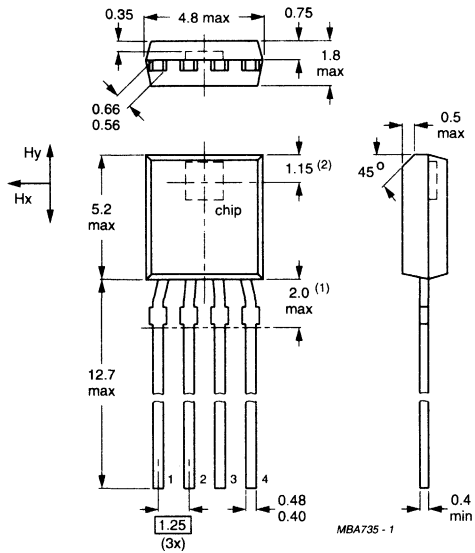


DISCRETE SEMICONDUCTORS

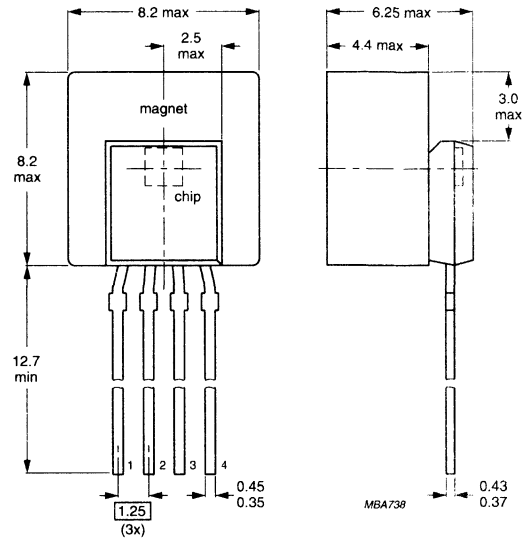
Package outlines

PACKAGES FOR SEMICONDUCTOR SENSORS

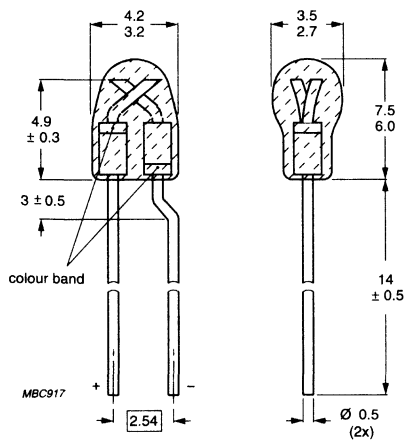
SOT195



SOT195(A)



SOD103



MSB119

Accessories

CLIP MOUNTING

ENVELOPE	DIRECT MOUNTING		INSULATED MOUNTING		
	CLIP		MICA	ALUMINA	CLIP
TO-126 (SOT32)	56353		56354		56353
SOT82	56353		56354		56353
TO-220 (SOT78)	56363		56369	56367	56364
SOT186	56363				
SOT93	56379		56378		56379
SOT199	56379				

SCREW MOUNTING

ENVELOPE	DIRECT MOUNTING		INSULATED MOUNTING			
	METAL WASHER	MOUNTING SIZE	MICA WASHER	INSULATED BUSH	METAL WASHER	MOUNTING SIZE
TO-126 (SOT32)	56326	M3				
up to 300 V			56387a	56387b	56326	M2.5
TO-220 (SOT78)	56360a	M3				
up to 800 V			56359b	56359c	56360a	M3
up to 1000 V			56359b	56359d	56360a	M3
SOT186	56360a	M3				
SOT93		M4	56368a	56368b		M3
SOT199		M4				
DO-5, TO-48			56264a	56264b		
DO-4, TO-64			56295a	56295c		
			PTFE ring 56295b			

OTHERS

ENVELOPE	DESCRIPTION	PART NUMBER
TO-5, TO-39	distance disk of insulating material	56245
TO-18, TO-72	distance disk of insulating material	56246

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BAS11	DS-SC01	35	BA317	SC01	34
BAS12	DS-SC01	35	BA318	SC01	34
BAS15	SC01	34	BCF29	SC10a	7
BAS16	SC01/SC10a	35	BCF30	SC10a	7
BAS19	SC01/SC10a	35	BCF32	SC10a	2
BAS20	SC01/SC10a	35	BCF33	SC10a	2
BAS21	SC01/SC10a	35	BCF70	SC10a	8
BAS28	SC01/SC10a	35	BCF81	SC10a	3
BAS29	SC01/SC10a	35	BCP51	SC10a	9
BAS31	SC01/SC10a	35	BCP51-10	SC10a	9
BAS32	SC01/SC10a	35	BCP51-16	SC10a	9
BAS32L	SC01/SC10a	35	BCP52	SC10a	10
BAS35	SC01/SC10a	35	BCP52-10	SC10a	10
BAS45	SC01	35	BCP52-16	SC10a	10
BAS45L	SC01/SC10a	35	BCP53	SC10a	10
BAS55	DS-SC01/DS-SC10a	34	BCP53-10	SC10a	10
BAS56	SC01/SC10a	34	BCP53-16	SC10a	10
BAS678	DS-SC01/DS-SC10a	35	BCP54	SC10a	4
BAS70	DS-SC01/DS-SC10a	40	BCP54-10	SC10a	4
BAS70-04	DS-SC01/DS-SC10a	47	BCP54-16	SC10a	4
BAS70-05	DS-SC01/DS-SC10a	47	BCP55	SC10a	4
BAS70-06	DS-SC01/DS-SC10a	47	BCP55-10	SC10a	5
BAS81	SC01/DS-SC10a	34	BCP55-16	SC10a	5
BAS82	SC01/DS-SC10a	34	BCP56	SC10a	5
BAS83	SC01/DS-SC10a	34	BCP56-10	SC10a	5
BAS85	DS-SC01/DS-SC10a	34	BCP56-16	SC10a	5
BAS86	SC01/SC10a	34	BCP68	SC10a	1
BAT17	SC01/SC10a	34	BCP68-10	SC10a	1
BAT54	SC01/SC10a	34	BCP68-16	SC10a	1
BAT54A	SC01/SC10a	34	BCP68-25	SC10a	1
BAT54C	SC01/SC10a	34	BCP69	SC10a	6
BAT54S	SC01/SC10a	34	BCP69-10	SC10a	6
BAT74	SC01/SC10a	34	BCP69-16	SC10a	6
BAT81	SC01	34	BCP69-25	SC10a	6
BAT82	SC01	34	BCV26	SC10a	16
BAT83	SC01	34	BCV27	SC10a	16
BAT85	DS-SC01	34	BCV28	SC10a	16
BAT86	SC01/SC10	34	BCV29	SC10a	16
BAV10	SC01	34	BCV46	SC10a	17
BAV100	SC01/SC10a	34	BCV47	SC10a	16
BAV101	SC01/SC10a	35	BCV48	SC10a	17
BAV102	SC01/SC10a	35	BCV49	SC10a	16
BAV103	SC01/SC10a	35	BCV61	SC10a	2
BAV105	SC01/SC10a	34	BCV61A	SC10a	2
BAV18	SC01	34	BCV61B	SC10a	2
BAV19	SC01	35	BCV61C	SC10a	2
BAV20	SC01	35	BCV62	SC10a	7
BAV21	SC01	35	BCV62A	SC10a	7
BAV23	SC01/SC10a	35	BCV62B	SC10a	7
BAV23S	DS-SC01/DS-SC10a	35	BCV62C	SC10a	7
BAV70	SC01/SC10a	34	BCV63	SC10a	2
BAV74	SC01/SC10a	34	BCV63B	SC10a	2
BAV99	SC01/SC10a	34	BCV64	SC10a	7
BAW56	SC01/SC10a	34	BCV64B	SC10a	7
BAW62	SC01	35	BCV65	SC10a	6
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BAX18	SC01	35	BCV72	SC10a	4
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BCW60B	SC10a	12	BCY58/VIII	SC04	12
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BCW61B	SC10a	13	BCY59/VIII	SC04	13
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BCX17	SC10a	9	BCY78/VII	SC04	13
BCX18	SC10a	6	BCY78/VIII	SC04	13
BCX19	SC10a	4	BCY78/X	SC04	13
BCX20	SC10a	1	BCY79/IX	SC04	14
BCX22	SC04	5	BCY79/VII	SC04	14
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BCX51-10	SC10a	9	BCY88	SC04	3
BCX51-16	SC10a	9	BCY89	SC04	3
BCX52	SC10a	10	BC107	SC04	3
BCX52-10	SC10a	10	BC107A	SC04	3
BCX52-16	SC10a	10	BC107B	SC04	3
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BCX54	SC10a	4	BC108C	SC04	1
BCX54-10	SC10a	4	BC109	SC04	1
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BCX56	SC10a	5	BC140-16	SC04	12
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BCX56-16	SC10a	5	BC141-10	SC04	13
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BCX59/IX	SC04	3	BC160-16	SC04	14
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BCX70H	SC10a	13	BC177A	SC04	8
BCX70J	SC10a	13	BC177B	SC04	8
BCX70K	SC10a	13	BC178	SC04	6
BCX71G	SC10a	14	BC178A	SC04	6
BCX71H	SC10a	14	BC178B	SC04	6
BCX71J	SC10a	14	BC179	SC04	6
BCX71K	SC10a	14	BC179A	SC04	6
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BC517	SC04	16	BC808-25	SC10a	7
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PMLL5244B	SC01/SC10b	58	PZTA13	SC10b	16
PMLL5245B	SC01/SC10b	58	PZTA14	SC10b	16
PMLL5246B	SC01/SC10b	59	PZTA42	SC10b	6
PMLL5247B	SC01/SC10b	59	PZTA43	SC10b	5
PMLL5248B	SC01/SC10b	59	PZTA55	SC10b	9
PMLL5249B	SC01/SC10b	59	PZTA56	SC10b	10
PMLL5250B	SC01/SC10b	60	PZTA63	SC10b	16
PMLL5251B	SC01/SC10b	60	PZTA64	SC10b	16
PMLL5252B	SC01/SC10b	60	PZTA92	SC10b	11
PMLL5253B	SC01/SC10b	61	PZTA93	SC10b	10
PMLL5254B	SC01/SC10b	61	PZT2222	SC10b	2
PMLL5255B	SC01/SC10b	61	PZT2222A	SC10b	12
PMLL5256B	SC01/SC10b	61	PZT2907	SC10b	8
PMLL5257B	SC01/SC10b	62	PZT2907A	SC10b	9
PMLL5258B	SC01/SC10b	62	PZT3904	SC10b	12
PMLL5259B	SC01/SC10b	62	PZT3906	SC10b	14
PMLL5280B	SC01/SC10b	63	VN2410L	SC07	27
PMLL5281B	SC01/SC10b	63	1N3879	DS-SC02	40
PMLL5282B	SC01/SC10b	63	1N3883	DS-SC02	43
PMLL5283B	SC01/SC10b	64	1N3890	DS-SC02	41
PMLL5284B	SC01/SC10b	64	1N3893	DS-SC02	43
PMLL5285B	SC01/SC10b	64	1N3899	DS-SC02	40
PMLL5286B	SC01/SC10b	64	1N3902	DS-SC02	43
PMLL5287B	SC01/SC10b	64	1N3909	DS-SC02	40
PN2222	SC04	12	1N3913	DS-SC02	43
PN2222A	SC04	12	1N4001G	SC01	40
PN2369	SC04	12	1N4001ID	SC01	40
PN2369A	SC04	12	1N4002G	SC01	41
PN2907	SC04	14	1N4002ID	SC01	41
PN2907A	SC04	14	1N4003G	SC01	41
PN3439	SC04	6	1N4003ID	SC01	41
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2N4031	SC04	15	2PC1815L	SC04	4
2N4032	SC04	14	2PC1815Y	SC04	4
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 The logo consists of the letters 'SC' in a bold, sans-serif font, centered within a rectangular border. The background of the rectangle is filled with a fine grid pattern.

Bipolar small signal

General purpose

typenumber	package	polarity	V _{CE} V	I _C -max mA	h _{FE} min	f _T MHz	P _{max} mW	h _{FE} max	@ I _C mA	@ V _{CE} V	F typ dB	V _{CE} sat max: V
BF370	TO-92	NPN	15	100	40	490	500		10	1	3	
BSY95A	TO-18	NPN	15	100	50	200	300	200	10	0.35		0.35
BFR54	TO-92	NPN	15	500	40	500	500		10	1		0.25
BF496	TO-92	NPN	20	20		550	300				2	
BFS20	SOT23	NPN	20	25	40	275	250		7	10		
BFS18	SOT23	NPN	20	30	35	200	250	125	1	10	4	
BF495D	TO-92	NPN	20	30	35	120	300	76	1	10		
BFS19	SOT23	NPN	20	30	65	260	250	225	1	10	4	
BF494	TO-92	NPN	20	30	67	120	300	220	1	10	4	
BF495C	TO-92	NPN	20	30	67	120	300	125	1	10		
JF494	TO-92	NPN	20	30	67	120	300	220	1	10		
BF494B	TO-92	NPN	20	30	100	120	300	220	1	10		
BC179B	TO-18	NPN	20	100	150	150	300				1	0.3
BC108	TO-18	NPN	20	100	110	300	300	800	2	5	2	0.6
BC108A	TO-18	NPN	20	100	110	300	300	220	2	5	2	0.6
BCY57	TO-18	NPN	20	100	200	100	300	800	2	5	1.5	
BC108B	TO-18	NPN	20	100	200	300	300	450	2	5	2	0.6
BC109	TO-18	NPN	20	100	200	300	300	800	2	5	1.2	0.6
BC109B	TO-18	NPN	20	100	200	300	300	450	2	5	1.2	0.6
BC108C	TO-18	NPN	20	100	420	300	300	800	2	5	2	0.6
BC109C	TO-18	NPN	20	100	420	300	300	800	2	5	1.2	0.6
MPS3706	TO-92	NPN	20	600	30	100	625	600	50	5		1
BCP68-10	SOT223	NPN	20	1000	60	60	1500	160				0.5
BFY62	TO-39	NPN	20	1000	60	50	800		150	10		1
BCP68	SOT223	NPN	20	1000	85	60	1500	375	500	1		0.5
BC368	TO-92	NPN	20	1000	85	40	800	375	500	1		0.5
BC868	SOT89	NPN	20	1000	85	60	1000	375	500	1		0.5
BCP68-16	SOT223	NPN	20	1000	100	60	1500	250	500	1		0.5
BCP68-25	SOT223	NPN	20	1000	250	60	1500		500	1		0.5
BF199	TO-92	NPN	25	25		550	500					
JC500	TO-92	NPN	25	100	90	130	500	600	1	5		0.2
JC500O	TO-92	NPN	25	100	90	130	500	180	1	5		0.2
MPS6514	TO-92	NPN	25	100	90		625		100	10		0.5
JC500P	TO-92	NPN	25	100	135	130	500	270	1	5		0.2
MPS6515	TO-92	NPN	25	100	150		625		100	10		0.5
JC500Q	TO-92	NPN	25	100	200	130	500	400	1	5		0.2
MPS6520	TO-92	NPN	25	100	200		625	400	2	10		0.5
JC500R	TO-92	NPN	25	100	300	130	500	600	1	5		0.2
MPS6521	TO-92	NPN	25	100	300		625	600	2	10		0.5
2N4124	TO-92	NPN	25	200	120	300	350	480	2	10		0.3
BCX20	SOT23	NPN	25	500	100	200	250	600	100	1		0.62
BC338	TO-92	NPN	25	500	100	200	800	600	100	1		0.7
BC338-16	TO-92	NPN	25	500	100	200	800	250	100	1		0.7
BC818	SOT23	NPN	25	500	100	200	250	600	100	1		0.7
BC818-16	SOT23	NPN	25	500	100	200	250	250	100	1		0.7
JC338	TO-92	NPN	25	500	100	200	800	600	100	1		0.7
JC338-16	TO-92	NPN	25	500	100	200	800	250	100	1		0.7
BC338-25	TO-92	NPN	25	500	160	200	800	400	100	1		0.7
BC818-25	SOT23	NPN	25	500	160	200	250	400	100	1		0.7
JC338-25	TO-92	NPN	25	500	160	200	800	400	100	1		0.7
BC338-40	TO-92	NPN	25	500	250	200	800	600	100	1		0.7

SC

General purpose (cont.)

Bipolar small signal

typenumber	package	polarity	V _{CE}	I _C -max	h _{FE} min	f _T	P _{max}	h _{FE} max	@ I _C	@ V _{CE}	F _{typ}	V-CEsat max
			V	mA		MHz	mW		mA	V	dB	V
BC818-40	€ SOT23	NPN	25	500	250	200	250	600	100	1		0.7
JC338-40	TO-92	NPN	25	500	250	200	800	600	100	1		0.7
BF198	€ TO-92	NPN	30	25		400	500				3	
BF495	€ TO-92	NPN	30	30	35	120	300	125	1	10	4	
PMBT5088	€ SOT23	NPN	30	50	350		250	900	1	5		0.5
2N5088	€ TO-92	NPN	30	50	350	50	625		1	5		0.5
MPS6513	€ TO-92	NPN	30	100	60		625		100	10		0.5
BCV61	€ SOT143	NPN	30	100	110	300	250	800	2	5	2	0.6
BCV61A	€ SOT143	NPN	30	100	110	300	250	220	2	5	2	0.25
BCV63	€ SOT143	NPN	30	100	110	200	250	800	2	5		0.65
BC548	€ TO-92	NPN	30	100	110	300	500	800	2	5	2	0.6
BC548A	€ TO-92	NPN	30	100	110	300	500	220	2	5	2	0.6
BC848	€ SOT23	NPN	30	100	110	300	250	800	2	5	2	0.25
BC848A	€ SOT23	NPN	30	100	110	300	250	220	0.01	5	2	0.25
JC548	€ TO-92	NPN	30	100	110	300	500	800	2	5	2	0.6
JC548A	TO-92	NPN	30	100	110	300	500	220	2	5	2	0.6
BCV61B	€ SOT143	NPN	30	100	200	300	250	450	2	5	2	0.25
BCV63B	€ SOT143	NPN	30	100	200	200	250	450	2	5		0.3
BC548B	€ TO-92	NPN	30	100	200	300	500	450	2	5	2	0.6
BC549	€ TO-92	NPN	30	100	200	300	500	800	2	5	1.2	0.6
BC549B	€ TO-92	NPN	30	100	200	300	500	450	2	5	1.2	0.6
BC848B	€ SOT23	NPN	30	100	200	300	250	450	0.01	5	2	0.25
BC849	€ SOT23	NPN	30	100	200	300	250	800	2	5	1.2	0.25
BC849B	€ SOT23	NPN	30	100	200	300	250	450	0.01	5	1.2	0.25
BC849BW	SOT323	NPN	30	100	200	100	200	450	2	5		0.25
BC849W	SOT323	NPN	30	100	200	100	200	800	2	5		0.25
JC548B	€ TO-92	NPN	30	100	200	300	500	450	2	5	2	0.6
JC549	€ TO-92	NPN	30	100	200	300	500	800	2	5	1.2	0.25
JC549B	€ TO-92	NPN	30	100	200	300	500	450	2	5	1.2	0.25
BCV61C	€ SOT143	NPN	30	100	420	300	250	800	2	5	2	0.25
BC548C	€ TO-92	NPN	30	100	420	300	500	800	2	5	2	0.6
BC549C	€ TO-92	NPN	30	100	420	300	500	800	2	5	1	0.6
BC848C	€ SOT23	NPN	30	100	420	300	250	800	0.01	5	2	0.25
BC849C	€ SOT23	NPN	30	100	420	300	250	800	0.01	5	1.2	0.25
BC849CW	SOT323	NPN	30	100	420	100	200	800	2	5		0.25
JC548C	TO-92	NPN	30	100	420	300	500	800	2	5	2	0.6
JC549C	TO-92	NPN	30	100	420	300	500	800	2	5	1.2	0.25
2N4123	TO-92	NPN	30	200	50	250	350	200	2	10		0.3
MPS6532	TO-92	NPN	30	600	30		625		100	1		0.5
MPS3705	€ TO-92	NPN	30	600	50	100	625	150	50	5		0.8
MPS3704	€ TO-92	NPN	30	600	100	100	625	300	50	5		0.6
PZT2222	€ SOT223	NPN	30	600	100	250	1500	300	150	10		0.4
BFY51	€ TO-39	NPN	30	1000	40	50	800		150	10		1
BC375	€ TO-92	NPN	30	1000	100	150	800	400	150	1		0.4
BCW31	€ SOT23	NPN	32	100	110	300	250	220	2	5		0.25
BCX58/VII	€ TO-92	NPN	32	100	120	125	450	220	2	5	2	0.5
BCX58/VIII	€ TO-92	NPN	32	100	180	125	450	310	2	5	2	0.5
BCF32	€ SOT23	NPN	32	100	200	300	350	450	2	5	1.2	0.25
BCW32	€ SOT23	NPN	32	100	200	300	250	450	2	5		0.25
BCX58/IX	€ TO-92	NPN	32	100	250	125	450	460	2	5	2	0.5
BCF33	€ SOT23	NPN	32	100	420	300	350	800	2	5	1.2	0.25

Bipolar small signal

General purpose (cont.)

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	h _{FE} min	f _T MHz	P _{max} mW	h _{FE} max	@ I _C mA	@ V _{CE} V	F typ dB	V _{CEsat} max V
BCW33	€ SOT23	NPN	32	100	420	300	250	800	2	5		0.25
BFY50	€ TO-39	NPN	35	1000	30	60	800	800	150	10		0.7
BFY55	€ TO-39	NPN	35	1000	40	60	800	120	150	10		1
2N2297	€ TO-39	NPN	35	1000	40	60	800	120	150	10		1
BF241	€ TO-92	NPN	40	25	35	150	300	125	1	10		
BF240	€ TO-92	NPN	40	25	67	150	300	220	1	10		
BCY87	€ TO-71	NPN	40	30	100	10	150	450	0.05	10		
BCY88	€ TO-71	NPN	40	30	100	10	150	450	0.05	10		
BCY89	€ TO-71	NPN	40	30	100	10	150	450	0.05	10		
PMBS3904	€ SOT23	NPN	40	200	100	300	300	300	10	1		0.2
MPS6531	€ TO-92	NPN	40	600	90		625	270	100	1		0.3
2N3053	€ TO-39	NPN	40	700	50	100	5000	250	150	10		1.4
2N930	€ TO-18	NPN	45	30	150	50	300	600	10	5	2	1
JC501	€ TO-92	NPN	45	100	90	130	500	600	1	5		0.2
JC501O	€ TO-92	NPN	45	100	90	130	500	180	1	5		0.2
BCY56	€ TO-18	NPN	45	100	100	85	300	450	2	5	1.5	
BCW71	€ SOT23	NPN	45	100	110	300	250	220	2	5		0.25
BC107	€ TO-18	NPN	45	100	110	300	300	450	2	5	2	0.6
BC107A	€ TO-18	NPN	45	100	110	300	300	220	2	5	2	0.6
BC547	€ TO-92	NPN	45	100	110	300	500	800	2	5	2	0.6
BC547A	€ TO-92	NPN	45	100	110	300	500	220	2	5	2	0.6
BC847	€ SOT23	NPN	45	100	110	300	250	800	2	5	2	0.25
BC847A	€ SOT23	NPN	45	100	110	300	250	220	0.01	5	2	0.25
JC547	€ TO-92	NPN	45	100	110	300	500	800	2	5	2	0.6
JC547A	€ TO-92	NPN	45	100	110	300	500	220	2	5	2	0.6
BCX59/VII	€ TO-92	NPN	45	100	120	125	450	220	2	5	2	0.5
JC501P	€ TO-92	NPN	45	100	135	130	500	270	1	5		0.2
BCX59/VIII	€ TO-92	NPN	45	100	180	125	450	310	2	5	2	0.5
BC107B	€ TO-18	NPN	45	100	200	300	300	450	2	5	2	0.6
BC547B	€ TO-92	NPN	45	100	200	300	500	450	2	5	2	0.6
BC550	€ TO-92	NPN	45	100	200	300	500	800	2	5	1	0.6
BC550B	€ TO-92	NPN	45	100	200	300	500	450	2	5	1.2	0.6
BC847B	€ SOT23	NPN	45	100	200	300	250	450	0.01	5	2	0.25
BC850	€ SOT23	NPN	45	100	200	300	250	800	2	5	1.2	0.25
BC850B	€ SOT23	NPN	45	100	200	300	250	450	0.01	5	1.2	0.25
BC850BW	€ SOT323	NPN	45	100	200	100	200	450	2	5		0.25
BC850W	€ SOT323	NPN	45	100	200	100	200	800	2	5		0.25
JC501Q	€ TO-92	NPN	45	100	200	130	500	400	1	5		0.2
JC547B	€ TO-92	NPN	45	100	200	300	500	450	2	5	2	0.6
JC550	€ TO-92	NPN	45	100	200	300	500	800	2	5	1	0.25
JC550B	€ TO-92	NPN	45	100	200	300	500	450	2	5	1	0.25
BCW72	€ SOT23	NPN	45	100	220	300	250	450	2	5		0.25
BCX59/IX	€ TO-92	NPN	45	100	250	125	450	460	2	5	2	0.5
JC501R	€ TO-92	NPN	45	100	300	130	500	600	1	5		0.2
BCX59/X	€ TO-92	NPN	45	100	380	125	450	630	2	5	2	0.5
BCF81	€ SOT23	NPN	45	100	420	300	350	800	2	5	1.2	0.25
BCW81	€ SOT23	NPN	45	100	420	300	250	800	2	5		0.25
BC547C	€ TO-92	NPN	45	100	420	300	500	800	2	5	2	0.6
BC550C	€ TO-92	NPN	45	100	420	300	500	800	2	5	1	0.6
BC847C	€ SOT23	NPN	45	100	420	300	250	800	0.01	5	2	0.25
BC850C	€ SOT23	NPN	45	100	420	300	250	800	0.01	5	1.2	0.25

SC

General purpose (cont.)

Bipolar small signal

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	h _{FE} min	f _T MHz	P _{max} mW	h _{FE} max	@ I _C mA	@ V _{CE} V	F typ dB	V _{CEsat} max V
BC850CW	SOT323	NPN	45	100	420	100	200	800	2	5		0.25
JC547C	TO-92	NPN	45	100	420	300	500	800	2	5	2	0.6
JC550C	TO-92	NPN	45	100	420	300	500	800	2	5	1	0.25
PMBT6429	⊕ SOT23	NPN	45	200	500	100	250	1250	0.1	5		0.2
BCX19	⊕ SOT23	NPN	45	500	100	200	250	600	100	1		0.62
BC337	⊕ TO-92	NPN	45	500	100	200	800	600	100	1		0.7
BC337-16	⊕ TO-92	NPN	45	500	100	200	800	250	100	1		0.7
BC817	⊕ SOT23	NPN	45	500	100	200	250	600	100	1		0.7
BC817-16	⊕ SOT23	NPN	45	500	100	200	250	250	100	1		0.7
JC337	⊕ TO-92	NPN	45	500	100	200	800	600	100	1		0.7
JC337-16	⊕ TO-92	NPN	45	500	100	200	800	250	100	1		0.7
BC337-25	⊕ TO-92	NPN	45	500	160	200	800	400	100	1		0.7
BC817-25	⊕ SOT23	NPN	45	500	160	200	250	400	100	1		0.7
JC337-25	⊕ TO-92	NPN	45	500	160	200	800	400	100	1		0.7
BC337-40	⊕ TO-92	NPN	45	500	250	200	800	600	100	1		0.7
BC817-40	⊕ SOT23	NPN	45	500	250	200	250	600	100	1		0.7
JC337-40	⊕ TO-92	NPN	45	500	250	200	800	600	100	1		0.7
BCP54	⊕ SOT223	NPN	45	1000	40	130	1500	250	150	2		0.5
BCX54	⊕ SOT89	NPN	45	1000	40	130	1000	250	150	2		0.5
BC635	⊕ TO-92	NPN	45	1000	40	130	1000	250	150	?		0.5
BCP54-10	⊕ SOT223	NPN	45	1000	63	130	1500	160	150	2		0.5
BCX54-10	⊕ SOT89	NPN	45	1000	63	130	1000	160	150	2		0.5
BC635-10	⊕ TO-92	NPN	45	1000	63	130	1000	160	150	2		0.5
BCP54-16	⊕ SOT223	NPN	45	1000	100	130	1500	250	150	2		0.5
BCX54-16	⊕ SOT89	NPN	45	1000	100	130	1000	250	150	2		0.5
BC635-16	⊕ TO-92	NPN	45	1000	100	130	1000	250	150	2		0.5
2PC945	⊕ TO-92	NPN	50	100	90	150	500	600	1	6		0.3
2PC945R	⊕ TO-92	NPN	50	100	90	150	500	180	1	6		0.3
2PC945Q	⊕ TO-92	NPN	50	100	135	150	500	270	1	6		0.3
2PC945P	⊕ TO-92	NPN	50	100	200	150	500	400	1	6		0.3
2PC945K	⊕ TO-92	NPN	50	100	300	150	500	600	1	6		0.3
2PC1815	⊕ TO-92	NPN	50	150	120	80	500	700	2	6	1	0.3
2PC1815L	TO-92	NPN	50	150	120	80	500	700	2	6	0.2	0.3
2PC1815Y	⊕ TO-92	NPN	50	150	120	80	500	240	2	6	1	0.3
2PC1815GR	⊕ TO-92	NPN	50	150	200	80	500	400	2	6	1	0.3
2PC1815BL	⊕ TO-92	NPN	50	150	350	80	500	700	2	6	1	0.3
PMBT6428	⊕ SOT23	NPN	50	200	250	100	250	600	0.1	5		0.2
2N1711	⊕ TO-39	NPN	50	1000	100	70	800	300	150	10		1.5
2N2483	TO-18	NPN	60	50	40	60	360	120	0.01	5		0.35
2N2484	TO-18	NPN	60	50	100	60	360	500	0.01	5		0.35
BCV71	⊕ SOT23	NPN	60	100	110	300	250	220	2	5		0.25
BCV72	⊕ SOT23	NPN	60	100	200	300	250	450	2	5		0.25
MPSA05	⊕ TO-92	NPN	60	500	50	100	625		10	1		0.25
PMBTA05	⊕ SOT23	NPN	60	500	50	100	250		10	1		0.25
PZTA05	SOT223	NPN	60	500	50	100	1500		100	1		0.25
BC337A	⊕ TO-92	NPN	60	500	100	200	800	400	100	1		0.7
JC337A	TO-92	NPN	60	500	100	200	800	400	100	1		0.7
BSX49	TO-18	NPN	60	600	25	250	1000		100	1		1
BFX84	TO-39	NPN	60	1000	30	50	800		150	10		0.2
BCP55	⊕ SOT223	NPN	60	1000	40	130	1500	250	150	2		0.5
BCX55	⊕ SOT89	NPN	60	1000	40	130	1000	250	150	2		0.5

Bipolar small signal

General purpose (cont.)

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	h _{FE min}	f _T MHz	P _{max} mW	h _{FE max}	@ I _C mA	@ V _{CE} V	F typ dB	V-CEsat max V
BC637	TO-92	NPN	60	1000	40	130	1000	250	150	2		0.5
BCP55-10	SOT223	NPN	60	1000	63	130	1500	160	150	2		0.5
BCX55-10	SOT89	NPN	60	1000	63	130	1000	160	150	2		0.5
BC637-10	TO-92	NPN	60	1000	63	130	1000	160	150	2		0.5
BFX85	TO-39	NPN	60	1000	70	50	800		150	10		0.2
BCP55-16	SOT223	NPN	60	1000	100	130	1500	250	150	2		0.5
BCX55-16	SOT89	NPN	60	1000	100	130	1000	250	150	2		0.5
BC637-16	TO-92	NPN	60	1000	100	130	1000	250	150	2		0.5
BC546	TO-92	NPN	65	100	110	300	500	450	2	5	2	0.6
BC546A	TO-92	NPN	65	100	110	300	500	220	2	5	2	0.6
BC846	SOT23	NPN	65	100	110	300	250	450	2	5	2	0.25
BC846A	SOT23	NPN	65	100	110	300	250	220	0.01	5	2	0.25
JC546	TO-92	NPN	65	100	110	300	500	450	2	5	2	0.6
JC546A	TO-92	NPN	65	100	110	300	500	220	2	5	2	0.6
BC546B	TO-92	NPN	65	100	200	300	500	450	2	5	2	0.6
BC846B	SOT23	NPN	65	100	200	300	250	450	0.01	5	2	0.25
JC546B	TO-92	NPN	65	100	200	300	500	450	2	5	2	0.6
2N1893	TO-39	NPN	80	500	40		800	120	150	10		5
MPSA06	TO-92	NPN	80	500	50	100	625		10	1		0.25
PMBTA06	SOT23	NPN	80	500	50	100	250		10	1		0.25
PZTA06	SOT223	NPN	80	500	50	100	1500		100	1		0.25
BCP56	SOT223	NPN	80	1000	40	130	1500	250	150	2		0.5
BCX56	SOT89	NPN	80	1000	40	130	1000	250	150	2		0.5
BC639	TO-92	NPN	80	1000	40	130	1000	250	150	2		0.5
2N3020	TO-39	NPN	80	1000	40	80	800	120	150	10		0.2
BCP56-10	SOT223	NPN	80	1000	63	130	1500	160	150	2		0.5
BCX56-10	SOT89	NPN	80	1000	63	130	1000	160	150	2		0.5
BC639-10	TO-92	NPN	80	1000	63	130	1000	160	150	2		0.5
BCP56-16	SOT223	NPN	80	1000	100	130	1500	250	150	2		0.5
BCX56-16	SOT89	NPN	80	1000	100	130	1000	250	150	2		0.5
BC639-16	TO-92	NPN	80	1000	100	130	1000	250	150	2		0.5
2N3019	TO-39	NPN	80	1000	100	100	800	300	150	10		0.2
BSW66A	TO-39	NPN	100	1000	30	130	800		500	5		0.4
BSW67A	TO-39	NPN	120	1000	30	130	800		500	5		0.4
BCX22	TO-18	NPN	125	800	63	100	450		100	1		0.9
BSR19	SOT23	NPN	140	600	60	100	250	250	10	5		0.25
PMBT5550	SOT23	NPN	140	600	60	100	250	250	10	5		0.25
2N5550	TO-92	NPN	140	600	60	100	500	250	10	5		0.25
BSW68A	TO-39	NPN	150	1000	30	130	800		500	5		0.4
BSR19A	SOT23	NPN	160	600	80	100	250	250	10	5		0.2
PMBT5551	SOT23	NPN	160	600	80	100	250	250	10	5		0.2
2N5551	TO-92	NPN	160	600	80	100	500	250	10	5		0.2
MPSA43	TO-92	NPN	200	500	40	50	625		30	10		0.5
PMBTA43	SOT23	NPN	200	500	40	50	250		10	10		0.5
PXTA43	SOT89	NPN	200	500	40	50	1000		10	10		0.5
PZTA43	SOT223	NPN	200	500	40	50	1500		10	10		0.5
BF422	TO-92	NPN	250	50	50	60	830		25	20		0.6
BF483	TO-92	NPN	250	50	50	70	830		25	20		0.6
BF622	SOT89	NPN	250	50	50	60	1000		25	20		0.6
BF722	SOT223	NPN	250	50	50	60	1500		25	20		0.6



General purpose (cont.)

Bipolar small signal

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	h _{FE} min	f _T MHz	P _{max} mW	h _{FE} max	@ I _C mA	@ V _{CE} V	F typ dB	V-CEsat max V
BF822	€ SOT23	NPN	250	50	50	60	250		25	20		0.6
BSP20	€ SOT223	NPN	250	1000	40	70	1500	40	20	10		0.5
BST40	€ SOT89	NPN	250	1000	40	70	1000		20	10		0.5
PN3440	€ TO-92	NPN	250	1000	40	70	625		20	10		0.5
2N3440	TO-39	NPN	250	1000	40	70	1000		20	10		0.5
BF420	€ TO-92	NPN	300	50	50	60	830		25	20		0.6
BF485	€ TO-92	NPN	300	50	50	70	830		25	20		
BF620	€ SOT89	NPN	300	50	50	60	1000		25	20		0.6
BF720	€ SOT223	NPN	300	50	50	60	1500		25	20		0.6
BF820	€ SOT23	NPN	300	50	50	60	250		25	20		0.6
MPSA42	€ TO-92	NPN	300	500	40	50	625		30	10		0.5
PMBTA42	€ SOT23	NPN	300	500	40	50	250		10	10		0.5
PXTA42	€ SOT89	NPN	300	500	40	50	1000		10	10		0.5
PZTA42	€ SOT223	NPN	300	500	40	50	1500		10	10		0.5
BF487	€ TO-92	NPN	350	50	50	70	830		25	20		
PN3439	€ TO-92	NPN	350	1000	30	70	625		2	10		0.5
2N3439	TO-39	NPN	350	1000	30	70	1000		2	10		0.5
BSP19	€ SOT223	NPN	350	1000	40	70	1500	40	20	10		0.5
BST39	€ SOT89	NPN	350	1000	40	70	1000		20	10		0.5
BCV65	€ SOT143	P-N	30	100	75		250	800	2	5		0.3
BCV65B	SOT143	P-N	30	100	200		250	475	2	5		0.3
BF570	€ SOT23	PNP	15	100	40	490	250		10	1		
BF926	€ TO-92	PNP	20	25		350	250				5	
BC179	€ TO-18	PNP	20	100		150	300				1	0.3
BC179A	€ TO-18	PNP	20	100		150	300				2	0.3
BCP69-10	SOT223	PNP	20	1000		60	1500	160				0.5
BCP69	€ SOT223	PNP	20	1000	85	60	1500	375	500	1		0.5
BC369	€ TO-92	PNP	20	1000	85	40	800	375	500	1		0.5
BC869	€ SOT89	PNP	20	1000	85	60	1000	375	500	1		0.5
BCP69-16	€ SOT223	PNP	20	1000	100	60	1500	250	500	1		0.5
BCP69-25	€ SOT223	PNP	20	1000	250	60	1500		500	1		0.5
BC178	€ TO-18	PNP	25	100		150	300				2	0.3
BC178A	€ TO-18	PNP	25	100		150	300				2	0.3
BC178B	€ TO-18	PNP	25	100		150	300				1	0.3
JA100	€ TO-92	PNP	25	100	90	130	500	600	1	5		0.3
JA100O	TO-92	PNP	25	100	90	130	500	180	1	5		0.3
JA100P	TO-92	PNP	25	100	135	130	500	270	1	5		0.3
MPS6519	€ TO-92	PNP	25	100	150		625		100	10		0.5
JA100Q	TO-92	PNP	25	100	200	130	500	400	1	5		0.3
MPS6522	€ TO-92	PNP	25	100	200		625	400	2	10		0.5
JA100R	TO-92	PNP	25	100	300	130	500	600	1	5		0.3
MPS6523	€ TO-92	PNP	25	100	400		625	600	2	10		0.5
2N4126	€ TO-92	PNP	25	200	120	250	350	480	2	10		0.4
BCX18	€ SOT23	PNP	25	500	100	100	250	600	100	1		0.62
BC328	€ TO-92	PNP	25	500	100	100	800	600	100	1		0.7
BC328-16	€ TO-92	PNP	25	500	100	100	800	250	100	1		0.7
BC808	€ SOT23	PNP	25	500	100	100	250	600	100	1		0.7
BC808-16	€ SOT23	PNP	25	500	100	100	250	250	100	1		0.7
JC328	€ TO-92	PNP	25	500	100	100	800	600	100	1		0.7
JC328-16	TO-92	PNP	25	500	100	100	800	250	100	1		0.7
BC328-25	€ TO-92	PNP	25	500	160	100	800	400	100	1		0.7

Bipolar small signal

General purpose (cont.)

typenumber	package	polarity	V _{CE} V	I _C -max mA	h _{FE} min	f _T MHz	P _{max} mW	h _{FE} max	@ I _C mA	@ V _{CE} V	F typ dB	V _{CEsat} max V
BC808-25	⊕ SOT23	PNP	25	500	160	100	250	400	100	1		0.7
JC328-25	TO-92	PNP	25	500	160	100	800	400	100	1		0.7
BC328-40	⊕ TO-92	PNP	25	500	250	100	800	600	100	1		0.7
BC808-40	⊕ SOT23	PNP	25	500	250	100	250	600	100	1		0.7
JC328-40	⊕ TO-92	PNP	25	500	250	100	800	600	100	1		0.7
MPS3702	⊕ TO-92	PNP	25	600	60	100	625	300	50	5		0.25
BF324	⊕ TO-92	PNP	30	25		450	250				3	
BF824	⊕ SOT23	PNP	30	25		450	250				3	
BF660	⊕ SOT23	PNP	30	25	30	650	250		3	10		
BC558	⊕ TO-92	PNP	30	100	75	200	500	800	2	5	2	0.65
BC858	⊕ SOT23	PNP	30	100	75	150	250	800	2	5	2	0.3
JC558	⊕ TO-92	PNP	30	100	75	200	500	800	2	5	2	0.3
BCV62	⊕ SOT143	PNP	30	100	100	150	250	800	2	5	2	0.65
BCV84	⊕ SOT143	PNP	30	100	110	200	250	800	2	5		0.3
BCV62A	⊕ SOT143	PNP	30	100	125	150	250	250	2	5	2	0.3
BC558A	⊕ TO-92	PNP	30	100	125	200	500	250	2	5	2	0.65
BC559	⊕ TO-92	PNP	30	100	125	200	500	800	2	5	1	0.65
BC559A	⊕ TO-92	PNP	30	100	125	200	500	250	2	5	1	0.65
BC858A	⊕ SOT23	PNP	30	100	125	150	250	250	2	5	2	0.3
BC859	⊕ SOT23	PNP	30	100	125	150	250	800	2	5	1	0.3
BC859A	⊕ SOT23	PNP	30	100	125	150	250	250	2	5	1	0.3
BC859AW	SOT323	PNP	30	100	125	100	200	250	2	5		0.3
BC859W	SOT323	PNP	30	100	125	100	200	800	2	5		0.3
JC558A	TO-92	PNP	30	100	125	200	500	250	2	5	2	0.3
JC559	TO-92	PNP	30	100	125	200	500	800	2	5	1	0.3
JC559A	TO-92	PNP	30	100	125	200	500	250	2	5	1	0.3
BCV62B	⊕ SOT143	PNP	30	100	220	150	250	475	2	5	2	0.3
BCV64B	⊕ SOT143	PNP	30	100	220	200	250	475	2	5		0.3
BC558B	⊕ TO-92	PNP	30	100	220	200	500	475	2	5	2	0.65
BC559B	⊕ TO-92	PNP	30	100	220	200	500	475	2	5	1	0.65
BC858B	⊕ SOT23	PNP	30	100	220	150	250	475	2	5	2	0.3
BC859B	⊕ SOT23	PNP	30	100	220	150	250	475	2	5	1	0.3
BC859BW	SOT323	PNP	30	100	220	100	200	475	2	5		0.3
JC558B	⊕ TO-92	PNP	30	100	220	200	500	475	2	5	2	0.3
JC559B	TO-92	PNP	30	100	220	200	500	475	2	5	1	0.3
BCV62C	⊕ SOT143	PNP	30	100	420	150	250	800	2	5	2	0.3
BC558C	⊕ TO-92	PNP	30	100	420	200	500	800	2	5	2	0.65
BC559C	⊕ TO-92	PNP	30	100	420	200	500	800	2	5	1	0.65
BC858C	⊕ SOT23	PNP	30	100	420	150	250	800	2	5	2	0.3
BC859C	⊕ SOT23	PNP	30	100	420	150	250	800	2	5	1	0.3
BC859CW	SOT323	PNP	30	100	420	100	200	800	2	5		0.3
JC558C	⊕ TO-92	PNP	30	100	420	200	500	800	2	5	2	0.3
JC559C	TO-92	PNP	30	100	420	200	500	800	2	5	1	0.3
2N4125	TO-92	PNP	30	200	50	200	350	200	2	10		0.4
MPS3703	⊕ TO-92	PNP	30	600	30	100	625	150	50	5		0.25
MPS6535	TO-92	PNP	30	600	30		625		100	1		0.5
BC376	⊕ TO-92	PNP	30	1000	100	100	800	400	150	1		0.4
BCF29	⊕ SOT23	PNP	32	100	120	150	350	260	2	5	1	0.3
BCW29	⊕ SOT23	PNP	32	100	120	150	250	260	2	5		0.3
BCX78/VIII	⊕ TO-92	PNP	32	100	180	200	450	310	2	5	2	0.6
BCF30	⊕ SOT23	PNP	32	100	215	150	350	500	2	5	1	0.3



General purpose (cont.)

Bipolar small signal

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	h _{FE} min	f _T MHz	P _{max} mW	h _{FE} max	@ I _C mA	@ V _{CE} V	F typ dB	V-CEsat max V
BCW30	⊕ SOT23	PNP	32	100	215	150	250	500	2	5		0.3
BCX78/IX	⊕ TO-92	PNP	32	100	250	200	450	460	2	5	2	0.6
BCX78/X	⊕ TO-92	PNP	32	100	380	200	450	630	2	5	2	0.6
BF569	⊕ SOT23	PNP	35	30	25	900	250		3		4.5	
BF970	⊕ SOT37	PNP	35	30	25	900	160		3	10	4.7	
BF970A	⊕ SOT37	PNP	35	30	25	900	160		3	10	4.7	
BF451	⊕ TO-92	PNP	40	25	30	350	250	90	1	10	2	
BF841	⊕ SOT23	PNP	40	25	40	380	250	125	1	10	2	
BF550	⊕ SOT23	PNP	40	25	50	325	250		1	10	2	
BF450	⊕ TO-92	PNP	40	25	62	350	250	200	1	10	2	
BF840	⊕ SOT23	PNP	40	25	70	380	250		1	10	1.5	
MPS8517	⊕ TO-92	PNP	40	100	60		625		100	10		0.5
MPS8518	⊕ TO-92	PNP	40	100	90		625		100	10		0.5
PMBS3906	⊕ SOT23	PNP	40	200	100	250	300	300	10	1		0.25
PMBT3906	⊕ SOT23	PNP	40	200	100	250	250	300	10	1		0.25
MPS8534	⊕ TO-92	PNP	40	600	90		625	270	100	1		0.3
PZT2907	⊕ SOT223	PNP	40	600	100	200	1500	300	150	10		0.4
BC177	⊕ TO-18	PNP	45	100		150	300				2	0.3
BC177A	⊕ TO-18	PNP	45	100		150	300				2	0.3
BC177B	⊕ TO-18	PNP	45	100		150	300				2	0.3
BC557	⊕ TO-92	PNP	45	100	75	200	500	800	2	5	2	0.65
BC857	⊕ SOT23	PNP	45	100	75	150	250	800	2	5	2	0.3
JC557	⊕ TO-92	PNP	45	100	75	200	500	800	2	5	2	0.3
JA101	⊕ TO-92	PNP	45	100	90	130	500	600	1	5		0.3
JA101O	⊕ TO-92	PNP	45	100	90	130	500	180	1	5		0.3
BCW69	⊕ SOT23	PNP	45	100	120	150	250	260	2	5		0.3
BCX79/VII	⊕ TO-92	PNP	45	100	120	200	450	220	2	5	2	0.6
BC557A	⊕ TO-92	PNP	45	100	125	200	500	250	2	5	2	0.65
BC560	⊕ TO-92	PNP	45	100	125	200	500	800	2	5	1	0.65
BC560A	⊕ TO-92	PNP	45	100	125	200	500	250	2	5	1	0.65
BC857A	⊕ SOT23	PNP	45	100	125	150	250	250	2	5	2	0.3
BC860	⊕ SOT23	PNP	45	100	125	150	250	800	2	5	1	0.3
BC860A	⊕ SOT23	PNP	45	100	125	150	250	250	2	5	1	0.3
BC860AW	⊕ SOT323	PNP	45	100	125	100	200	250	2	5		0.3
BC860W	⊕ SOT323	PNP	45	100	125	100	200	800	2	5		0.3
JC557A	⊕ TO-92	PNP	45	100	125	200	500	250	2	5	2	0.3
JC560	⊕ TO-92	PNP	45	100	125	200	500	800	2	5	1	0.3
JC560A	⊕ TO-92	PNP	45	100	125	200	500	250	2	5	1	0.3
JA101P	⊕ TO-92	PNP	45	100	135	130	500	270	1	5		0.3
BCX79/VIII	⊕ TO-92	PNP	45	100	180	200	450	310	2	5	2	0.6
JA101Q	⊕ TO-92	PNP	45	100	200	130	500	400	1	5		0.3
BCF70	⊕ SOT23	PNP	45	100	215	150	350	500	2	5	1	0.3
BCW70	⊕ SOT23	PNP	45	100	215	150	250	500	2	5		0.3
BC557B	⊕ TO-92	PNP	45	100	220	200	500	475	2	5	2	0.65
BC560B	⊕ TO-92	PNP	45	100	220	200	500	475	2	5	1	0.65
BC857B	⊕ SOT23	PNP	45	100	220	150	250	475	2	5	2	0.3
BC860B	⊕ SOT23	PNP	45	100	220	150	250	475	2	5	1	0.3
BC860BW	⊕ SOT323	PNP	45	100	220	100	200	475	2	5		0.3
JC557B	⊕ TO-92	PNP	45	100	220	200	500	475	2	5	2	0.3
JC560B	⊕ TO-92	PNP	45	100	220	200	500	475	2	5	1	0.3
BCX79/IX	⊕ TO-92	PNP	45	100	250	200	450	460	2	5	2	0.6

Bipolar small signal

General purpose (cont.)

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	h _{FE} min	f _T MHz	P _{max} mW	h _{FE} max	@ I _C mA	@ V _{CE} V	F typ dB	V-CEsat max V
JA101R	TO-92	PNP	45	100	300	130	500	600	1	5		0.3
BCX79/X	TO-92	PNP	45	100	380	200	450	630	2	5	2	0.6
BC557C	TO-92	PNP	45	100	420	200	500	800	2	5	2	0.65
BC580C	TO-92	PNP	45	100	420	200	500	800	2	5	1	0.65
BC857C	SOT23	PNP	45	100	420	150	250	800	2	5	2	0.3
BC860C	SOT23	PNP	45	100	420	150	250	800	2	5	1	0.3
BC860CW	SOT323	PNP	45	100	420	100	200	800	2	5		0.3
JC557C	TO-92	PNP	45	100	420	200	500	800	2	5	2	0.3
JC580C	TO-92	PNP	45	100	420	200	500	800	2	5	1	0.3
BCX17	SOT23	PNP	45	500	100	100	250	600	100	1		0.62
BC327	TO-92	PNP	45	500	100	100	800	600	100	1		0.7
BC327-16	TO-92	PNP	45	500	100	100	800	250	100	1		0.7
BC807	SOT23	PNP	45	500	100	100	250	600	100	1		0.7
BC807-16	SOT23	PNP	45	500	100	100	250	250	100	1		0.7
JC327	TO-92	PNP	45	500	100	100	800	600	100	1		0.7
JC327-16	TO-92	PNP	45	500	100	100	800	250	100	1		0.7
BC327-25	TO-92	PNP	45	500	160	100	800	400	100	1		0.7
BC807-25	SOT23	PNP	45	500	160	100	250	400	100	1		0.7
JC327-25	TO-92	PNP	45	500	160	100	800	400	100	1		0.7
BC327-40	TO-92	PNP	45	500	250	100	800	600	100	1		0.7
BC807-40	SOT23	PNP	45	500	250	100	250	600	100	1		0.7
JC327-40	TO-92	PNP	45	500	250	100	800	600	100	1		0.7
BCP51	SOT223	PNP	45	1000	40	50	1500	250	150	2		0.5
BCX51	SOT89	PNP	45	1000	40	50	1000	250	150	2		0.5
BC636	TO-92	PNP	45	1000	40	50	1000	250	150	2		0.5
BCP51-10	SOT223	PNP	45	1000	63	50	1500	160	150	2		0.5
BCX51-10	SOT89	PNP	45	1000	63	50	1000	160	150	2		0.5
BC636-10	TO-92	PNP	45	1000	63	50	1000	160	150	2		0.5
BCP51-16	SOT223	PNP	45	1000	100	50	1500	250	150	2		0.5
BCX51-16	SOT89	PNP	45	1000	100	50	1000	250	150	2		0.5
BC636-16	TO-92	PNP	45	1000	100	50	1000	250	150	2		0.5
2N5086	TO-92	PNP	50	50	150	40	625		1	5		0.3
2N5087	TO-92	PNP	50	50	250	40	625		1	5		0.3
2PA733	TO-92	PNP	50	100	90	100	500	600	1	6	6	0.3
2PA733R	TO-92	PNP	50	100	90	100	500	180	1	6	6	0.3
2PA733Q	TO-92	PNP	50	100	135	100	500	270	1	6	6	0.3
2PA733P	TO-92	PNP	50	100	200	100	500	400	1	6	6	0.3
2PA733K	TO-92	PNP	50	100	300	100	500	600	1	6	6	0.3
2PA1015	TO-92	PNP	50	150	120	80	500	700	2	6		0.3
2PA1015L	TO-92	PNP	50	150	120	80	500	700	2	6		0.3
2PA1015Y	TO-92	PNP	50	150	120	80	500	240	2	6		0.3
2PA1015GR	TO-92	PNP	50	150	200	80	500	400	2	6		0.3
2PA1015BL	TO-92	PNP	50	150	350	80	500	700	2	6		0.3
BR101	TO-72	PNP	50	175	50	300	275		10	2		0.5
BCW89	SOT23	PNP	60	100	120	150	250	260	2	5		0.3
MPSA55	TO-92	PNP	60	500	50	50	625		100	1		0.25
PMBTA55	SOT23	PNP	60	500	50	50	250		100	1		0.25
PZTA55	SOT223	PNP	60	500	50	50	1500		100	1		0.25
BC327A	TO-92	PNP	60	500	100	100	800	400	100	1		0.7
JC327A	TO-92	PNP	60	500	100	100	800	400	100	1		0.7
PZT2907A	SOT223	PNP	60	600	100	200	1500	300	150	10		0.4

SC

General purpose (cont.)

Bipolar small signal

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	h _{FE min}	f _T MHz	P _{max} mW	h _{FE max}	@ I _C mA	@ V _{CE} V	F typ dB	V _{CEsat max} V
BCP52	€ SOT223	PNP	60	1000	40	50	1500	250	150	2		0.5
BCX52	€ SOT89	PNP	60	1000	40	50	1000	250	150	2		0.5
BC638	€ TO-92	PNP	60	1000	40	50	1000	250	150	2		0.5
BCP52-10	€ SOT223	PNP	60	1000	63	50	1500	160	150	2		0.5
BCX52-10	€ SOT89	PNP	60	1000	63	50	1000	160	150	2		0.5
BC638-10	€ TO-92	PNP	60	1000	63	50	1000	160	150	2		0.5
BCP52-16	€ SOT223	PNP	60	1000	100	50	1500	250	150	2		0.5
BCX52-16	€ SOT89	PNP	60	1000	100	50	1000	250	150	2		0.5
BC638-16	€ TO-92	PNP	60	1000	100	50	1000	250	150	2		0.5
BSS44	TO-39	PNP	60	5000	30	70	870		500	2		1
BC556	€ TO-92	PNP	65	100	75	200	500	475	2	5	2	0.65
BC856	€ SOT23	PNP	65	100	75	150	250	800	2	5	2	0.3
JC556	€ TO-92	PNP	65	100	75	200	500	475	2	5	2	0.3
BC556A	€ TO-92	PNP	65	100	125	200	500	250	2	5	2	0.65
BC856A	€ SOT23	PNP	65	100	125	150	250	250	2	5	2	0.3
JC556A	€ TO-92	PNP	65	100	125	200	500	250	2	5	2	0.3
BC556B	€ TO-92	PNP	65	100	220	200	500	475	2	5	2	0.65
BC856B	€ SOT23	PNP	65	100	220	150	250	475	2	5	2	0.3
JC556B	€ TO-92	PNP	65	100	220	200	500	475	2	5	2	0.3
MPSA56	€ TO-92	PNP	80	500	50	50	625		100	1		0.25
PMBTA56	€ SOT23	PNP	80	500	50	50	250		100	1		0.25
PZTA56	€ SOT223	PNP	80	500	50	50	1500		100	1		0.25
BCP53	€ SOT223	PNP	80	1000	40	50	1500	250	150	2		0.5
BCX53	€ SOT89	PNP	80	1000	40	50	1000	250	150	2		0.5
BC640	€ TO-92	PNP	80	1000	40	50	1000	250	150	2		0.5
BCP53-10	€ SOT223	PNP	80	1000	63	50	1500	160	150	2		0.5
BCX53-10	€ SOT89	PNP	80	1000	63	50	1000	160	150	2		0.5
BC640-10	€ TO-92	PNP	80	1000	63	50	1000	160	150	2		0.5
BCP53-16	€ SOT223	PNP	80	1000	100	50	1500	250	150	2		0.5
BCX53-16	€ SOT89	PNP	80	1000	100	50	1000	250	150	2		0.5
BC640-16	€ TO-92	PNP	80	1000	100	50	1000	250	150	2		0.5
BSS63	€ SOT23	PNP	100	100	30	50	250		25	1		0.25
BSS68	€ TO-92	PNP	100	100	30	50	500		25	5		0.25
BSR20	€ SOT23	PNP	120	600	40	100	250	180	10	5		0.5
2N5400	€ TO-92	PNP	120	600	40	100	500	180	10	5		0.5
2N5680	TO-39	PNP	120	1000	40	30	1000	150	250	2		0.6
BCX23	TO-18	PNP	125	800	63	100	450		100	1		0.9
PMBT5401	€ SOT23	PNP	150	500	60	100	250	240	10	5		0.5
BSR20A	€ SOT23	PNP	150	600	60	100	250	240	10	5		0.5
2N5401	€ TO-92	PNP	150	600	60	100	500	240	10	5		0.5
MPSA93	€ TO-92	PNP	200	500	25	50	625		30	10		0.5
PMBTA93	€ SOT23	PNP	200	500	40	50	250		10	10		0.5
PXTA93	€ SOT89	PNP	200	500	40	50	1000		10	10		0.5
PZTA93	SOT223	PNP	200	500	40	50	1500		10	10		0.5
BSP15	€ SOT223	PNP	200	1000	30	15	1500	150	50	10		2.5
BST15	€ SOT89	PNP	200	1000	30	15	1000	150	50	10		2.5
PH5415	€ TO-92	PNP	200	1000	30	15	625	150	50	10		0.8
PN5415	€ TO-92	PNP	200	1000	30	15	625	150	50	10		0.8
2N5415	TO-39	PNP	200	1000	30	15	1000	150	50	10		2.5
BF423	€ TO-92	PNP	250	50	50	60	830		25	20		0.6
BF623	€ SOT89	PNP	250	50	50	60	1000		25	20		0.8

Bipolar small signal

General purpose (cont.)

typenumber	package	polarity	V _{CE} V	I _C -max mA	h _{FE} min	f _T MHz	P _{max} mW	h _{FE} max	@ I _C mA	@ V _{CE} V	F typ dB	V-CEsat max V
BF723	● SOT223	PNP	250	50	50	60	1500		25	20		0.8
BF823	● SOT23	PNP	250	50	50	60	250		25	20		0.8
BF484	● TO-92	PNP	250	100	50	70	830		25	20		0.5
BFT45	TO-39	PNP	250	500	50	70	5000	150	10	10		1.4
BF421	● TO-92	PNP	300	50	50	60	830		25	20		0.6
BF821	● SOT89	PNP	300	50	50	60	1000		25	20		0.8
BF721	● SOT223	PNP	300	50	50	60	1500		25	20		0.8
BF821	● SOT23	PNP	300	50	50	60	250		25	20		0.8
BF486	● TO-92	PNP	300	100	50	70	830		25	20		0.5
MPSA92	● TO-92	PNP	300	500	25	50	625		30	10		0.5
PMBTA92	● SOT23	PNP	300	500	40	50	250		10	10		0.5
PXTA92	● SOT89	PNP	300	500	40	50	1000		10	10		0.5
PZTA92	● SOT223	PNP	300	500	40	50	1500		10	10		0.5
BFT44	TO-39	PNP	300	500	50	70	5000	150	10	10		1.4
BSP16	● SOT223	PNP	300	1000	30	15	1500	120	50	10		2
BST16	● SOT89	PNP	300	1000	30	15	1000	120	50	10		2
PH5416	● TO-92	PNP	300	1000	30	15	625	120	50	10		0.8
PN5416	● TO-92	PNP	300	1000	30	15	625	120	50	10		0.8
2N5416	TO-39	PNP	300	1000	30	15	1000	120	50	10		2
BF488	● TO-92	PNP	350	100	50	70	830		25	20		0.5



Switching

Bipolar small signal

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	t _{off max} ns	P _{max} mW	h _{FE min}	h _{FE max}	@ I _C mA	@ V _{CE} V	f _{T min} MHz
BSV52	€ SOT23	NPN	12	100	18	250	40	120	10	1	400
2N2369A	TO-18	NPN	15	200	18	360	40	120	10	0.35	500
BSX20	TO-18	NPN	15	500	18	360	40	120	10	1	500
PH2369	€ TO-92	NPN	15	500	18	500	40	120	10	1	500
PMBT2369	€ SOT23	NPN	15	500	18	250	40	120	10	1	
2N2369	TO-18	NPN	15	500	18	360	40	120	10	1	500
PN2369	€ TO-92	NPN	15	600	18	625	40	120	10	1	
PN2369A	€ TO-92	NPN	15	600	18	625	40	120	10	0.35	
PMBT2222	€ SOT23	NPN	30	600	285	250	100	300	150	10	250
PN2222	€ TO-92	NPN	30	600	285	625	100	300	150	10	250
PXT2222	€ SOT89	NPN	30	600	285	1000	100	300	150	10	250
BSR13	€ SOT23	NPN	30	800	285	250	100	300	150	10	250
PH2222	€ TO-92	NPN	30	800	285	625	75		10	10	250
2N2219	€ TO-39	NPN	30	800	285	800	100	300	150	10	250
2N2222	€ TO-18	NPN	30	800	285	500	100	300	150	10	250
BSX60	TO-39	NPN	30	1000	70	800	30	90	500	1	250
BCW60A	€ SOT23	NPN	32	200	800	250	120	220	2	5	
BCW60B	€ SOT23	NPN	32	200	800	250	180	310	2	5	
BCW60C	€ SOT23	NPN	32	200	800	250	250	460	2	5	
BCW60D	€ SOT23	NPN	32	200	800	250	380	630	2	5	
BCY58/IX	€ TO-18	NPN	32	200	800	330	250	460	2	5	150
BCY58/VII	€ TO-18	NPN	32	200	800	330	120	220	2	5	150
BCY58/VIII	€ TO-18	NPN	32	200	800	330	180	310	2	5	150
BCY58/X	€ TO-18	NPN	32	200	800	330	380	630	2	5	150
2N3903	€ TO-92	NPN	40	200	225	350	50	150	10	1	250
BSR17A	€ SOT23	NPN	40	200	250	250	100	300	10	1	300
PMBT3904	€ SOT23	NPN	40	200	250	250	100	300	10	1	300
PXT3904	€ SOT89	NPN	40	200	250	1000	100	300	10	1	300
PZT3904	€ SOT223	NPN	40	200	250	1500	100	300	10	1	300
2N3904	€ TO-92	NPN	40	200	250	350	100	300	10	1	300
MPS3904	€ TO-92	NPN	40	200	990	625	100	300	10	1	300
PMBT4401	€ SOT23	NPN	40	600	255	250	100	300	150	1	250
PXT4401	€ SOT89	NPN	40	600	255	1000	100	300	150	1	250
2N4400	€ TO-92	NPN	40	600	255	625	50	100	100	2	200
2N4401	€ TO-92	NPN	40	600	255	625	150	300	100	2	250
PMBT2222A	€ SOT23	NPN	40	600	285	250	100	300	150	10	300
PN2222A	€ TO-92	NPN	40	600	285	625	100	300	150	10	300
PXT2222A	€ SOT89	NPN	40	600	285	1000	100	300	150	10	300
PZT2222A	€ SOT223	NPN	40	600	285	1500	100	300	150	10	300
BSR14	€ SOT23	NPN	40	800	285	250	100	300	150	10	300
PH2222A	€ TO-92	NPN	40	800	285	625	75		10	10	300
2N2219A	€ TO-39	NPN	40	800	285	800	100	300	150	10	300
2N2222A	€ TO-18	NPN	40	800	285	500	100	300	150	10	300
BSX32	€ TO-39	NPN	40	1000	60	800	20	150	1000	5	300
BC140	€ TO-39	NPN	40	1000	850	3700	63	250	100	1	50
BC140-10	€ TO-39	NPN	40	1000	850	3700	63	160	100	1	50
BC140-16	€ TO-39	NPN	40	1000	850	3700	100	250	100	1	50
BSX45	€ TO-39	NPN	40	1000	850	6250	63	250	100	1	50
BSX45-10	€ TO-39	NPN	40	1000	850	6250	63	160	100	1	50
BSX45-16	€ TO-39	NPN	40	1000	850	6250	100	250	100	1	50
BSX62-10	€ TO-39	NPN	40	3000	1500	875	63	160	1000	1	30

Bipolar small signal

Switching (cont.)

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	t _{off} max ns	P _{max} mW	h _{FE} min	h _{FE} max	@ I _C mA	@ V _{CE} V	f _T min MHz
BSX62-16	ⓔ TO-39	NPN	40	3000	1500	875	100	250	1000	1	30
BCX70G	ⓔ SOT23	NPN	45	200	800	250	120	220	2	5	125
BCX70H	ⓔ SOT23	NPN	45	200	800	250	180	310	2	5	125
BCX70J	ⓔ SOT23	NPN	45	200	800	250	250	460	2	5	125
BCX70K	ⓔ SOT23	NPN	45	200	800	250	380	630	2	5	125
BCY69/IX	ⓔ TO-18	NPN	45	200	800	330	250	460	2	5	150
BCY69/VII	ⓔ TO-18	NPN	45	200	800	330	120	220	2	5	150
BCY69/VIII	ⓔ TO-18	NPN	45	200	800	330	180	310	2	5	150
BCY69/X	ⓔ TO-18	NPN	45	200	800	330	380	630	2	5	150
BSX69	TO-39	NPN	45	1000	60	800	30	90	500	1	250
BSX61	TO-39	NPN	45	1000	100	800	30	90	500	1	250
BSR60	ⓔ TO-92	NPN	45	1000	1500	1000	1000	150	10		
2N1613	ⓔ TO-39	NPN	50	500	15	800	40	120	150	10	60
BCY65/IX	ⓔ TO-18	NPN	60	200	800	330	250	460	2	5	125
BCY65/VII	ⓔ TO-18	NPN	60	200	800	330	120	220	2	5	125
BCY65/VIII	ⓔ TO-18	NPN	60	200	800	330	180	310	2	5	125
BC141	ⓔ TO-39	NPN	60	1000	850	3700	63	250	100	1	50
BC141-10	ⓔ TO-39	NPN	60	1000	850	3700	63	160	100	1	50
BC141-16	ⓔ TO-39	NPN	60	1000	850	3700	100	250	100	1	50
BSX46	ⓔ TO-39	NPN	60	1000	850	6250	63	250	100	1	50
BSX46-10	ⓔ TO-39	NPN	60	1000	850	6250	63	160	100	1	50
BSX46-16	ⓔ TO-39	NPN	60	1000	850	6250	100	250	100	1	50
BSP40	ⓔ SOT223	NPN	60	1000	1000	1500	40	120	100	5	100
BSP41	ⓔ SOT223	NPN	60	1000	1000	1500	100	300	100	5	100
BSR40	ⓔ SOT89	NPN	60	1000	1000	1000	40	120	100	5	100
BSR41	ⓔ SOT89	NPN	60	1000	1000	1000	100	300	100	5	100
BSR51	ⓔ TO-92	NPN	60	1000	1500	1000	1000	150	10		
BFX34	ⓔ TO-39	NPN	60	2000	1200	870	40	150	2000	2	70
BSV64	ⓔ TO-39	NPN	60	2000	1200	5000	40		2000	2	
BSX63-10	ⓔ TO-39	NPN	60	3000	1500	875	63	160	1000	1	30
BSX63-16	ⓔ TO-39	NPN	60	3000	1500	875	100	250	1000	1	30
BSS64	ⓔ SOT23	NPN	80	100	1000	250	20		10	1	60
BSX47	ⓔ TO-39	NPN	80	1000	850	6250	63	250	100	1	50
BSX47-10	ⓔ TO-39	NPN	80	1000	850	6250	63	160	100	1	50
BSP42	ⓔ SOT223	NPN	80	1000	1000	1500	40	120	100	5	100
BSP43	ⓔ SOT223	NPN	80	1000	1000	1500	100	300	100	5	100
BSR42	ⓔ SOT89	NPN	80	1000	1000	1000	40	120	100	5	100
BSR43	ⓔ SOT89	NPN	80	1000	1000	1000	100	300	100	5	100
BSR52	ⓔ TO-92	NPN	80	1000	1500	1000	1000	150	10		
BSS38	ⓔ TO-92	NPN	100	100	1000	500	20		4	1	60
2N2894A	TO-18	PNP	12	200	35	360	40	150	30	0.5	800
BSR12	SOT23	PNP	15	100	30	250	30	120	50	1	1500
BCY72	ⓔ TO-18	PNP	25	200	420	350	100		10	1	250
BCW61A	ⓔ SOT23	PNP	32	200	800	250	120	220	2	5	
BCW61B	ⓔ SOT23	PNP	32	200	800	250	180	310	2	5	
BCW61C	ⓔ SOT23	PNP	32	200	800	250	250	460	2	5	
BCW61D	ⓔ SOT23	PNP	32	200	800	250	380	630	2	5	
BCY78/IX	ⓔ TO-18	PNP	32	200	800	345	250	460	2	5	
BCY78/VII	ⓔ TO-18	PNP	32	200	800	345	120	220	2	5	
BCY78/VIII	ⓔ TO-18	PNP	32	200	800	345	180	310	2	5	
BCY78/X	ⓔ TO-18	PNP	32	200	800	345	380	630	2	5	

SC

Switching (cont.)

Bipolar small signal

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	t _{off max} ns	P _{max} mW	h _{FE min}	h _{FE max}	@ I _C mA	@ V _{CE} V	f _{T min} MHz
2N3905	TO-92	PNP	40	200	260	350	50	150	10	1	200
BSR18A	€ SOT23	PNP	40	200	300	250	100	300	10	1	250
PXT3906	€ SOT89	PNP	40	200	300	1000	100	300	10	1	250
PZT3906	€ SOT223	PNP	40	200	300	1500	100	300	10	1	250
2N3906	€ TO-92	PNP	40	200	300	350	100	300	10	1	250
BCY70	€ TO-18	PNP	40	200	420	350	100	10	1	250	
MPS3906	€ TO-92	PNP	40	200	690	625	100	300	10	1	250
BSR15	€ SOT23	PNP	40	600	100	250	100	300	150	10	200
PH2907	€ TO-92	PNP	40	600	100	625	100	300	150	10	200
PMBT2907	€ SOT23	PNP	40	600	100	250	30	500	10	200	
PN2907	€ TO-92	PNP	40	600	100	625	100	300	150	10	200
PXT2907	€ SOT89	PNP	40	600	100	1000	100	300	150	2	200
2N2904	€ TO-39	PNP	40	600	100	600	40	120	150	10	200
2N2905	€ TO-39	PNP	40	600	100	600	100	300	150	10	200
2N2906	€ TO-18	PNP	40	600	100	400	40	120	150	10	200
2N2907	€ TO-18	PNP	40	600	100	400	100	300	150	10	200
BFX88	€ TO-39	PNP	40	600	150	600	40	10	10	100	
PXT4403	€ SOT89	PNP	40	600	235	1000	100	300	150	2	200
PMBT4403	€ SOT23	PNP	40	600	255	250	100	300	150	2	200
2N4402	€ TO-92	PNP	40	600	255	625	50	100	150	2	150
2N4403	€ TO-92	PNP	40	600	255	625	150	300	150	2	200
BC160	€ TO-39	PNP	40	1000	650	3700	63	250	100	1	50
BC160-10	€ TO-39	PNP	40	1000	650	3700	63	160	100	1	50
BC160-16	€ TO-39	PNP	40	1000	650	3700	100	250	100	1	50
BSV15-10	€ TO-39	PNP	40	1000	650	800	63	160	100	1	50
BSV15-16	€ TO-39	PNP	40	1000	650	800	100	250	100	1	50
BCY71	€ TO-18	PNP	45	200	420	350	100	400	10	1	250
BCX71G	€ SOT23	PNP	45	200	800	250	120	220	2	5	
BCX71H	€ SOT23	PNP	45	200	800	250	180	310	2	5	
BCX71J	€ SOT23	PNP	45	200	800	250	250	460	2	5	
BCX71K	€ SOT23	PNP	45	200	800	250	380	630	2	5	
BCY79/IX	€ TO-18	PNP	45	200	800	345	250	460	2	5	
BCY79/VII	€ TO-18	PNP	45	200	800	345	120	220	2	5	
BCY79/VIII	€ TO-18	PNP	45	200	800	345	180	310	2	5	
BSR60	€ TO-92	PNP	45	1000	1500	800	2000	500	10	10	
BFX87	€ TO-39	PNP	50	600	150	600	40	10	10	100	
BSR16	€ SOT23	PNP	60	600	100	250	100	300	150	10	200
PH2907A	€ TO-92	PNP	60	600	100	625	100	300	150	10	200
PMBT2907A	€ SOT23	PNP	60	600	100	250	50	500	10	200	
PN2907A	€ TO-92	PNP	60	600	100	625	100	300	150	10	200
PXT2907A	€ SOT89	PNP	60	600	100	1000	100	300	150	10	200
2N2904A	€ TO-39	PNP	60	600	100	600	40	120	150	10	200
2N2905A	€ TO-39	PNP	60	600	100	600	100	300	150	10	200
2N2906A	€ TO-18	PNP	60	600	100	400	40	120	150	10	200
2N2907A	€ TO-18	PNP	60	600	100	400	100	300	150	10	200
BFX29	€ TO-39	PNP	60	600	150	600	50	10	10	100	
2N4030	TO-39	PNP	60	1000	400	800	25	500	5	100	
2N4032	TO-39	PNP	60	1000	400	800	70	500	5	150	
BC161	€ TO-39	PNP	60	1000	650	3700	63	250	100	1	50
BC161-10	€ TO-39	PNP	60	1000	650	3700	63	160	100	1	50
BC161-16	€ TO-39	PNP	60	1000	650	3700	100	250	100	1	50

Bipolar small signal

Switching (cont.)

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	t _{off max} ns	P _{max} mW	h _{FE min}	h _{FE max}	@ I _C mA	@ V _{CE} V	f _{T min} MHz
BSP30	Ⓔ SOT223	PNP	60	1000	650	1500	40	120	100	5	100
BSP31	Ⓔ SOT223	PNP	60	1000	650	1500	100	300	100	5	100
BSR30	Ⓔ SOT89	PNP	60	1000	650	1000	40	120	100	5	100
BSR31	Ⓔ SOT89	PNP	60	1000	650	1000	100	300	100	5	100
BSV16-10	Ⓔ TO-39	PNP	60	1000	650	800	63	160	100	1	50
BSV16-16	Ⓔ TO-39	PNP	60	1000	650	800	100	250	100	1	50
BSR61	Ⓔ TO-92	PNP	60	1000	1500	800	2000		500	10	
BFX30	Ⓔ TO-39	PNP	65	600	290	600	40	200	1	0.4	
2N4036	TO-39	PNP	65	1000	700	7000	20	200	150	2	
2N4031	TO-39	PNP	80	1000	400	800	25		500	5	100
2N4033	TO-39	PNP	80	1000	400	800	70		500	5	150
BSP32	Ⓔ SOT223	PNP	80	1000	650	1500	40	120	100	5	100
BSP33	Ⓔ SOT223	PNP	80	1000	650	1500	100	300	100	5	100
BSR32	Ⓔ SOT89	PNP	80	1000	650	1000	40	120	100	5	100
BSR33	Ⓔ SOT89	PNP	80	1000	650	1000	100	300	100	5	100
BSV17-10	Ⓔ TO-39	PNP	80	1000	650	800	63	160	100	1	50
BSR62	Ⓔ TO-92	PNP	80	1000	1500	800	2000		500	10	
BSS46	TO-39	PNP	80	5000	1000	870	25		500	2	70

Darlington

Bipolar small signal

typenumber	package	polarity	V_{CE}	I_{C-max}	$h_{FE} \text{ min}$	$@ I_C$	$@ V_{CE}$	f_T	P_{max}	$V_{CEsat} \text{ max}$
			V	mA		mA	V	MHz	mW	V
PMBTA13 \ominus	SOT23	NPN	30	300	5000	10	5	125	250	1.5
PMBTA14 \ominus	SOT23	NPN	30	300	10000	10	5	125	250	1.5
PZTA13	SOT223	NPN	30	300	10000	100	5	125	1500	1.5
BCV27 \ominus	SOT23	NPN	30	300	20000	100	5	220	250	1
PXTA14 \ominus	SOT89	NPN	30	300	20000	100	5	125	1000	1.5
PZTA14 \ominus	SOT223	NPN	30	300	20000	100	5	125	1500	1.5
BC517 \ominus	TO-92	NPN	30	400	30000	20	2	220	625	1
BCV29 \ominus	SOT89	NPN	30	500	4000	1	5	220	1000	1
MPSA13 \ominus	TO-92	NPN	30	500	5000	10	5	125	625	1.5
MPSA14 \ominus	TO-92	NPN	30	500	10000	10	5	125	625	1.5
MPSA25 \ominus	TO-92	NPN	40	500	10000	10	5	125	500	1.5
BC617 \ominus	TO-92	NPN	40	1000	4000	1	5	155	625	1.1
BST50 \ominus	SOT89	NPN	45	500	1000	150	10		1000	1.3
BSP50 \ominus	SOT223	NPN	45	500	2000	500	10		1500	1.3
BC875 \ominus	TO-92	NPN	45	1000	1000	150	10	200	1000	1.8
BSR50 \ominus	TO-92	NPN	45	1000	1000	150	10		1000	1.3
BSS50 \ominus	TO-39	NPN	45	1000	2000	500	10		800	1.6
MPSA26 \ominus	TO-92	NPN	50	500	10000	10	5	125	500	1.5
BC618 \ominus	TO-92	NPN	55	1000	2000	1	5	155	625	1.1
BST51 \ominus	SOT89	NPN	60	500	1000	150	10		1000	1.3
BCV49 \ominus	SOT89	NPN	60	500	2000	1	5	220	1000	1
BSP51 \ominus	SOT223	NPN	60	500	2000	500	10		1500	1.3
MPSA27 \ominus	TO-92	NPN	60	500	10000	10	5	125	500	1.5
PXTA27 \ominus	SOT89	NPN	60	500	10000	100	5	125	1000	1.5
BC877 \ominus	TO-92	NPN	60	1000	1000	150	10	200	1000	1.8
BSR51 \ominus	TO-92	NPN	60	1000	1000	150	10		1000	1.3
BSS51 \ominus	TO-39	NPN	60	1000	2000	500	10		800	1.6
BST52 \ominus	SOT89	NPN	80	500	1000	150	10		1000	1.3
BCV47 \ominus	SOT23	NPN	80	500	2000	1	5	220	250	1
BSP52 \ominus	SOT223	NPN	80	500	2000	500	10		1500	1.3
BC879 \ominus	TO-92	NPN	80	1000	1000	150	10	200	1000	1.8
BSR52 \ominus	TO-92	NPN	80	1000	1000	150	10		1000	1.3
BSS52 \ominus	TO-39	NPN	80	1000	2000	500	10		800	1.6
BCV26 \ominus	SOT23	PNP	30	300	20000	100	5	220	250	1
PXTA64 \ominus	SOT89	PNP	30	300	20000	100	5	125	1000	1.5
BC516 \ominus	TO-92	PNP	30	400	30000	20	2	220	625	1
BCV28 \ominus	SOT89	PNP	30	500	4000	1	5	220	1000	1
MPSA63 \ominus	TO-92	PNP	30	500	5000	10	5	125	625	1.5
PMBTA63 \ominus	SOT23	PNP	30	500	5000	10	5	125	250	1.5
PZTA63	SOT223	PNP	30	500	5000	10	5	125	1500	1.5
MPSA64 \ominus	TO-92	PNP	30	500	10000	10	5	125	625	1.5
PMBTA64 \ominus	SOT23	PNP	30	500	10000	10	5	125	250	1.5
PZTA64 \ominus	SOT223	PNP	30	500	10000	10	5	125	1500	1.5
MPSA75 \ominus	TO-92	PNP	40	500	10000	10	5	125	500	1.5
BST60 \ominus	SOT89	PNP	45	500	1000	150	10		1000	1.3
BSP60 \ominus	SOT223	PNP	45	500	2000	500	10		1500	1.3
BC876 \ominus	TO-92	PNP	45	1000	1000	150	10	200	1000	1.8
BSR60 \ominus	TO-92	PNP	45	1000	2000	500	10		800	1.3
BSS60 \ominus	TO-39	PNP	45	1000	2000	500	10		800	1.6
MPSA76 \ominus	TO-92	PNP	50	500	10000	10	5	125	500	1.5
BST61 \ominus	SOT89	PNP	60	500	1000	150	10		1000	1.3

Bipolar small signal

Darlington (cont.)

typenumber	package	polarity	V _{CE} V	I _{C-max} mA	h _{FE} min	@ I _C mA	@ V _{CE} V	f _T MHz	P _{max} mW	V _{CEsat} max V
BCV48	● SOT89	PNP	60	500	2000	1	5	220	1000	1
BSP61	● SOT223	PNP	60	500	2000	500	10		1500	1.3
MPSA77	TO-92	PNP	60	500	10000	10	5	125	500	1.5
PXTA77	SOT89	PNP	60	500	10000	100	5	125	1000	1.5
BC878	● TO-92	PNP	60	1000	1000	150	10	200	1000	1.8
BSR61	● TO-92	PNP	60	1000	2000	500	10		800	1.3
BSS61	● TO-39	PNP	60	1000	2000	500	10		800	1.6
BST62	● SOT89	PNP	80	500	1000	150	10		1000	1.3
BCV46	● SOT23	PNP	80	500	2000	1	5	220	250	1
BSP62	● SOT223	PNP	80	500	2000	500	10		1500	1.3
BC880	● TO-92	PNP	80	1000	1000	150	10	200	1000	1.8
BSR62	● TO-92	PNP	80	1000	2000	500	10		800	1.4
BSS62	● TO-39	PNP	80	1000	2000	500	10		800	1.6



LF Transistors

Bipolar LF power

typenumber	package	polarity	I _{C-max}	V _{CEO}	h _{FE} min	@ I _C	@ V _{CE}	h _{FE} max	P _{max}	V _{CBO}
			A	V		A	V		W	V
BD825	€ TO-202	NPN	1	45	40	0.15	2	250	8	45
BD827	€ TO-202	NPN	1	60	40	0.15	2	250	8	60
BD829	€ TO-202	NPN	1	80	40	0.15	2	250	8	100
BD135	€ TO-126	NPN	1.5	45	40	0.15	2	250	8	45
BD135-6	€ TO-126	NPN	1.5	45	40	0.15	2	100	8	45
BD226	€ TO-126	NPN	1.5	45	40	0.15	2	250	12.5	45
BD839	€ TO-202	NPN	1.5	45	40	0.15	2	250	10	45
BD135-10	€ TO-126	NPN	1.5	45	63	0.15	2	160	8	45
BD135-16	€ TO-126	NPN	1.5	45	100	0.15	2	250	8	45
BD137	€ TO-126	NPN	1.5	60	40	0.15	2	250	8	60
BD137-6	€ TO-126	NPN	1.5	60	40	0.15	2	100	8	60
BD228	€ TO-126	NPN	1.5	60	40	0.15	2	250	12.5	60
BD841	€ TO-202	NPN	1.5	60	40	0.15	2	250	10	60
BD137-10	€ TO-126	NPN	1.5	60	63	0.15	2	160	8	60
BD137-16	€ TO-126	NPN	1.5	60	100	0.15	2	250	8	60
BD139	€ TO-126	NPN	1.5	80	40	0.15	2	250	8	100
BD139-6	€ TO-126	NPN	1.5	80	40	0.15	2	100	8	100
BD230	€ TO-126	NPN	1.5	80	40	0.15	2	250	12.5	100
BD843	€ TO-202	NPN	1.5	80	40	0.15	2	250	10	100
BD139-10	€ TO-126	NPN	1.5	80	63	0.15	2	160	8	100
BD139-16	€ TO-126	NPN	1.5	80	100	0.15	2	250	8	100
BD329	€ TO-126	NPN	3	20	85	0.5	1	375	15	32
BD131	€ TO-126	NPN	3	45	40	0.5	12		15	70
BDX35	€ TO-126	NPN	5	60	45	0.5	10	450	15	100
BDX36	€ TO-126	NPN	5	60	45	0.5	10	450	15	120
BDX37	€ TO-126	NPN	5	80	45	0.5	10	450	15	120
BD826	€ TO-202	PNP	1	45	40	0.15	2	250	8	45
BD828	€ TO-202	PNP	1	60	40	0.15	2	250	8	60
BD830	€ TO-202	PNP	1	80	40	0.15	2	250	8	100
BD136	€ TO-126	PNP	1.5	45	40	0.15	2	250	8	45
BD136-6	€ TO-126	PNP	1.5	45	40	0.15	2	100	8	45
BD227	€ TO-126	PNP	1.5	45	40	0.15	2	250	12.5	45
BD840	€ TO-202	PNP	1.5	45	40	0.15	2	250	10	45
BD136-10	€ TO-126	PNP	1.5	45	63	0.15	2	160	8	45
BD136-16	€ TO-126	PNP	1.5	45	100	0.15	2	250	8	45
BD138	€ TO-126	PNP	1.5	60	40	0.15	2	250	8	60
BD138-6	€ TO-126	PNP	1.5	60	40	0.15	2	100	8	60
BD229	€ TO-126	PNP	1.5	60	40	0.15	2	250	12.5	60
BD138-10	€ TO-126	PNP	1.5	60	63	0.15	2	160	8	60
BD138-16	€ TO-126	PNP	1.5	60	100	0.15	2	250	8	60
BD140	€ TO-126	PNP	1.5	80	40	0.15	2	250	8	100
BD140-6	€ TO-126	PNP	1.5	80	40	0.15	2	100	8	100
BD231	€ TO-126	PNP	1.5	80	40	0.15	2	250	12.5	100
BD844	€ TO-202	PNP	1.5	80	40	0.15	2	250	10	100
BD140-10	€ TO-126	PNP	1.5	80	63	0.15	2	160	8	100
BD140-16	€ TO-126	PNP	1.5	80	100	0.15	2	250	8	100
BD330	€ TO-126	PNP	3	20	85	0.5	1	375	15	32
BD132	€ TO-126	PNP	3	45	40	0.5	12		15	45

Bipolar LF power

Darlington

package = TO-126

 $I_{C\text{-max}} = 1 \text{ A}$ $h_{FE\text{ min}} = 2000 \quad I_C = 0.5 \text{ A} \quad V_{CE} = 10 \text{ V}$ $P_{\text{max}} = 5 \text{ W}$

typenumber		polarity	V_{CE0} V	V_{CBO} V	$V_{CEsat\text{ max}}$ V	@ I_C A	@ I_B A
BDX42	●	NPN	45	60	1.6	1	0.004
BDX43	●	NPN	60	80	1.6	1	0.001
BDX44	●	NPN	80	90	1.6	1	0.004
BDX45	●	PNP	45	60	1.6	1	0.004
BDX46	●	PNP	60	80	1.6	1	0.001
BDX47	●	PNP	80	90	1.6	1	0.004



High voltage

Bipolar LF power

typenumber	package	V _{CEO}	I _{C-max}	h _{FE min}	@ V _{CE}		V _{CESM}	P _{max}	V _{CEsat max}		@ I _C	@ I _B
		V	A		V	A			V	W		
BF457	€ TO-126	160	0.1	26	10	0.03		6	1		0.03	0.006
BF857	€ TO-202	160	0.1	26	10	0.03		6	1		0.03	0.006
BF591	€ TO-202	170	0.15	30	5	0.02		1.3				
BF593	€ TO-202	210	0.15	30	5	0.02		1.3				
BF469	€ TO-126	250	0.05	50	20	0.025		1.8				
BF470	€ TO-126	250	0.05	50	20	0.025		1.8				
BF583	€ TO-202	250	0.05	50	20	0.025		5				
BF584	€ TO-202	250	0.05	50	20	0.025		5	0.5		0.02	0.002
BF869	€ TO-202	250	0.05	50	20	0.025		5				
BF870	€ TO-202	250	0.05	50	20	0.025		5				
BF419	€ TO-126	250	0.1					6	11		0.2	0.02
BF819	€ TO-202	250	0.1					6	11		0.2	0.02
BF458	€ TO-126	250	0.1	26	10	0.03		6	1		0.03	0.006
BF858	€ TO-202	250	0.1	26	10	0.03		6	1		0.03	0.006
BF471	€ TO-126	300	0.05	50	20	0.025		1.8				
BF472	€ TO-126	300	0.05	50	20	0.025		1.8				
BF585	€ TO-202	300	0.05	50	20	0.025		5				
BF586	€ TO-202	300	0.05	50	20	0.025		5	0.5		0.02	0.002
BF871	€ TO-202	300	0.05	50	20	0.025		5				
BF872	€ TO-202	300	0.05	50	20	0.025		5				
BF459	€ TO-126	300	0.1	26	10	0.03		6	1		0.03	0.006
BF859	€ TO-202	300	0.1	26	10	0.03		6	1		0.03	0.006
PH13002	TO-126	300	1.5	8	2	0.5	600	1.25	1		1	0.25
BUX99	TO-126	300	1.5	16	5	0.05	730	28	2		0.2	0.02
BU304F	SOT186	300	4	8	2		600	18	0.6		2	0.5
MJE13004	TO-220AB	300	4	8	5	2	600	75	0.6		2	0.5
BU306F	SOT186	300	8	8	5	2	600	20	1.5		5	1
MJE13006	TO-220AB	300	8	8	5	2	600	80	1.5		5	1
MJE13008	TO-220AB	300	12	8	5	5	600	100	1.5		8	1.6
BF587	€ TO-202	350	0.05	50	20	0.025		5				
BF588	€ TO-202	350	0.05	50	20	0.025		5	0.5		0.02	0.002
BU826	SOT93	375	6				800	125	2		2.5	0.055
BUX86	TO-126	400	0.5				800	20	1		0.2	0.02
PH13003	TO-126	400	1.5	8	2	0.5	700	1.25	1		1	0.25
BUW84	SOT82	400	2				800	50	0.8		0.3	0.03
BUX84	TO-220AB	400	2				800	40	1		1	0.2
BUX84F	SOT186	400	2				800	18	1		1	0.2
BU724A	TO-126	400	2				850	25	3		0.3	0.001
BU305F	SOT186	400	4	8		2	700	18	0.6		2	0.5
MJE13005	TO-220AB	400	4	8	5	2	700	75	0.6		2	0.5
BUT11	TO-220AB	400	5				850	100	1.5		3	0.6
BUT11F	SOT186	400	5				850	20	1.5		3	0.6
BUT21B	TO-220AB	400	5				750	100	1.5		3	0.4
BUT21BF	SOT186	400	5				750	20	1.5		3	0.4
BUW11	SOT93	400	5				850	100	1.5		3	0.6
BUW11F	SOT199	400	5				850	41	1.5		3	0.6
BUT211	TO-220AB	400	5	10	2	3	850	100	2		3	0.3
BUV82	SOT93	400	6				850	100	1.5		2.5	0.5
BU826A	SOT93	400	6				1000	125	2		2.5	0.055
BUT18	TO-220AB	400	6	10	5	0.01	850	110	1.5		4	0.8
BUT18F	SOT186	400	6	10	5	0.01	850	33	1.5		4	0.8

Bipolar LF power

High voltage (cont.)

typenumber	package	V _{CEO}	I _{C-max}	h _{FE min}	@ V _{CE}	@ I _C	V _{CESM}	P _{max}	V _{CEsat max}	@ I _C	@ I _B
		V	A		V	A	V	W	V	A	A
BUP22B	SOT93	400	8				750	125	1.5	6	0.8
BUT12	TO-220AB	400	8				850	125	1.5	6	1.2
BUT12F	SOT186	400	8				850	23	1.5	6	1.2
BUT22B	TO-220AB	400	8				750	125	1.5	6	0.6
BUT22BF	SOT186	400	8				750	32	1.5	6	0.8
BUW12	SOT93	400	8				850	125	1.5	6	1.2
BUW12F	SOT199	400	8				850	45	1.5	6	1.2
BU307F	SOT186	400	8	8	5	2	700	20	1.5	5	1
MJE13007	TO-220AB	400	6	8	5	2	700	80	1.5	5	1
BUV47	SOT93	400	9				850	120	1.5	5	1
BUV90	SOT93	400	12				650	125	2	10	0.3
BUV90F	SOT199	400	12				650	34	1.5	5	0.05
MJE13009	TO-220AB	400	12	8	5	5	700	100	1.5	8	1.6
BUP23B	SOT93	400	15				750	175	1.5	10	1.33
BUP23BF	SOT199	400	15				750	50	1.5	10	1.33
BUV48	SOT93	400	15				850	150	1.5	10	2
BUW13	SOT93	400	15				850	175	1.5	10	2
BUW13F	SOT199	400	15				850	50	1.5	10	2
BUX87	TO-126	450	0.5				1000	20	1	0.2	0.02
BUW85	SOT82	450	2				1000	50	0.8	0.3	0.03
BUX85	TO-220AB	450	2				1000	40	1	1	0.2
BUX85F	SOT186	450	2				1000	18	1	1	0.2
BUT11A	TO-220AB	450	5				1000	100	1.5	2.5	0.5
BUT11AF	SOT186	450	5				1000	20	1.5	2.5	0.5
BUT21C	TO-220AB	450	5				850	100	1.5	3	0.5
BUT21CF	SOT186	450	5				850	20	1.5	3	0.5
BUW11A	SOT93	450	5				1000	100	1.5	2.5	0.5
BUW11AF	SOT199	450	5				1000	41	1.5	2.5	0.5
BUT131	TO-220AB	450	5	5	5	5	850	80	2.5	3	0.4
BUW131	SOT93	450	5	5	5	5	850	125	2.5	5	0.66
BUT131H	TO-220AB	450	5	7	5	5	850	80	2.5	3	0.3
BUW131H	SOT93	450	5	7	5	5	850	125	2.5	5	0.5
BUV83	SOT93	450	6				1000	100	1.5	2.5	0.5
BUT18A	TO-220AB	450	6	10	5	0.01	1000	110	1.5	4	0.8
BUT18AF	SOT186	450	6	10	5	0.01	1000	33	1.5	4	0.8
BUP22C	SOT93	450	8				850	125	1.5	6	1
BUT12A	TO-220AB	450	8				1000	125	1.5	5	1
BUT12AF	SOT186	450	8				1000	23	1.5	5	1
BUT22C	TO-220AB	450	8				850	125	1.5	6	0.6
BUT22CF	SOT186	450	8				850	32	1.5	6	1
BUW12A	SOT93	450	8				1000	125	1.5	5	1
BUW12AF	SOT199	450	8				1000	45	1.5	5	1
BUW132	SOT93	450	8	5	5	8	850	125	3	5	0.66
BUW132H	SOT93	450	8	7	5	8	850	125	3	5	0.5
BUV47A	SOT93	450	9				1000	120	1.5	5	1
BUP23C	SOT93	450	15				850	175	1.5	10	1.67
BUP23CF	SOT199	450	15				850	50	1.5	10	1.67
BUV48A	SOT93	450	15				1000	150	1.5	8	1.6
BUW13A	SOT93	450	15				1000	175	1.5	8	1.6
BUW13AF	SOT199	450	15				1000	50	1.5	8	1.8
BUW133	SOT93	450	15	5	5	15	850	135	3	10	1.3

SC

High voltage (cont.)

Bipolar LF power

typenumber	package	V _{CEO}	I _{C-max}	h _{FE min}	@ V _{CE}	@ I _C	V _{CESM}	P _{max}	V-CEsat max	@ I _C	@ I _B
		V	A		V	A	V	W	V	A	A
BUW133H	SOT93	450	15	7	5	15	850	135	3	10	1
BUT131A	TO-220AB	500	5	5	5	5	1000	80	2.5	3	0.4
BUW131A	SOT93	500	5	5	5	5	1000	125	2.5	5	1
BUW132A	SOT93	500	8	5	5	8	1000	125	1.5	5	1
BUW133A	SOT93	500	15	5	5	15	1000	135	1.5	10	2
BU903F	SOT199	550	6	6	2	3.2	1350	125	2	3.2	0.53
BU705	SOT93A	700	2.5				1500	75	5	2	0.9
BU705D	SOT93A	700	2.5				1500	75	5	2	0.9
BU505	TO-220AB	700	2.5	2.2	5	2	1500	75	5	2	0.9
BU505D	TO-220AB	700	2.5	2.2	5	2	1500	75	5	2	0.9
BU705F	SOT199	700	2.5	2.2	5	2	1500	29	5	2	0.9
BU505DF	SOT186	700	2.5	2.22	5	2	1500	20	5	2	0.9
BU505F	SOT186	700	2.5	2.22	5	2	1500	20	5	2	0.9
BU506	TO-220AB	700	5				1500	100	5	3	1.33
BU506D	TO-220AB	700	5				1500	100	5	3	1.33
BU706	SOT93A	700	5				1500	100	5	3	1.33
BU706D	SOT93A	700	5				1500	100	5	3	1.33
BU506DF	SOT186	700	5	2.25	5	3	1500	20	5	3	1.33
BU506F	SOT186	700	5	2.25	5	3	1500	20	5	3	1.33
BU706DF	SOT199	700	5	2.25	5	3	1500	32	5	3	1.33
BU706F	SOT199	700	5	2.25	5	3	1500	32	5	3	1.33
BU508A	SOT93A	700	8				1500	125	1	4.5	2
BU508AF	SOT199	700	8				1500	34	1	4.5	2
BU508D	SOT93A	700	8				1500	125	1	4.5	2
BU508DF	SOT199	700	8				1500	34	1	4.5	2
BUV89	SOT93	800	8				1200	125	1	4.5	2
BU1708AX	SOT186A	850	8	5	1	2.5	1750	35	1	2.5	0.5

FET small signal

Junct.FET amplifier

typenumber	package	C _{rs} pF	I _{DSS} min mA	C _{iss} typ pF	y-fs min mAV	channel-type	I _{DSS} max mA	I _{GSS} max nA	C _{iss} max pF
BFR200	SOT143		0.2		1.3	N	3.5	0.003	6
BF510	SOT23	0.3	0.7		2.5	N	3	10	5
BF511	SOT23	0.3	2.5		4	N	7	10	5
BF512	SOT23	0.3	6		4	N	12	10	5
BF513	SOT23	0.3	10		3.5	N	18	10	5
BF410A	TO-92	0.5	0.7		2.5	N	3	10	5
BF410B	TO-92	0.5	2.5		4	N	7	10	5
BF410C	TO-92	0.5	6		6	N	12	10	5
BF410D	TO-92	0.5	10		7	N	18	10	5
BFW11	TO-72	0.6	4	4	3	N	10	0.1	5
BFW10	TO-72	0.6	8	4	3.5	N	20	0.1	5
BF256A	TO-92	0.7	3		4.5	N	7	5	
BF256B	TO-92	0.7	6		4.5	N	13	5	
BF256C	TO-92	0.7	11		4.5	N	18	5	
BFW13	TO-72	0.8	0.2		0.5	N	1.5	0.1	5
BFW12	TO-72	0.8	1		0.5	N	5	0.1	5
BF545A	SOT23	0.9	2	3	3	N	6.5	1	
BF545B	SOT23	0.9	6	3	3	N	15	1	
BF545C	SOT23	0.9	12	3	3	N	25	1	
2N5484	TO-92	1	1		2.5	N	5	1	5
2N5485	TO-92	1	4		3	N	10	1	5
2N5486	TO-92	1	8		3.5	N	20	1	5
BF545A/0	SOT23	1.1	0.5	4	3	N	2.1		
BF245A	TO-92	1.1	2	4	3	N	6.5	5	
BF245B	TO-92	1.1	6	4	3	N	15	5	
BF245C	TO-92	1.1	12	4	3	N	25	5	
2N4220	TO-72	1.2	0.5	4.5	0.75	N	3	0.1	6
2N4220A	TO-72	1.2	0.5	4.5	0.75	N	3	0.1	6
BC264A	TO-92	1.2	2	4	2.5	N	4.5	10	
BC264B	TO-92	1.2	3.5	4	3	N	6.5	10	
BC264C	TO-92	1.2	5	4	3.5	N	8	10	
BC264D	TO-92	1.2	7	4	4	N	12	10	
BFU308	TO-18	1.3	12	3	10	N	60	1	5
BFU309	TO-18	1.3	12	3	10	N	30	1	5
J308	TO-92	1.3	12	3	10	N	60	1	5
J309	TO-92	1.3	12	3	10	N	30	1	5
PMBFJ308	SOT23	1.3	12	3	10	N	60	1	5
PMBFJ309	SOT23	1.3	12	3	10	N	30	1	5
BFU310	TO-18	1.3	24	3	10	N	60	1	5
J310	TO-92	1.3	24	3	10	N	60	1	5
PMBFJ310	SOT23	1.3	24	3	10	N	60	1	5
BFT46	SOT23	1.5	0.2		0.5	N	1.5	0.2	5
BFR31	SOT23	1.5	1		1.5	N	5	0.2	4
BFR30	SOT23	1.5	4		1	N	10	0.2	4
2N5460	TO-92	2	1		1	P	5	5	
2N5461	TO-92	2	2		1.5	P	9	5	
2N5462	TO-92	2	4		2	P	16	5	
2N4416	TO-72	2	5		4.5	N	15	0.1	4
2N4416A	TO-72	2	5		4.5	N	15	0.1	4
2N4340	TO-18	3	1.2			N	3.6	0.1	7
PMBFJ113	SOT23	3	2	6		N		1	

SC

Junct.FET amplifier (cont.)

FET small signal

typenumber	package	C _{rs} pF	I _{DSS} min mA	C _{iss} typ pF	y-fs min mAV	channel-type	I _{DSS} max mA	I _{GSS} max nA	C _{iss} max pF
BSR113	SOT23	3	2	22		N		1	28
PMBFJ112	SOT23	3	5	6		N		1	
BSR112	SOT23	3	5	22		N		1	28
PMBFJ111	SOT23	3	20	6		N		1	
BSR111	SOT23	3	20	22		N		1	28
BF246A	TO-92	3.5	30	11	8	N	80	5	
BF247A	TO-92	3.5	30	11	8	N	80	5	
BF246B	TO-92	3.5	60	11	8	N	140	5	
BF247B	TO-92	3.5	60	11	8	N	140	5	
BF246C	TO-92	3.5	110	11	8	N	250	5	
BF247C	TO-92	3.5	110	11	8	N	250	5	
BSR177	SOT23	4	1.5	8		P	20	1	
PMBFJ177	SOT23	4	1.5	8		P	20	1	
PMBFJ176	SOT23	4	2	8		P	35	1	
PMBFJ175	SOT23	4	7	8		P	70	1	
PMBFJ174	SOT23	4	20	8		P	135	1	
2N5116	TO-18	7	5			P	25	0.5	27
BSJ110	TO-18	8	10	15		N		3	30
J110	SOT54	8	10	15		N		3	30
PMBFJ110	SOT23	8	10	15		N		3	30
PZFJ110	SOT223	8	10	15		N		3	30
BSJ109	TO-18	8	40	15		N		3	30
J109	SOT54	8	40	15		N		3	30
PMBFJ109	SOT23	8	40	15		N		3	30
PZFJ109	SOT223	8	40	15		N		3	30
BSJ108	TO-18	8	80	15		N		3	30
J108	SOT54	8	80	15		N		3	30
PMBFJ108	SOT23	8	80	15		N		3	30
PZFJ108	SOT223	8	80	15		N		3	30

FET small signal

Junct.FET switching

typenumber	package	channel-type	V _{DS-max} V	R _{DS(on)} ohm	V _{GS(off)max} V	P _{max} mW	V _{GS(off)min} V	t _{on max} ns	t _{off max} ns
2N4859	TO-18	N	30	25	10	360	4	9	25
2N4860	TO-18	N	30	40	6	360	2	10	50
2N4861	TO-18	N	30	60	4	360	0.8	20	100
BSR56	SOT23	N	40	25	10	250	4	9	25
2N4856	TO-18	N	40	25	10	360	4	9	25
BSV78	TO-18	N	40	25	11	350	3.75	10	10
J111	TO-92	N	40	30	10	360	3	13	35
PMBF4391	SOT23	N	40	30	10	250	4	15	20
PN4391	TO-92	N	40	30	10	360	4	15	20
2N4091	TO-18	N	40	30	10	1800	5	25	40
2N4391	TO-18	N	40	30	10	1800	4	15	20
BSR57	SOT23	N	40	40	6	250	2	10	50
2N4857	TO-18	N	40	40	6	360	2	10	50
BSV79	TO-18	N	40	40	7	350	2	18	16
J112	TO-92	N	40	50	5	360	1	13	35
2N4092	TO-18	N	40	50	7	1800	2	35	60
BSR58	SOT23	N	40	60	4	250	0.8	20	100
2N4858	TO-18	N	40	60	4	360	0.8	20	100
BSV80	TO-18	N	40	60	5	350	1	30	32
PMBF4392	SOT23	N	40	60	5	250	2	15	35
PN4392	TO-92	N	40	60	5	360	2	15	35
2N4392	TO-18	N	40	60	5	1800	2	15	35
2N4093	TO-18	N	40	80	5	1800	1	60	80
J113	TO-92	N	40	100	3	360	0.5	13	35
PMBF4393	SOT23	N	40	100	3	250	0.5	15	50
PN4393	TO-92	N	40	100	3	360	0.5	15	50
2N4393	TO-18	N	40	100	3	1800	0.5	15	50
J174	TO-92	P	30	85	10	400	5	7	15
J175	TO-92	P	30	125	6	400	3	15	30
J176	TO-92	P	30	250	4	400	1	35	35
J177	TO-92	P	30	300	2.25	400	0.8	45	45



MOS FET switching

FET small signal

typenumber	package	channel-type	V _{DS-max}	I _{D-max}	R _{DS(on)} max	@ V _{GS}	@ I _D	P _{max}	Y _{fs} min	V _{GS(th)} min
			V	mA	ohm	V	mA	mW	mAV	V
BFR29	TO-72	N		20				200	6	
BSV81	TO-72	N		25				200		
BSS83	SOT143	N	10	50	45	10	0.1	230		0.1
BSD212	TO-72	N	10	50	70	5	1	275		0.1
BSD213	TO-72	N	10	50	70	5	1	275		0.1
BSD12	TO-72	N	20	50	30	10	1	275		
BSD22	SOT143	N	20	50	30	10	1	230		
BSD214	TO-72	N	20	50	70	5	1	275		0.1
BSD216	TO-72	N	20	50	70	5	1	275		0.1
BSP103	SOT223	N	35	700	1.8	10	1000	1500	170	0.8
BSN20	SOT23	N	50	100	15	10	100	300	40	0.4
BSN22	SOT23	N	50	100	50	2.5	10	250	30	0.4
BSN12	TO-92	N	50	150	50	2.5	10	830	30	0.4
BSN12A	TO-92	N	50	150	50	2.5	10	830	30	0.4
BSN10	TO-92	N	50	175	15	10	100	830	40	0.4
BSN10A	TO-92	N	50	175	15	10	100	830	40	0.4
BSS138	SOT23	N	50	200	3.5	5	200	360	100	0.5
2N7002	SOT23	N	60	180	5	10	500	300	100	0.8
PMBF170	SOT23	N	60	250	5	10	200	300	100	0.8
2N7000	TO-92	N	60	280	5	10	500	830	100	0.8
BSP106	SOT223	N	60	425	4	10	200	1500	100	0.8
BSP105	SOT223	N	60	500	3	10	1000	1500	170	0.8
BS170	TO-92	N	60	500	5	10	200	830		0.8
BST82	SOT23	N	80	175	10	5	150	300		
BSP110	SOT223	N	80	325	7	10	200	1500	75	0.8
BSP108	SOT223	N	80	500	3	10	500	1500	150	1.5
BST80	SOT89	N	80	500	4	10	500	1000		1.5
BSP109	SOT223	N	90	450	4	10	1000	1500	170	0.8
BSS123	SOT23	N	100	150	6	10	120	250	80	0.8
BSS100	TO-92	N	100	250	6	10	120	830	80	0.8
BST76A	TO-92	N	180	300	10	3	15	1000		0.7
BST86	SOT89	N	180	300	10	3	15	1000		0.7
PMBF107	SOT23	N	200	100	28	2.6	20	250	90	0.8
BS107	TO-92	N	200	120	28	2.6	20			0.8
BSP107	SOT223	N	200	200	28	2.6	20	1500	90	0.8
BS107A	TO-92	N	200	250	6.4	10	250		200	1
BSN204	TO-92	N	200	250	8	2.8	100	1000	200	0.4
BSN204A	TO-92	N	200	250	8	2.8	100	1000	200	0.4
BS108	TO-92	N	200	250	8	2.8	100	1000	200	0.4
BSP120	SOT223	N	200	250	12	10	250	1500	125	0.8
BST74A	TO-92	N	200	250	12	10	250	1000		0.8
BST84	SOT89	N	200	250	12	10	250	1000		0.8
BSS87	SOT89	N	200	280	6	10	400	1000	140	0.8
BSN205	TO-92	N	200	300	6	10	400	1000	200	0.8
BSN205A	TO-92	N	200	300	6	10	400	1000	200	0.8
BSS89	TO-92	N	200	300	6	10	400	1000	140	0.8
BSP121	SOT223	N	200	350	6	10	400	1500	200	0.8
BSS91	TO-18	N	200	350	6	10	400	400	140	0.8
BSP128	SOT223	N	200	350	8	2.8	100	1500	200	0.4
BSP122	SOT223	N	200	550	2.5	10	750	1500	400	0.4
BSS88	TO-92	N	230	250	8	5	150	1000	140	0.4

FET small signal

MOS FET switching (cont.)

typenumber	package	channel-type	V _{DS-max} V	I _{D-max} mA	R _{DS(on)} max ohm	@ V _{GS} V	@ I _D mA	P _{max} mW	Y _{fs} min mAV	V _{GS(th)} min V
BSS131	SOT23	N	240	100	16	10	100	360	60	0.8
VN2410L	TO-92	N	240	150	10	10	500	1000	200	0.8
BSP89	SOT223	N	240	350	10	4.5	340	1500	140	0.8
BSN254	TO-92	N	250	300	7	10	300	1000	200	0.8
BSN254A	TO-92	N	250	300	7	10	300	1000	200	0.8
BSP126	SOT223	N	250	350	7	10	300	1500	200	0.8
BSN274	TO-92	N	270	250	8	10	250	1000	200	0.8
BSN274A	TO-92	N	270	250	8	10	250	1000	200	0.8
BSP127	SOT223	N	270	350	8	10	250	1500	200	0.8
BSN304	TO-92	N	300	300	6	10	300	1000	400	0.8
BSP130	SOT223	N	300	300	6	10	300	1000	400	0.8
BSP145	SOT223	N	450	750	14	10	500	15	400	2
BST78	TO-126	N	450	750	14	10	100			2
BS250	TO-92	P	45	250	14	10	200	830		1
BSS84	SOT23	P	50	130	10	5	100	360	50	0.8
BST110	TO-92	P	50	250	10	10	200	830		1.5
BST122	SOT89	P	50	250	10	10	200	1000	125	1.5
BSP206	SOT223	P	60	275	10	10	200	1500	60	1.5
BST100	TO-92	P	60	300	6	10	200	1000		1.5
BST120	SOT89	P	60	300	6	10	200	1000		1.5
BSP206	SOT223	P	60	350	6	10	200	1500	100	1.5
BSS192	SOT89	P	200	150	20	10	100	1000	60	0.8
BSS92	TO-92	P	200	150	20	10	100	1000	60	0.8
BS208	TO-92	P	200	200	14	10	200	830	100	0.8
BSP220	SOT223	P	200	225	12	10	200	1500	100	0.8
BSP204	TO-92	P	200	250	15	10	200	1000	100	0.8
BSP204A	TO-92	P	200	250	15	10	200	1000	100	0.8
BSP92	SOT223	P	240	180	20	2.8	25	1500	100	0.8
BSP254	TO-92	P	250	200	15	10	200	1000	100	0.8
BSP254A	TO-92	P	250	200	15	10	200	1000	100	0.8
BSP225	SOT223	P	250	225	15	10	200	1500	100	0.8
BSP230	SOT223	P	300	150	20	10	100	1000	100	0.8
BSP304A	TO-92	P	300	150	20			1000		0.8

SC

PowerMOS

FET power devices

typenumber	package	FET-appl	V _{DS-max}	R _{DS(on)} max	I _{D-max}	P _{max}	V _{GS(th)} max	g _{fs} typ	C _{iss} max
			V	ohm	A	W	V	S	nF
BUK627-400A	SOT199	FREDFET	400	0.5	6.9	45	4	8	1.8
BUK657-400A	TO-220	FREDFET	400	0.5	13	150	4	8	1.8
BUK637-400A	SOT93	FREDFET	400	0.5	14	180	4	8	1.8
BUK627-400B	SOT199	FREDFET	400	0.6	6.2	45	4	8	1.8
BUK657-400B	TO-220	FREDFET	400	0.6	11	150	4	8	1.8
BUK637-400B	SOT93	FREDFET	400	0.6	12	180	4	8	1.8
BUK617-500AE	SOT227B	FREDFET	500	0.15	29	310	4	30	9
BUK617-500BE	SOT227B	FREDFET	500	0.18	27	310	4	30	9
BUK638-500A	SOT93	FREDFET	500	0.48	14.6	220	4	10	2.8
BUK638-500B	SOT93	FREDFET	500	0.6	13	220	4	10	2.8
BUK627-500A	SOT199	FREDFET	500	0.65	5.6	45	4	8	1.8
BUK657-500A	TO-220	FREDFET	500	0.65	10	150	4	8	1.8
BUK637-500A	SOT93	FREDFET	500	0.65	11	180	4	8	1.8
BUK627-500B	SOT199	FREDFET	500	0.8	4.8	45	4	8	1.8
BUK657-500B	TO-220	FREDFET	500	0.8	9	150	4	8	1.8
BUK637-500B	SOT93	FREDFET	500	0.8	10	180	4	8	1.8
BUK655-500A	TO-220	FREDFET	500	1.3	5.7	100	4	3.1	1
BUK655-500B	TO-220	FREDFET	500	1.5	5.3	100	4	3.1	1
BUK627-600A	SOT199	FREDFET	600	1	4.3	45	4	8	1.8
BUK657-600A	TO-220	FREDFET	600	1	8	150	4	8	1.8
BUK637-600A	SOT93	FREDFET	600	1	9	180	4	8	1.8
BUK627-600B	SOT199	FREDFET	600	1.2	3.9	45	4	8	1.8
BUK657-600B	TO-220	FREDFET	600	1.2	7.1	150	4	8	1.8
BUK637-600B	SOT93	FREDFET	600	1.2	7.8	180	4	8	1.8
BUK100-50GL	TO-220AB	LOGIC	50	0.125	13.5	40		9	
BUK556-60A	TO-220AB	LOGIC	60	0.026	50	150	2	30	2.8
BUK545-60A	SOT186	LOGIC	60	0.042	20	30	2	20	1.75
BUK575-60A	SOT186A	LOGIC	60	0.042	20	30	2	20	1.75
BUK555-60A	TO-220AB	LOGIC	60	0.042	39	125	2	20	1.75
BUK545-60B	SOT186	LOGIC	60	0.055	18	30	2	20	1.75
BUK575-60B	SOT186A	LOGIC	60	0.055	18	30	2	20	1.75
BUK555-60B	TO-220AB	LOGIC	60	0.055	35	125	2	20	1.75
BUK543-60A	SOT186	LOGIC	60	0.085	13	25	2	10	0.825
BUK573-60A	SOT186A	LOGIC	60	0.085	13	25	2	10	0.825
BUK553-60A	TO-220AB	LOGIC	60	0.085	21	75	2	10	0.825
BUK543-60B	SOT186	LOGIC	60	0.1	12	25	2	10	0.825
BUK573-60B	SOT186A	LOGIC	60	0.1	12	25	2	10	0.825
BUK553-60B	TO-220AB	LOGIC	60	0.1	20	75	2	10	0.825
BUK542-60A	SOT186	LOGIC	60	0.15	9.2	22	2	6.7	0.6
BUK572-60A	SOT186A	LOGIC	60	0.15	9.2	22	2	6.7	0.6
BUK552-60A	TO-220	LOGIC	60	0.15	14	60	2	6.7	0.6
BUK542-60B	SOT186	LOGIC	60	0.18	8.4	22	2	6.7	0.6
BUK572-60B	SOT186A	LOGIC	60	0.18	8.4	22	2	6.7	0.6
BUK552-60B	TO-220	LOGIC	60	0.18	13	60	2	6.7	0.6
BUK541-60A	SOT186	LOGIC	60	0.4	5	20	2	2.5	0.3
BUK551-60A	TO-220AB	LOGIC	60	0.4	5	40	2	2.5	0.3
BUK571-60A	SOT186A	LOGIC	60	0.4	5	20	2	2.5	0.3
BUK541-60B	SOT186	LOGIC	60	0.5	4.8	20	2	2.5	0.3
BUK571-60B	SOT186A	LOGIC	60	0.5	4.8	20	2	2.5	0.3
BUK551-60B	TO-220AB	LOGIC	60	0.5	5	40	2	2.5	0.3
BUK545-100A	SOT186	LOGIC	100	0.085	13	30	2	13.5	1.75

FET power devices

PowerMOS (cont.)

typenumber	package	FET-appl	V _{DS-max}	R _{DS(on)} max	I _{D-max}	P _{max}	V _{GS(th)} max	g _{fs} typ	C _{iss} max
			V	ohm	A	W	V	S	nF
BUK575-100A	SOT186A	LOGIC	100	0.085	13	30	2	13.5	1.75
BUK555-100A	TO-220	LOGIC	100	0.085	25	125	2	13.5	1.75
BUK545-100B	SOT186	LOGIC	100	0.11	12	30	2	13.5	1.75
BUK575-100B	SOT186A	LOGIC	100	0.11	12	30	2	13.5	1.75
BUK555-100B	TO-220	LOGIC	100	0.11	22	125	2	13.5	1.75
BUK543-100A	SOT186	LOGIC	100	0.18	8.3	25	2	8	0.825
BUK573-100A	SOT186A	LOGIC	100	0.18	8.3	25	2	8	0.825
BUK553-100A	TO-220	LOGIC	100	0.18	13	75	2	8	0.825
BUK543-100B	SOT186	LOGIC	100	0.22	7.5	25	2	8	0.825
BUK573-100B	SOT186A	LOGIC	100	0.22	7.5	25	2	8	0.825
BUK553-100B	TO-220	LOGIC	100	0.22	12	75	2	8	0.825
BUK542-100A	SOT186	LOGIC	100	0.28	6.3	22	2	6	0.6
BUK572-100A	SOT186A	LOGIC	100	0.28	6.3	22	2	6	0.6
BUK552-100A	TO-220	LOGIC	100	0.28	10	60	2	6	0.6
BUK542-100B	SOT186	LOGIC	100	0.35	5.6	22	2	6	0.6
BUK572-100B	SOT186A	LOGIC	100	0.35	5.6	22	2	6	0.6
BUK552-100B	TO-220	LOGIC	100	0.35	8.5	60	2	6	0.6
BUK541-100A	SOT186	LOGIC	100	0.85	3	20	2	2.2	0.3
BUK551-100A	TO-220AB	LOGIC	100	0.85	3	40	2	2.2	0.3
BUK571-100A	SOT186A	LOGIC	100	0.85	3	20	2	2.2	0.3
BUK541-100B	SOT186	LOGIC	100	1.1	3	20	2	2.2	0.3
BUK551-100B	TO-220AB	LOGIC	100	1.1	3	40	2	2.2	0.3
BUK571-100B	SOT186A	LOGIC	100	1.1	3	20	2	2.2	0.3
BUK545-200A	SOT186	LOGIC	200	0.23	7.6	30	2	15	2
BUK575-200A	SOT186A	LOGIC	200	0.23	7.6	30	2	15	2
BUK555-200A	TO-220	LOGIC	200	0.23	14	125	2	15	2
BUK545-200B	SOT186	LOGIC	200	0.28	7	30	2	15	2
BUK575-200B	SOT186A	LOGIC	200	0.28	7	30	2	15	2
BUK555-200B	TO-220	LOGIC	200	0.28	13	125	2	15	2
BUK554-200A	TO-220	LOGIC	200	0.4	9.2	90	2	6	1
BUK554-200B	TO-220	LOGIC	200	0.5	8.2	90	2	6	1
BUK101-50GL	TO-220AB	MOSFET	35	0.06	26	75	2	16	
BUK426-60A	SOT199	MOSFET	60	0.028	30	45	4	22	2
BUK436-60A	SOT93	MOSFET	60	0.028	50	125	4	22	2
BUK456-60A	TO-220	MOSFET	60	0.028	52	150	4	22	2
BUK426-60B	SOT199	MOSFET	60	0.03	30	45	4	22	2
BUK456-60B	TO-220	MOSFET	60	0.03	51	150	4	22	2
BUK436-60B	SOT93	MOSFET	60	0.033	46	125	4	22	2
BUK446-60A	SOT186	MOSFET	60	0.038	21	30	4	13.5	2
BUK475-60A	SOT186A	MOSFET	60	0.038	21	30	4	13.5	2
BUK455-60A	TO-220	MOSFET	60	0.038	41	125	4	13.5	2
BUK445-60B	SOT186	MOSFET	60	0.045	20	30	4	13.5	2
BUK475-60B	SOT186A	MOSFET	60	0.045	20	30	4	13.5	2
BUK455-60B	TO-220	MOSFET	60	0.045	38	125	4	13.5	2
BUK443-60A	SOT186	MOSFET	60	0.08	13	25	4	6.5	0.825
BUK473-60A	SOT186A	MOSFET	60	0.08	13	25	4	6.5	0.825
BUK453-60A	TO-220	MOSFET	60	0.08	22	75	4	6.5	0.825
BUK483-60A	SOT223	MOSFET	60	0.1	3.2	4	4	6	0.825
BUK583-60A	SOT223	MOSFET	60	0.1	3.2	2	2	6	0.825
BUK443-60B	SOT186	MOSFET	60	0.1	12	25	4	6.5	0.825
BUK473-60B	SOT186A	MOSFET	60	0.1	12	25	4	6.5	0.825

SC

PowerMOS (cont.)

FET power devices

typenumber	package	FET-appl	V _{DS-max} V	R _{DS(on)} max ohm	I _{D-max} A	P _{max} W	V _{GS(th)} max V	g _{fs} typ S	C _{iss} max nF
BUK453-60B	TO-220	MOSFET	60	0.1	20	75	4	6.5	0.825
BUK442-60A	SOT186	MOSFET	60	0.13	10	22	4	4.7	0.5
BUK472-60A	SOT186A	MOSFET	60	0.13	10	22	4	4.7	0.5
BUK452-60A	TO-220	MOSFET	60	0.13	15	60	4	4.7	0.5
BUK442-60B	SOT186	MOSFET	60	0.15	9.2	22	4	4.7	0.5
BUK472-60B	SOT186A	MOSFET	60	0.15	9.2	22	4	4.7	0.5
BUK452-60B	TO-220	MOSFET	60	0.15	14	60	4	4.7	0.5
BUK441-60A	SOT186	MOSFET	60	0.4	5	20	4	1.9	0.24
BUK451-60A	TO-220AB	MOSFET	60	0.4	5	40	4	1.9	0.24
BUK471-60A	SOT186A	MOSFET	60	0.4	5	20	4	1.9	0.24
BUK441-60B	SOT186	MOSFET	60	0.5	4.8	20	4	1.9	0.24
BUK471-60B	SOT186A	MOSFET	60	0.5	4.8	20	4	1.9	0.24
BUK451-60B	TO-220AB	MOSFET	60	0.5	5	40	4	1.9	0.24
BUK416-100AE	SOT227B	MOSFET	100	0.013	110	310	4	70	10
BUK416-100BE	SOT227B	MOSFET	100	0.016	100	310	4	70	10
BUK426-100A	SOT199	MOSFET	100	0.057	20	45	4	16	2
BUK436-100A	SOT93	MOSFET	100	0.057	33	125	4	16	2
BUK456-100A	TO-220	MOSFET	100	0.057	34	150	4	16	2
BUK426-100B	SOT199	MOSFET	100	0.065	19	45	4	16	2
BUK436-100B	SOT93	MOSFET	100	0.065	31	125	4	16	2
BUK456-100B	TO-220	MOSFET	100	0.065	32	150	4	16	2
BUK445-100A	SOT186	MOSFET	100	0.08	14	30	4	13.5	2
BUK475-100A	SOT186A	MOSFET	100	0.08	14	30	4	13.5	2
BUK455-100A	TO-220	MOSFET	100	0.08	26	125	4	13.5	2
BUK445-100B	SOT186	MOSFET	100	0.1	12	30	4	13.5	2
BUK475-100B	SOT186A	MOSFET	100	0.1	12	30	4	13.5	2
BUK455-100B	TO-220	MOSFET	100	0.1	23	125	4	13.5	2
BUK443-100A	SOT186	MOSFET	100	0.16	9	25	4	5.5	0.825
BUK473-100A	SOT186A	MOSFET	100	0.16	9	25	4	5.5	0.825
BUK453-100A	TO-220	MOSFET	100	0.16	14	75	4	5.5	0.825
BUK443-100B	SOT186	MOSFET	100	0.2	8	25	4	5.5	0.825
BUK473-100B	SOT186A	MOSFET	100	0.2	8	25	4	5.5	0.825
BUK453-100B	TO-220	MOSFET	100	0.2	13	75	4	5.5	0.825
BUK442-100A	SOT186	MOSFET	100	0.25	6.6	22	4	4.2	0.5
BUK472-100A	SOT186A	MOSFET	100	0.25	6.6	22	4	4.2	0.5
BUK452-100A	TO-220	MOSFET	100	0.25	11	60	4	4.2	0.5
BUK442-100B	SOT186	MOSFET	100	0.3	6.1	22	4	4.2	0.5
BUK472-100B	SOT186A	MOSFET	100	0.3	6.1	22	4	4.2	0.5
BUK452-100B	TO-220	MOSFET	100	0.3	10	60	4	4.2	0.5
BUK441-100A	SOT186	MOSFET	100	0.85	3	20	4	1.7	0.24
BUK451-100A	TO-220AB	MOSFET	100	0.85	3	40	4	1.7	0.24
BUK471-100A	SOT186A	MOSFET	100	0.85	3	20	4	1.7	0.24
BUK441-100B	SOT186	MOSFET	100	1.1	3	20	4	1.7	0.24
BUK451-100B	TO-220AB	MOSFET	100	1.1	3	40	4	1.7	0.24
BUK471-100B	SOT186A	MOSFET	100	1.1	3	20	4	1.7	0.24
BUK416-200AE	SOT227B	MOSFET	200	0.035	63	310	4	55	10
BUK416-200BE	SOT227B	MOSFET	200	0.045	55	310	4	55	10
BUK426-200A	SOT199	MOSFET	200	0.16	11	45	4	16	2
BUK436-200A	SOT93	MOSFET	200	0.16	19	125	4	16	2
BUK456-200A	TO-220	MOSFET	200	0.16	19	150	4	16	2
BUK426-200B	SOT199	MOSFET	200	0.2	10	45	4	16	2

FET power devices

PowerMOS (cont.)

typenumber	package	FET-appl	V _{DS-max} V	R _{DS(on)} max ohm	I _{D-max} A	P _{max} W	V _{GS(th)} max V	g _{fs} typ S	C _{iss} max nF
BUK436-200B	SOT93	MOSFET	200	0.2	17	125	4	16	2
BUK456-200B	TO-220	MOSFET	200	0.2	17	150	4	16	2
BUK445-200A	SOT186	MOSFET	200	0.23	7.6	30	4	8.4	1.75
BUK475-200A	SOT186A	MOSFET	200	0.23	7.6	30	4	8.4	1.75
BUK455-200A	TO-220	MOSFET	200	0.23	14	125	4	8.4	1.75
BUK446-200B	SOT186	MOSFET	200	0.28	7	30	4	8.4	1.75
BUK475-200B	SOT186A	MOSFET	200	0.28	7	30	4	8.4	1.75
BUK466-200B	TO-220	MOSFET	200	0.28	13	125	4	8.4	1.75
BUK444-200A	SOT186	MOSFET	200	0.4	5.3	25	4	5	0.85
BUK474-200A	SOT186A	MOSFET	200	0.4	5.3	25	4	5	0.85
BUK454-200A	TO-220	MOSFET	200	0.4	9.2	90	4	5	0.85
BUK444-200B	SOT186	MOSFET	200	0.5	4.7	25	4	5	0.85
BUK474-200B	SOT186A	MOSFET	200	0.5	4.7	25	4	5	0.85
BUK454-200B	TO-220	MOSFET	200	0.5	8.2	90	4	5	0.85
BUK427-400A	SOT199	MOSFET	400	0.4	6.9	45	4	8	1.8
BUK457-400A	TO-220	MOSFET	400	0.4	13	150	4	8	1.8
BUK437-400A	SOT93	MOSFET	400	0.4	14	180	4	8	1.8
BUK427-400B	SOT199	MOSFET	400	0.5	6.2	45	4	8	1.8
BUK457-400B	TO-220	MOSFET	400	0.5	11	150	4	8	1.8
BUK437-400B	SOT93	MOSFET	400	0.5	12	180	4	8	1.8
BUK445-400A	SOT186	MOSFET	400	0.8	4	30	4	4.5	1
BUK475-400A	SOT186A	MOSFET	400	0.8	4	30	4	4.5	1
BUK455-400A	TO-220	MOSFET	400	0.8	7.3	100	4	4.5	1
BUK445-400B	SOT186	MOSFET	400	1	3.8	30	4	4.5	1
BUK475-400B	SOT186A	MOSFET	400	1	3.8	30	4	4.5	1
BUK455-400B	TO-220	MOSFET	400	1	6.5	100	4	4.5	1
BUK444-400A	SOT186	MOSFET	400	1.5	2.7	25	4	2.5	0.5
BUK474-400A	SOT186A	MOSFET	400	1.5	2.7	25	4	2.5	0.5
BUK454-400A	TO-220	MOSFET	400	1.5	4.6	75	4	2.5	0.5
BUK444-400B	SOT186	MOSFET	400	1.8	2.4	25	4	2.5	0.5
BUK474-400B	SOT186A	MOSFET	400	1.8	2.4	25	4	2.5	0.5
BUK454-400B	TO-220	MOSFET	400	1.8	4.2	75	4	2.5	0.5
BUK417-500AE	SOT227B	MOSFET	500	0.13	32	310	4	30	9
BUK417-500BE	SOT227B	MOSFET	500	0.16	28	310	4	30	9
BUK428-500A	SOT199	MOSFET	500	0.4	6.8	45	4	14	2.8
BUK438-500A	SOT93	MOSFET	500	0.4	15	220	4	12	2.8
BUK428-500B	SOT199	MOSFET	500	0.5	6.1	45	4	14	2.8
BUK438-500B	SOT93	MOSFET	500	0.5	13.5	220	4	12	2.8
BUK427-500A	SOT199	MOSFET	500	0.6	5.6	45	4	8	1.8
BUK457-500A	TO-220	MOSFET	500	0.6	10	150	4	8	1.8
BUK437-500A	SOT93	MOSFET	500	0.6	11	180	4	8	1.8
BUK427-500B	SOT199	MOSFET	500	0.8	4.8	45	4	8	1.8
BUK457-500B	TO-220	MOSFET	500	0.8	9	150	4	8	1.8
BUK437-500B	SOT93	MOSFET	500	0.8	10	180	4	8	1.8
BUK445-500A	SOT186	MOSFET	500	1.3	3.1	30	4	4.5	1
BUK475-500A	SOT186A	MOSFET	500	1.3	3.1	30	4	4.5	1
BUK455-500A	TO-220	MOSFET	500	1.3	5.7	100	4	4.5	1
BUK445-500B	SOT186	MOSFET	500	1.5	2.9	30	4	4.5	1
BUK475-500B	SOT186A	MOSFET	500	1.5	2.9	30	4	4.5	1
BUK455-500B	TO-220	MOSFET	500	1.5	5.3	100	4	4.5	1
BUK444-500A	SOT186	MOSFET	500	2.3	2.1	25	4	2.5	0.5

SC

PowerMOS (cont.)

FET power devices

typenumber	package	FET-appl	V _{DS-max} V	R _{DS(on)} max ohm	I _{D-max} A	P _{max} W	V _{GS(th)} max V	g _{fs} typ S	C _{iss} max nF
BUK474-500A	SOT186A	MOSFET	500	2.3	2.1	25	4	2.5	0.5
BUK454-500A	TO-220	MOSFET	500	2.3	3.7	75	4	2.5	0.5
BUK444-500B	SOT186	MOSFET	500	2.8	1.9	25	4	2.5	0.5
BUK474-500B	SOT186A	MOSFET	500	2.8	1.9	25	4	2.5	0.5
BUK454-500B	TO-220	MOSFET	500	2.8	3.3	75	4	2.5	0.5
BUK453-500A	TO-220AB	MOSFET	500	6	1.7	50	4	1.1	0.3
BUK453-500B	TO-220AB	MOSFET	500	7	1.6	50	4	1.1	0.3
BUK427-600A	SOT199	MOSFET	600	1	4.3	45	4	8	1.8
BUK457-600A	TO-220	MOSFET	600	1	8	150	4	8	1.8
BUK437-600A	SOT93	MOSFET	600	1	9	180	4	8	1.8
BUK427-600B	SOT199	MOSFET	600	1.2	3.9	45	4	8	1.8
BUK457-600B	TO-220	MOSFET	600	1.2	7.1	150	4	8	1.8
BUK437-600B	SOT93	MOSFET	600	1.2	7.8	180	4	8	1.8
BUK445-600A	SOT186	MOSFET	600	2	2.5	30	4	4.5	1
BUK475-600A	SOT186A	MOSFET	600	2	2.5	30	4	4.5	1
BUK455-600A	TO-220	MOSFET	600	2	4.5	100	4	4.5	1
BUK445-600B	SOT186	MOSFET	600	2.5	2.2	30	4	4.5	1
BUK475-600B	SOT186A	MOSFET	600	2.5	2.2	30	4	4.5	1
BUK455-600B	TO-220	MOSFET	600	2.5	4	100	4	4.5	1
BUK444-600A	SOT186	MOSFET	600	4	1.6	25	4	2.5	0.5
BUK474-600A	SOT186A	MOSFET	600	4	1.6	25	4	2.5	0.5
BUK454-600A	TO-220	MOSFET	600	4	2.8	75	4	2.5	0.5
BUK444-600B	SOT186	MOSFET	600	4.5	1.5	25	4	2.5	0.5
BUK474-600B	SOT186A	MOSFET	600	4.5	1.5	25	4	2.5	0.5
BUK454-600B	TO-220	MOSFET	600	4.5	2.6	75	4	2.5	0.5
BUK428-800A	SOT199	MOSFET	800	1.5	3.4	45	4	6	3.5
BUK438-800A	SOT93	MOSFET	800	1.5	7.6	220	4	7.5	3
BUK428-800B	SOT199	MOSFET	800	2	3	45	4	6	3.5
BUK438-800B	SOT93	MOSFET	800	2	6.6	220	4	7.5	3
BUK446-800A	SOT186	MOSFET	800	3	2	30	4	4.3	1.25
BUK476-800A	SOT186A	MOSFET	800	3	2	30	4	4.3	1.25
BUK426-800A	SOT199	MOSFET	800	3	2.4	45	4	4.3	1.25
BUK436-800A	SOT93	MOSFET	800	3	4	125	4	4.3	1.25
BUK456-800A	TO-220	MOSFET	800	3	4	125	4	4.3	1.25
BUK446-800B	SOT186	MOSFET	800	4	1.7	30	4	4.3	1.25
BUK476-800B	SOT186A	MOSFET	800	4	1.7	30	4	4.3	1.25
BUK426-800B	SOT199	MOSFET	800	4	2.1	45	4	4.3	1.25
BUK436-800B	SOT93	MOSFET	800	4	3.5	125	4	4.3	1.25
BUK456-800B	TO-220	MOSFET	800	4	3.5	125	4	4.3	1.25
BUK444-800A	SOT186	MOSFET	800	6	1.4	30	4	2.3	0.75
BUK474-800A	SOT186A	MOSFET	800	6	1.4	30	4	2.3	0.75
BUK454-800A	TO-220	MOSFET	800	6	2.4	85	4	2.3	0.75
BUK444-800B	SOT186	MOSFET	800	8	1.2	30	4	2.3	0.75
BUK474-800B	SOT186A	MOSFET	800	8	1.2	30	4	2.3	0.75
BUK454-800B	TO-220	MOSFET	800	8	2	85	4	2.3	0.75
BUK416-1000AE	SOT227B	MOSFET	1000	0.8	12.2	310	4	20	6.25
BUK416-1000BE	SOT227B	MOSFET	1000	1	10.9	310	4	20	6.25
BUK428-1000B	SOT199	MOSFET	1000	2.6	2.6	45	4	5	3.5
BUK438-1000B	SOT93	MOSFET	1000	2.6	5.7	220	4	5	3.5
BUK446-1000A	SOT186	MOSFET	1000	4	1.7	30	4	4.3	1.25

FET power devices

PowerMOS (cont.)

typenumber	package	FET-appl	V _{DS-max} V	R _{DS(on)} max ohm	I _{D-max} A	P _{max} W	V _{GS(th)} max V	g _{fs} typ S	C _{iss} max nF
BUK476-1000A	SOT186A	MOSFET	1000	4	1.7	30	4	4.3	1.25
BUK426-1000A	SOT199	MOSFET	1000	4	2.1	45	4	4.3	1.25
BUK436-1000A	SOT93	MOSFET	1000	4	3.5	125	4	4.3	1.25
BUK456-1000A	TO-220	MOSFET	1000	4	3.5	125	4	4.3	1.25
BUK446-1000B	SOT186	MOSFET	1000	5	1.5	30	4	4.3	1.25
BUK476-1000B	SOT186A	MOSFET	1000	5	1.5	30	4	4.3	1.25
BUK426-1000B	SOT199	MOSFET	1000	5	1.9	45	4	4.3	1.25
BUK436-1000B	SOT93	MOSFET	1000	5	3.1	125	4	4.3	1.25
BUK456-1000B	TO-220	MOSFET	1000	5	3.1	125	4	4.3	1.25
BUK102-50GS	TO-220AB	TOPFET	50	0.028	50	125		28	
BUK101-50GS	TO-220AB	TOPFET	50	0.05	29	75		16	
BUK100-50GS	TO-220AB	TOPFET	50	0.1	15	40		9	



Signal

Signal

typenumber	package	V_{R-max}	I_{F-max}	V_{F-max}	@ I_F	t_{rr-max}	C_d max	@ V_R	I_R max	@ V_R	near-conv-type
		V	mA	V	mA		ns	pF	V	uA	
BAT17	€ SOT23	4	30	0.6	10		1	0	1.25	3	BA481
BA316	DO-35	10	100	1.1	100	4	2	0	0.2	10	
BA220(1)	DO-35	10	200	0.95	100	4	2.5	0	1.5	10	
BAX14(1)	DO-35	20	500	1.5	2000	50	35	0	100	20	
BYV10-20	DO-41	20	1000	0.85	3000	30			1000	20	
PMBD2837	SOT23	30	50	1.2	100	15	4	0	0.1	30	BAT85
BA317	DO-35	30	100	1.1	100	4	2	0	0.2	30	
PMBD2835	SOT23	30	100	1.2	100	15	4	0	0.1	30	
BAS85	SOD80C	30	200	0.8	100		10	1	2.3	30	
BAT54	€ SOT23	30	200	1	100	5	10	1	2	25	
BAT54A	€ SOT23	30	200	1	100	5	10	1	2	25	BAT85
BAT54C	€ SOT23	30	200	1	100	5	10	1	2	25	
BAT54S	€ SOT23	30	200	1	100	5	10	1	2	25	
BAT74	€ SOT143	30	200	1	100	5	10	1	2	25	
BAT85	€ DO-34	30	200	0.8	100	5	10	1	2	30	
BA221	DO-35	30	200	1.05	200	4	2.5	0	0.2	30	BAT85
BYV10-30	DO-41	30	1000	0.85	3000	30			1000	30	
BAS81	SOD80C	40	30	0.41	1		1.6	1	0.2	40	
BAT81	DO-34	40	30	1	15	1	1.6	1	0.2	30	
BYV10-40	DO-41	40	1000	0.85	3000	30			1000	40	
BAS82	SOD80C	50	30	0.41	1		1.6	1	0.2	50	BAT85
BAT82	DO-34	50	30	1	15	1	1.6	1	0.2	30	
PMBD2838	SOT23	50	50	1.2	100	15	4	0	0.1	50	
BAS15	€ DO-34	50	100	1.1	100	4	2	0	0.2	50	
BA318	DO-35	50	100	1.1	100	4	2	0	0.2	50	
BAS86	SOD80	50	200	0.9	100	4	8	1	5	40	BAT85
BAT86	€ DO-34	50	200	0.9	100	4	8	1	5	40	
PMLL4151	SOD80	50	200	1	50	4	2	0	50	50	
PMLL4153	SOD80	50	200	0.88	20	4	2	0	50	50	
1N4151	DO-35	50	200	1	50	4	2	0	50	50	
1N4153	DO-35	50	200	0.88	20	4	2	0	50	50	BAV18
BAL74	SOT23	50	250	1	50	6	2	0	0.1	50	
BAV100	SOD80	50	250	1.25	200	50	5	0	100	50	
BAV18	€ DO-35	50	250	1.25	200	50	5	0	100	60	
BAV74	SOT23	50	250	1	100	4	2	0	100	50	
PMLL4150	SOD80	50	300	1	200	6	2.5	0	100	50	BAV10
1N4150	DO-35	50	300	1	200	6	2.5	0	100	50	
BAS83	SOD80C	60	30	0.41	1		1.6	1	0.2	60	
BAT83	DO-34	60	30	1	15	1	1.6	1	0.2	30	
BAS56	SOT143	60	200	1.25	500	6	2.5	0	100	60	
BAS55	SOT23	60	250	1	200	6	2.5	0	0.1	60	BAV10
BAV10	DO-35	60	300	1.25	500	6	2.5	0	100	60	
BAV105	SOD80	60	300	1.25	500	6	2.5	0	100	60	
PMBD2836	SOT23	70	100	1.2	100	15	4	0	0.1	50	
PMBD6050	SOT23	70	200	1.1	100	15	2.5	0	0.1	50	
PMBD6100	SOT23	70	200	1.1	100	15	2.5	0	0.1	50	2 x BAW62
PMBD914	SOT23	70	200	1	10	15	4	0	5	75	
BAV70	SOT23	70	215	1.25	150	6	1.5	0	100	70	
BAV99	SOT23	70	215	1.25	150	6	1.5	0	50	70	
BAL99	SOT23	70	250	1	50	6	1.5	0	1	70	
BAW56	SOT23	70	250	1.25	150	6	2	0	50	70	2 X BAW62

Signal

Signal (cont.)

typenumber	package	V _{R-max} V	I _{F-max} mA	V _{F max} V	@ I _F mA	t _{rr-max} ns	C _{d max} pF	@ V _R V	I _{R max} uA	@ V _R V	near-conv-type
1N914	DO-35	75	75	1	10	4	4	0	50	20	BAW62
1N916	DO-35	75	75	1	10	4	2	0	50	20	
BAS32	SOD80	75	200	0.93	100	4	2	0	100	75	
BAS32L	SOD80C	75	200	1	100	4	2	0	100	75	
BAW62	DO-35	75	200	1	100	4	2	0	100	75	BAW62
PMLL4148	SOD80	75	200	1	10	4	4	0	50	20	
PMLL444S	SOD80	75	200	1	20	4	4	0	50	20	
PMLL4448	SOD80	75	200	1	100	4	4	0	3	20	
1N4148	DO-35	75	200	1	10	4	4	0	50	20	BAW62
1N4446	DO-35	75	200	1	20	4	4	0	50	20	
1N4448	DO-35	75	200	1	100	4	4	0	3	20	
1N4531	DO-34	75	200	1	10	4	4	0	50	20	
1N4532	DO-34	75	200	1	10	2	2	0	100	50	BAW62
BAS16	SOT23	75	250	1.25	150	6	2	0	50	75	
BAS28	SOT143	75	250	1.25	150	6	2	0	50	75	
BAX18	DO-35	75	500	1.5	2000	50	35	0	100	75	
BAS678	SOT23	80	250	1	200	6	2	0	0.1	75	BAX12 2 X BAX12
BAS29	SOT23	90	250	1.25	400	50	35	0	100	90	
BAS31	SOT23	90	250	1.25	400	50	35	0	100	90	
BAS35	SOT23	90	250	1.25	400	50	35	0	100	90	
BAX12	DO-35	90	400	1.25	400	50	35	0	100	90	2 X BAX12 BAS35 BAV19
BAS19	SOT23	100	200	1.25	200	50	5	0	100	100	
PMBD7000	SOT23	100	200	1.1	100	15	1.5	0	100	50	
BAV101	SOD80	100	250	1.25	200	50	5	0	100	100	
BAV19	DO-35	100	250	1.25	200	50	5	0	100	120	BAV20
BAY80	DO-35	120	250	1.07	150	50	6	0	100	120	
BAS45	DO-34	125	225	1	200		8	0	0.001	125	
BAS45L	SOD80	125	225	1	200		8	0	0.001	125	
BAS20	SOT23	150	200	1.25	200	50	5	0	100	150	BAV20
BAV102	SOD80	150	250	1.25	200	50	5	0	100	150	
BAV20	DO-35	150	250	1.25	200	50	5	0	100	200	
BAV23	SOT143	200		1.25	200	50	5	0	100	200	
BAV23S	SOT23	200		1	100	50	5	0	0.1	200	2 X BAV21
BAS21	SOT23	200	200	1.25	200	50	5	0	100	200	
BAV103	SOD80	200	250	1.25	200	50	5	0	100	200	
BAV21	DO-35	200	250	1.25	200	50	5	0	100	250	
BAS11	SOD91	300	350	1.3	900	1000	20	0	0.25	300	BAV21
BAS12	SOD91	400	350	1.3	900	1000	20	0	0.25	400	

SC

EHT power stack

Rectifier diodes

typenumber	V _{RWM} max kV	I _{F(AV)} oil A	I _{F(AV)} air A	application	mult-dio-confi
OSM9115-4A	3	6	3.5	THREE-PHASE	SCCT
OSB9115-4A	3	12	7	TWO-PHASE	CCMD
OSM9215-4A	3	20	5	THREE-PHASE	SCCT
OSM9415-4A	3	30	10	THREE-PHASE	SCCT
OSB9215-4A	3	40	10	TWO-PHASE	CCMD
OSB9415-4A	3	60	20	TWO-PHASE	CCMD
OSM9115-6A	4.5	6	3.5	THREE-PHASE	SCCT
OSB9115-6A	4.5	12	7	TWO-PHASE	CCMD
OSM9215-6A	4.5	20	5	THREE-PHASE	SCCT
OSS9215-3A	4.5	20	5	SINGLE-PHASE	SCMD
OSM9415-6A	4.5	30	10	THREE-PHASE	SCCT
OSS9415-3A	4.5	30	10	SINGLE-PHASE	SCMD
OSB9215-6A	4.5	40	10	TWO-PHASE	CCMD
OSB9415-6A	4.5	60	20	TWO-PHASE	CCMD
OSM9510-12A	6		1.5		
OSM9115-8A	6	6	3.5	THREE-PHASE	SCCT
OSB9115-8A	6	12	7	TWO-PHASE	CCMD
OSM9215-8A	6	20	5	THREE-PHASE	SCCT
OSS9215-4A	6	20	5	SINGLE-PHASE	SCMD
OSM9415-8A	6	30	10	THREE-PHASE	SCCT
OSS9415-4A	6	30	10	SINGLE-PHASE	SCMD
OSB9215-8A	6	40	10	TWO-PHASE	CCMD
OSB9415-8A	6	60	20	TWO-PHASE	CCMD
OSM9115-10A	7.5	6	3.5	THREE-PHASE	SCCT
OSB9115-10A	7.5	12	7	TWO-PHASE	CCMD
OSM9215-10A	7.5	20	5	THREE-PHASE	SCCT
OSS9215-5A	7.5	20	5	SINGLE-PHASE	SCMD
OSM9415-10A	7.5	30	10	THREE-PHASE	SCCT
OSS9415-5A	7.5	30	10	SINGLE-PHASE	SCMD
OSB9215-10A	7.5	40	10	TWO-PHASE	CCMD
OSB9415-10A	7.5	60	20	TWO-PHASE	CCMD
OSM9115-12A	9	6	3.5	THREE-PHASE	SCCT
OSB9115-12A	9	12	7	TWO-PHASE	CCMD
OSM9215-12A	9	20	5	THREE-PHASE	SCCT
OSS9215-6A	9	20	5	SINGLE-PHASE	SCMD
OSM9415-12A	9	30	10	THREE-PHASE	SCCT
OSS9415-6A	9	30	10	SINGLE-PHASE	SCMD
OSB9215-12A	9	40	10	TWO-PHASE	CCMD
OSB9415-12A	9	60	20	TWO-PHASE	CCMD
OSM9115-14A	10.5	6	3.5	THREE-PHASE	SCCT
OSB9115-14A	10.5	12	7	TWO-PHASE	CCMD
OSM9215-14A	10.5	20	5	THREE-PHASE	SCCT
OSS9215-7A	10.5	20	5	SINGLE-PHASE	SCMD
OSM9415-14A	10.5	30	10	THREE-PHASE	SCCT
OSS9415-7A	10.5	30	10	SINGLE-PHASE	SCMD
OSB9215-14A	10.5	40	10	TWO-PHASE	CCMD
OSB9415-14A	10.5	60	20	TWO-PHASE	CCMD
OSM9115-16A	12	6	3.5	THREE-PHASE	SCCT
OSB9115-16A	12	12	7	TWO-PHASE	CCMD
OSM9215-16A	12	20	5	THREE-PHASE	SCCT
OSS9215-8A	12	20	5	SINGLE-PHASE	SCMD

Rectifier diodes

EHT power stack (cont.)

typenumber	V _{RWM} max kV	I _{F(AV)} oll A	I _{F(AV)} air A	application	mult-dio-contl
OSM9415-16A	12	30	10	THREE-PHASE	SCCT
OSS9415-8A	12	30	10	SINGLE-PHASE	SCMD
OSB9215-16A	12	40	10	TWO-PHASE	CCMD
OSB9415-16A	12	60	20	TWO-PHASE	CCMD
OSM9115-18A	13.5	6	3.5	THREE-PHASE	SCCT
OSB9115-18A	13.5	12	7	TWO-PHASE	CCMD
OSM9215-18A	13.5	20	5	THREE-PHASE	SCCT
OSS9215-9A	13.5	20	5	SINGLE-PHASE	SCMD
OSM9415-18A	13.5	30	10	THREE-PHASE	SCCT
OSS9415-9A	13.5	30	10	SINGLE-PHASE	SCMD
OSB9215-18A	13.5	40	10	TWO-PHASE	CCMD
OSB9415-18A	13.5	60	20	TWO-PHASE	CCMD
OSM9115-20A	15	6	3.5	THREE-PHASE	SCCT
OSS9115-10A	15	6	3.5	SINGLE-PHASE	SCMD
OSB9115-20A	15	12	7	TWO-PHASE	CCMD
OSM9215-20A	15	20	5	THREE-PHASE	SCCT
OSS9215-10A	15	20	5	SINGLE-PHASE	SCMD
OSM9415-20A	15	30	10	THREE-PHASE	SCCT
OSS9415-10A	15	30	10	SINGLE-PHASE	SCMD
OSB9215-20A	15	40	10	TWO-PHASE	CCMD
OSB9415-20A	15	60	20	TWO-PHASE	CCMD
OSM9115-22A	16.5	6	3.5	THREE-PHASE	SCCT
OSS9115-11A	16.5	6	3.5	SINGLE-PHASE	SCMD
OSB9115-22A	16.5	12	7	TWO-PHASE	CCMD
OSM9215-22A	16.5	20	5	THREE-PHASE	SCCT
OSS9215-11A	16.5	20	5	SINGLE-PHASE	SCMD
OSM9415-22A	16.5	30	10	THREE-PHASE	SCCT
OSS9415-11A	16.5	30	10	SINGLE-PHASE	SCMD
OSB9215-22A	16.5	40	10	TWO-PHASE	CCMD
OSB9415-22A	16.5	60	20	TWO-PHASE	CCMD
OSM9115-24A	18	6	3.5	THREE-PHASE	SCCT
OSS9115-12A	18	6	3.5	SINGLE-PHASE	SCMD
OSB9115-24A	18	12	7	TWO-PHASE	CCMD
OSM9215-24A	18	20	5	THREE-PHASE	SCCT
OSS9215-12A	18	20	5	SINGLE-PHASE	SCMD
OSM9415-24A	18	30	10	THREE-PHASE	SCCT
OSS9415-12A	18	30	10	SINGLE-PHASE	SCMD
OSB9215-24A	18	40	10	TWO-PHASE	CCMD
OSB9415-24A	18	60	20	TWO-PHASE	CCMD
OSM9115-26A	19.5	6	3.5	THREE-PHASE	SCCT
OSS9115-13A	19.5	6	3.5	SINGLE-PHASE	SCMD
OSB9115-26A	19.5	12	7	TWO-PHASE	CCMD
OSM9215-26A	19.5	20	5	THREE-PHASE	SCCT
OSS9215-13A	19.5	20	5	SINGLE-PHASE	SCMD
OSM9415-26A	19.5	30	10	THREE-PHASE	SCCT
OSS9415-13A	19.5	30	10	SINGLE-PHASE	SCMD
OSB9215-26A	19.5	40	10	TWO-PHASE	CCMD
OSB9415-26A	19.5	60	20	TWO-PHASE	CCMD
OSM9115-28A	21	6	3.5	THREE-PHASE	SCCT
OSS9115-14A	21	6	3.5	SINGLE-PHASE	SCMD
OSB9115-28A	21	12	7	TWO-PHASE	CCMD



EHT power stack (cont.)

Rectifier diodes

typenumber	V _{RWM} max KV	I _{F(AV)} oil A	I _{F(AV)} air A	application	mult-dio-confi
OSM9215-28A	21	20	5	THREE-PHASE	SCCT
OSS9215-14A	21	20	5	SINGLE-PHASE	SCMD
OSM9415-28A	21	30	10	THREE-PHASE	SCCT
OSS9415-14A	21	30	10	SINGLE-PHASE	SCMD
OSB9215-28A	21	40	10	TWO-PHASE	CCMD
OSB9415-28A	21	60	20	TWO-PHASE	CCMD
OSM9115-30A	22.5	6	3.5	THREE-PHASE	SCCT
OSS9115-15A	22.5	6	3.5	SINGLE-PHASE	SCMD
OSB9115-30A	22.5	12	7	TWO-PHASE	CCMD
OSM9215-30A	22.5	20	5	THREE-PHASE	SCCT
OSS9215-16A	22.5	20	5	SINGLE-PHASE	SCMD
OSM9415-30A	22.5	30	10	THREE-PHASE	SCCT
OSS9415-16A	22.5	30	10	SINGLE-PHASE	SCMD
OSB9215-30A	22.5	40	10	TWO-PHASE	CCMD
OSB9415-30A	22.5	60	20	TWO-PHASE	CCMD
OSM9115-32A	24	6	3.5	THREE-PHASE	SCCT
OSS9115-16A	24	6	3.5	SINGLE-PHASE	SCMD
OSB9115-32A	24	12	7	TWO-PHASE	CCMD
OSM9215-32A	24	20	5	THREE-PHASE	SCCT
OSS9215-15A	24	20	5	SINGLE-PHASE	SCMD
OSM9415-32A	24	30	10	THREE-PHASE	SCCT
OSS9415-15A	24	30	10	SINGLE-PHASE	SCMD
OSB9215-32A	24	40	10	TWO-PHASE	CCMD
OSB9415-32A	24	60	20	TWO-PHASE	CCMD
OSM9115-34A	25.5	6	3.5	THREE-PHASE	SCCT
OSS9115-17A	25.5	6	3.5	SINGLE-PHASE	SCMD
OSB9115-34A	25.5	12	7	TWO-PHASE	CCMD
OSM9215-34A	25.5	20	5	THREE-PHASE	SCCT
OSS9215-17A	25.5	20	5	SINGLE-PHASE	SCMD
OSM9415-34A	25.5	30	10	THREE-PHASE	SCCT
OSS9415-17A	25.5	30	10	SINGLE-PHASE	SCMD
OSB9215-34A	25.5	40	10	TWO-PHASE	CCMD
OSB9415-34A	25.5	60	20	TWO-PHASE	CCMD
OSM9115-36A	27	6	3.5	THREE-PHASE	SCCT
OSS9115-18A	27	6	3.5	SINGLE-PHASE	SCMD
OSB9115-36A	27	12	7	TWO-PHASE	CCMD
OSM9215-36A	27	20	5	THREE-PHASE	SCCT
OSS9215-18A	27	20	5	SINGLE-PHASE	SCMD
OSM9415-36A	27	30	10	THREE-PHASE	SCCT
OSS9415-18A	27	30	10	SINGLE-PHASE	SCMD
OSB9215-36A	27	40	10	TWO-PHASE	CCMD
OSB9415-36A	27	60	20	TWO-PHASE	CCMD
OSS9115-19A	28.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-19A	28.5	20	5	SINGLE-PHASE	SCMD
OSS9415-19A	28.5	30	10	SINGLE-PHASE	SCMD
OSS9115-20A	30	6	3.5	SINGLE-PHASE	SCMD
OSS9215-20A	30	20	5	SINGLE-PHASE	SCMD
OSS9415-20A	30	30	10	SINGLE-PHASE	SCMD
OSS9115-21A	31.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-21A	31.5	20	5	SINGLE-PHASE	SCMD
OSS9415-21A	31.5	30	10	SINGLE-PHASE	SCMD

Rectifier diodes

EHT power stack (cont.)

typenumber	V _{RWM} max kV	I _{F(AV)} oil A	I _{F(AV)} air A	application	mult-dio-confi
OSS9115-22A	33	6	3.5	SINGLE-PHASE	SCMD
OSS9215-22A	33	20	5	SINGLE-PHASE	SCMD
OSS9415-22A	33	30	10	SINGLE-PHASE	SCMD
OSS9115-23A	34.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-23A	34.5	20	5	SINGLE-PHASE	SCMD
OSS9415-23A	34.5	30	10	SINGLE-PHASE	SCMD
OSS9115-24A	36	6	3.5	SINGLE-PHASE	SCMD
OSS9215-24A	36	20	5	SINGLE-PHASE	SCMD
OSS9415-24A	36	30	10	SINGLE-PHASE	SCMD
OSS9115-25A	37.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-25A	37.5	20	5	SINGLE-PHASE	SCMD
OSS9415-25A	37.5	30	10	SINGLE-PHASE	SCMD
OSS9115-26A	39	6	3.5	SINGLE-PHASE	SCMD
OSS9215-26A	39	20	5	SINGLE-PHASE	SCMD
OSS9415-26A	39	30	10	SINGLE-PHASE	SCMD
OSS9115-27A	40.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-27A	40.5	20	5	SINGLE-PHASE	SCMD
OSS9415-27A	40.5	30	10	SINGLE-PHASE	SCMD
OSS9115-28A	42	6	3.5	SINGLE-PHASE	SCMD
OSS9215-28A	42	20	5	SINGLE-PHASE	SCMD
OSS9415-28A	42	30	10	SINGLE-PHASE	SCMD
OSS9115-29A	43.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-29A	43.5	20	5	SINGLE-PHASE	SCMD
OSS9415-29A	43.5	30	10	SINGLE-PHASE	SCMD
OSS9115-30A	45	6	3.5	SINGLE-PHASE	SCMD
OSS9215-30A	45	20	5	SINGLE-PHASE	SCMD
OSS9415-30A	45	30	10	SINGLE-PHASE	SCMD
OSS9115-31A	46.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-31A	46.5	20	5	SINGLE-PHASE	SCMD
OSS9415-31A	46.5	30	10	SINGLE-PHASE	SCMD
OSS9115-32A	48	6	3.5	SINGLE-PHASE	SCMD
OSS9215-32A	48	20	5	SINGLE-PHASE	SCMD
OSS9415-32A	48	30	10	SINGLE-PHASE	SCMD
OSS9115-33A	49.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-33A	49.5	20	5	SINGLE-PHASE	SCMD
OSS9415-33A	49.5	30	10	SINGLE-PHASE	SCMD
OSS9115-34A	51	6	3.5	SINGLE-PHASE	SCMD
OSS9215-34A	51	20	5	SINGLE-PHASE	SCMD
OSS9415-34A	51	30	10	SINGLE-PHASE	SCMD
OSS9115-35A	52.5	6	3.5	SINGLE-PHASE	SCMD
OSS9215-35A	52.5	20	5	SINGLE-PHASE	SCMD
OSS9415-35A	52.5	30	10	SINGLE-PHASE	SCMD
OSS9115-36A	54	6	3.5	SINGLE-PHASE	SCMD
OSS9215-36A	54	20	5	SINGLE-PHASE	SCMD
OSS9415-36A	54	30	10	SINGLE-PHASE	SCMD



Single rectifiers

Rectifier diodes

typenumber	package	V _{RRM} V	I _{F(AV)} A	t _{rr-max} ns	I _{FSM} A	V _{F max} V	@ I _F A	I _{FRM} A	C _{d typ} pF	E _{RSM} mJ
BAS70	€ SOT23				0.1	0.41	0.001	0.04		
PRLL5817	SOD87	20	1		25	0.45	1		70	
PRLL5818	SOD87	30	1		25	0.55	1		50	
PBYR735	TO-220AC	35	7.5		135	0.57	7.5	15	500	
PBYR735F	SOT186	35	7.5		135	0.57	7.5	15	500	
PBYR1035	TO-220AC	35	10		135	0.57	10	20	500	
PBYR1035F	SOT186	35	10		135	0.57	10	20	500	
BYV120-35	DO-4	35	15		300	0.6	15	260	520	
PBYR1635	TO-220AC	35	16		135	0.57	16	32	500	
PBYR1635F	SOT186	35	16		135	0.57	16	32	500	
BYV121-35	DO-4	35	30		600	0.6	34	500	1150	
PRLL5819	SOD87	40	1		25	0.6	1		50	
PBYR740	TO-220AC	40	7.5		135	0.57	7.5	15	500	
PBYR740F	SOT186	40	7.5		135	0.57	7.5	15	500	
PBYR1040	TO-220AC	40	10		135	0.57	10	20	500	
PBYR1040F	SOT186	40	10		135	0.57	10	20	500	
BYV120-40	DO-4	40	15		300	0.6	15	260	520	
PBYR1640	TO-220AC	40	16		135	0.57	16	32	500	
PBYR1640F	SOT186	40	16		135	0.57	16	32	500	
BYV121-40	DO-4	40	30		600	0.6	34	500	1150	
PBYR745	TO-220AC	45	7.5		135	0.57	7.5	15	500	
PBYR745F	SOT186	45	7.5		135	0.57	7.5	15	500	
PBYR1045	TO-220AC	45	10		135	0.57	10	20	500	
PBYR1045F	SOT186	45	10		135	0.57	10	20	500	
BYV120-45	DO-4	45	15		300	0.6	15	260	520	
PBYR1645	TO-220AC	45	16		135	0.57	16	32	500	
PBYR1645F	SOT186	45	16		135	0.57	16	32	500	
BYV121-45	DO-4	45	30		600	0.6	34	500	1150	
BYD71A	SOD91	50	0.56	25	7	0.84	0.5	4.7		
1N4001D	SOD81	50	1		20	1.1	1	10		
1N4001G	SOD57	50	1		30	1.1	1	10		
1N4933	SOD84	50	1.5	200	30	1.2	3.14			
PRLL4001	SOD87	50	1.6		20	1.1	1	10		
BYD73A	SOD81	50	1.75	25	25	0.95	1	15		10
BYD77A	SOD87	50	2	25	25	0.95	1	15		10
BYV27-50	SOD57	50	2	25	50	1.07	3	15		20
BYD74A	SOD84	50	2.4	25	50	0.94	2	13		20
BYV28-50	SOD64	50	3.5	30	90	1.1	5	25		20
1N3879	DO-4	50	6	200	80	1.4	6	75		
BYW30-50	€ DO-4	50	14	30	200	0.8	15	420		
1N3899	DO-5	50	20	200	225	1.4	20	100		
BYW31-50	€ DO-4	50	28	40	320	0.8	30	550		
BYW31-50U	€ DO-4	50	28	40	320	0.8	30	550		
1N3909	DO-5	50	30	200	300	1.4	30	125		
PBYR1060	TO-220AC	60	10		135	0.7	10	20	400	
PBYR2060CT	TO-220	60	20		135	0.7	10	20	400	10
PBYR3060PT	SOT93	60	30		135	0.7	15	30	600	10
PBYR1080	TO-220	80	10		135	0.7	10	20	400	10
PBYR2080CT	TO-220	80	20		135	0.7	10	20	400	10
PBYR3080PT	SOT93	80	30		135	0.7	15	30	600	10
BYD71B	SOD91	100	0.56	25	7	0.84	0.5	4.7		

Rectifier diodes

Single rectifiers (cont.)

typenumber	package	V _{RRM} V	I _{F(AV)} A	t _{rr-max} ns	I _{FSM} A	V _{F max} V	@ I _F A	I _{FRM} A	C _{d typ} pF	E _{RSM} mJ
1N4002D	SOD81	100	1		20	1.1	1	10		
1N4002G	SOD57	100	1		30	1.1	1	10		
1N4934	SOD84	100	1.5	200	30	1.2	3.14			
PRLL4002	SOD87	100	1.6		20	1.1	1	10		
BYD73B	SOD81	100	1.75	25	25	0.95	1	15		10
BYD77B	SOD87	100	2	25	25	0.95	1	15		10
BYV27-100	SOD57	100	2	25	50	1.07	3	15		20
BYD74B	SOD84	100	2.4	25	50	0.94	2	13		20
BYV28-100	SOD64	100	3.5	30	90	1.1	5	25		20
BYW29E-100	TO-220AC	100	8	25	80	1.3	20	240		30
BYW29EF-100	SOT186	100	8	25	80	1.3	20	240		30
BYW29F-100	SOT186	100	8	25	80	0.8	8	240		
PBYR10100	TO-220AC	100	10		135	0.7	10	20	400	
BYQ28EF-100	SOT186	100	10	20	50	1.1	5	80		20
BYQ32EF-100	SOT186	100	12	25	125	1.15	20	155		30
1N3890	DO-4	100	12	200	150	1.4	12	140		
BYV79E-100	TO-220AC	100	14	30	140	1.05	14	420		40
BYW30-100	DO-4	100	14	30	200	0.8	15	420		
PBYR20100CT	TO-220	100	20		135	0.7	10	20	400	10
BYQ72EF-100	SOT199	100	20	28	150	1.05	15	320		40
BYW31-100	DO-4	100	28	40	320	0.8	30	550		
BYW31-100U	DO-4	100	28	40	320	0.8	30	550		
PBYR30100PT	SOT93	100	30		135	0.7	15	30	600	10
BYD71C	SOD91	150	0.56	25	7	0.84	0.5	4.7		
BYD73C	SOD81	150	1.75	25	25	0.95	1	15		10
BYD77C	SOD87	150	2	25	25	0.95	1	15		10
BYV27-150	SOD57	150	2	25	50	1.07	3	15		20
BYD74C	SOD84	150	2.4	25	50	0.94	2	13		20
BYV28-150	SOD64	150	3.5	30	90	1.1	5	25		20
BYW29E-150	TO-220AC	150	8	25	80	1.3	20	240		30
BYW29EF-150	SOT186	150	8	25	80	1.3	20	240		30
BYW29F-150	SOT186	150	8	25	80	0.8	8	240		
BYQ28EF-150	SOT186	150	10	20	50	1.1	5	80		20
BYQ32EF-150	SOT186	150	12	25	125	1.15	20	155		30
BYV79E-150	TO-220AC	150	14	30	140	1.05	14	420		40
BYW30-150	DO-4	150	14	30	200	0.8	15	420		
BYQ72EF-150	SOT199	150	20	28	150	1.05	15	320		40
BYW31-150	DO-4	150	28	40	320	0.8	30	550		
BYW31-150U	DO-4	150	28	40	320	0.8	30	550		
BYD11D	SOD91	200	0.5		10	1.06	0.5		14	
BYD31D	SOD91	200	0.5	250	10	1.35	0.5			
BYD71D	SOD91	200	0.56	25	7	0.84	0.5	4.7		
1N4003D	SOD81	200	1		20	1.1	1	10		
1N4003G	SOD57	200	1		30	1.1	1	10		
BYV26A	SOD57	200	1	30	30	2.5	1	10		10
BYD33D	SOD81	200	1.3	250	20	1.3	1	7		10
BYD13D	SOD81	200	1.4		20	1.05	1	5.5	21	7
BYD17D	SOD87	200	1.5		20	1.05	1	5.5	21	7
1N4935	SOD84	200	1.5	200	30	1.2	3.14			
BYD37D	SOD87	200	1.5	250	20	1.3	1	13		10
BYV95A	SOD57	200	1.5	250	35	1.6	3	10		10

SC

Single rectifiers (cont.)

Rectifier diodes

typenumber	package	V _{RRM} V	I _{F(AV)} A	t _{rr-max} ns	I _{FSM} A	V _{F max} V	@ I _F A	I _{FRM} A	C _{d typ} pF	E _{RSM} mJ
BYV36A	SOD57	200	1.6	100	30	1.35	1	10		10
BYD73D	SOD81	200	1.75	25	25	0.95	1	15		10
BYD34D	SOD84	200	1.8	250	45	1.4	3	17		10
BYD77D	SOD87	200	2	25	25	0.95	1	15		10
BYV27-200	SOD57	200	2	25	50	1.07	3	15		20
1N5059	€ SOD57	200	2	6000	50	1.15	2.5	12		
BYM26A	SOD64	200	2.3	30	45	2.65	2	8		10
BYD74D	SOD84	200	2.4	25	50	0.94	2	13		20
BYM36A	SOD64	200	3	100	65	1.6	3	13		10
BYW95A	SOD64	200	3	250	70	1.5	5	15		10
BYM56A	SOD64	200	3.5		80	1.25	5	20	90	20
BYV28-200	SOD64	200	3.5	30	90	1.1	5	25		20
BY229-200	€ TO-220AC	200	7	150	60	1.85	20	135		
BY229-200R	TO-220AC	200	7	150	60	1.85	20	135		
BY229F-200	SOT186	200	7	150	60	1.85	20	135		
BYW29-200	€ TO-220AC	200	8	25	80	0.8	8	240		
BYW29E-200	TO-220AC	200	8	25	80	1.3	20	240		30
BYW29EF-200	SOT186	200	8	25	80	1.3	20	240		30
BYW29F-200	SOT186	200	8	25	80	0.8	8	240		
BYQ28EF-200	SOT186	200	10	20	50	1.1	5	80		20
BYQ32EF-200	SOT186	200	12	25	125	1.15	20	155		30
BYV79E-200	TO-220AC	200	14	30	140	1.05	14	420		40
BYV79-200	TO-220AC	200	14	30	180	0.85	10	420		
BYW30-200	€ DO-4	200	14	30	200	0.8	15	420		
BYX30-200	DO-4	200	14	200	250	3.2	50	310		
BYX30-200R	DO-4	200	14	200	250	3.2	50	310		
BYQ72EF-200	SOT199	200	20	28	150	1.05	15	320		40
BYX46-200	DO-4	200	22	200	300	2	50	400		
BYX46-200R	DO-4	200	22	200	300	2	50	400		
BYW31-200	€ DO-4	200	28	40	320	0.8	30	550		
BYW31-200U	€ DO-4	200	28	40	320	0.8	30	550		
BYD71E	SOD91	250	0.54	50	7	0.9	0.5	5		
BYD73E	SOD81	250	1.7	50	25	1.05	1	13		10
BYD77E	SOD87	250	1.85	50	25	1.05	1	13		10
BYD74E	SOD84	250	2.15	50	50	1.05	2	12		20
BYD71F	SOD91	300	0.54	50	7	0.9	0.5	5		
BYD73F	SOD81	300	1.7	50	25	1.05	1	13		10
BYD77F	SOD87	300	1.85	50	25	1.05	1	13		10
BYD74F	SOD84	300	2.15	50	50	1.05	2	12		20
BYX38-300	€ DO-4	300	6		50	1.7	20	50		
BYX38-300R	€ DO-4	300	6		50	1.7	20	50		
BY249-300	TO-220AC	300	6.5		60	1.6	20	60		
BY249-300R	TO-220AC	300	6.5		60	1.6	20	60		
BY249F-300	SOT186	300	6.5		60	1.6	20			
BYV29-300	TO-220AC	300	9	50	100	1.4	20	200		
BYV29F-300	SOT186	300	9	50	110	1.05	5	200		
BYX98-300	€ DO-4	300	10		75	1.7	20	75		
BYX98-300R	€ DO-4	300	10		75	1.7	20	75		
BYX42-300	€ DO-4	300	12		125	1.4	15	60		
BYX42-300R	€ DO-4	300	12		125	1.4	15	60		
BYT79-300	TO-220AC	300	14	50	150	1.4	50	320		

Rectifier diodes

Single rectifiers (cont.)

typenumber	package	V _{RRM} V	I _{F(AV)} A	t _{rr-max} ns	I _{FSM} A	V _{F max} V	@ I _F A	I _{FRM} A	C _{d typ} pF	E _{RSM} mJ
BYV30-300	DO-4	300	14	50	150	1.4	50	320		
BYX30-300	DO-4	300	14	200	250	3.2	50	310		
BYX30-300R	DO-4	300	14	200	250	3.2	50	310		
BYX99-300	DO-4	300	15		180	1.55	50	180		
BYX99-300R	DO-4	300	15		180	1.55	50	180		
1N3902	DO-5	300	20	200	225	1.4	20	100		
BYX46-300	DO-4	300	22	200	300	2	50	400		
BYX46-300R	DO-4	300	22	200	300	2	50	400		
BYV31-300	DO-4	300	28	50	300	1.4	100	550		
BYX96-300	DO-4	300	30		400	1.7	100	400		
BYX96-300R	DO-4	300	30		400	1.7	100	400		
BYX96-300RU	DO-4	300	30		400	1.7	100	400		
BYX96-300U	DO-4	300	30		400	1.7	100	400		
BYD11G	SOD91	400	0.5		10	1.06	0.5		14	
BYD31G	SOD91	400	0.5	250	10	1.35	0.5			
BYD71G	SOD91	400	0.54	50	7	0.9	0.5	5		
1N4004ID	SOD81	400	1		20	1.1	1	10		
1N4004G	SOD57	400	1		30	1.1	1	10		
BYV26B	SOD57	400	1	30	30	2.5	1	10		10
BYD33G	SOD81	400	1.3	250	20	1.3	1	7		10
BYD13G	SOD81	400	1.4		20	1.05	1	5.5	21	7
BYD17G	SOD87	400	1.5		20	1.05	1	5.5	21	7
1N4936	SOD84	400	1.5	200	30	1.2	3.14			
BYD37G	SOD87	400	1.5	250	20	1.3	1	13		10
BYV95B	SOD57	400	1.5	250	35	1.6	3	10		10
BYV36B	SOD57	400	1.6	100	30	1.35	1	10		10
BYD73G	SOD81	400	1.7	50	25	1.05	1	13		10
BYD34G	SOD84	400	1.8	250	45	1.4	3	17		10
BYD77G	SOD87	400	1.85	50	25	1.05	1	13		10
1N5060	SOD57	400	2	6000	50	1.15	2.5	12		
BYD74G	SOD84	400	2.15	50	50	1.05	2	12		20
BYM26B	SOD64	400	2.3	30	45	2.65	2	8		10
BYM36B	SOD64	400	3	100	65	1.6	3	13		10
BYW95B	SOD64	400	3	250	70	1.5	5	15		10
BYM56B	SOD64	400	3.5		80	1.25	5	20	90	20
1N3883	DO-4	400	6	200	80	1.4	6	75		
BY229-400	TO-220AC	400	7	150	60	1.85	20	135		
BY229-400R	TO-220AC	400	7	150	60	1.85	20	135		
BY229F-400	SOT186	400	7	150	60	1.85	20	135		
BYV29-400	TO-220AC	400	9	50	100	1.4	20	200		
BYV29F-400	SOT186	400	9	50	110	1.05	5	200		
1N3893	DO-4	400	12	200	150	1.4	12	140		
BYT79-400	TO-220AC	400	14	50	150	1.4	50	320		
BYV30-400	DO-4	400	14	50	150	1.4	50	320		
BYX30-400	DO-4	400	14	200	250	3.2	50	310		
BYX30-400R	DO-4	400	14	200	250	3.2	50	310		
BYX46-400	DO-4	400	22	200	300	2	50	400		
BYX46-400R	DO-4	400	22	200	300	2	50	400		
BYV31-400	DO-4	400	28	50	300	1.4	100	550		
1N3913	DO-5	400	30	200	300	1.4	30	125		
BYV30-450	DO-4	450	14	50	150	1.4	50	320		

SC

Single rectifiers (cont.)

Rectifier diodes

typenumber	package	V _{RRM} V	I _{F(AV)} A	t _{rr-max} ns	I _{FSM} A	V _{F max} V	@ I _F A	I _{FRM} A	C _{d typ} pF	E _{RSM} mJ
BYR29-500	TO-220AC	500	8	75	72	1.15	5	130		
BYV29-500	TO-220AC	500	9	50	100	1.4	20	200		
BYV29F-500	SOT186	500	9	50	110	1.05	5	200		
BYT79-500	TO-220AC	500	14	50	150	1.4	50	320		
BYV30-500	DO-4	500	14	50	150	1.4	50	320		
BYX30-500	DO-4	500	14	200	250	3.2	50	310		
BYX30-500R	DO-4	500	14	200	250	3.2	50	310		
BYX46-500	DO-4	500	22	200	300	2	50	400		
BYX46-500R	DO-4	500	22	200	300	2	50	400		
BYV31-500	DO-4	500	28	50	300	1.4	100	550		
BYD11J	SOD91	600	0.5		10	1.06	0.5		14	
BYD31J	SOD91	600	0.5	250	10	1.35	0.5			
1N4005ID	SOD81	600	1		20	1.1	1	10		
1N4005G	SOD57	600	1		30	1.1	1	10		
BYV26C	SOD57	600	1	30	30	2.5	1	10		10
BYD33J	SOD81	600	1.3	250	20	1.3	1	7		10
BYD13J	SOD81	600	1.4		20	1.05	1	5.5	21	7
BYD17J	SOD87	600	1.5		20	1.05	1	5.5	21	7
1N4937	SOD84	600	1.5	200	30	1.2	3.14			
BYD37J	SOD87	600	1.5	250	20	1.3	1	13		10
BYV95C	SOD57	600	1.5	250	35	1.6	3	10		10
BYV36C	SOD57	600	1.6	100	30	1.35	1	10		10
BYD34J	SOD84	600	1.8	250	45	1.4	3	17		10
BYW54	⊕ SOD57	600	2		50	1	1	12	50	20
1N5061	⊕ SOD57	600	2	6000	50	1.15	2.5	12		
BYM26C	SOD64	600	2.3	30	45	2.65	2	8		10
BYM36C	SOD64	600	3	100	65	1.6	3	13		10
BYW95C	SOD64	600	3	250	70	1.5	5	15		10
BYM56C	SOD64	600	3.5		80	1.25	5	20	90	20
BYX38-600	⊕ DO-4	600	6		50	1.7	20	50		
BYX38-600R	⊕ DO-4	600	6		50	1.7	20	50		
BY249-600	TO-220AC	600	6.5		60	1.6	20	60		
BY249-600R	TO-220AC	600	6.5		60	1.6	20	60		
BY249F-600	SOT186	600	6.5		60	1.6	20			
BY229-600	⊕ TO-220AC	600	7	150	60	1.85	20	135		
BY229-600R	TO-220AC	600	7	150	60	1.85	20	135		
BY229F-600	SOT186	600	7	150	60	1.85	20	135		
BYR29-600	TO-220AC	600	8	75	60	1.65	20	130		
BYR29F-600	SOT186	600	8	75	72	1.3	10	130		
BYX39-600	DO-4	600	9.5		125	1.7	20	100		
BYX39-600R	DO-4	600	9.5		125	1.7	20	100		
BYX98-600	⊕ DO-4	600	10		75	1.7	20	75		
BYX98-600R	⊕ DO-4	600	10		75	1.7	20	75		
BYX42-600	⊕ DO-4	600	12		125	1.4	15	60		
BYX42-600R	⊕ DO-4	600	12		125	1.4	15	60		
BYX30-600	DO-4	600	14	200	250	3.2	50	310		
BYX30-600R	DO-4	600	14	200	250	3.2	50	310		
BYX99-600	⊕ DO-4	600	15		180	1.55	50	180		
BYX99-600R	⊕ DO-4	600	15		180	1.55	50	180		
BYX25-600	⊕ DO-4	600	20		360	1.8	50	440		

Rectifier diodes

Single rectifiers (cont.)

typenumber	package	V _{RRM} V	I _{F(AV)} A	t _{rr-max} ns	I _{FSM} A	V _{F max} V	⊙ I _F A	I _{FRM} A	C _{d typ} pF	E _{RSM} mJ
BYX25-800R	DO-4	600	20		360	1.8	50	440		
BYX46-800	DO-4	600	22	200	300	2	50	400		
BYX46-800R	DO-4	600	22	200	300	2	50	400		
BYX96-800	DO-4	600	30		400	1.7	100	400		
BYX96-800R	DO-4	600	30		400	1.7	100	400		
BYX96-800RU	DO-4	600	30		400	1.7	100	400		
BYX96-800U	DO-4	600	30		400	1.7	100	400		
BYR29-700	TO-220AC	700	8	75	60	1.65	20	130		
BYR29F-700	SOT186	700	8	75	72	1.3	10	130		
BYD11K	SOD91	800	0.5		10	1.06	0.5		14	
1N4006ID	SOD81	800	1		20	1.1	1	10		
1N4006G	SOD57	800	1		30	1.1	1	10		
BYV26D	SOD57	800	1	75	30	2.5	1	10		10
BYD33K	SOD81	800	1.3	300	20	1.3	1	7		7
BYD13K	SOD81	800	1.4		20	1.05	1	5.5	21	7
BYD17K	SOD87	800	1.5		20	1.05	1	5.5	21	7
BYV36D	SOD57	800	1.5	150	30	1.45	1	9		10
BYD37K	SOD87	800	1.5	300	20	1.3	1	13		7
BYV96D	SOD57	800	1.5	300	35	1.6	3	10		10
BYD34K	SOD84	800	1.8	300	35	1.4	3	17		10
BYW55	SOD57	800	2		50	1	1	12	50	20
1N5062	SOD57	800	2	6000	50	1.15	2.5	12		
BYM26D	SOD64	800	2.3	75	45	2.65	2	8		10
BYM36D	SOD64	800	2.9	150	65	1.78	3	11		10
BYW96D	SOD64	800	3	300	70	1.5	5	15		10
BYM56D	SOD64	800	3.5		80	1.25	5	20	90	20
BY229-800	TO-220AC	800	7	150	60	1.85	20	135		
BY229-800R	TO-220AC	800	7	150	60	1.85	20	135		
BY229F-800	SOT186	800	7	150	60	1.85	20	135		
BYR29-800	TO-220AC	800	8	75	60	1.65	20	130		
BYR29F-800	SOT186	800	8	75	72	1.3	10	130		
BY329-800	TO-220AC	800	8	150	80	1.85	20	80		
BYX39-800	DO-4	800	9.5		125	1.7	20	100		
BYX39-800R	DO-4	800	9.5		125	1.7	20	100		
BYV24-800	DO-4	800	12	450	150	1.7	20	120		
BYV24-800R	DO-4	800	12	450	150	1.7	20	120		
BYX25-800	DO-4	800	20		360	1.8	50	440		
BYX25-800R	DO-4	800	20		360	1.8	50	440		
BYD11M	SOD91	1000	0.5		10	1.06	0.5		14	
1N4007ID	SOD81	1000	1		20	1.1	1	10		
1N4007G	SOD57	1000	1		30	1.1	1	10		
BYV26E	SOD57	1000	1	75	30	2.5	1	10		10
BYD33M	SOD81	1000	1.3	300	20	1.3	1	7		7
BYD13M	SOD81	1000	1.4		20	1.05	1	5.5	21	7
BYD17M	SOD87	1000	1.5		20	1.05	1	5.5	21	7
BYV36E	SOD57	1000	1.5	150	30	1.45	1	9		10
BYD37M	SOD87	1000	1.5	300	20	1.3	1	13		7
BYV96E	SOD57	1000	1.5	300	35	1.6	3	10		10
BYD34M	SOD84	1000	1.8	300	35	1.4	3	17		10
BYW56	SOD57	1000	2		50	1	1	12	50	20
BYM26E	SOD64	1000	2.3	75	45	2.65	2	8		10



Single rectifiers (cont.)

Rectifier diodes

typenumber	package	V _{RRM} V	I _{F(AV)} A	t _{rr-max} ns	I _{FSM} A	V _{F max} V	@ I _F A	I _{FRM} A	C _d typ pF	E _{RSM} mJ
BYM36E	SOD64	1000	2.9	150	65	1.78	3	11		10
BYW96E	SOD64	1000	3	300	70	1.5	5	15		10
BYM56E	SOD64	1000	3.5		80	1.25	5	20	90	20
BY229F-1000	SOT186	1000	7	150	60	1.85	20	135		
BY329-1000	TO-220AC	1000	8	150	80	1.85	20	80		
BYX39-1000	DO-4	1000	9.5		125	1.7	20	100		
BYX39-1000R	DO-4	1000	9.5		125	1.7	20	100		
BYV24-1000	DO-4	1000	12	450	150	1.7	20	120		
BYV24-1000R	DO-4	1000	12	450	150	1.7	20	120		
BYX25-1000	DO-4	1000	20		360	1.8	50	440		
BYX25-1000R	DO-4	1000	20		360	1.8	50	440		
BY458	SOD57	1200	4		30	1.6	3	8		
BY438	SOD64	1200	5		50	1.5	5	10		
BYX38-1200	DO-4	1200	6		50	1.7	20	50		
BYX38-1200R	DO-4	1200	6		50	1.7	20	50		
BY329-1200	TO-220AC	1200	8	150	80	1.85	20	80		
BYX39-1200	DO-4	1200	9.5		125	1.7	20	100		
BYX39-1200R	DO-4	1200	9.5		125	1.7	20	100		
BYX98-1200	DO-4	1200	10		75	1.7	20	75		
BYX98-1200R	DO-4	1200	10		75	1.7	20	75		
BYX42-1200	DO-4	1200	12		125	1.4	15	60		
BYX42-1200R	DO-4	1200	12		125	1.4	15	60		
BYX99-1200	DO-4	1200	15		180	1.55	50	180		
BYX99-1200R	DO-4	1200	15		180	1.55	50	180		
BYX25-1200	DO-4	1200	20		360	1.8	50	440		
BYX25-1200R	DO-4	1200	20		360	1.8	50	440		
BYX96-1200	DO-4	1200	30		400	1.7	100	400		
BYX96-1200R	DO-4	1200	30		400	1.7	100	400		
BYX96-1200RU	DO-4	1200	30		400	1.7	100	400		
BYX96-1200U	DO-4	1200	30		400	1.7	100	400		
BY527	SOD57	1250	2		50	1	1	12		20
BY428	SOD64	1400			50	1.95	4	8		
BY328	SOD64	1400	6		60	1.45	5	10		
BYX39-1400	DO-4	1400	9.5		125	1.7	20	100		
BYX39-1400R	DO-4	1400	9.5		125	1.7	20	100		
BYX25-1400	DO-4	1400	20		360	1.8	50	440		
BYX25-1400R	DO-4	1400	20		360	1.8	50	440		
BY448	SOD57	1500	4		30	1.6	3	8		
BY228	SOD64	1500	5		50	1.5	5	10		
BYX10G	SOD57	1600	1.2		25	1.5	2	5		
BYX96-1600	DO-4	1600	30		400	1.7	100	400		
BYX96-1600R	DO-4	1600	30		400	1.7	100	400		
BYX96-1600RU	DO-4	1600	30		400	1.7	100	400		
BYX96-1600U	DO-4	1600	30		400	1.7	100	400		

Rectifier diodes

Dual rectifiers

typenumber	package	V_{RRM}	$I_{F(AV)}$	t_{rr-max}	I_{FSM}	$V_F max$	$@ I_F$	I_{FRM}	$C_d typ$	E_{RSM}
		V	A	ns	A	V	A	A	pF	mJ
BAS70-04	SOT23				0.1	0.41	0.001	0.04		
BAS70-05	SOT23				0.1	0.41	0.001	0.04		
BAS70-06	SOT23				0.1	0.41	0.001	0.04		
BYV133F-30	SOT186	30	20		150	0.6	7	150	300	
PBYR235CT	SOT223	35	2		6	0.7	2	30		
PBYR635CT	SOT82	35	10		80	0.6	5	90	200	
BYV118-35	TO-220AB	35	10		100	0.6	5	90	200	
BYV118F-35	SOT186	35	10		100	0.6	5	90	200	
PBYR1635CT	TO-220AB	35	15		135	0.57	7.5	15		
PBYR1635CTF	SOT186	35	15		135	0.57	7.5	15		
PBYR2035CT	TO-220AB	35	20		135	0.57	10	20		
PBYR2035CTF	SOT186	35	20		135	0.57	10	20		
PBYR2635CTF	SOT186	35	20		135	0.51	20	30		
BYV133F-35	SOT186	35	20		150	0.6	7	150	300	
BYV133-35	TO-220AB	35	20		200	0.6	7	200	300	
BYV143F-35	SOT186	35	20		200	0.6	15	250	500	
PBYR2635CT	TO-220AB	35	30		135	0.73	30	30		
PBYR3035PT	SOT93	35	30		180	0.6	20	30		
BYV143-35	TO-220AB	35	30		200	0.6	15	250	500	
PBYR12035TV	SOT227B	35	120		600	0.67	60	652	2100	
PBYR16035TV	SOT227B	35	160		900	0.69	80	900	2500	
PBYR240CT	SOT223	40	2		6	0.7	2	30		
PBYR640CT	SOT82	40	10		80	0.6	5	90	200	
BYV118-40	TO-220AB	40	10		100	0.6	5	90	200	
BYV118F-40	SOT186	40	10		100	0.6	5	90	200	
PBYR1540CT	TO-220AB	40	15		135	0.57	7.5	15		
PBYR1540CTF	SOT186	40	15		135	0.57	7.5	15		
PBYR2040CT	TO-220AB	40	20		135	0.57	10	20		
PBYR2040CTF	SOT186	40	20		135	0.57	10	20		
PBYR2640CTF	SOT186	40	20		135	0.51	20	30		
BYV133F-40	SOT186	40	20		150	0.6	7	150	300	
BYV133-40	TO-220AB	40	20		200	0.6	7	200	300	
BYV143F-40	SOT186	40	20		200	0.6	15	250	500	
PBYR2640CT	TO-220AB	40	30		135	0.73	30	30		
PBYR3040PT	SOT93	40	30		180	0.6	20	30		
BYV143-40	TO-220AB	40	30		200	0.6	15	250	500	
BYV222V-40	SOT227B	40	120		600	0.67	60	600	2100	
PBYR12040TV	SOT227B	40	120		600	0.67	60	652	2100	
PBYR16040TV	SOT227B	40	160		900	0.69	80	900	2500	
PBYR245CT	SOT223	45	2		6	0.7	2	30		
PBYR645CT	SOT82	45	10		80	0.6	5	90	200	
BYV118-45	TO-220AB	45	10		100	0.6	5	90	200	
BYV118F-45	SOT186	45	10		100	0.6	5	90	200	
PBYR1545CT	TO-220AB	45	15		135	0.57	7.5	15		
PBYR1545CTF	SOT186	45	15		135	0.57	7.5	15		
PBYR2045CT	TO-220AB	45	20		135	0.57	10	20		
PBYR2045CTF	SOT186	45	20		135	0.57	10	20		
PBYR2645CTF	SOT186	45	20		135	0.51	20	30		
BYV133F-45	SOT186	45	20		150	0.6	7	150	300	
BYV133-45	TO-220AB	45	20		200	0.6	7	200	300	
BYV143F-45	SOT186	45	20		200	0.6	15	250	500	

SC

Dual rectifiers (cont.)

Rectifier diodes

typenumber	package	V _{RRM} V	I _{F(AV)} A	t _{rr-max} ns	I _{FSM} A	V _{F max} V	@ I _F A	I _{FRM} A	C _{d typ} pF	E _{RSM} mJ
PBYR2545CT	TO-220AB	45	30		135	0.73	30	30		
PBYR3045PT	SOT93	45	30		180	0.6	20	30		
BYV143-45	TO-220AB	45	30		200	0.6	15	250	500	
PBYR12045TV	SOT227B	45	120		600	0.67	60	652	2100	
BYV223V-45	SOT227B	45	160		900	0.69	80	900	2500	
PBYR16045TV	SOT227B	45	160		900	0.69	80	900	2500	
BYQ27-50	SOT82	50	10	20	50	1.25	10	80		
BYV54V-50	SOT227B	50	100	60	1000	0.8	50	1000		
BYV40-100	SOT223	100	1.5	25	6	1	1.5	35		
BYQ27-100	SOT82	100	10	20	50	1.25	10	80		
BYQ28F-100	SOT186	100	10	20	60	0.85	5	80		
BYQ28E-100	TO-220AB	100	10	25	50	1.1	5	80		20
BYV32F-100	SOT186	100	12	25	150	1.15	20	155		
BYV32E-100	TO-220AB	100	20	25	125	1.15	20	230		30
BYV42E-100	TO-220AB	100	30	28	140	1.2	30	320		40
BYV72E-100	SOT93	100	30	28	140	1.05	15	320		40
BYV54V-100	SOT227B	100	100	60	1000	0.8	50	1000		
BYV40-150	SOT223	150	1.5	25	6	1	1.5	35		
BYQ27-150	SOT82	150	10	20	50	1.25	10	80		
BYQ28-150	TO-220AB	150	10	20	50	1.25	10	80		
BYQ28F-150	SOT186	150	10	20	60	0.85	5	80		
BYQ28E-150	TO-220AB	150	10	25	50	1.1	5	80		20
BYV32F-150	SOT186	150	12	25	150	1.15	20	155		
BYV32E-150	TO-220AB	150	20	25	125	1.15	20	230		30
BYV42E-150	TO-220AB	150	30	28	140	1.2	30	320		40
BYV72E-150	SOT93	150	30	28	140	1.05	15	320		40
BYV54V-150	SOT227B	150	100	60	1000	0.8	50	1000		
BYV40-200	SOT223	200	1.5	25	6	1	1.5	35		
BYQ27-200	SOT82	200	10	20	50	1.25	10	80		
BYQ28F-200	SOT186	200	10	20	60	0.85	5	80		
BYQ28E-200	TO-220AB	200	10	25	50	1.1	5	80		20
BYV32F-200	SOT186	200	12	25	150	1.15	20	155		
BYV32E-200	TO-220AB	200	20	25	125	1.15	20	230		30
BYV42E-200	TO-220AB	200	30	28	140	1.2	30	320		40
BYV72E-200	SOT93	200	30	28	140	1.05	15	320		40
BYT230PIV-200	SOT227B	200	60	50	500	1.5	30	800		
BYV54V-200	SOT227B	200	100	60	1000	0.8	50	1000		
BYT28-300	TO-220AB	300	10	50	50	1.4	15	80		
BYV34-300	TO-220AB	300	20	50	120	0.93	10	240		
BYV74F-300	SOT199	300	20	50	130	1.05	15	320		
BYV74-300	SOT93	300	30	50	130	1.05	15	320		
BYV44-300	TO-220AB	300	30	50	150	1.05	15	320		
BYT230PIV-300	SOT227B	300	60	50	500	1.5	30	800		
BYT28-400	TO-220AB	400	10	50	50	1.4	15	80		
BYV34-400	TO-220AB	400	20	50	120	0.93	10	240		
BYV74F-400	SOT199	400	20	50	130	1.05	15	320		
BYV74-400	SOT93	400	30	50	130	1.05	15	320		
BYV44-400	TO-220AB	400	30	50	150	1.05	15	320		
BYT230PIV-400	SOT227B	400	60	50	500	1.5	30	800		
BYV44-450	TO-220AB	450	30	50	150	1.05	15	320		
BYT28-500	TO-220AB	500	10	50	50	1.4	15	80		

Rectifier diodes

Dual rectifiers (cont.)

typenumber	package	V _{RRM}	I _{F(AV)}	t _{rr-max}	I _{FSM}	V _{F max}	@ I _F	I _{FRM}	C _{d typ}	E _{RSM}
		V	A	ns	A	V	A	A	pF	mJ
BYV34-500	TO-220AB	500	20	50	120	0.93	10	240		
BYV74F-500	SOT199	500	20	50	130	1.05	15	320		
BYV74-500	SOT93	500	30	50	130	1.05	15	320		
BYV44-500	TO-220AB	500	30	50	150	1.05	15	320		
BYT230PIV-600	SOT227B	600	60	100	200	1.9	30	375		
BYT230PIV-700	SOT227B	700	60	100	200	1.9	30	375		
BYT230PIV-800	SOT227B	800	60	100	200	1.9	30	375		
BYT230PIV-1000	SOT227B	1000	60	145	200	1.9	30	375		



EHT rectifiers

Rectifier diodes

typenumber	package	V _{RRM} V	I _{F(AV)} mA	t _{rr} ns	V _{F max} V	@ I _F A	I _{FRM} A
BY584	SOD61	1800	85	200	8.5	0.1	0.8
BYD43-20	SOD81	2000	640	300	2.4	1	
BY614	SOD61	2200	50	300	6	0.05	0.5
BY505	SOD61	2200	85	200	8.5	0.1	0.8
BYX120G	SOD88A	3000	100	5000	4.4	1	5
BY715	SOD61	5000	20	100	28	0.1	0.5
BY705	SOD61	5000	20	200	21	0.1	0.5
BY716	SOD61	6000	20	100	28	0.1	0.5
BY706	SOD61	6000	20	200	21	0.1	0.5
BYX90G	SOD83	7500	550	350	14.5	2	5
BY617	SOD61	9000	4	100	37.5	0.1	0.5
BYX110GP	SOD101	9000	350		8.5	0.35	4
BY717	SOD61	10000	4	100	69	0.1	0.1
BY707	SOD61	10000	4	200	52	0.1	0.5
BY718	SOD61	12000	4	100	69	0.1	0.5
BY609	SOD61	12000	4	200	50	0.1	0.5
BY610	SOD61	12000	4	200	50	0.1	0.5
BY708	SOD61	12000	4	200	52	0.1	0.5
BY719	SOD61	14000	4	100	69	0.1	0.5
BY709	SOD61	14000	4	200	52	0.1	0.5
BY619	SOD61	15000	4	100	75	0.1	0.5
BY720	SOD61	17000	3	100	92	0.1	0.4
BY710	SOD61	17000	3	200	70	0.1	0.5
BY620	SOD61	17000	4	100	75	0.1	0.5
BY721	SOD61	19000	3	100	92	0.1	0.4
BY711	SOD61	19000	3	200	70	0.1	0.5
BY722	SOD61	22000	3	100	88	0.05	0.3
BY712	SOD61	22000	3	200	76	0.05	0.5
BY723	SOD61	24000	3	100	88	0.05	0.3
BY713	SOD61	24000	3	200	76	0.05	0.5
BY724	SOD61	30000	3	100	88	0.05	0.3
BY714	SOD61	30000	3	200	76	0.05	0.5

Rectifier diodes

Breakover diodes

package = SOD84
 $I_H = 150 \text{ mA}$
 $I_{TSM2} = 40 \text{ A}$
 $I_{TSM} = 15 \text{ A } dt = 10 \text{ ms}$
 $(I^2 t) = 1.1 \text{ J}$
 $P_{tot} = 1.2 \text{ W}$
 $P_{TM} = 50 \text{ W}$

typenumber	$V_{(BO),nom}$ v	$V_{(BR)}$ v	$V_{(BO),max}$ v	V_D v
BR211-100	100	88	112	75
BR211-120	120	105	135	90
BR211-140	140	123	157	105
BR211-160	160	140	180	120
BR211-180	180	158	202	135
BR211-200	200	176	224	150
BR211-220	220	193	247	165
BR211-240	240	211	269	180
BR211-260	260	228	292	195
BR211-280	280	246	314	210



Voltage reference

Stabiliser diodes

$I_Z \text{ max} = 50 \text{ mA}$
 $P \text{ max} = 0.4 \text{ W}$

typenumber	package	$V_{\text{ref nom}}$		S_Z		$r_{\text{diff max}}$ Ohm
		V	@ I_Z mA	%/K	@ I_Z mA	
BZV13	DO-34	6.2	2	0.001	2	50
1N827	DO-34	6.2	7.5	0.001	7.5	15
1N827A	DO-34	6.2	7.5	0.001	7.5	10
1N825	DO-34	6.2	7.5	0.002	7.5	15
1N825A	DO-34	6.2	7.5	0.002	7.5	10
BZV11	DO-34	6.2	2	0.005	2	50
BZV81	SOD80	6.2	7.5	0.005	7.5	15
1N823	DO-34	6.2	7.5	0.005	7.5	15
1N823A	DO-34	6.2	7.5	0.005	7.5	10
BZV10	DO-34	6.2	2	0.01	2	50
BZV80	SOD80	6.2	7.5	0.01	7.5	15
1N821	DO-34	6.2	7.5	0.01	7.5	15
1N821A	DO-34	6.2	7.5	0.01	7.5	10
BZV14	DO-34	6.2	2	5	2	50
1N829	DO-34	6.2	7.5	5	7.5	15
1N829A	DO-34	6.2	7.5	5	7.5	10
BZV12	DO-34	6.5	2	0.002	2	50

Stabiliser diodes

Voltage regulator

typenumber	package	V_{ref} nom	I_Z	P_{max}	P_{ZSM}	r_{diff} max	S_Z	I_Z	S_F	I_F
		V	mA	W	W	Ohm	%/K	mA	mV/K	mA
BZX84-C2V4	SOT23	2.4	5	0.3		100			0	5
BZV55-C2V4	SOD80	2.4	5	0.5	30	100			0	5
BZX55-C2V4	DO-35	2.4	5	0.5	30	85				
BZX79-C2V4	DO-35	2.4	5	0.5	30	70			0	5
BZV49-C2V4	SOT89	2.4	5	1	40	100			0	5
BZV90-C2V4	SOT223	2.4	5	1.3	40	100			0	
BZX84-C2V7	SOT23	2.7	5	0.3		100			0	5
BZV55-C2V7	SOD80	2.7	5	0.5	30	100			0	5
BZX55-C2V7	DO-35	2.7	5	0.5	30	85				
BZX79-C2V7	DO-35	2.7	5	0.5	30	75			0	5
BZV49-C2V7	SOT89	2.7	5	1	40	100			0	5
BZV90-C2V7	SOT223	2.7	5	1.3	40	100			0	
BZX84-C3V0	SOT23	3	5	0.3		95			0	5
BZV55-C3V0	SOD80	3	5	0.5	30	95			0	5
BZX55-C3V0	DO-35	3	5	0.5	30	85				
BZX79-C3V0	DO-35	3	5	0.5	30	80			0	5
BZV49-C3V0	SOT89	3	5	1	40	95			0	5
BZV90-C3V0	SOT223	3	5	1.3	40	95			0	
PMLL5225B	SOD80	3	20	0.5	10	1600	-0.0750	7.5		
1N5225B	DO-35	3	20	0.5	10	1600	-0.0750	7.5		
BZX84-C3V3	SOT23	3.3	5	0.3		95			0	5
BZV55-C3V3	SOD80	3.3	5	0.5	30	95			0	5
BZX55-C3V3	DO-35	3.3	5	0.5	30	85				
BZX79-C3V3	DO-35	3.3	5	0.5	30	85			0	5
BZV49-C3V3	SOT89	3.3	5	1	40	95			0	5
BZV90-C3V3	SOT223	3.3	5	1.3	40	95			0	
PMBZ5226B	SOT23	3.3	20	0.3		1600	-0.0064	7.5		
PMLL5226B	SOD80	3.3	20	0.5	10	1600	-0.0700	7.5		
1N5226B	DO-35	3.3	20	0.5	10	1600	-0.0700	7.5		
1N4728A	DO-41	3.3	76	1						
BZX84-C3V6	SOT23	3.6	5	0.3		90			0	5
BZV55-C3V6	SOD80	3.6	5	0.5	30	90			0	5
BZX55-C3V6	DO-35	3.6	5	0.5	30	85				
BZX79-C3V6	DO-35	3.6	5	0.5	30	85			0	5
BZV49-C3V6	SOT89	3.6	5	1	40	90			0	5
BZV90-C3V6	SOT223	3.6	5	1.3	40	90			0	
PMBZ5227B	SOT23	3.6	20	0.3		1700	-0.0065	7.5		
PMLL5227B	SOD80	3.6	20	0.5	10	1700	-0.0650	7.5		
1N5227B	DO-35	3.6	20	0.5	10	1700	-0.0650	7.5		
BZV85-C3V6	DO-41	3.6	60	1.3	60	15			-1	60
1N4728A	DO-41	3.6	69	1						
BZD27-C3V6	SOD87	3.6	100	1.7	300	8	-0.0400	100		
BZD23-C3V6	SOD81	3.6	100	2	300	8	-0.0400	100		
BZX84-C3V9	SOT23	3.9	5	0.3		90			0	5
BZV55-C3V9	SOD80	3.9	5	0.5	30	90			0	5
BZX55-C3V9	DO-35	3.9	5	0.5	30	85				
BZX79-C3V9	DO-35	3.9	5	0.5	30	85			5	5
BZV49-C3V9	SOT89	3.9	5	1	40	90			0	5
BZV90-C3V9	SOT223	3.9	5	1.3	40	90			0	
PMBZ5228B	SOT23	3.9	20	0.3		1900	-0.0063	7.5		
PMLL5228B	SOD80	3.9	20	0.5	10	1900	-0.0600	7.5		

SC

Voltage regulator (cont.)

Stabiliser diodes

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
1N5228B	DO-35	3.9	20	0.5	10	1900	-0.0600	7.5		
BZX85-C3V9	DO-41	3.9	60	1.3	60	15			-1	60
1N4730A	DO-41	3.9	64	1						
BZD27-C3V9	SOD87	3.9	100	1.7	300	8	-0.0400	100		
BZD23-C3V9	SOD81	3.9	100	2	300	8	-0.0400	100		
BZX84-C4V3	SOT23	4.3	5	0.3		90			0	5
BZV55-C4V3	SOD80	4.3	5	0.5	30	90			0	5
BZX55-C4V3	DO-35	4.3	5	0.5	30	75				
BZX79-C4V3	DO-35	4.3	5	0.5	30	80			0	5
BZV49-C4V3	SOT89	4.3	5	1	40	90			0	5
BZV90-C4V3	SOT223	4.3	5	1.3	40	90			0	
PMBZ5229B	SOT23	4.3	20	0.3		2000	-0.0058	7.5		
PMLL5229B	SOD80	4.3	20	0.5	10	2000	-0.0550	7.5		
1N5229B	DO-35	4.3	20	0.5	10	2000	0.055	7.5		
BZV85-C4V3	DO-41	4.3	50	1.3	60	13			0	50
1N4731A	DO-41	4.3	58	1						
BZD27-C4V3	SOD87	4.3	100	1.7	300	7	-0.0200	100		
BZD23-C4V3	SOD81	4.3	100	2	300	7	-0.0200	100		
BZX84-C4V7	SOT23	4.7	5	0.3		80			0.2	5
BZV55-C4V7	SOD80	4.7	5	0.5	30	80			0.2	5
BZX55-C4V7	DO-35	4.7	5	0.5	30	60				
BZX79-C4V7	DO-35	4.7	5	0.5	30	50			0.2	5
BZV49-C4V7	SOT89	4.7	5	1	40	80			0.2	5
BZV90-C4V7	SOT223	4.7	5	1.3	40	80			0.2	
PMBZ5230B	SOT23	4.7	20	0.3		2000	-0.0047	7.5		
PMLL5230B	SOD80	4.7	20	0.5	10	1900	0.03	7.5		
1N5230B	DO-35	4.7	20	0.5	10	1900	0.03	7.5		
BZV85-C4V7	DO-41	4.7	45	1.3	60	13			0.7	45
1N4732A	DO-41	4.7	53	1						
BZD27-C4V7	SOD87	4.7	100	1.7	300	7	0	100		
BZD23-C4V7	SOD81	4.7	100	2	300	7	0	100		
PLVA650A	SOT23	5		0.25	30				0.2	0.25
PLVA450A	DO-35	5	0.25	0.4	30				0.2	0.25
BZX84-C5V1	SOT23	5.1	5	0.3		60			1.2	5
BZV55-C5V1	SOD80	5.1	5	0.5	30	60			1.2	5
BZX55-C5V1	DO-35	5.1	5	0.5	30	35				
BZX79-C5V1	DO-35	5.1	5	0.5	30	40			1.2	5
BZV49-C5V1	SOT89	5.1	5	1	40	60			1.2	5
BZV90-C5V1	SOT223	5.1	5	1.3	40	60			1.2	
PMBZ5231B	SOT23	5.1	20	0.3		2000	-0.0013	7.5		
PMLL5231B	SOD80	5.1	20	0.5	10	1600	0.03	7.5		
1N5231B	DO-35	5.1	20	0.5	10	1600	0.03	7.5		
BZV85-C5V1	DO-41	5.1	45	1.3	60	10			2.2	45
1N4733A	DO-41	5.1	49	1						
BZD27-C5V1	SOD87	5.1	100	1.7	300	6	-0.0200	100		
BZD23-C5V1	SOD81	5.1	100	2	300	6	-0.0200	100		
PLVA653A	SOT23	5.3		0.25	30				1.6	0.25
PLVA453A	DO-35	5.3	0.25	0.4	30				1.6	0.25
PLVA656A	SOT23	5.6		0.25	30				1.9	0.25
PLVA456A	DO-35	5.6	0.25	0.4	30				1.9	0.25
BZX84-C5V6	SOT23	5.6	5	0.3		40			2.5	5

Stabiliser diodes

Voltage regulator (cont.)

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
BZV55-C5V6	SOD80	5.6	5	0.5	30	40			2.5	5
BZX55-C5V6	DO-35	5.6	5	0.5	30	25				
BZX79-C5V6	DO-35	5.6	5	0.5	30	15			2.5	5
BZV49-C5V6	SOT89	5.6	5	1	40	40			2.5	5
BZV90-C5V6	SOT223	5.6	5	1.3	40	40			2.5	
PMBZ5232B	SOT23	5.6	20	0.3		1600	0.023	7.5		
PMLL5232B	SOD80	5.6	20	0.5	10	1600	0.038	7.5		
1N5232B	DO-35	5.6	20	0.5	10	1600	0.038	7.5		
1N4734A	DO-41	5.6	45	1						
BZV85-C5V6	DO-41	5.6	45	1.3	60	7			2.7	45
BZD27-C5V6	SOD87	5.6	100	1.7	300	4	0.04	100		
BZD23-C5V6	SOD81	5.6	100	2	300	4	0.04	100		
PLVA659A	SOT23	5.9		0.25	30				2.4	0.25
PLVA459A	DO-35	5.9	0.25	0.4	30				2.4	0.25
PMBZ5233B	SOT23	6	20	0.3		1600	0.023	7.5		
PMLL5233B	SOD80	6	20	0.5	10	1600	0.038	7.5		
1N5233B	DO-35	6	20	0.5	10	1600	0.038	7.5		
PLVA662A	SOT23	6.2		0.25	30				2.65	0.25
PLVA462A	DO-35	6.2	0.25	0.4	30				2.65	0.25
BZX84-C6V2	SOT23	6.2	5	0.3		10			3.7	5
BZV55-C6V2	SOD80	6.2	5	0.5	30	10			3.7	5
BZX55-C6V2	DO-35	6.2	5	0.5	30	10				
BZX79-C6V2	DO-35	6.2	5	0.5	30	6			3.7	5
BZV49-C6V2	SOT89	6.2	5	1	40	10			3.7	5
BZV90-C6V2	SOT223	6.2	5	1.3	40	10			3.7	
PMBZ5234B	SOT23	6.2	20	0.3		1000	0.039	7.5		
PMLL5234B	SOD80	6.2	20	0.5	10	1000	0.045	7.5		
1N5234B	DO-35	6.2	20	0.5	10	1000	0.045	7.5		
BZV85-C6V2	DO-41	6.2	35	1.3	60	4			3.6	35
1N4735A	DO-41	6.2	41	1						
BZD27-C6V2	SOD87	6.2	100	1.7	300	3	0.06	100		
BZD23-C6V2	SOD81	6.2	100	2	300	3	0.06	100		
PLVA665A	SOT23	6.5		0.25	30				2.9	0.25
PLVA465A	DO-35	6.5	0.25	0.4	30				2.9	0.25
BZV37	SOD68	6.5	5	0.4	40	20	0.1	5		
PLVA668A	SOT23	6.8		0.25	30				3.4	0.25
PLVA468A	DO-35	6.8	0.25	0.4	30				3.4	0.25
BZX84-C6V8	SOT23	6.8	5	0.3		15			4.5	5
BZV55-C6V8	SOD80	6.8	5	0.5	30	15			4.5	5
BZX55-C6V8	DO-35	6.8	5	0.5	30	8				
BZX79-C6V8	DO-35	6.8	5	0.5	30	6			4.5	5
BZV49-C6V8	SOT89	6.8	5	1	40	15			4.5	5
BZV90-C6V8	SOT223	6.8	5	1.3	40	15			4.5	
PMBZ5235B	SOT23	6.8	20	0.3		750	0.04	7.5		
PMLL5235B	SOD80	6.8	20	0.5	10	750	0.05	7.5		
1N5235B	DO-35	6.8	20	0.5	10	750	0.05	7.5		
BZV85-C6V8	DO-41	6.8	35	1.3	60	3.5			4.3	35
1N4736A	DO-41	6.8	37	1						
BZD27-C6V8	SOD87	6.8	100	1.7	300	3	0.07	100		
BZD23-C6V8	SOD81	6.8	100	2	300	3	0.07	100		
BZX84-C7V5	SOT23	7.5	5	0.3		15			5.3	5



Voltage regulator (cont.)

Stabiliser diodes

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
BZV55-C7V5	SOD80	7.5	5	0.5	30	15			5.3	5
BZX55-C7V5	DO-35	7.5	5	0.5	30	7				
BZX79-C7V5	DO-35	7.5	5	0.5	30	6			5.3	5
BZV49-C7V5	SOT89	7.5	5	1	40	15			5.3	5
BZV90-C7V5	SOT223	7.5	5	1.3	40	15			5.3	
PMBZ5236B	SOT23	7.5	20	0.3		500	0.047	7.5		
PMLL5236B	SOD80	7.5	20	0.5	10	500	0.058	7.5		
1N5236B	DO-35	7.5	20	0.5	10	500	0.058	7.5		
1N4737A	DO-41	7.5	34	1						
BZV85-C7V5	DO-41	7.5	35	1.3	60	3			5.5	35
BZD27-C7V5	SOD87	7.5	100	2.3	300	2	0.07	100		
BZD23-C7V5	SOD81	7.5	100	2.5	300	2	0.07	100		
BZT03-C7V5	SOD57	7.5	100	3.25	600	2	0.07	100		
BZW03-C7V5	SOD64	7.5	175	6	1000	1.5	0.07	175		
BZY93-C7V5	DO-4	7.5	2000		700	0.3	3	2000		
BZY93-C7V5R	DO-4	7.5	2000		700	0.3	3	2000		
BZY91-C7V5	DO-5	7.5	5000	100	9500	0.2				
BZY91-C7V5R	DO-5	7.5	5000	100	9500	0.2				
BZX84-C8V2	SOT23	8.2	5	0.3		15			6.2	5
BZV55-C8V2	SOD80	8.2	5	0.5	30	15			6.2	5
BZX55-C8V2	DO-35	8.2	5	0.5	30	7				
BZX79-C8V2	DO-35	8.2	5	0.5	30	6			6.2	5
BZV49-C8V2	SOT89	8.2	5	1	40	15			6.2	5
BZV90-C8V2	SOT223	8.2	5	1.3	40	15			6.2	
PMBZ5237B	SOT23	8.2	20	0.3		500	0.052	7.5		
PMLL5237B	SOD80	8.2	20	0.5	10	500	0.062	7.5		
1N5237B	DO-35	8.2	20	0.5	10	500	0.062	7.5		
BZV85-C8V2	DO-41	8.2	25	1.3	60	5			6.1	25
1N4738A	DO-41	8.2	31	1						
BZD27-C8V2	SOD87	8.2	100	2.3	300	2	0.08	100		
BZD23-C8V2	SOD81	8.2	100	2.5	300	2	0.08	100		
BZT03-C8V2	SOD57	8.2	100	3.25	600	2	0.08	100		
BZW03-C8V2	SOD64	8.2	150	6	1000	1.5	0.08	150		
BZY93-C8V2	DO-4	8.2	2000		700	0.3	4	2000		
BZY93-C8V2R	DO-4	8.2	2000		700	0.3	4	2000		
BZY91-C8V2	DO-5	8.2	5000	100	9500	0.3				
BZY91-C8V2R	DO-5	8.2	5000	100	9500	0.3				
PMBZ5238B	SOT23	8.7	20	0.3		600	0.053	7.5		
PMLL5238B	SOD80	8.7	20	0.5	10	600	0.065	7.5		
1N5238B	DO-35	8.7	20	0.5	10	600	0.065	7.5		
BZX84-C9V1	SOT23	9.1	5	0.3		15			7	5
BZV55-C9V1	SOD80	9.1	5	0.5	30	15			7	5
BZX55-C9V1	DO-35	9.1	5	0.5	30	10				
BZX79-C9V1	DO-35	9.1	5	0.5	30	6			7	5
BZV49-C9V1	SOT89	9.1	5	1	40	15			7	5
BZV90-C9V1	SOT223	9.1	5	1.3	40	15			7	
PMBZ5239B	SOT23	9.1	20	0.3		600	0.055	7.5		
PMLL5239B	SOD80	9.1	20	0.5	10	600	0.068	7.5		
1N5239B	DO-35	9.1	20	0.5	10	600	0.068	7.5		
BZV85-C9V1	DO-41	9.1	25	1.3	60	5			7.2	25
1N4739A	DO-41	9.1	28	1						

Stabiliser diodes

Voltage regulator (cont.)

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
BZD27-C9V1	SOD87	9.1	50	2.3	300	4	0.08	50		
BZD23-C9V1	SOD81	9.1	50	2.5	300	4	0.08	50		
BZT03-C9V1	€ SOD57	9.1	50	3.25	600	4	0.08	50		
BZW03-C9V1	€ SOD64	9.1	150	6	1000	2	0.08	150		
BZY93-C9V1	DO-4	9.1	1000		700	0.5	5	1000		
BZY93-C9V1R	DO-4	9.1	1000		700	0.5	5	1000		
BZY91-C9V1	DO-5	9.1	2000	100	9500	0.4				
BZY91-C9V1R	DO-5	9.1	2000	100	9500	0.4				
BZX84-C10	SOT23	10	5	0.3		20			8	5
BZX79-C10	€ DO-35	10	5	0.4	30	8			8	5
BZV55-C10	€ SOD80	10	5	0.5	30	20			8	5
BZX55-C10	€ DO-35	10	5	0.5	30	15				
BZV49-C10	SOT89	10	5	1	40	20			8	5
BZV90-C10	SOT223	10	5	1.3	40	20			8	
PMBZ5240B	SOT23	10	20	0.3		600	0.055	7.5		
PMLL5240B	SOD80	10	20	0.5	10	600	0.075	7.5		
1N5240B	DO-35	10	20	0.5	10	600	0.075	7.5		
1N4740A	DO-41	10	25	1						
BZV85-C10	€ DO-41	10	25	1.3	60	8			8.5	25
BZD27-C10	SOD87	10	50	2.3	300	4	0.09	50		
BZD23-C10	SOD81	10	50	2.5	300	4	0.09	50		
BZT03-C10	€ SOD57	10	50	3.25	600	4	0.09	50		
BZW03-C10	€ SOD64	10	125	6	1000	2	0.09	125		
BZY93-C10	DO-4	10	1000		700	0.5	7	1000		
BZY93-C10R	DO-4	10	1000		700	0.5	7	1000		
BZY91-C10	DO-5	10	2000	100	9500	0.4				
BZY91-C10R	DO-5	10	2000	100	9500	0.4				
BZX84-C11	SOT23	11	5	0.3		20			9	5
BZX79-C11	€ DO-35	11	5	0.4	30	10			9	5
BZV55-C11	SOD80	11	5	0.5	30	20			9	5
BZX55-C11	€ DO-35	11	5	0.5	30	20				
BZV49-C11	SOT89	11	5	1	40	20			9	5
BZV90-C11	SOT223	11	5	1.3	40	20			9	
PMBZ5241B	SOT23	11	20	0.3		600	0.058	7.5		
PMLL5241B	SOD80	11	20	0.5	10	600	0.076	7.5		
1N5241B	DO-35	11	20	0.5	10	600	0.076	7.5		
BZV85-C11	€ DO-41	11	20	1.3	60	10			9.3	20
1N4741A	DO-41	11	23	1						
BZD27-C11	SOD87	11	50	2.3	300	7	0.1	50		
BZD23-C11	SOD81	11	50	2.5	300	7	0.1	50		
BZT03-C11	€ SOD57	11	50	3.25	600	7	0.1	50		
BZW03-C11	€ SOD64	11	125	6	1000	2.5	0.1	125		
BZY93-C11	DO-4	11	1000		700	1	7.5	1000		
BZY93-C11R	DO-4	11	1000		700	1	7.5	1000		
BZY91-C11	DO-5	11	2000	100	9500	0.4				
BZY91-C11R	DO-5	11	2000	100	9500	0.4				
BZX84-C12	SOT23	12	5	0.3		25			10	5
BZV55-C12	SOD80	12	5	0.5	30	25			10	5
BZX55-C12	€ DO-35	12	5	0.5	30	20				
BZX79-C12	€ DO-35	12	5	0.5	30	10			10	5

SC

Voltage regulator (cont.)

Stabiliser diodes

typenumber	package	V _{ref nom}	@ I _Z	P _{max}	P _{ZSM}	r _{diff max}	S _Z	@ I _Z	S _F	@ I _F
		V	mA	W	W	Ohm	%/K	mA	mV/K	mA
BZV49-C12	SOT89	12	5	1	40	25			10	5
BZV90-C12	SOT223	12	5	1.3	40	25			10	
PMBZ5242B	SOT23	12	20	0.3		600	0.062	7.5		
PMLL5242B	SOD80	12	20	0.5	10	600	0.077	7.5		
1N5242B	DO-35	12	20	0.5	10	600	0.077	7.5		
BZV85-C12	€ DO-41	12	20	1.3	60	10			10.8	20
1N4742A	DO-41	12	21	1						
BZD27-C12	SOD87	12	50	2.3	300	7	0.1	50		
BZD23-C12	SOD81	12	50	2.5	300	7	0.1	50		
BZT03-C12	€ SOD57	12	50	3.25	600	7	0.1	50		
BZW03-C12	€ SOD64	12	100	6	1000	2.5	0.1	100		
BZY93-C12	DO-4	12	1000		700	1	8	1000		
BZY93-C12R	DO-4	12	1000		700	1	8	1000		
BZY91-C12	DO-5	12	2000	100	9500	0.5				
BZY91-C12R	DO-5	12	2000	100	9500	0.5				
BZX84-C13	SOT23	13	5	0.3		30			11	5
BZV55-C13	€ SOD80	13	5	0.5	30	30			11	5
BZX55-C13	€ DO-35	13	5	0.5	30	26				
BZX79-C13	€ DO-35	13	5	0.5	30	10			11	5
BZV49-C13	SOT89	13	5	1	40	30			11	5
BZV90-C13	SOT223	13	5	1.3	40	30			11	
PMBZ5243B	SOT23	13	9.5	0.3		600	0.065	9.5		
PMLL5243B	SOD80	13	9.5	0.5	10	600	0.079	9.5		
1N5243B	DO-35	13	9.5	0.5	10	600	0.079	9.5		
1N4743A	DO-41	13	19	1						
BZV85-C13	€ DO-41	13	20	1.3	60	10			12	20
BZD27-C13	SOD87	13	50	2.3	300	10	0.1	50		
BZD23-C13	SOD81	13	50	2.5	300	10	0.1	50		
BZT03-C13	€ SOD57	13	50	3.25	600	10	0.1	50		
BZW03-C13	€ SOD64	13	100	6	1000	2.5	0.1	100		
BZY93-C13	DO-4	13	1000		700	1	8.5	1000		
BZY93-C13R	DO-4	13	1000		700	1	8.5	1000		
BZY91-C13	DO-5	13	2000	100	9500	0.5				
BZY91-C13R	DO-5	13	2000	100	9500	0.5				
PMBZ5244B	SOT23	14	9	0.3		600	0.067	9		
1N5244B	DO-35	14	9	0.5	10	600	0.082	9		
PMLL5244B	SOD80	14	9.5	0.5	10	600	0.082	9		
BZX84-C15	SOT23	15	5	0.3		30			13	5
BZV55-C15	SOD80	15	5	0.5	30	30			13	5
BZX55-C15	€ DO-35	15	5	0.5	30	30				
BZX79-C15	€ DO-35	15	5	0.5	30	10			13	5
BZV49-C15	SOT89	15	5	1	40	30			13	5
BZV90-C15	SOT223	15	5	1.3	40	30			13	
PMBZ5245B	SOT23	15	8.5	0.3		600	0.073	8.5		
PMLL5245B	SOD80	15	8.5	0.5	10	600	0.082	8.5		
1N5245B	DO-35	15	8.5	0.5	10	600	0.082	8.5		
BZV85-C15	€ DO-41	15	15	1.3	60	15			13.6	15
1N4744A	DO-41	15	17	1						
BZD27-C15	SOD87	15	50	2.3	300	10	0.1	50		
BZD23-C15	SOD81	15	50	2.5	300	10	0.1	50		
BZT03-C15	€ SOD57	15	50	3.25	600	10	0.1	50		

Stabiliser diodes

Voltage regulator (cont.)

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
BZW03-C15	Ⓔ SOD64	15	75	6	1000	2.5	0.1	75		
BZY93-C15	DO-4	15	1000		700	1.2	10	1000		
BZY93-C15R	DO-4	15	1000		700	1.2	10	1000		
BZY91-C15	DO-5	15	2000	100	9500	0.6				
BZY91-C15R	DO-5	15	2000	100	9500	0.6				
BZX84-C16	SOT23	16	5	0.3		40			14	5
BZV55-C16	SOD80	16	5	0.5	30	40			14	5
BZX55-C16	Ⓔ DO-35	16	5	0.5	30	40				
BZX79-C16	Ⓔ DO-35	16	5	0.5	30	10			14	5
BZV49-C16	SOT89	16	5	1	40	40			14	5
BZV90-C16	SOT223	16	5	1.3	40	40			14	
PMBZ5246B	SOT23	16	7.8	0.3		600	0.073	7.8		
PMLL5246B	SOD80	16	7.8	0.5	10	600	0.083	7.8		
1N5246B	DO-35	16	7.8	0.5	10	600	0.083	7.8		
BZV85-C16	Ⓔ DO-41	16	15	1.3	60	15			15.4	15
1N4745A	DO-41	16	15.5	1						
BZD27-C16	SOD87	16	25	2.3	300	15	0.11	25		
BZD23-C16	SOD81	16	25	2.5	300	15	0.11	25		
BZT03-C16	Ⓔ SOD57	16	25	3.25	600	15	0.11	25		
BZW03-C16	Ⓔ SOD64	16	75	6	1000	2.5	0.11	75		
BZY93-C16	DO-4	16	500		700	1.2	11	500		
BZY93-C16R	DO-4	16	500		700	1.2	11	500		
BZY91-C16	DO-5	16	2000	100	9500	0.6				
BZY91-C16R	DO-5	16	2000	100	9500	0.6				
PMBZ5247B	SOT23	17	7.4	0.3		600	0.073	7.4		
PMLL5247B	SOD80	17	7.4	0.5	10	600	0.084	7.4		
1N5247B	DO-35	17	7.4	0.5	10	600	0.084	7.4		
BZX84-C18	SOT23	18	5	0.3		45			16	5
BZV55-C18	SOD80	18	5	0.5	30	45			16	5
BZX55-C18	Ⓔ DO 35	18	5	0.5	30	50				
BZX79-C18	Ⓔ DO-35	18	5	0.5	30	10			16	5
BZV49-C18	SOT89	18	5	1	40	45			16	5
BZV90-C18	SOT223	18	5	1.3	40	45			16	
PMBZ5248B	SOT23	18	7	0.3		600	0.078	7		
PMLL5248B	SOD80	18	7	0.5	10	600	0.085	7		
1N5248B	DO-35	18	7	0.5	10	600	0.085	7		
1N4746A	DO-41	18	14	1						
BZV85-C18	Ⓔ DO-41	18	15	1.3	60	20			17.1	15
BZD27-C18	SOD87	18	25	2.3	300	15	0.11	25		
BZD23-C18	SOD81	18	25	2.5	300	15	0.11	25		
BZT03-C18	Ⓔ SOD57	18	25	3.25	600	15	0.11	25		
BZW03-C18	Ⓔ SOD64	18	65	6	1000	2.5	0.11	65		
BZY93-C18	DO-4	18	500		700	1.5	12	500		
BZY93-C18R	DO-4	18	500		700	1.5	12	500		
BZY91-C18	DO-5	18	2000	100	9500	0.7				
BZY91-C18R	DO-5	18	2000	100	9500	0.7				
PMBZ5249B	SOT23	19	6.6	0.3		600	0.078	6.6		
PMLL5249B	SOD80	19	6.6	0.5	10	600	0.086	6.6		
1N5249B	DO-35	19	6.6	0.5	10	600	0.086	6.6		
BZX84-C20	SOT23	20	5	0.3		55			18	5
BZV55-C20	SOD80	20	5	0.5	30	55			18	5

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Voltage regulator (cont.)

Stabiliser diodes

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
BZX55-C20	DO-35	20	5	0.5	30	55				
BZX79-C20	DO-35	20	5	0.5	30	15			18	5
BZV49-C20	SOT89	20	5	1	40	55			18	5
BZV90-C20	SOT223	20	5	1.3	40	55			18	
PMBZ5250B	SOT23	20	6.2	0.3	600	600	0.08	6.2		
PMLL5250B	SOD80	20	6.2	0.5	10	600	0.086	6.2		
1N5250B	DO-35	20	6.2	0.5	10	600	0.086	6.2		
BZV85-C20	DO-41	20	10	1.3	60	24			19.1	10
1N4747A	DO-41	20	12.5	1						
BZD27-C20	SOD87	20	25	2.3	300	15	0.11	25		
BZD23-C20	SOD81	20	25	2.5	300	15	0.11	25		
BZT03-C20	SOD57	20	25	3.25	600	15	0.11	25		
BZW03-C20	SOD64	20	65	6	1000	3	0.11	65		
BZY93-C20	DO-4	20	500		700	1.5	14	500		
BZY93-C20R	DO-4	20	500		700	1.5	14	500		
BZY91-C20	DO-5	20	1000	100	9500	0.8				
BZY91-C20R	DO-5	20	1000	100	9500	0.8				
BZX84-C22	SOT23	22	5	0.3	55	55			20	5
BZV55-C22	SOD80	22	5	0.5	30	55			20	5
BZX55-C22	DO-35	22	5	0.5	30	55				
BZX79-C22	DO-35	22	5	0.5	30	20			20	5
BZV49-C22	SOT89	22	5	1	40	55			20	5
BZV90-C22	SOT223	22	5	1.3	40	55			20	
PMBZ5251B	SOT23	22	5.6	0.3	600	600	0.08	5.6		
PMLL5251B	SOD80	22	5.6	0.5	10	600	0.087	5.6		
1N5251B	DO-35	22	5.6	0.5	10	600	0.087	5.6		
BZV85-C22	DO-41	22	10	1.3	60	25			22.1	10
1N4748A	DO-41	22	11.5	1						
BZD27-C22	SOD87	22	25	2.3	300	15	0.11	25		
BZD23-C22	SOD81	22	25	2.5	300	15	0.11	25		
BZT03-C22	SOD57	22	25	3.25	600	15	0.11	25		
BZW03-C22	SOD64	22	50	6	1000	3.5	0.11	50		
BZY93-C22	DO-4	22	500		700	1.8	16	500		
BZY93-C22R	DO-4	22	500		700	1.8	16	500		
BZY91-C22	DO-5	22	1000	100	9500	0.8				
BZY91-C22R	DO-5	22	1000	100	9500	0.8				
BZX84-C24	SOT23	24	5	0.3	70	70			22	5
BZV55-C24	SOD80	24	5	0.5	30	70			22	5
BZX55-C24	DO-35	24	5	0.5	30	80				
BZX79-C24	DO-35	24	5	0.5	30	25			22	5
BZV49-C24	SOT89	24	5	1	40	70			22	5
BZV90-C24	SOT223	24	5	1.3	40	70			22	
PMBZ5252B	SOT23	24	5.2	0.3	600	600	0.081	5.2		
PMLL5252B	SOD80	24	5.2	0.5	10	600	0.088	5.2		
1N5252B	DO-35	24	5.2	0.5	10	600	0.088	5.2		
BZV85-C24	DO-41	24	10	1.3	60	30			24.3	10
1N4749A	DO-41	24	10.5	1						
BZD27-C24	SOD87	24	25	2.3	300	15	0.11	25		
BZD23-C24	SOD81	24	25	2.5	300	15	0.11	25		
BZT03-C24	SOD57	24	25	3.25	600	15	0.11	25		
BZW03-C24	SOD64	24	50	6	1000	3.5	0.11	50		

Stabiliser diodes

Voltage regulator (cont.)

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
BZY93-C24	DO-4	24	500		700	2	18	500		
BZY93-C24R	DO-4	24	500		700	2	18	500		
BZY91-C24	DO-5	24	1000	100	9500	0.9				
BZY91-C24R	DO-5	24	1000	100	9500	0.9				
PMBZ5253B	SOT23	25	5	0.3		600	0.082	5		
PMLL5253B	SOD80	25	5	0.5	10	600	0.089	5		
1N5253B	DO-35	25	5	0.5	10	600	0.089	5		
BZX84-C27	SOT23	27	2	0.3		80			25.3	2
BZV55-C27	SOD80	27	2	0.5	30	80			25.3	2
BZX79-C27	DO-35	27	2	0.5	30	25			25.3	2
BZV90-C27	SOT223	27	2	1.3	40	80			25.3	
PMBZ5254B	SOT23	27	4.6	0.3		600	0.085	4.6		
PMLL5254B	SOD80	27	4.6	0.5	10	600	0.09	4.6		
1N5254B	DO-35	27	4.6	0.5	10	600	0.09	4.6		
BZX55-C27	DO-35	27	5	0.5	30	80				
BZV49-C27	SOT89	27	5	1	40	80			25.3	2
BZV85-C27	DO-41	27	8	1.3	60	40			27.5	8
BZD27-C27	SOD87	27	25	2.3	300	15	0.11	25		
BZD23-C27	SOD81	27	25	2.5	300	15	0.11	25		
BZT03-C27	SOD57	27	25	3.25	600	15	0.11	25		
BZW03-C27	SOD64	27	50	6	1000	5	0.11	50		
BZY93-C27	DO-4	27	500		700	2	21	500		
BZY93-C27R	DO-4	27	500		700	2	21	500		
BZY91-C27	DO-5	27	1000	100	9500	1				
BZY91-C27R	DO-5	27	1000	100	9500	1				
PMBZ5255B	SOT23	28	4.5	0.3		600	0.085	4.5		
PMLL5255B	SOD80	28	4.5	0.5	10	600	0.091	4.5		
1N5255B	DO-35	28	4.5	0.5	10	600	0.091	4.5		
BZX84-C30	SOT23	30	2	0.3		80			29.4	2
BZV55-C30	SOD80	30	2	0.5	30	80			29.4	2
BZX79-C30	DO-35	30	2	0.5	30	30			29.4	2
BZV49-C30	SOT89	30	2	1	40	80			29.4	2
BZV90-C30	SOT223	30	2	1.3	40	80			29.4	
PMBZ5256B	SOT23	30	4.2	0.3		600	0.085	4.2		
PMLL5256B	SOD80	30	4.2	0.5	10	600	0.091	4.2		
1N5256B	DO-35	30	4.2	0.5	10	600	0.091	4.2		
BZX55-C30	DO-35	30	5	0.5	30	80				
BZV85-C30	DO-41	30	8	1.3	60	45			32	8
BZD27-C30	SOD87	30	25	2.3	300	15	0.11	25		
BZD23-C30	SOD81	30	25	2.5	300	15	0.11	25		
BZT03-C30	SOD57	30	25	3.25	600	15	0.11	25		
BZW03-C30	SOD64	30	40	6	1000	8	0.11	40		
BZY93-C30	DO-4	30	500		700	2.5	25	500		
BZY93-C30R	DO-4	30	500		700	2.5	25	500		
BZY91-C30	DO-5	30	1000	100	9500	1.1				
BZY91-C30R	DO-5	30	1000	100	9500	1.1				
BZX84-C33	SOT23	33	2	0.3		80			33.4	2
BZV55-C33	SOD80	33	2	0.5	30	80			33.4	2
BZX79-C33	DO-35	33	2	0.5	30	35			33.4	2
BZV49-C33	SOT89	33	2	1	40	80			33.4	2
BZV90-C33	SOT223	33	2	1.3	40	80			33.4	



Voltage regulator (cont.)

Stabiliser diodes

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
PMBZ5257B	SOT23	33	3.8	0.3		700	0.085	3.8		
PMLL5257B	SOD80	33	3.8	0.5	10	700	0.092	3.8		
1N5257B	DO-35	33	3.8	0.5	10	700	0.092	3.8		
BZX55-C33	DO-35	33	5	0.5	30	80				
BZV85-C33	DO-41	33	8	1.3	60	45			35	8
BZD27-C33	SOD87	33	25	2.3	300	15	0.11	25		
BZD23-C33	SOD81	33	25	2.5	300	15	0.11	25		
BZT03-C33	SOD57	33	25	3.25	600	15	0.11	25		
BZW03-C33	SOD64	33	40	6	1000	10	0.11	40		
BZY93-C33	DO-4	33	500		700	3	30	500		
BZY93-C33R	DO-4	33	500		700	3	30	500		
BZY91-C33	DO-5	33	1000	100	9500	1.2				
BZY91-C33R	DO-5	33	1000	100	9500	1.2				
BZX84-C36	SOT23	36	2	0.3		90			37.4	2
BZV55-C36	SOD80	36	2	0.5	30	90			37.4	2
BZX79-C36	DO-35	36	2	0.5	30	35			37.4	2
BZV49-C36	SOT89	36	2	1	40	90			37.4	2
BZV90-C36	SOT223	36	2	1.3	40	90			37.4	
PMLL5258B	SOD80	36	3.4	0.5	10	700	0.093	3.4		
1N5258B	DO-35	36	3.4	0.5	10	700	0.093	3.4		
BZX55-C36	DO-35	36	5	0.5	30	80				
BZV85-C36	DO-41	36	8	1.3	60	50			39.9	8
BZD27-C36	SOD87	36	10	2.3	300	40	0.11	10		
BZD23-C36	SOD81	36	10	2.5	300	40	0.11	10		
BZT03-C36	SOD57	36	10	3.25	600	15	0.11	10		
BZW03-C36	SOD64	36	30	6	1000	11	0.11	30		
BZY93-C36	DO-4	36	200		700	4	32	200		
BZY93-C36R	DO-4	36	200		700	4	32	200		
BZY91-C36	DO-5	36	1000	100	9500	1.3				
BZY91-C36R	DO-5	36	1000	100	9500	1.3				
BZX84-C39	SOT23	39	2	0.3		130			41.2	2
BZV55-C39	SOD80	39	2	0.5	30	130			41.2	2
BZX79-C39	DO-35	39	2	0.5	30	40			41.2	2
BZV49-C39	SOT89	39	2	1	40	130			41.2	2
BZV90-C39	SOT223	39	2	1.3	40	130			41.2	
BZX55-C39	DO-35	39	2.5	0.5	30	90				
PMLL5259B	SOD80	39	3.2	0.5	10	800	0.094	3.2		
1N5259B	DO-35	39	3.2	0.5	10	800	0.094	3.2		
BZV85-C39	DO-41	39	6	1.3	60	60			43	6
BZD27-C39	SOD87	39	10	2.3	300	40	0.11	10		
BZD23-C39	SOD81	39	10	2.5	300	40	0.11	10		
BZT03-C39	SOD57	39	10	3.25	600	40	0.11	10		
BZW03-C39	SOD64	39	30	6	1000	14	0.11	30		
BZY93-C39	DO-4	39	200		700	5	35	200		
BZY93-C39R	DO-4	39	200		700	5	35	200		
BZY91-C39	DO-5	39	500	100	9500	1.4				
BZY91-C39R	DO-5	39	500	100	9500	1.4				
BZX84-C43	SOT23	43	2	0.3		150			46.6	2
BZV55-C43	SOD80	43	2	0.5	30	150			46.6	2
BZX79-C43	DO-35	43	2	0.5	30	45			46.6	2
BZV49-C43	SOT89	43	2	1	40	150			46.6	2

Stabiliser diodes

Voltage regulator (cont.)

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
BZV90-C43	SOT223	43	2	1.3	40	150			46.6	
BZX55-C43	DO-35	43	2.5	0.5	30	90				
PMLL5260B	SOD80	43	3	0.5	10	900	0.095	3		
1N5260B	DO-35	43	3	0.5	10	900	0.095	3		
BZV85-C43	DO-41	43	6	1.3	60	75			48.3	6
BZD27-C43	SOD87	43	10	2.3	300	45	0.12	10		
BZD23-C43	SOD81	43	10	2.5	300	45	0.12	10		
BZT03-C43	SOD57	43	10	3.25	600	45	0.12	10		
BZW03-C43	SOD64	43	30	6	1000	20	0.12	30		
BZY93-C43	DO-4	43	200		700	6.5	40	200		
BZY93-C43R	DO-4	43	200		700	6.5	40	200		
BZY91-C43	DO-5	43	500	100	9500	1.5				
BZY91-C43R	DO-5	43	500	100	9500	1.5				
BZX84-C47	SOT23	47	2	0.3		170			51.8	2
BZV55-C47	SOD80	47	2	0.5	30	170			51.8	2
BZX79-C47	DO-35	47	2	0.5	30	50			51.8	2
BZV49-C47	SOT89	47	2	1	40	170			51.8	2
BZV90-C47	SOT223	47	2	1.3	40	170			51.8	
BZX55-C47	DO-35	47	2.5	0.5	30	110				
PMLL5261B	SOD80	47	2.7	0.5	10	1000	0.095	2.7		
1N5261B	DO-35	47	2.7	0.5	10	1000	0.095	2.7		
BZV85-C47	DO-41	47	4	1.3	60	100			52.5	4
BZD27-C47	SOD87	47	10	2.3	300	45	0.12	10		
BZD23-C47	SOD81	47	10	2.5	300	45	0.12	10		
BZT03-C47	SOD57	47	10	3.25	600	45	0.12	10		
BZW03-C47	SOD64	47	25	6	1000	25	0.12	25		
BZY93-C47	DO-4	47	200		700	7	45	200		
BZY93-C47R	DO-4	47	200		700	7	45	200		
BZY91-C47	DO-5	47	500	100	9500	1.7				
BZY91-C47R	DO-5	47	500	100	9500	1.7				
BZX84-C51	SOT23	51	2	0.3		180			57.2	2
BZV55-C51	SOD80	51	2	0.5	30	180			57.2	2
BZX79-C51	DO-35	51	2	0.5	30	60			57.2	2
BZV49-C51	SOT89	51	2	1	40	180			57.2	2
BZV90-C51	SOT223	51	2	1.3	40	180			57.2	
PMLL5262B	SOD80	51	2.5	0.5	10	1100	0.096	2.5		
1N5262B	DO-35	51	2.5	0.5	10	1100	0.096	2.5		
BZX55-C51	DO-35	51	2.5	0.5	30	125				
BZV85-C51	DO-41	51	4	1.3	60	125			56.5	4
BZD27-C51	SOD87	51	10	2.3	300	60	0.12	10		
BZD23-C51	SOD81	51	10	2.5	300	60	0.12	10		
BZT03-C51	SOD57	51	10	3.25	600	60	0.12	10		
BZW03-C51	SOD64	51	25	6	1000	27	0.12	25		
BZY93-C51	DO-4	51	200		700	7.5	50	200		
BZY93-C51R	DO-4	51	200		700	7.5	50	200		
BZY91-C51	DO-5	51	500	100	9500	1.8				
BZY91-C51R	DO-5	51	500	100	9500	1.8				
BZX84-C56	SOT23	56	2	0.3		200			63.8	2
BZV55-C56	SOD80	56	2	0.5	30	200			63.8	2
BZX79-C56	DO-35	56	2	0.5	30	70			63.8	2



Voltage regulator (cont.)

Stabiliser diodes

typenumber	package	V _{ref} nom	@ I _Z	P _{max}	P _{ZSM}	r _{diff} max	S _Z	@ I _Z	S _F	@ I _F
		V	mA	W	W	Ohm	%K	mA	mV/K	mA
BZV49-C56	SOT89	56	2	1	40	200			63.8	2
BZV90-C56	SOT223	56	2	1.3	40	200			63.8	
PMLL5263B	SOD80	56	2.2	0.5	10	1300	0.096	2.2		
1N5263B	DO-35	56	2.2	0.5	10	1300	0.096	2.2		
BZX55-C56	€ DO-35	56	2.5	0.5	30	135				
BZV85-C56	€ DO-41	56	4	1.3	60	150			63	4
BZD27-C56	SOD87	56	10	2.3	300	60	0.12	10		
BZD23-C56	SOD81	56	10	2.5	300	60	0.12	10		
BZT03-C56	€ SOD57	56	10	3.25	600	60	0.12	10		
BZW03-C56	€ SOD64	56	20	6	1000	35	0.12	20		
BZY93-C56	DO-4	56	200		700	8	55	200		
BZY93-C56R	DO-4	56	200		700	8	55	200		
BZY91-C56	DO-5	56	500	100	9500	2				
BZY91-C56R	DO-5	56	500	100	9500	2				
PMLL5264B	SOD80	60	2.1	0.5	10	1400	0.097	2.1		
1N5264B	DO-35	60	2.1	0.5	10	1400	0.097	2.1		
BZX84-C62	SOT23	62	2	0.3		215			71.6	2
PMLL5265B	SOD80	62	2	0.5	10	1400	0.097	2		
1N5265B	DO-35	62	2	0.5	10	1400	0.097	2		
BZV55-C62	SOD80	62	2	0.5	30	215			71.6	2
BZX79-C62	€ DO-35	62	2	0.5	30	80			71.6	2
BZV49-C62	SOT89	62	2	1	40	215			71.6	2
BZV90-C62	SOT223	62	2	1.3	40	215			71.6	
BZX55-C62	€ DO-35	62	2.5	0.5	30	150				
BZV85-C62	€ DO-41	62	4	1.3	60	175			72.5	4
BZD27-C62	SOD87	62	10	2.3	300	80	0.13	10		
BZD23-C62	SOD81	62	10	2.5	300	80	0.13	10		
BZT03-C62	€ SOD57	62	10	3.25	600	80	0.13	10		
BZW03-C62	€ SOD64	62	20	6	1000	42	0.13	20		
BZY93-C62	DO-4	62	200		700	9	60	200		
BZY93-C62R	DO-4	62	200		700	9	60	200		
BZY91-C62	DO-5	62	500	100	9500	2.2				
BZY91-C62R	DO-5	62	500	100	9500	2.2				
PMLL5266B	SOD80	68	1.8	0.5	10	1600	0.097	1.8		
1N5266B	DO-35	68	1.8	0.5	10	1600	0.097	1.8		
BZX84-C68	SOT23	68	2	0.3		240			79.8	2
BZV55-C68	SOD80	68	2	0.5	30	240			79.8	2
BZX79-C68	€ DO-35	68	2	0.5	30	90			79.8	2
BZV49-C68	SOT89	68	2	1	40	240			79.8	2
BZV90-C68	SOT223	68	2	1.3	40	240			79.8	
BZX55-C68	€ DO-35	68	2.5	0.5	30	200				
BZV85-C68	€ DO-41	68	4	1.3	60	200			81	4
BZD27-C68	SOD87	68	10	2.3	300	80	0.13	10		
BZD23-C68	SOD81	68	10	2.5	300	80	0.13	10		
BZT03-C68	€ SOD57	68	10	3.25	600	80	0.13	10		
BZW03-C68	€ SOD64	68	20	6	1000	44	0.13	20		
BZY93-C68	DO-4	68	200		700	10	65	200		
BZY93-C68R	DO-4	68	200		700	10	65	200		
BZY91-C68	DO-5	68	500	100	9500	2.4				
BZY91-C68R	DO-5	68	500	100	9500	2.4				
PMLL5267B	SOD80	75	1.7	0.5	10	1700	0.098	1.7		

Stabiliser diodes

Voltage regulator (cont.)

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
1N5267B	DO-35	75	1.7	0.5	10	1700	0.098	1.7		
BZX84-C75	SOT23	75	2	0.3		255			88.6	2
BZV55-C75	SOD80	75	2	0.5	30	240			88.6	2
BZX79-C75	DO-35	75	2	0.5	30	95			88.6	2
BZV49-C75	SOT89	75	2	1	40	255			88.6	2
BZV90-C75	SOT223	75	2	1.3	40	255			88.6	
BZX55-C75	DO-35	75	2.5	0.5	30	250				
BZV85-C75	DO-41	75	4	1.3	60	225			88	4
BZD27-C75	SOD87	75	10	2.3	300	100	0.13	10		
BZD23-C75	SOD81	75	10	2.5	300	100	0.13	10		
BZT03-C75	SOD57	75	10	3.25	600	100	0.13	10		
BZW03-C75	SOD64	75	20	6	1000	45	0.13	20		
BZY93-C75	DO-4	75	200		700	10.5	70	200		
BZY93-C75R	DO-4	75	200		700	10.5	70	200		
BZY91-C75	DO-5	75	500	100	9500	2.6				
BZY91-C75R	DO-5	75	500	100	9500	2.6				
BZD27-C82	SOD87	82	10	2.3	300	100	0.13	10		
BZD23-C82	SOD81	82	10	2.5	300	100	0.13	10		
BZT03-C82	SOD57	82	10	3.25	600	100	0.13	10		
BZW03-C82	SOD64	82	15	6	1000	65	0.13	15		
BZD27-C91	SOD87	91	5	2.3	300	200	0.13	5		
BZD23-C91	SOD81	91	5	2.5	300	200	0.13	5		
BZT03-C91	SOD57	91	5	3.25	600	200	0.13	5		
BZW03-C91	SOD64	91	15	6	1000	75	0.13	15		
BZD27-C100	SOD87	100	5	2.3	300	200	0.13	5		
BZD23-C100	SOD81	100	5	2.5	300	200	0.13	5		
BZT03-C100	SOD57	100	5	3.25	600	200	0.13	5		
BZW03-C100	SOD64	100	12	6	1000	90	0.13	12		
BZD27-C110	SOD87	110	5	2.3	300	250	0.13	5		
BZD23-C110	SOD81	110	5	2.5	300	250	0.13	5		
BZT03-C110	SOD57	110	5	3.25	600	250	0.13	5		
BZW03-C110	SOD64	110	12	6	1000	125	0.13	12		
BZD27-C120	SOD87	120	5	2.3	300	250	0.13	5		
BZD23-C120	SOD81	120	5	2.5	300	250	0.13	5		
BZT03-C120	SOD57	120	5	3.25	600	250	0.13	5		
BZW03-C120	SOD64	120	10	6	1000	170	0.13	10		
BZD27-C130	SOD87	130	5	2.3	300	300	0.13	5		
BZD23-C130	SOD81	130	5	2.5	300	300	0.13	5		
BZT03-C130	SOD57	130	5	3.25	600	300	0.13	5		
BZW03-C130	SOD64	130	10	6	1000	190	0.13	10		
BZD27-C150	SOD87	150	5	2.3	300	300	0.13	5		
BZD23-C150	SOD81	150	5	2.5	300	300	0.13	5		
BZT03-C150	SOD57	150	5	3.25	600	300	0.13	5		
BZW03-C150	SOD64	150	8	6	1000	330	0.13	8		
BZD27-C160	SOD87	160	5	2.3	300	350	0.13	5		
BZD23-C160	SOD81	160	5	2.5	300	350	0.13	5		
BZT03-C160	SOD57	160	5	3.25	600	350	0.13	5		
BZW03-C160	SOD64	160	8	6	1000	350	0.13	8		
BZD27-C180	SOD87	180	5	2.3	300	400	0.13	5		
BZD23-C180	SOD81	180	5	2.5	300	400	0.13	5		
BZT03-C180	SOD57	180	5	3.25	600	400	0.13	5		

SC

Voltage regulator (cont.)

Stabiliser diodes

typenumber	package	V _{ref} nom V	@ I _Z mA	P _{max} W	P _{ZSM} W	r _{diff} max Ohm	S _Z %/K	@ I _Z mA	S _F mV/K	@ I _F mA
BZW03-C180 €	SOD64	180	5	6	1000	430	0.13	5		
BZD27-C200	SOD87	200	5	2.3	300	500	0.13	5		
BZD23-C200	SOD81	200	5	2.5	300	500	0.13	5		
BZT03-C200 €	SOD57	200	5	3.25	600	500	0.13	5		
BZW03-C200 €	SOD64	200	5	6	1000	500	0.13	5		
BZD27-C220	SOD87	220	2	2.3	300	750	0.13	2		
BZD23-C220	SOD81	220	2	2.5	300	750	0.13	2		
BZT03-C220 €	SOD57	220	2	3.25	600	750	0.13	2		
BZW03-C220 €	SOD64	220	5	6	1000	700	0.13	5		
BZD27-C240	SOD87	240	2	2.3	300	850	0.13	2		
BZD23-C240	SOD81	240	2	2.5	300	850	0.13	2		
BZT03-C240 €	SOD57	240	2	3.25	600	850	0.13	2		
BZW03-C240 €	SOD64	240	5	6	1000	900	0.13	5		
BZD27-C270	SOD87	270	2	2.3	300	1000	0.13	2		
BZD23-C270	SOD81	270	2	2.5	300	1000	0.13	2		
BZT03-C270 €	SOD57	270	2	3.25	600	1000	0.13	2		
BZW03-C270 €	SOD64	270	5	6	1000	1200	0.13	5		

Stabiliser diodes

Transient suppressor

typenumber	package	V _(CL) R	@ I _{RSM}	P _{max}	@ T _{tp}	P _{ZSM}	@ t _p	P _{RSM}	@ T _j	@ shape	@ t ₁	@ t ₂
		V	A	W	Cel	W	us	W	Cel		us	us
BZY93-C7V5	DO-4	9.2	20			700	1000					
BZY93-C7V5R	DO-4	9.2	20			700	1000					
BZY93-C8V2	DO-4	10.2	20			700	1000					
BZY93-C8V2R	DO-4	10.2	20			700	1000					
BZY91-C8V2	DO-5	10.5	150	100		9500	1000			EXP		
BZY91-C8V2R	DO-5	10.5	150	100		9500	1000			EXP		
BZY91-C9V1	DO-5	11	150	100		9500	1000			EXP		
BZY91-C9V1R	DO-5	11	150	100		9500	1000			EXP		
BZD27-C7V5	SOD87	11.3	13.3	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C7V5	SOD81	11.3	13.3	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C7V5	€ SOD57	11.3	26.5	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C7V5	SOD64	11.3	44.2	6	25	1000	100	500	25	EXP	10	1000
BZY93-C9V1	DO-4	11.5	20			700	1000					
BZY93-C9V1R	DO-4	11.5	20			700	1000					
BZD27-C8V2	SOD87	12.3	12.2	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C8V2	SOD81	12.3	12.2	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C8V2	€ SOD57	12.3	24.4	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C8V2	SOD64	12.3	40.6	6	25	1000	100	500	25	EXP	10	1000
BZY93-C10	DO-4	12.5	20			700	1000					
BZY93-C10R	DO-4	12.5	20			700	1000					
BZY91-C10	DO-5	12.5	150	100		9500	1000			EXP		
BZY91-C10R	DO-5	12.5	150	100		9500	1000			EXP		
BZD27-C9V1	SOD87	13.3	11.3	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C9V1	SOD81	13.3	11.3	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C9V1	€ SOD57	13.3	22.7	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C9V1	€ SOD64	13.3	37.6	6	25	1000	100	500	25	EXP	10	1000
BZY91-C11	DO-5	13.5	150	100		9500	1000			EXP		
BZY91-C11R	DO-5	13.5	150	100		9500	1000			EXP		
BZY93-C11	DO-4	14	20			700	1000					
BZY93-C11R	DO-4	14	20			700	1000					
BZD27-C10	SOD87	14.8	10.1	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C10	SOD81	14.8	10.1	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C10	€ SOD57	14.8	20.3	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C10	€ SOD64	14.8	34	6	25	1000	100	500	25	EXP	10	1000
BZY91-C12	DO-5	15	150	100		9500	1000			EXP		
BZY91-C12R	DO-5	15	150	100		9500	1000			EXP		
BZD27-C11	SOD87	15.7	9.6	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C11	SOD81	15.7	9.6	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C11	€ SOD57	15.7	19.1	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C11	€ SOD64	15.7	31.8	6	25	1000	100	500	25	EXP	10	1000
BZY93-C12	DO-4	16	20			700	1000					
BZY93-C12R	DO-4	16	20			700	1000					
BZD27-C12	SOD87	17	8.8	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C12	SOD81	17	8.8	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C12	€ SOD57	17	17.7	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C12	€ SOD64	17	29.4	6	25	1000	100	500	25	EXP	10	1000
BZY91-C13	DO-5	17	150	100		9500	1000			EXP		
BZY91-C13R	DO-5	17	150	100		9500	1000			EXP		
BZY93-C13	DO-4	17.5	20			700	1000					
BZY93-C13R	DO-4	17.5	20			700	1000					
BZD27-C13	SOD87	18.9	7.9	2.3	105	300	100	150	25	EXP	10	1000



Transient suppressor (cont.)

Stabiliser diodes

typenumber	package	V _{(CL)R}	@ I _{RSM}	P _{max}	@ T _{tp}	P _{ZSM}	@ t _p	P _{RSM}	@ T _j	@ shape	@ t ₁	@ t ₂
		V	A	W	Cel	W	us	W	Cel		us	us
BZD23-C13	SOD81	18.9	7.9	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C13	€ SOD57	18.9	15.9	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C13	€ SOD64	18.9	26.4	6	25	1000	100	500	25	EXP	10	1000
BZY91-C15	DO-5	19	150	100		9500	1000			EXP		
BZY91-C15R	DO-5	19	150	100		9500	1000			EXP		
BZY93-C15	DO-4	19.5	20			700	1000					
BZY93-C15R	DO-4	19.5	20			700	1000					
BZD27-C15	SOD87	20.9	7.2	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C15	SOD81	20.9	7.2	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C15	€ SOD57	20.9	14.4	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C15	€ SOD64	20.9	23.9	6	25	1000	100	500	25	EXP	10	1000
BZY93-C16	DO-4	22	20			700	1000					
BZY93-C16R	DO-4	22	20			700	1000					
BZY91-C16	DO-5	22	150	100		9500	1000			EXP		
BZY91-C16R	DO-5	22	150	100		9500	1000			EXP		
BZD27-C16	SOD87	22.9	6.6	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C16	SOD81	22.9	6.6	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C16	€ SOD57	22.9	13.1	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C16	€ SOD64	22.9	21.8	6	25	1000	100	500	25	EXP	10	1000
BZY93-C18	DO-4	24	20			700	1000					
BZY93-C18R	DO-4	24	20			700	1000					
BZV37	SOD68	25	7			40	100					
BZD27-C18	SOD87	25.6	5.9	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C18	SOD81	25.6	5.9	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C18	€ SOD57	25.6	11.7	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C18	€ SOD64	25.6	19.5	6	25	1000	100	500	25	EXP	10	1000
BZY91-C18	DO-5	26	150	100		9500	1000			EXP		
BZY91-C18R	DO-5	26	150	100		9500	1000			EXP		
BZY93-C20	DO-4	27	10			700	1000					
BZY93-C20R	DO-4	27	10			700	1000					
BZW14	SOD64	28	50									
BZY91-C20	DO-5	28	100	100		9500	1000			EXP		
BZY91-C20R	DO-5	28	100	100		9500	1000			EXP		
BZD27-C20	SOD87	28.4	5.3	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C20	SOD81	28.4	5.3	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C20	€ SOD57	28.4	10.6	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C20	€ SOD64	28.4	17.6	6	25	1000	100	500	25	EXP	10	1000
BZY93-C22	DO-4	30	10			700	1000					
BZY93-C22R	DO-4	30	10			700	1000					
BZD27-C22	SOD87	31	4.8	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C22	SOD81	31	4.8	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C22	€ SOD57	31	9.7	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C22	€ SOD64	31	16.1	6	25	1000	100	500	25	EXP	10	1000
BZY91-C22	DO-5	31	100	100		9500	1000			EXP		
BZY91-C22R	DO-5	31	100	100		9500	1000			EXP		
BZD27-C24	SOD87	33.8	4.4	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C24	SOD81	33.8	4.4	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C24	€ SOD57	33.8	8.9	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C24	€ SOD64	33.8	14.8	6	25	1000	100	500	25	EXP	10	1000
BZY93-C24	DO-4	34	10			700	1000					
BZY93-C24R	DO-4	34	10			700	1000					

Stabiliser diodes

Transient suppressor (cont.)

typenumber	package	V _{(CL)R}	@ I _{RSM}	P _{max}	@ T _{tp}	P _{ZSM}	@ t _p	P _{RSM}	@ T _j	@ shape	@ t ₁	@ t ₂
		V	A	W	Cel	W	us	W	Cel		us	us
BZY91-C24	DO-5	34	100	100		9500	1000			EXP		
BZY91-C24R	DO-5	34	100	100		9500	1000			EXP		
BZY91-C27	DO-5	37	100	100		9500	1000			EXP		
BZY91-C27R	DO-5	37	100	100		9500	1000			EXP		
BZD27-C27	SOD87	38.1	3.9	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C27	SOD81	38.1	3.9	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C27	€ SOD57	38.1	7.9	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C27	€ SOD64	38.1	13.1	6	25	1000	100	500	25	EXP	10	1000
BZY93-C27	DO-4	39	10			700	1000					
BZY93-C27R	DO-4	39	10			700	1000					
BZY91-C30	DO-5	40	100	100		9500	1000			EXP		
BZY91-C30R	DO-5	40	100	100		9500	1000			EXP		
BZD27-C30	SOD87	42.2	3.6	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C30	SOD81	42.2	3.6	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C30	€ SOD57	42.2	7.7	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C30	€ SOD64	42.2	11.8	6	25	1000	100	500	25	EXP	10	1000
BZY93-C30	DO-4	44	10			700	1000					
BZY93-C30R	DO-4	44	10			700	1000					
BZY91-C33	DO-5	44	100	100		9500	1000			EXP		
BZY91-C33R	DO-5	44	100	100		9500	1000			EXP		
BZD27-C33	SOD87	46.2	3.2	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C33	SOD81	46.2	3.2	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C33	€ SOD57	46.2	6.5	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C33	€ SOD64	46.2	10.8	6	25	1000	100	500	25	EXP	10	1000
BZY93-C39	DO-4	47	5			700	1000					
BZY93-C39R	DO-4	47	5			700	1000					
BZY91-C36	DO-5	48	100	100		9500	1000			EXP		
BZY91-C36R	DO-5	48	100	100		9500	1000			EXP		
BZY93-C33	DO-4	50	10			700	1000					
BZY93-C33R	DO-4	50	10			700	1000					
BZD27-C36	SOD87	50.1	3	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C36	SOD81	50.1	3	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C36	€ SOD57	50.1	6	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C36	€ SOD64	50.1	10	6	25	1000	100	500	25	EXP	10	1000
BZY93-C43	DO-4	52	5			700	1000					
BZY93-C43R	DO-4	52	5			700	1000					
BZY91-C39	DO-5	52	50	100		9500	1000			EXP		
BZY91-C39R	DO-5	52	50	100		9500	1000			EXP		
BZD27-C39	SOD87	54.1	2.8	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C39	SOD81	54.1	2.8	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C39	€ SOD57	54.1	5.5	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C39	€ SOD64	54.1	9.2	6	25	1000	100	500	25	EXP	10	1000
BZY93-C36	DO-4	56	10			700	1000					
BZY93-C36R	DO-4	56	10			700	1000					
BZY91-C43	DO-5	56	50	100		9500	1000			EXP		
BZY91-C43R	DO-5	56	50	100		9500	1000			EXP		
BZY93-C47	DO-4	59	5			700	1000					
BZY93-C47R	DO-4	59	5			700	1000					
BZD27-C43	SOD87	60.7	2.5	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C43	SOD81	60.7	2.5	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C43	€ SOD57	60.7	4.9	3.25	25	600	100	300	25	EXP	10	1000



Transient suppressor (cont.)

Stabiliser diodes

typenumber	package	V (CL)R	@ I _{RSM}	P _{max}	@ T _{1p}	P _{ZSM}	@ t _p	P _{RSM}	@ T _j	@ shape	@ t ₁	@ t ₂
		V	A	W	Cel	W	us	W	Cel		us	us
BZW03-C43	€ SOD64	60.7	8.2	6	25	1000	100	500	25	EXP	10	1000
BZY91-C47	DO-5	61	50	100		9500	1000			EXP		
BZY91-C47R	DO-5	61	50	100		9500	1000			EXP		
BZD27-C47	SOD87	65.5	2.3	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C47	SOD81	65.5	2.3	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C47	€ SOD57	65.5	4.6	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C47	€ SOD64	65.5	7.6	6	25	1000	100	500	25	EXP	10	1000
BZY93-C51	DO-4	66	5			700	1000					
BZY93-C51R	DO-4	66	5			700	1000					
BZY91-C51	DO-5	66	50	100		9500	1000			EXP		
BZY91-C51R	DO-5	66	50	100		9500	1000			EXP		
BZD27-C51	SOD87	70.8	2.1	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C51	SOD81	70.8	2.1	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C51	€ SOD57	70.8	4.2	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C51	€ SOD64	70.8	7	6	25	1000	100	500	25	EXP	10	1000
BZY91-C56	DO-5	72	50	100		9500	1000			EXP		
BZY91-C56R	DO-5	72	50	100		9500	1000			EXP		
BZY93-C56	DO-4	75	5			700	1000					
BZY93-C56R	DO-4	75	5			700	1000					
BZD27-C56	SOD87	78.6	1.9	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C56	SOD81	78.6	1.9	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C56	€ SOD57	78.6	3.8	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C56	€ SOD64	78.6	6.3	6	25	1000	100	500	25	EXP	10	1000
BZY91-C62	DO-5	79	50	100		9500	1000			EXP		
BZY91-C62R	DO-5	79	50	100		9500	1000			EXP		
BZY93-C62	DO-4	85	5			700	1000					
BZY93-C62R	DO-4	85	5			700	1000					
BZD27-C62	SOD87	86.5	1.7	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C62	SOD81	86.5	1.7	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C62	€ SOD57	86.5	3.5	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C62	€ SOD64	86.5	5.8	6	25	1000	100	500	25	EXP	10	1000
BZY91-C68	DO-5	87	50	100		9500	1000			EXP		
BZY91-C68R	DO-5	87	50	100		9500	1000			EXP		
BZY93-C68	DO-4	94	5			700	1000					
BZY93-C68R	DO-4	94	5			700	1000					
BZD27-C68	SOD87	94.4	1.6	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C68	SOD81	94.4	1.6	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C68	€ SOD57	94.4	3.2	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C68	€ SOD64	94.4	5.3	6	25	1000	100	500	25	EXP	10	1000
BZY91-C75	DO-5	97	50	100		9500	1000			EXP		
BZY91-C75R	DO-5	97	50	100		9500	1000			EXP		
BZD27-C75	SOD87	103.5	1.5	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C75	SOD81	103.5	1.5	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C75	€ SOD57	103.5	2.9	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C75	€ SOD64	103.5	4.8	6	25	1000	100	500	25	EXP	10	1000
BZY93-C75	DO-4	105	5			700	1000					
BZY93-C75R	DO-4	105	5			700	1000					
BZD27-C82	SOD87	114	1.3	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C82	SOD81	114	1.3	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C82	€ SOD57	114	2.6	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C82	€ SOD64	114	4.3	6	25	1000	100	500	25	EXP	10	1000

Stabiliser diodes

Transient suppressor (cont.)

typenumber	package	V _{(CL)R}	I _{RSM}	P _{max}	T _{tp}	P _{ZSM}	t _p	P _{RSM}	T _J	@ shape	t ₁	t ₂
		V	A	W	Cel	W	us	W	Cel		us	us
BZD27-C91	SOD87	126	1.2	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C91	SOD81	126	1.2	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C91	€ SOD57	126	2.4	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C91	€ SOD64	126	3.9	6	25	1000	100	500	25	EXP	10	1000
BZD27-C100	SOD87	139	1.1	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C100	SOD81	139	1.1	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C100	€ SOD57	139	2.2	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C100	€ SOD64	139	3.6	6	25	1000	100	500	25	EXP	10	1000
BZD27-C110	SOD87	152	1	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C110	SOD81	152	1	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C110	€ SOD57	152	2	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C110	€ SOD64	152	3.3	6	25	1000	100	500	25	EXP	10	1000
BZD27-C120	SOD87	167	0.9	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C120	SOD81	167	0.9	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C120	€ SOD57	167	1.8	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C120	€ SOD64	167	3	6	25	1000	100	500	25	EXP	10	1000
BZD27-C130	SOD87	185	0.81	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C130	SOD81	185	0.81	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C130	€ SOD57	185	1.6	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C130	€ SOD64	185	2.7	6	25	1000	100	500	25	EXP	10	1000
BZD27-C150	SOD87	204	0.73	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C150	SOD81	204	0.73	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C150	€ SOD57	204	1.5	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C150	€ SOD64	204	2.4	6	25	1000	100	500	25	EXP	10	1000
BZD27-C160	SOD87	224	0.67	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C160	SOD81	224	0.67	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C160	€ SOD57	224	1.3	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C160	€ SOD64	224	2.2	6	25	1000	100	500	25	EXP	10	1000
BZD27-C180	SOD87	249	0.6	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C180	SOD81	249	0.6	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C180	€ SOD57	249	1.2	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C180	€ SOD64	249	2	6	25	1000	100	500	25	EXP	10	1000
BZD27-C200	SOD87	276	0.54	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C200	SOD81	276	0.54	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C200	€ SOD57	276	1.1	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C200	€ SOD64	276	1.8	6	25	1000	100	500	25	EXP	10	1000
BZD27-C220	SOD87	305	0.5	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C220	SOD81	305	0.5	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C220	€ SOD57	305	1	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C220	€ SOD64	305	1.6	6	25	1000	100	500	25	EXP	10	1000
BZD27-C240	SOD87	336	0.45	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C240	SOD81	336	0.45	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C240	€ SOD57	336	0.9	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C240	€ SOD64	336	1.5	6	25	1000	100	500	25	EXP	10	1000
BZD27-C270	SOD87	380	0.4	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C270	SOD81	380	0.4	2.5	25	300	100	150	25	EXP	10	1000
BZT03-C270	€ SOD57	380	0.8	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C270	€ SOD64	380	1.3	6	25	1000	100	500	25	EXP	10	1000
BZD27-C300	SOD87	419	0.36	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C300	SOD81	419	0.36	2.5	25	300	100	150	25	EXP	10	1000



Transient suppressor (cont.)

Stabiliser diodes

typenumber	package	$V_{(CL)R}$	$@ I_{RSM}$	P_{max}	$@ T_{1p}$	P_{ZSM}	$@ t_p$	P_{RSM}	$@ T_j$	$@ shape$	$@ t_1$	$@ t_2$
		V	A	W	Cel	W	us	W	Cel		us	us
BZT03-300	SOD57	419	0.72	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C300	SOD64	419	1.2	6	25							
BZD27-C330	SOD87	459	0.33	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C330	SOD81	459	0.33	2.5	25	300	100	150	25	EXP	10	1000
BZT03-330	SOD57	459	0.65	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C330	SOD64	459	1.1	6	25							
BZD27-C360	SOD87	498	0.3	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C360	SOD81	498	0.3	2.5	25	300	100	150	25	EXP	10	1000
BZT03-360	SOD57	498	0.6	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C360	SOD64	498	1	6	25							
BZD27-C390	SOD87	537	0.28	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C390	SOD81	537	0.28	2.5	25	300	100	150	25	EXP	10	1000
BZT03-390	SOD57	537	0.56	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C390	SOD64	537	0.93	6	25							
BZD27-C430	SOD87	603	0.25	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C430	SOD81	603	0.25	2.5	25	300	100	150	25	EXP	10	1000
BZT03-430	SOD57	603	0.5	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C430	SOD64	603	0.83	6	25							
BZD27-C470	SOD87	655	0.23	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C470	SOD81	655	0.23	2.5	25	300	100	150	25	EXP	10	1000
BZT03-470	SOD57	655	0.45	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C470	SOD64	655	0.76	6	25							
BZD27-C510	SOD87	707	0.21	2.3	105	300	100	150	25	EXP	10	1000
BZD23-C510	SOD81	707	0.21	2.5	25	300	100	150	25	EXP	10	1000
BZT03-510	SOD57	707	0.42	3.25	25	600	100	300	25	EXP	10	1000
BZW03-C510	SOD64	707	0.71	6	25							

Trigger devices

Triacs

typenumber	package	V _{DRM}	I _{T(RMS)-max}	di _{T/dt-max}	I _{TSM}	I _{TRM}	@ dt	dV _{D/dt-max}	V _{GT-min}
		V	A	A/us	A	A	ms	V/us	V
BT134W-500	SOT223	500	1	10	10	10	20		
BT134W-500D	SOT223	500	1	10	10	10	20		
BT134W-500E	SOT223	500	1	10	10	10	20		
BT134-500	SOT82	500	4	10	25	25	20	100	1.5
BT136-500	TO-220AB	500	4	10	25	25	20	100	1.5
BT136-500D	TO-220AB	500	4	10	25	25	20		1.5
BT136-500E	TO-220AB	500	4	10	25	25	20		1.5
BT136-500F	TO-220AB	500	4	10	25	25	20	50	1.5
BT136-500G	TO-220AB	500	4	10	25	25	20	200	1.5
BT136F-500	SOT186	500	4	10	25	25	20	100	1.5
BT136F-500D	SOT186	500	4	10	25	25	20		1.5
BT136F-500E	SOT186	500	4	10	25	25	20		1.5
BT136F-500F	SOT186	500	4	10	25	25	20	50	1.5
BT136F-500G	SOT186	500	4	10	25	25	20	200	1.5
BT137-500	TO-220AB	500	8	20	55	55	20	100	1.5
BT137-500D	TO-220AB	500	8	20	55	55	20		1.5
BT137-500E	TO-220AB	500	8	20	55	55	20		1.5
BT137-500F	TO-220AB	500	8	20	55	55	20	50	1.5
BT137-500G	TO-220AB	500	8	20	55	55	20	200	1.5
BT137F-500	SOT186	500	8	20	55	55	20	100	1.5
BT137F-500D	SOT186	500	8	20	55	55	20		1.5
BT137F-500E	SOT186	500	8	20	55	55	20		1.5
BT137F-500F	SOT186	500	8	20	55	55	20	50	1.5
BT137F-500G	SOT186	500	8	20	55	55	20	200	1.5
BT138-500	TO-220AB	500	12	30	90	90	20	100	1.5
BT138-500E	TO-220AB	500	12	30	90	90	20	50	1.5
BT138-500F	TO-220AB	500	12	30	90	90	20	50	1.5
BT138-500G	TO-220AB	500	12	30	90	90	20	200	1.5
BT138F-500	SOT186	500	12	30	90	90	20	100	1.5
BT138F-500E	SOT186	500	12	30	90	90	20	50	1.5
BT138F-500F	SOT186	500	12	30	90	90	20	50	1.5
BT138F-500G	SOT186	500	12	30	90	90	20	200	1.5
BT139-500	TO-220AB	500	16	30	140	140	20	100	1.5
BT139-500E	TO-220AB	500	16	30	140	140	20	50	1.5
BT139-500F	TO-220AB	500	16	30	140	140	20	50	1.5
BT139-500G	TO-220AB	500	16	30	140	140	20	200	1.5
BT139-500H	TO-220AB	500	16	30	140	140	20		0.25
BT139F-500	SOT186	500	16	30	140	140	20	100	1.5
BT139F-500E	SOT186	500	16	30	140	140	20	50	1.5
BT139F-500F	SOT186	500	16	30	140	140	20	50	1.5
BT139F-500G	SOT186	500	16	30	140	140	20	200	1.5
BTA140-500	TO-220AB	500	25	30	180	180	20	100	1.5
BT134W-600	SOT223	600	1	10	10	10	20		
BT134W-600D	SOT223	600	1	10	10	10	20		
BT134W-600E	SOT223	600	1	10	10	10	20		
BT134-600	SOT82	600	4	10	25	25	20	100	1.5
BT136-600	TO-220AB	600	4	10	25	25	20	100	1.5
BT136-600D	TO-220AB	600	4	10	25	25	20		1.5
BT136-600E	TO-220AB	600	4	10	25	25	20		1.5
BT136-600F	TO-220AB	600	4	10	25	25	20	50	1.5
BT136-600G	TO-220AB	600	4	10	25	25	20	200	1.5

SC

Trlacs (cont.)

Trigger devices

typenumber	package	V_{DRM}	$I_T(RMS)\text{-max}$	$di_T/dt\text{-max}$	I_{TSM}	I_{TRM}	@ dt	$dV_D/dt\text{-max}$	$V_{GT\text{-min}}$
		V	A	A/us	A	A	ms	V/us	V
BT136F-600	SOT186	600	4	10	25	25	20	100	1.5
BT136F-600D	SOT186	600	4	10	25	25	20		1.5
BT136F-600E	SOT186	600	4	10	25	25	20		1.5
BT136F-600F	SOT186	600	4	10	25	25	20	50	1.5
BT136F-600G	SOT186	600	4	10	25	25	20	200	1.5
BT137-600	TO-220AB	600	8	20	55	55	20	100	1.5
BT137-600E	TO-220AB	600	8	20	55	55	20		1.5
BT137-600F	TO-220AB	600	8	20	55	55	20	50	1.5
BT137-600G	TO-220AB	600	8	20	55	55	20	200	1.5
BT137F-600	SOT186	600	8	20	55	55	20	100	1.5
BT137F-600E	SOT186	600	8	20	55	55	20		1.5
BT137F-600F	SOT186	600	8	20	55	55	20	50	1.5
BT137F-600G	SOT186	600	8	20	55	55	20	200	1.5
BT138-600	TO-220AB	600	12	30	90	90	20	100	1.5
BT138-600E	TO-220AB	600	12	30	90	90	20	50	1.5
BT138-600F	TO-220AB	600	12	30	90	90	20	50	1.5
BT138-600G	TO-220AB	600	12	30	90	90	20	200	1.5
BT138F-600	SOT186	600	12	30	90	90	20	100	1.5
BT138F-600E	SOT186	600	12	30	90	90	20	50	1.5
BT138F-600F	SOT186	600	12	30	90	90	20	50	1.5
BT138F-600G	SOT186	600	12	30	90	90	20	200	1.5
BTA212-600B	TO-220AB	600	12	50	90		20		
BTW43-600G	TO-64	600	15	50	120	50	20	200	2.5
BTW43-600H	TO-64	600	15	50	120	50	20	200	2.5
BT139-600	TO-220AB	600	16	30	140	140	20	100	1.5
BT139-600E	TO-220AB	600	16	30	140	140	20	50	1.5
BT139-600F	TO-220AB	600	16	30	140	140	20	50	1.5
BT139-600G	TO-220AB	600	16	30	140	140	20	200	1.5
BT139-600H	TO-220AB	600	16	30	140	140	20		0.25
BT139F-600	SOT186	600	16	30	140	140	20	100	1.5
BT139F-600E	SOT186	600	16	30	140	140	20	50	1.5
BT139F-600F	SOT186	600	16	30	140	140	20	50	1.5
BT139F-600G	SOT186	600	16	30	140	140	20	200	1.5
BTA216-600B	TO-220AB	600	16	50	140		20		
BTA140-600	TO-220AB	600	25	30	180	180	20	100	1.5
BT134W-700	SOT223	700	1	10	10	10			
BT139-700H	TO-220AB	700	16	30	140	140	20		0.25
BT134W-800	SOT223	800	1	10	10	10	20		
BT134-800	SOT82	800	4	10	25	25	20	100	1.5
BT136-800	TO-220AB	800	4	10	25	25	20	100	1.5
BT136-800E	TO-220AB	800	4	10	25	25	20		1.5
BT136-800F	TO-220AB	800	4	10	25	25	20	50	1.5
BT136-800G	TO-220AB	800	4	10	25	25	20	200	1.5
BT136F-800	SOT186	800	4	10	25	25	20	100	1.5
BT136F-800E	SOT186	800	4	10	25	25	20		1.5
BT136F-800F	SOT186	800	4	10	25	25	20	50	1.5
BT136F-800G	SOT186	800	4	10	25	25	20	200	1.5
BT137-800	TO-220AB	800	8	20	55	55	20	100	1.5
BT137-800E	TO-220AB	800	8	20	55	55	20		1.5
BT137-800F	TO-220AB	800	8	20	55	55	20	50	1.5
BT137-800G	TO-220AB	800	8	20	55	55	20	200	1.5

Trigger devices

Triacs (cont.)

typenumber	package	V_{DRM}	$I_{T(RMS)-max}$	$di_T/dt-max$	I_{TSM}	I_{TRM}	$@ dt$	$dV_{D/dt-max}$	V_{GT-min}
		V	A	A/us	A	A	ms	V/us	V
BT137F-800	SOT186	800	8	20	55	55	20	100	1.5
BT137F-800E	SOT186	800	8	20	55	55	20		1.5
BT137F-800F	SOT186	800	8	20	55	55	20	50	1.5
BT137F-800G	SOT186	800	8	20	55	55	20	200	1.5
BT138-800	TO-220AB	800	12	30	90	90	20	100	1.5
BT138-800E	TO-220AB	800	12	30	90	90	20	50	1.5
BT138-800F	TO-220AB	800	12	30	90	90	20	50	1.5
BT138-800G	TO-220AB	800	12	30	90	90	20	200	1.5
BT138F-800	SOT186	800	12	30	90	90	20	100	1.5
BT138F-800E	SOT186	800	12	30	90	90	20	50	1.5
BT138F-800F	SOT186	800	12	30	90	90	20	50	1.5
BT138F-800G	SOT186	800	12	30	90	90	20	200	1.5
BTA212-800B	TO-220AB	800	12	50	90		20		
BTW43-800G	TO-64	800	15	50	120	50	20	200	2.5
BTW43-800H	TO-64	800	15	50	120	50	20	200	2.5
BT139-800	TO-220AB	800	16	30	140	140	20	100	1.5
BT139-800E	TO-220AB	800	16	30	140	140	20	50	1.5
BT139-800F	TO-220AB	800	16	30	140	140	20	50	1.5
BT139-800G	TO-220AB	800	16	30	140	140	20	200	1.5
BT139-800H	TO-220AB	800	16	30	140	140	20		0.25
BT139F-800	SOT186	800	16	30	140	140	20	100	1.5
BT139F-800E	SOT186	800	16	30	140	140	20	50	1.5
BT139F-800F	SOT186	800	16	30	140	140	20	50	1.5
BT139F-800G	SOT186	800	16	30	140	140	20	200	1.5
BTA216-800B	TO-220AB	800	16	50	140		20		
BTA140-800	TO-220AB	800	25	30	180	180	20	100	1.5
BTW43-1000G	TO-64	1000	15	50	120	50	20	200	2.5
BTW43-1000H	TO-64	1000	15	50	120	50	20	200	2.5







General purpose

Trigger devices

typenumber	package	V _{RRM} V	I _{T(AV)} -max A	I _{TSM} A	@ dt ms	I _{T(RMS)} -max A	I _{GT} -min mA	V _{GT} -min V	di _{T/dt} -max A/us
BRY39	TO-72	70	0.25	3	0.01				
BT149B	TO-92	200	0.5	8	10	0.8	0.2	0.8	20
BT169B	TO-92	200	0.5	8	10	0.8	0.2	0.8	
2N5064	TO-92	200	0.5	8	8.3	0.8	0.2	0.8	
BT149D	TO-92	400	0.5	8	10	0.8	0.2	0.8	
BT169D	TO-92	400	0.5	8	10	0.8	0.2	0.8	
BT148W-400R	SOT223	400	0.6	10	10	1	0.2	2.3	50
BT148-400R	SOT82	400	2.5	25	10	4	0.2	1.5	50
BTY79-400R	TO-64	400	10	150	10	16	30	1.5	50
BT152-400R	TO-220AB	400	13	200	10	20	32	1.5	200
BTY91-400R	TO-48	400	14	200	10	25	40	3	20
BTW45-400R	TO-48	400	16	300	10	25	75	1.5	100
BTW40-400R	TO-48	400	20	400	10	32	75	1.5	100
BTW40-400RU	TO-48	400	20	400	10	32	75	1.5	100
BT149E	TO-92	500	0.5	8	10	0.8	0.2	0.8	
BT169E	TO-92	500	0.5	8	10	0.8	0.2	0.8	
BT148W-500R	SOT223	500	0.6	10	10	1	0.2	2.3	50
BT148-500R	SOT82	500	2.5	25	10	4	0.2	1.5	50
BT150-500R	TO-220AB	500	2.5	25	10	4	0.2	1.5	50
BTA151-500R	SOT82	500	7.5	100	10	12	4	1.5	50
BT151-500R	TO-220AB	500	7.5	100	10	12	15	1.5	50
BTY79-500R	TO-64	500	10	150	10	16	30	1.5	50
BT145-500R	TO-220AB	500	16	300	10	25	35	1.5	200
BT149F	TO-92	600	0.5	8	10	0.8	0.2	0.8	
BT169F	TO-92	600	0.5	8	10	0.8	0.2	0.8	
BT148W-600R	SOT223	600	0.6	10	10	1	0.2	2.3	50
BT148-600R	SOT82	600	2.5	25	10	4	0.2	1.5	50
BTW38-600R	TO-64	600	10	150	10	16	50	1.5	50
BTW42-600R	TO-64	600	10	150	10	16	50	1.5	50
BTY79-600R	TO-64	600	10	150	10	16	30	1.5	50
BT152-600R	TO-220AB	600	13	200	10	20	32	1.5	200
BTY91-600R	TO-48	600	14	200	10	25	40	3	20
BTW45-600R	TO-48	600	16	300	10	25	75	1.5	100
BTW45-600RU	TO-48	600	16	300	10	25	75	1.5	100
BT145-600R	TO-220AB	600	16	300	10	25	35	1.5	200
BTW40-600R	TO-48	600	20	400	10	32	75	1.5	100
BTA151-650R	SOT82	650	7.5	100	10	12	4	1.5	50
BT151-650R	TO-220AB	650	7.5	100	10	12	15	1.5	50
BTA151-800R	SOT82	800	7.5	100	10	12	4	1.5	50
BT151-800R	TO-220AB	800	7.5	100	10	12	15	1.5	50
BTW38-800R	TO-64	800	10	150	10	16	50	1.5	50
BTW42-800R	TO-64	800	10	150	10	16	50	1.5	50
BTY79-800R	TO-64	800	10	150	10	16	30	1.5	50
BT152-800R	TO-220AB	800	13	200	10	20	32	1.5	200
BTY91-800R	TO-48	800	14	200	10	25	40	3	20
BTW45-800R	TO-48	800	16	300	10	25	75	1.5	100
BTW45-800RU	TO-48	800	16	300	10	25	75	1.5	100
BT145-800R	TO-220AB	800	16	300	10	25	35	1.5	200
BTW40-800R	TO-48	800	20	400	10	32	75	1.5	100

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typenumber	package	V_{RRM}	$I_{T(AV)-max}$	I_{TSM}	$@ dt$	$I_{T(RMS)-max}$	I_{GT-min}	V_{GT-min}	$dI_{T/dt-max}$
		V	A	A	ms	A	mA	V	A/us
BTW40-800RU	TO-48	800	20	400	10	32	75	1.5	100
BTW38-1000R 	TO-64	1000	10	150	10	16	50	1.5	50
BTW42-1000R 	TO-64	1000	10	150	10	16	50	1.5	50
BTY79-1000R 	TO-64	1000	10	150	10	16	30	1.5	50
BTW45-1000R 	TO-48	1000	16	300	10	25	75	1.5	100



Discrete Semiconductors — Part 2

RF and Microwave Semiconductors



Circulators and Isolators



High-power Klystrons



Semiconductor Sensors



PHILIPS SEMICONDUCTORS
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162 05351	61						
162 05361	61						
162 05371	60						
162 05381	60						
162 05391	60						
162 05401	62						
162 05411	61						
162 05471	61						
162 05562	61						
162 05571	61						
162 05755	59						
162 05781	59						
162 05881	59						
162 05891	59						
162 05971	59						
162 05981	59						
162 05991	59						
162 06002	59						
162 06111	60						
162 06161	60						
162 06291	59						
162 06671	60						
162 06701	61						
162 06901	59						
162 06962	60						
162 07005	59						
162 07021	59						
162 07031	59						
162 07271	59						
162 07281	59						
162 07411	60						
162 07421	60						
162 08091	61						
162 09002	62						
162 09012	62						
162 09022	62						
162 09041	62						
163 01021	61						
163 02004	61						
163 02005	61						
163 02024	61						
163 02025	61						
163 02061	61						
163 02071	61						
163 02081	61						

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
Tuner diodes**
VARIABLE-CAPACITANCE DIODES

type number	C_d (pF)	@ V_R (V)	tuning range over voltage range			r_s max (Ω)	matched sets $\Delta \frac{C_{max}}{C_{min}} < 3\%$	envelope
			Cd ratio	V_1 (V)	to V_2 (V)			
Automatic frequency control								
BB119	15.3-19.0	10	>1.3	4	10	1.5	no	DO-35
BB417	2.2-2.4	15	2-5	4	15	1.2	no	DO-34
AM radio tuning								
BB112	17-29	8.5	>18	1	8.5	1.5	yes	SOD69
BB130	12-21	28	>23	1	28	2	yes	SOD69
BB212¹⁾	<22	8.0	>22.5	0.5	8	2.5	no	TO-92
FM radio tuning								
BB204B¹⁾	typ. 14.0	30	2.5-2.8	3	30	0.4	no	TO-92
BB804¹⁾	42-47.5	8	1.65-1.75	2	8	typ. 0.25	no	SOT23
VHF tuning								
BB131	0.7-1.055	28	12-16	0.5	28	3.0	no	SOD323
BB132	2.3-2.75	28	24-30	0.5	28	2.0	yes <1%	SOD323
BB133	2.2-2.6	28	14-21	0.5	28	0.9	yes <0.7%	SOD323
BB135	1.7-2.1	28	8.9-12	0.5	28	0.75	no	SOD323
BB619	2.4-2.9	28	>12.5	1	28	typ. 0.7	yes	SOD123
BB620	2.9-3.4	28	19.5-25	1	28	typ. 1.3	yes	SOD123
BB809	4.0-5.0	28	8-10	1	28	0.6	yes	DO-34
BB901	max 1.055	28	>12	0.5	28	3	no	SOT23
BB909A	2.6-3.0	28	12-15	1	28	0.9	yes	DO-34
BB909B	2.8-3.2	28	12-15	1	28	0.9	yes	DO-34
BB910	2.3-2.7	28	>14	0.5	28	1.0	yes	DO-34
BB911	2.5-3.0	28	>21	0.5	28	2.0	yes	DO-34
BBY40	4.3-6.0	25	5-6.5	3	25	0.7	no	SOT23
BBY42	2.4-3.0	28	12-16	1	28	1.0	no	SOT23
UHF tuning								
BB134	1.7-2.1	28	8.9-12	0.5	28	0.75	yes <0.5%	SOD323
BB215	1.8-2.2	28	>7.6	1	28	typ. 0.63	yes	SOD80
BB405B	1.8-2.2	28	>7.6	1	28	0.75	yes	DO-34
BBY31	1.6-2.0	28	typ. 8.3	1	28	1.2	no	SOT23
BBY62¹⁾	1.6-2.0	28	typ. 8.3	1	28	1.2	no	SOT143
BB515	1.85-2.25	28	8-9.6	1	28	typ. 0.5	yes	SOD123
SHF/SAT-TV tuning								
BBY39²⁾	1.6-2.0	28	typ. 8.3	1	28	1.2	no	SOT23
BB811	0.85-1.2	28	7.8-9.5	1	28	typ. 1.45	yes	SOD123

1) double diode

2) common cathode double diode

DISCRETE SEMICONDUCTORS

Tuner diodes

RF & MICROWAVE SEMICONDUCTORS & MODULES

SCHOTTKY-BARRIER DIODES

Primarily intended for mixing applications.

type number	V_F max (mV) @ I_F (mA)	r_s max (Ω) @ I_F (mA) and f (kHz)	C_d (pF) @ V_R (V)	V_R max (V)	I_F max (mA)	envelope
BA481	450	13	1.1	0	30	DO-34

RF BAND-SWITCHING DIODES

type number	r_s max (Ω) @ I_F (mA) and f (MHz)	C_d max (pF) @ V_R (V) and f (MHz)	V_R max (V)	I_F max (mA)	envelope
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VHF applications

BA482	0.7	3	200	1.2	3	100	35	100	DO-35
BA483	1.2	3	200	1.0	3	100	35	100	DO-35
BA484	1.2	3	200	1.6	3	100	35	100	DO-35
BA582	0.7	3	200	1.1	3	100	35	100	SOD123
BA682	0.7	3	200	1.25	3	1	35	100	SOD80
BA683	1.2	3	200	1.2	3	1	35	100	SOD80
BAT18	0.7	5	200	1.0	20	1	35	100	SOT23

RF & MICROWAVE SEMICONDUCTORS & MODULES

DISCRETE SEMICONDUCTORS Tuner transistors

TUNER TRANSISTORS

type number	polarity	ratings			characteristics ¹⁾					envelope
		V_{CE0} (V)	I_C (mA)	P_{tot} (mW)	f_T (MHz)	F (dB)	@ (MHz)	G_{UM} (dB)	@ (MHz)	
BF496	npn	20	20	300	550	2.5	200	30	100	TO-92
BF547	npn	20	50	150	1200	4.5	100	20	100	SOT23
BF747	npn	20	50	150	1200	4.5	100	20	100	SOT23
BF748	npn	20	50	500	1200	4.5	100	20	100	TO-92
BFG67	npn	10	50	300	7500	2.2	2000	10	2000	SOT143
BFR92A	npn	15	25	300	5000	2.1	1000	14	1000	SOT23
BFR93A	npn	12	35	300	6000	1.9	1000	13	1000	SOT23
BFS17	npn	15	25	300	1300	4.5	500	-	-	SOT23
BFS17A	npn	15	25	300	2800	2.5	800	13.5	800	SOT23
BF506	pnp	35	30	300	350	5	200	17.5	200	TO-92
BF569	pnp	35	30	250	900	4.5	800	14.5	800	SOT23
BF660	pnp	30	25	250	650	-	-	-	-	SOT23
BF926	pnp	20	25	250	350	5	200	17.5	200	TO-92
BF970	pnp	35	30	160	900	4.7	800	14.5	800	SOT37

DUAL-GATE N-CHANNEL MOSFETS

type number	ratings		characteristics							envelope	remarks
	V_{DS} (V)	I_D (mA)	I_{DSS}		$-V_{(P)G1-S}$ max (V)	$ y_{fs} $ @ 1 kHz min (mS)	C_{is} typ (pF)	C_{os} typ (pF)	F typ (dB)		
			min (mA)	max (mA)							
BF901²⁾	12	30	2. *	18. *	-0.7	25	2.4	1.4	1.7	SOT143	VHF/UHF
BF904²⁾³⁾	7	30	8. *	13. *	-1.2	22	2.2	1.3	2.0	SOT143	VHF/UHF
BF960	20	20	2	20	2.7	9.5	1.8	0.9	2.8	SOT103	UHF
BF964S	20	30	4	20	2.5	15	2.5	1.0	1.0	SOT103	VHF
BF965	20	30	2	20	2.5	15	2.5	1.0	1.0	SOT103	VHF
BF966S	20	30	4	20	2.5	15	2.3	0.8	1.8	SOT103	UHF
BF980A	18	30	-	-	1.3	18	2.6	1.1	2.0	SOT103	UHF
BF981	20	20	4	25	2.5	10	2.1	1.1	1.0	SOT103	VHF
BF982	20	40	-	-	1.3	20	4.0	2.0	1.2	SOT103	VHF
BF988	12	30	2	18	2.5	24. ¹⁾	2.1	1.05	1.0	SOT103	VHF/UHF
BF989	20	20	2	20	2.7	9.5	1.8	0.9	2.8	SOT143	UHF
BF990A	18	30	-	-	1.3	18	2.6	1.2	2.0	SOT143	UHF
BF991	20	20	4	25	2.5	10	2.1	1.1	0.7	SOT143	VHF
BF992	20	40	-	-	1.3	20	4.0	2.0	1.2	SOT143	VHF
BF994S	20	30	4	20	2.5	15	2.5	1.0	1.0	SOT143	VHF
BF996S	20	30	4	20	2.5	15	2.3	0.8	1.8	SOT143	UHF
BF997	20	30	2	20	2.5	15	2.5	1.0	1.0	SOT143	VHF
BF998	12	30	2	18	2.5	24. ¹⁾	2.1	1.05	1.0	SOT143	VHF/UHF

* I_{DSS}

1) typical value

2) BF901 and BF904 are enhancement types

3) BF904 with internal biasing circuit; for 5 V applications



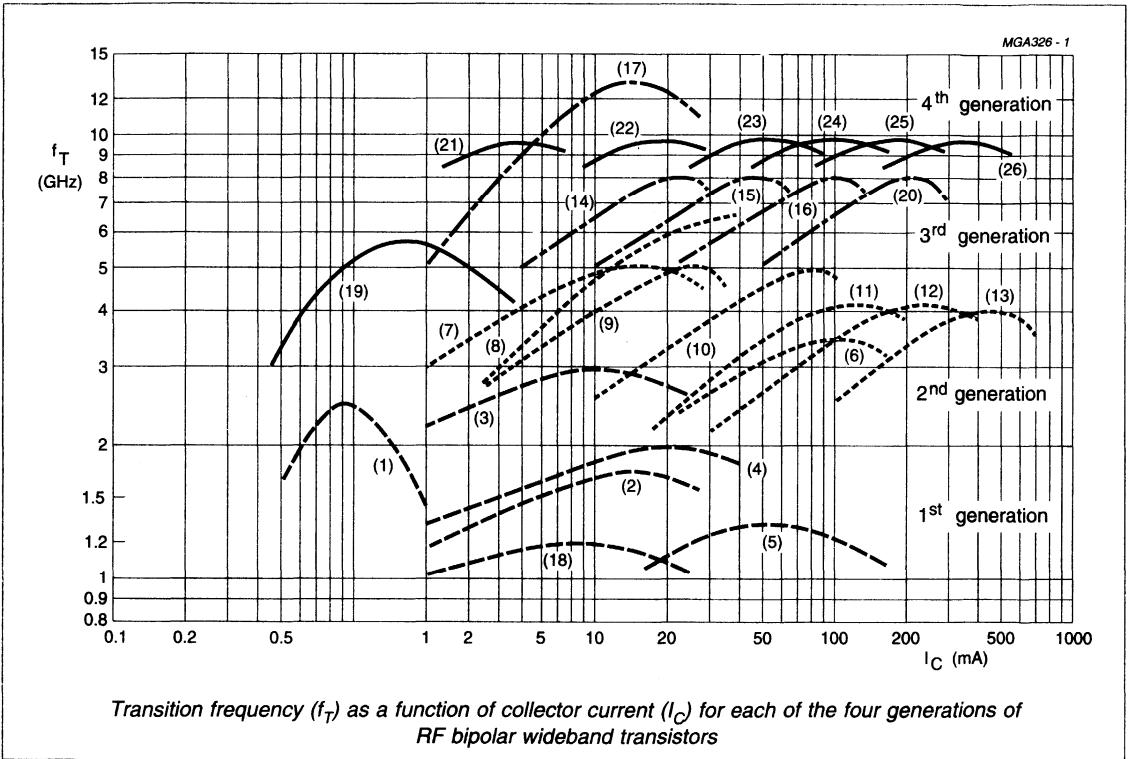
DISCRETE SEMICONDUCTORS

Wideband transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

WIDEBAND TRANSISTORS - SELECTION CHART

The chart below shows four generations of wideband transistors, and combined with tables on the next pages, serves as a quick selection guide for the circuit designer. Suitable line-ups can also be derived from the chart. All values of transition frequency (f_T), and collector current (I_C), are typical.



**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
Wideband transistors**
FIRST-GENERATION WIDEBAND TRANSISTORS (f_T up to 3.5 GHz)

f_T/I_C characteristic, see chart	polarity	envelope (through hole)				
		metal can		plastic		ceramic SOT122E
		TO-39	TO-72	TO-92	SOT37	
(1)	npn				BFT24	
(18)	npn			BF748		
(2)	npn npn		BFY90	BF689K BF763	BFW92	
(3)	npn				BFW92A	
(4)	npn		BFW30		BFW93	
(5)	npn npn	BFW16A BFW17A				
(6)	npn	BFR95				BFR94A

FIRST-GENERATION WIDEBAND TRANSISTORS (f_T up to 3.5 GHz) *continued*

f_T/I_C characteristic, see chart	polarity	envelope (surface mount)				
		SOT323	SOT23	SOT89	SOT143	SOT223
(1)	npn		BFT25			
(18)	npn npn	BF547W BF747W	BF547 BF747			
(2)	npn	BFS17W	BFS17			
(3)	npn		BFS17A		BFG17A	
(4)	npn		BFR53			
(5)	npn			BFQ17		BFG16A



DISCRETE SEMICONDUCTORS

Wideband transistors

RF & MICROWAVE

SEMICONDUCTORS & MODULES

FIRST-GENERATION NPN WIDEBAND TRANSISTORS (f_T up to 3.5 GHz) *continued*

type number	ratings			characteristics ¹⁾					envelope		
	V_{CE0}	I_C	P_{tot}	f_T	F	@	f	G_{UM}		@	f
	(V)	(mA)	(mW)	(GHz)	(dB)		(MHz)	(dB)			(MHz)
BF547	20	50	300	1.2	–	–	–	20	100	SOT23	
BF547W	20	50	300	1.2	–	–	–	20	100	SOT323	
BF689K	15	25	360	1.8	3	–	200	16	200	TO-92	
BF747	20	50	300	1.2	–	–	–	20	100	SOT23	
BF747W	20	50	300	1.2	–	–	–	20	100	SOT323	
BF748	20	50	500	1.2	–	–	–	25	100	TO-92	
BF751	14	35	600	6.5	2.7	–	1000	11	1000	TO-92	
BF763	15	25	360	1.8	–	–	800	13	800	TO-92	
BFG16A	25	150	1000	1.6	–	–	–	10	500	SOT223	
BFG17A	15	50	300	2.8	2.5	–	800	15	800	SOT143	
BFQ17	25	300	1000	1.5	–	–	–	16 (6.5)	200.(800)	SOT89	
BFR53	10	100	400	2.0	5	–	500	22 (10.5)	200.(800)	SOT23	
BFR94A	25	150	3500	3.5	5	–	500	13.5	500	SOT122E	
BFR95	25	150	1500	3.5	9	–	200	13.5	500	TO-39	
BFS17	15	25	300	1.6	4.5	–	500	–	–	SOT23	
BFS17A	15	25	300	2.8	2.5	–	800	13.5	800	SOT23	
BFS17W	15	50	300	1.6	–	–	–	–	–	SOT323	
BFT24	5	6.5	30	2.3	3.8	–	500	17	500	SOT37	
BFT25	5	6.5	30	2.3	3.8	–	500	18	500	SOT23	
BFW16A	25	300	1500	1.2	<6	–	200	16 ³⁾ (6.5 ³⁾)	200	TO-39	
BFW17A	25	300	1500	1.1	–	–	–	16 ³⁾	200	TO-39	
BFW30	10	100	250	1.6	<5	–	500	21 (7.5)	200	TO-72	
BFW92	15	50	300	1.6	4	–	500	23 ³⁾ (11 ³⁾)	200	SOT37	
BFW92A	15	25	300	2.8	2.5	–	800	13	800	SOT37	
BFW93	10	100	300	1.7	<5	–	500	22 (10.5)	200.(800)	SOT37	
BFY90	15	50	200	1.4	2.5 (5.5)	–	200.(800)	23 ³⁾ (8 ³⁾)	200.(800)	TO-72	

¹⁾ typical values

²⁾ values in parentheses are measured at 800 MHz

³⁾ G_p

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
Wideband transistors**
SECOND-GENERATION WIDEBAND TRANSISTORS (f_T up to 6 GHz)

f_T/I_C characteristic, see chart	polarity	envelope (through hole)				
		metal can	plastic		ceramic	
		TO-72	SOT37	SOT103	SOT122	SOT173
(7)	npn pnp	BFQ53 BFQ52	BFR90(A) BFQ51	BFG90A		BFP90A
(8)	npn	BFQ22S	BFR91(A)	BFG91A		BFP91A
(9)	pnp	BFQ24	BFQ23			BFQ23C
(10)	npn pnp	BFQ63 BFQ32M	BFR96(S) BFQ32(S)	BFG96 BFG32		BFP96 BFQ32C
(11)	npn pnp		BFQ34T BFQ54T	BFG34	BFQ34	
(12)	npn pnp				BFQ68 BFQ108	
(13)	npn				BFQ136	

SECOND-GENERATION WIDEBAND TRANSISTORS (f_T up to 6 GHz) *continued*

f_T/I_C characteristic, see chart	polarity	envelope (surface mount)				
		SOT323	SOT23	SOT89	SOT143	SOT223
(7)	npn pnp	BFR92AW BFT92AW	BFR92(A) BFT92		BFG92A(/X,/XR)	
(8)	npn	BFR93AW	BFR93(A)		BFG93A(/X,/XR)	BFG94
(9)	pnp	BFT93AW	BFT93			
(10)	npn pnp		BFR106	BFQ19 BFQ149		BFG97 BFG31
(11)	npn pnp			BFQ18A		BFG35 BFG55



DISCRETE SEMICONDUCTORS

Wideband transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

SECOND-GENERATION WIDEBAND TRANSISTORS (f_T up to 6 GHz) *continued*

type number	polarity	ratings			characteristics ¹⁾						envelope	
		V_{CE0}	I_C	P_{tot}	f_T	linear ²⁾ V_{out}	F	@	f	G_{UM}		@
		(V)	(mA)	(mW)	(GHz)	(mV)	(dB)	(MHz)	(dB)	(MHz)		
BFG31	pn	15	100	1000	5	600	–	–	12	800	SOT223	
BFG32	pn	15	100	700	5	500	4.3	800	13.5	800	SOT103	
BFG34	np	18	150	1000	4	750	2.3	800	14.5	800	SOT103	
BFG35	np	18	150	1000	4	750	–	–	11	800	SOT223	
BFG55	pn	18	150	1000	4	750	–	–	11	800	SOT223	
BFG90A	np	15	25	300	5	150	2.4	800	19	800	SOT103	
BFG91A	np	12	35	300	6	425	2.3	800	17.5	800	SOT103	
BFG92A	np	15	25	300	5	–	2.1	1000	17	1000	SOT143	
BFG92A/X	np	15	25	300	5	–	2.4	800	17.5	800	SOT143	
BFG92A/XR	np	15	25	300	5	–	2.4	800	17.5	800	SOT143	
BFG93A	np	12	35	300	6	–	1.9	1000	16	1000	SOT143	
BFG93A/X	np	12	35	300	6	–	2.3	800	17	800	SOT143	
BFG93A/XR	np	12	35	300	6	–	2.3	800	17	800	SOT143	
BFG94	np	12	60	700	6	500	3	1000	13.5	1000	SOT223	
BFG96	np	15	75	700	5	700	4	800	15	800	SOT103	
BFG97	np	15	100	1000	5.5	700	3.7	800	12	800	SOT223	
BFP90A	np	15	30	450	5	150	2.4	800	19.5	800	SOT173	
BFP91A	np	12	50	600	6	425	2.3	800	18.5	800	SOT173	
BFP96	np	15	100	1000	5	700	3.7	800	15	800	SOT173	
BFQ18A	np	18	150	1000	4	700	–	–	–	–	SOT89	
BFQ19	np	15	100	1000	5	700	3.3	500	11.5	500	SOT89	
BFQ22S	np	12	35	250	6	300	1.5	500	16	500	TO-72	
BFQ23	pn	12	35	250	5	300	2.4	500	15	500	SOT37	
BFQ23C	pn	12	50	350	5	400	3.7	800	16	800	SOT173	
BFQ24	pn	12	35	250	5	300	2.4	500	15	500	TO-72	
BFQ32	pn	15	100	700	5	500	3.8	500	14	500	SOT37	
BFQ32C	pn	15	100	700	4.5	500	4.3	800	14	800	SOT173	
BFQ32M	pn	15	100	250	4.5	–	2.3	500	11	500	TO-72	
BFQ32S	pn	15	100	700	4.5	600	4.3	800	10	800	SOT37	
BFQ34	np	18	150	2700	4	1200	8	500	16.3	500	SOT122	
BFQ34T	np	18	150	1000	3.7	750	–	–	12	800	SOT37	
BFQ51	pn	15	25	300	5	150	2.4	800	18	500	SOT37	
BFQ52	pn	15	25	250	5	150	2.7	500	17	500	TO-72	
BFQ53	np	15	25	250	5	150	2.1	1000	18	500	TO-72	

¹⁾ typical values

²⁾ at a d_{im} of –60 dB, measured according to DIN45004B par. 6.3: 3-tone test

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
Wideband transistors**
SECOND-GENERATION WIDEBAND TRANSISTORS (f_T up to 6 GHz) *continued*

type number	polarity	ratings			characteristics ¹⁾						envelope
		V_{CE0} (V)	I_C (mA)	P_{tot} (mW)	f_T (GHz)	linear ²⁾ V_{out} (mV)	F (dB)	@ (MHz)	f (MHz)	G_{UM} (dB)	
BFQ54T	npn	18	150	1000	4.5	700	-	-	18	300	SOT37
BFQ63	npn	15	75	250	5	500	2.3	500	11.5	500	TO-72
BFQ68	npn	18	300	4500	4	1600	-	-	13	800	SOT122A
BFQ108	pnnp	18	300	4000	4	1200	-	-	-	-	SOT122A
BFQ136	npn	18	600	9000	4	2500	-	-	12.5	800	SOT122A
BFQ149	pnnp	15	100	1000	5	-	3.75	500	12	500	SOT89
BFR90	npn	15	25	300	5	150	2.4	500	19.5	500	SOT37
BFR90A	npn	15	25	300	5	150	2.4	800	15	800	SOT37
BFR91	npn	12	35	300	5	300	1.9	500	18	500	SOT37
BFR91A	npn	12	35	300	6	425	2.3	2000	14	800	SOT37
BFR92	npn	15	25	300	5	150	2.4	500	18	800	SOT23
BFR92A	npn	15	25	300	5	150	2.1	1000	14	1000	SOT23
BFR92AW	npn	15	25	300	5	-	2.1	1000	14	1000	SOT323
BFR93	npn	12	35	300	5	425	1.9	500	16.5	500	SOT23
BFR93A	npn	12	35	300	6	425	1.9	1000	13	1000	SOT23
BFR93AW	npn	12	35	300	6	-	1.9	1000	16	1000	SOT323
BFR96	npn	15	75	700	5	500	3.3	500	15.2	500	SOT37
BFR96S	npn	15	100	700	5	700	4	800	11.5	800	SOT37
BFR106	npn	15	100	500	5	350	3.5	800	11.5	800	SOT23
BFT92	pnnp	15	25	300	5	150	2.5	500	18	500	SOT23
BFT92AW	pnnp	15	35	300	5	-	2.5	500	18	500	SOT323
BFT93	pnnp	12	35	300	5	300	2.4	500	16.5	500	SOT23
BFT93AW	pnnp	12	50	300	5	-	2.4	500	16.5	500	SOT323



¹⁾ typical values

²⁾ at a d_{im} of -60 dB, measured according to DIN45004B par. 6.3: 3-tone test

DISCRETE SEMICONDUCTORS

Wideband transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

THIRD-GENERATION WIDEBAND TRANSISTORS (f_T up to 8 GHz)

f_T/I_C characteristic see chart	ic, polarity	envelope (through hole)			
		plastic		ceramic	
		SOT37	SOT103	SOT172	SOT173
(14)	npn	BFQ65	BFG65		BFQ66
(15)	npn		BFG195		
(16)	npn	BFR134	BFG134	BFQ135	
(17)	npn				BFQ33C
(20)	npn			BFQ270	

THIRD-GENERATION WIDEBAND TRANSISTORS (f_T up to 8 GHz) *continued*

f_T/I_C characteristic, see chart	polarity	envelope (surface mount)			
		SOT323	SOT23	SOT143	SOT223
(14)	npn	BFQ67W	BFG67	BFG67(/X,/XR)	
(15)	npn			BFG197(/X,/XR)	BFG198
(16)	npn				BFG135
(17)	npn			BFG33(/X,/XR)	

THIRD-GENERATION NPN WIDEBAND TRANSISTORS (f_T up to 8 GHz) *continued*

type number	ratings			characteristics ¹⁾					envelope
	V_{CE0}	I_C	P_{tot}	f_T	F	G_{UM}	V_{CE}	I_C	
	(V)	(mA)	(mW)	(GHz)	@ 2 GHz (dB)	(dB)	(V)	(mA)	
BFG33	7	20	140	12	3.0	12.5	5	15	SOT143
BFG33/X	7	20	140	12	3.0	12.5	5	15	SOT143
BFG33/XR	7	20	140	1	3.0	12.5	5	15	SOT143
BFG65	10	50	300	8	2.7	10.5	8	15	SOT103
BFG67	10	50	300	8	2.2	10.9	8	15	SOT143
BFG67/X	10	50	300	8	2.2	10.9	8	15	SOT143
BFG67/XR	10	50	300	8	2.2	10.9	8	15	SOT143
BFG134	15	150	1000	7	–	8	10	100	SOT103
BFG135	15	150	1000	7	–	12. ²⁾	10	100	SOT223
BFG195	10	100	700	7.5	1.4 ²⁾	11.0	8	50	SOT103
BFG197	10	100	500	7.5	1.4 ²⁾	10	6	50	SOT143
BFG197/X	10	100	500	7.5	1.4 ²⁾	10	6	50	SOT143
BFG197/XR	10	100	500	7.5	1.4 ²⁾	10	6	50	SOT143
BFG198	10	100	1000	8	–	15. ²⁾	8	50	SOT223
BFQ33C	7	20	140	12.5	3.0	12.5	5	15	SOT173
BFQ65	10	50	300	8	2.7	8	8	15	SOT37
BFQ66	10	50	350	8	2.7	11.5	8	15	SOT173
BFQ67	10	50	300	8	2.2	8	8	15	SOT23
BFQ67W	10	50	300	8	2.7	8	8	15	SOT323
BFQ135	19	150	2700	6.5	–	13.5 ²⁾	18	120	SOT172
BFR134	15	150	1000	7	–	11.5 ²⁾	10	100	SOT37
BFQ270	19	500	10000	6	–	10	18	240	SOT172

¹⁾ typical values

²⁾ at 800 MHz

RF & MICROWAVE SEMICONDUCTORS & MODULES

DISCRETE SEMICONDUCTORS Wideband transistors

FOURTH-GENERATION NPN WIDEBAND TRANSISTORS (f_T up to 10 GHz)

f_T/I_C characteristic, see chart	envelope						
	plastic	ceramic		surface mount			
	SOT103	SOT172	SOT173	SOT323	SOT23	SOT143	SOT223
(19)				BFS25A	BFT25A	BFG25A/X	
(21)			BFP505 ²⁾	BFS505	BFR505	BFG505(X, XR)	
(22)	BFR521 ²⁾		BFP520 ²⁾	BFS520	BFR520	BFG520(X, XR)	
(23)	BFR541 ²⁾		BFP540 ²⁾	BFS540	BFR540	BFG540(X, XR)	BFG541
(24)	BFR591 ²⁾					BFG590(X, XR)	BFG591
(25)		BFQ621 ²⁾					BFG621 ²⁾
(26)		BFQ741 ²⁾					BFG741 ²⁾

FOURTH-GENERATION NPN WIDEBAND TRANSISTORS (ft UP TO 10 GHz)

type number	ratings			characteristics ¹⁾					envelope
	V_{CE0}	I_C	P_{tot}	f_T	F	G_{UM}	V_{CE}	I_C	
	(V)	(mA)	(mW)	(GHz)	(dB) @ 2 GHz	(dB)	(V)	(mA)	
BFG25A/X	5	6.5	32	5	1.8	18	1	0.5	SOT143
BFG505	15	18	150	9	1.9	13	6	5	SOT143
BFG505/X	15	18	150	9	1.9	13	6	5	SOT143
BFG505/XR	15	18	150	9	1.9	13	6	5	SOT143
BFG520	15	70	300	9	1.9	13	6	20	SOT143
BFG520/X	15	70	300	9	1.9	13	6	20	SOT143
BFG520/XR	15	70	300	9	1.9	13	6	20	SOT143
BFG540	15	120	500	9	2.1	11	8	40	SOT143
BFG540/X	15	120	500	9	2.1	11	8	40	SOT143
BFG540/XR	15	120	500	9	2.1	11	8	40	SOT143
BFG541	15	120	650	9	2.1	9	8	40	SOT223
BFG590	15	200	650	8	-	-	-	-	SOT143
BFG590/X	15	200	650	8	-	-	-	-	SOT143
BFG590/XR	15	200	650	8	-	-	-	-	SOT143
BFG591	15	200	1200	8	-	12	10	-	SOT223
BFG621 ²⁾	15	150	1000	8	-	14	10	-	SOT223
BFG741 ²⁾	15	300	2000	7	-	13	10	-	SOT223
BFP505 ²⁾	15	18	250	9	-	13	6	5	SOT173
BFP520 ²⁾	15	70	500	9	-	12	6	20	SOT173
BFP540 ²⁾	15	120	750	9	-	11	8	40	SOT173
BFQ621 ²⁾	19	150	2000	8	-	15. ³⁾	18	100	SOT172
BFQ741 ²⁾	19	300	4000	7	-	14. ³⁾	18	200	SOT172
BFR505	15	18	150	9	1.9	10	6	5	SOT23
BFR520	15	70	300	9	1.9	9	6	20	SOT23
BFR521 ²⁾	15	70	300	9	1.1	19. ⁴⁾	6	20	SOT103
BFR540	15	120	500	9	2.1	7	8	40	SOT23
BFR541 ²⁾	15	120	650	9	1.3	18. ⁴⁾	8	40	SOT103
BFR591 ²⁾	15	200	1200	8	-	15. ⁴⁾	10	90	SOT103
BFS25A	5	6.5	32	5	1.8	13. ⁵⁾	1	0.5	SOT323
BFS505	15	18	150	9	1.2	17. ⁴⁾	6	5	SOT323
BFS520	15	70	300	9	1.1	16. ⁴⁾	5	20	SOT323
BFS540	15	120	500	9	1.3	14. ⁴⁾	8	40	SOT323
BFT25A	5	6.5	32	5	1.8	15. ⁵⁾	1	0.5	SOT23

1) typical values

2) under development

3) at 800 MHz

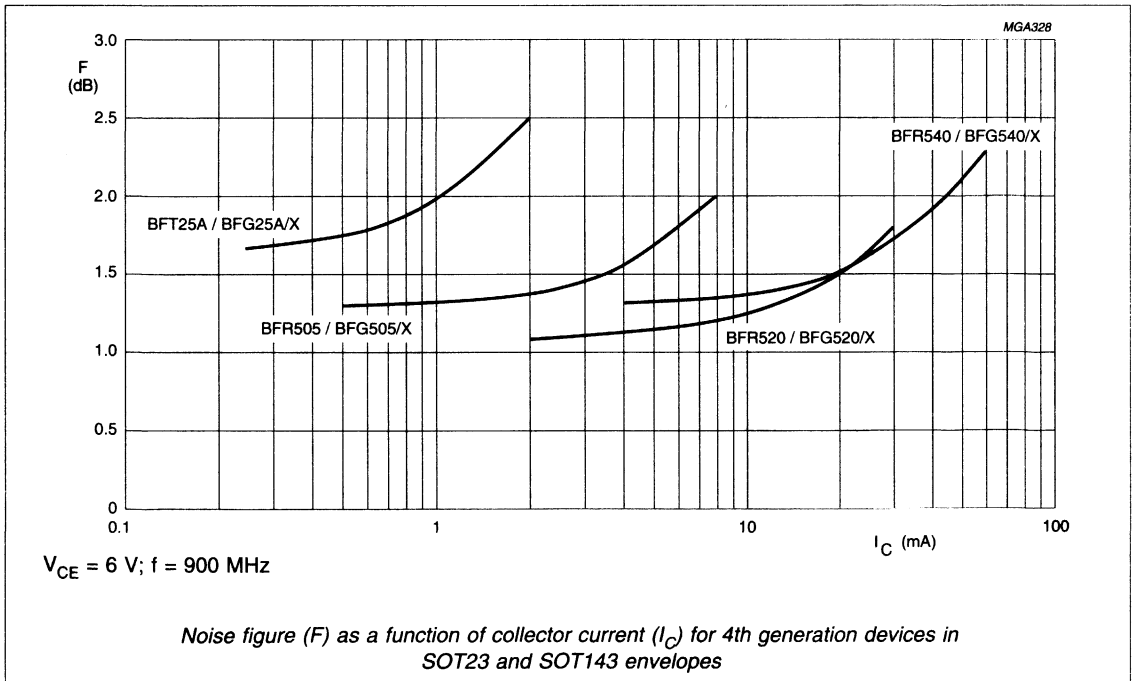
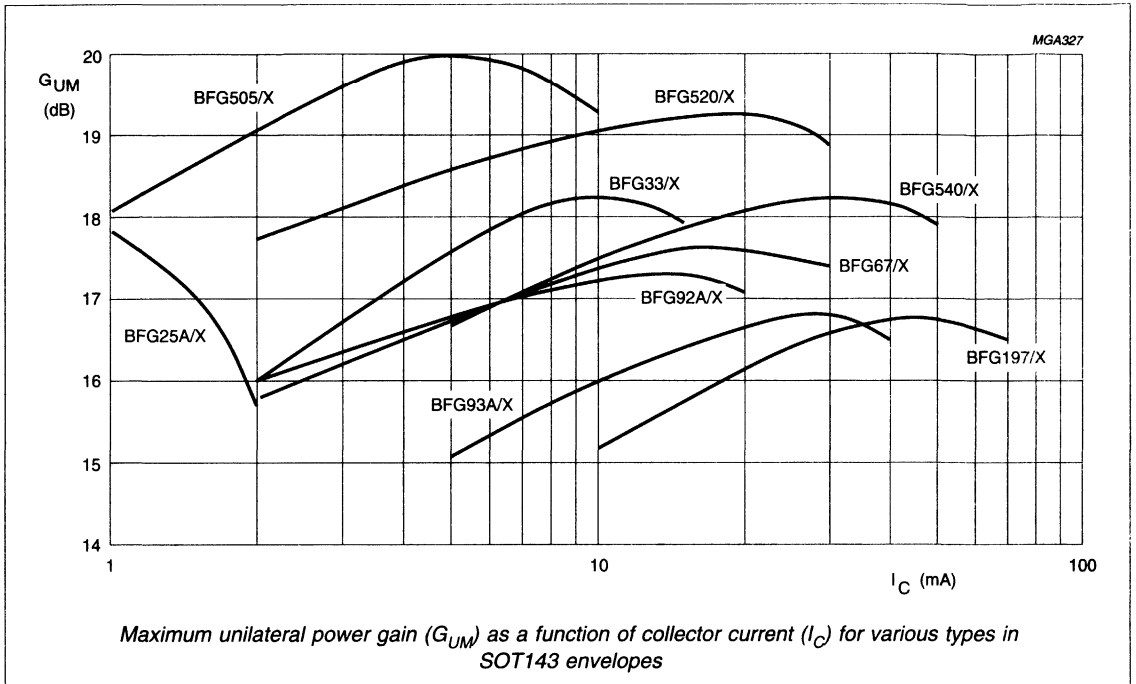
4) at 900 MHz

5) at 1 GHz



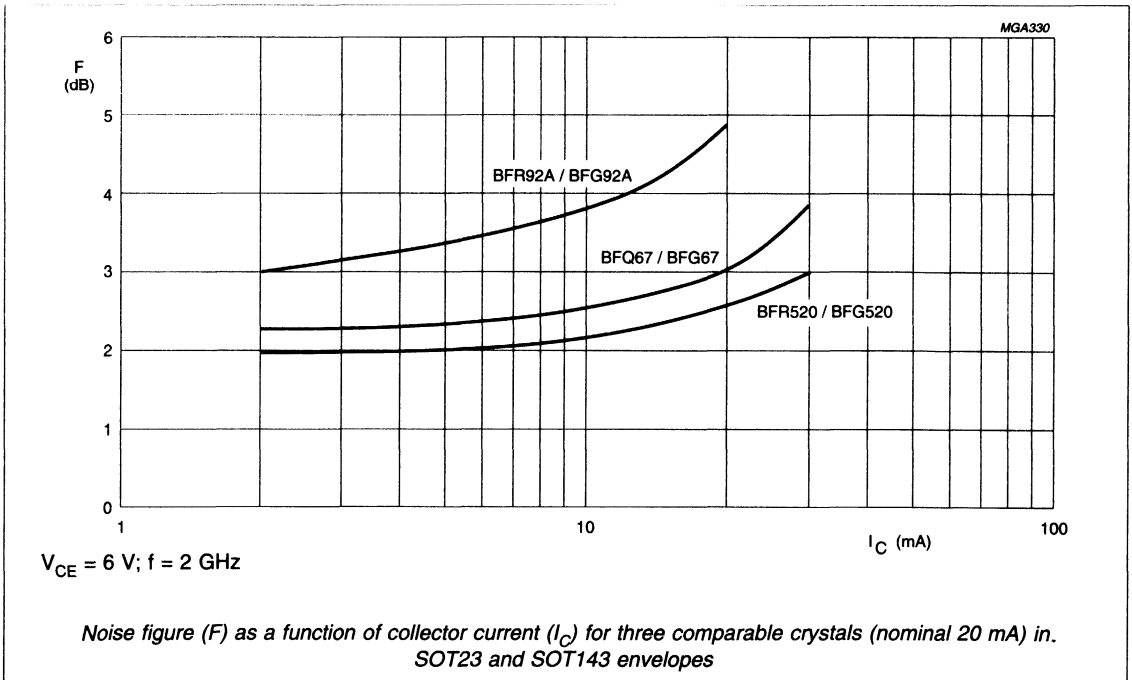
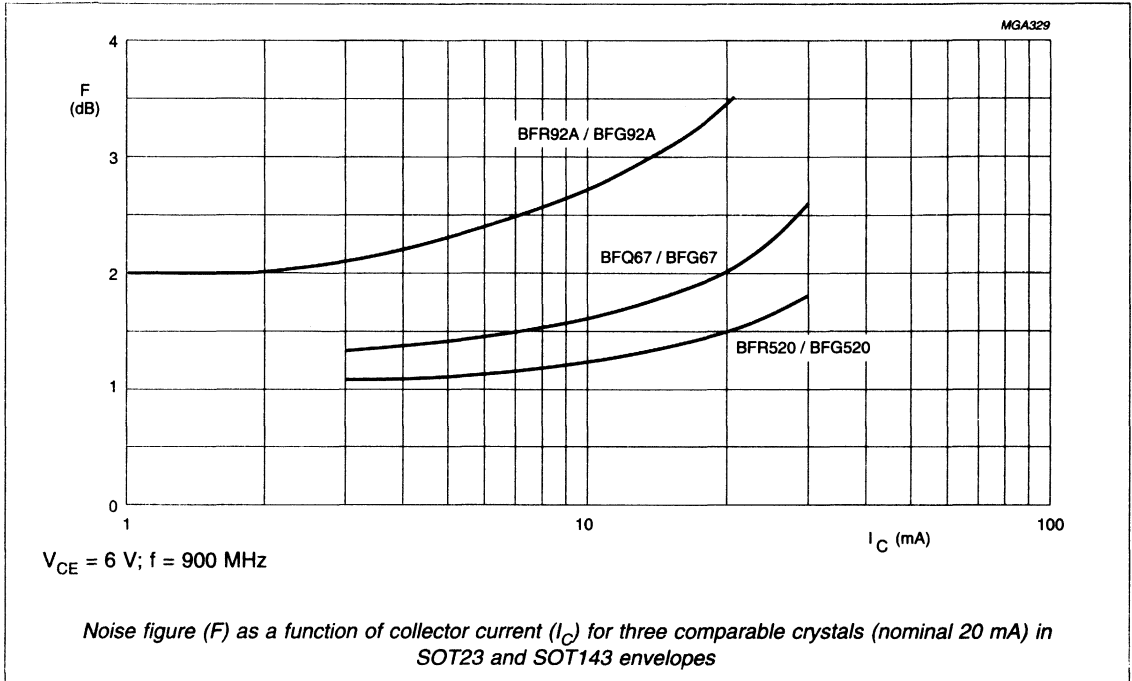
DISCRETE SEMICONDUCTORS
Wideband transistors

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Wideband transistors**



DISCRETE SEMICONDUCTORS
Wideband transistors
RF & MICROWAVE
SEMICONDUCTORS & MODULES
WIDEBAND TRANSISTORS FOR HIGH-SPEED SWITCHING APPLICATIONS

type number	polarity	ratings			f_T (GHz)	envelope
		V_{CE0} (V)	I_C (mA)	P_{tot} (mW)		
BSR12	pnp	15	200	250	1.5	SOT23
MPSH10	nnp	25	–	350	0.65	TO-92
PMBTH10	nnp	25	–	300	0.65	SOT23
MPSH81	pnnp	20	40	1000	0.6	TO-92
PMBTH81	pnnp	20	40	400	0.6	SOT23
MPS3640	pnnp	12	80	625	1.3	TO-92
PMBT3640	pnnp	12	80	300	1.3	SOT23

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
Video transistors**
WIDEBAND TRANSISTORS FOR APPLICATION IN VIDEO OUTPUT AMPLIFIERS IN MONITORS

application	envelope					
	SOT54 (TO-92)	SOT5 (TO-39)	SOT32 (TO-126)	SOT128 (TO-202)	SOT172	SOT223
npn cascode driver	BFQ161	BFQ163	BFQ162			BFQ166
npn low-current cascode output ($I_{CM} = 300$ mA)			BFQ232 BFQ232A	BFQ235 BFQ235A	BFQ234(/I)	
npn high-current cascode output ($I_{CM} = 400$ mA)		BFQ263 BFQ263A	BFQ262 BFQ262A	BFQ265 BFQ265A	BFQ268(/I)	
npn buffer	BFQ231 BFQ231A	BFQ233 BFQ233A	BFQ232 BFQ232A	BFQ235 BFQ235A	BFQ234(/I)	BFQ236 BFQ236A
pn-p buffer	BFQ251 BFQ251A	BFQ253 BFQ253A	BFQ252 BFQ252A	BFQ255 BFQ255A	BFQ254(/I)	BFQ256 BFQ256A

WIDEBAND TRANSISTORS FOR APPLICATION IN VIDEO OUTPUT AMPLIFIERS IN MONITORS *continued*

type number	$-V_{CBO}$ max	$-V_{CEO}$ max	I_C max	h_{FE} min	C_{CB} max	T_j	f_T min	envelope
	(V)	(V)	(mA)		(pF)	(°C)	(MHz)	
BFQ161	20	10	500	25	4	175	1000	SOT54
BFQ231	100	65	300	20	1.7	175	1000	SOT54
BFQ231A	115	95	300	20	1.7	175	800	SOT54
BFQ251	100	65	300	20	1.7	175	1000	SOT54
BFQ251A	115	95	300	20	1.7	175	800	SOT54
BFQ163	20	10	500	25	4.5	200	1000	TO-39
BFQ233	100	65	300	20	2.0	200	1000	TO-39
BFQ233A	115	95	300	20	2.0	200	800	TO-39
BFQ253	100	65	300	20	2.5	200	1000	TO-39
BFQ253A	115	95	300	20	2.5	200	800	TO-39
BFQ263	100	65	400	15	2.0	200	1000	TO-39
BFQ263A	115	95	400	15	2.0	200	800	TO-39
BFQ162	20	10	500	25	4.2	175	1000	SOT32
BFQ232	100	65	300	20	2.0	175	1000	SOT32
BFQ232A	115	95	300	20	2.0	175	800	SOT32
BFQ252	100	65	300	20	2.5	175	1000	SOT32
BFQ252A	115	95	300	20	2.5	175	800	SOT32
BFQ262	100	65	400	15	2.0	175	1000	SOT32
BFQ262A	115	95	400	15	2.0	175	800	SOT32



DISCRETE SEMICONDUCTORS

Video transistors

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WIDEBAND TRANSISTORS FOR APPLICATION IN VIDEO OUTPUT AMPLIFIERS IN MONITORS *continued*

type number	$-V_{CBO}$ max	$-V_{CEO}$ max	I_C max	h_{FE} min	C_{CB} max	T_j	f_T min	envelope
	(V)	(V)	(mA)		(pF)	(°C)	(MHz)	
BFQ235	100	65	300	20	2.0	175	800	SOT128
BFQ235A	115	95	300	20	2.0	175	800	SOT128
BFQ255	100	65	300	20	2.0	175	800	SOT128
BFQ255A	115	95	300	20	2.0	175	800	SOT128
BFQ265	100	65	400	15	2.5	175	800	SOT128
BFQ265A	115	95	400	15	2.5	175	800	SOT128
BFQ234	100	65	300	20	2.0	200	1000	SOT172
BFQ234/I	100	65	300	20	2.0	200	1000	SOT172
BFQ254	100	65	300	20	2.5	200	1000	SOT172
BFQ254/I	100	65	300	20	2.5	200	1000	SOT172
BFQ268	100	65	400	15	2.0	200	1000	SOT172
BFQ268/I	100	65	400	15	2.0	200	1000	SOT172
BFQ166	20	10	500	50	3.2	175	1000	SOT223
BFQ236	100	65	300	20	1.8	175	1000	SOT223
BFQ236A	115	95	300	20	1.8	175	800	SOT223
BFQ256	100	95. ¹⁾	300	20	1.6	175	1000	SOT223
BFQ256A	115	110. ¹⁾	300	20	1.6	175	800	SOT223

WIDEBAND TRANSISTORS FOR APPLICATION IN VIDEO OUTPUT AMPLIFIERS IN HDTV

application	envelope		
	SOT32 (TO-126)	SOT128 (TO-202)	SOT172
npn cascode output			BFQ291
pnP cascode output			BFQ290
npn buffer	BFQ293	BFQ296	
pnP buffer	BFQ292	BFQ295	BFQ290

WIDEBAND TRANSISTORS FOR APPLICATION IN VIDEO OUTPUT AMPLIFIERS IN HDTV *continued*

type number	$-V_{CBO}$ max	$-V_{CEO}$ max	I_C max	h_{FE} min	C_{CB} max	T_j	f_T min	envelope
	(V)	(V)	(mA)		(pF)	(°C)	(MHz)	
BFQ292	230	225	250	15	1.8	175	400	SOT32
BFQ293	230	225	250	15	1.8	175	400	SOT32
BFQ295	230	225	250	15	1.8	175	400	SOT128
BFQ296	230	225	250	15	1.8	175	400	SOT128
BFQ290	230	225	250	15	1.8	200	400	SOT172
BFQ291	230	225	250	15	1.8	200	400	SOT172

¹⁾ V_{CER} ($R_{BE} = 100 \Omega$)

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
RF power transistors**
BIPOLAR RF TRANSMITTING TRANSISTORS
HF SINGLE SIDEBAND (1.6 - 30 MHz) BIPOLAR TRANSISTORS

- Very wide range of devices with supply voltages ranging from 12 V up to 50 V
- Class A and Class AB operation
- Wide choice of envelopes

type number	load power PEP (W)	power gain (dB)	supply voltage V_{CE} (V)	envelope
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Class A intermodulation distortion: $d_3, d_5 < -40$ dB

BLV10	1	18	12	SOT123
BLY87C	1	18	12	SOT120
BLV20	1.3	20	26	SOT123
BLY91A	1.3	20	26	SOT48/2
BLY91C	1.3	20	26	SOT120
BLV11	2	18	12	SOT123
BLY88C	2	18	12	SOT120
BLV21	2.5	20	26	SOT123
BLY92A	2.5	20	26	SOT48/2
BLY92C	2.5	20	26	SOT120
BLW87	6	18	12	SOT123
BLY89C	6	18	12	SOT120
BLX13	8	18	26	SOT56
BLX13C	8	20	26	SOT120
BLW83	10	20	26	SOT123
BLX39	15	20	26	SOT120
BLW50F	16	19.5	45	SOT123
BLW86	17	22	26	SOT123
BLW78	35	19.5	26	SOT123
BLW96	50	19	40	SOT121



DISCRETE SEMICONDUCTORS
RF power transistors
RF & MICROWAVE
SEMICONDUCTORS & MODULES
HF SINGLE SIDEBAND (1.6 - 30 MHz) BIPOLAR TRANSISTORS *continued*

type number	load power PEP (W)	power gain (dB)	supply voltage V_{CE} (V)	envelope
Class AB intermodulation distortion: $d_3, d_5 < -30$ dB				
BLV11	10	18	13.5	SOT123
BLY88C	10	18	13.5	SOT120
BLV21	10	20	28	SOT123
BLY92A	10	20	28	SOT48/2
BLY92C	10	20	28	SOT120
BLW87	15	18	13.5	SOT123
BLY89C	15	18	13.5	SOT120
BLW83	25	20	28	SOT123
BLX13	25	18	28	SOT56
BLX13C	25	20	28	SOT120
BLW85	30	19.5	12.5	SOT123
BLW60C	30	19.5	12.5	SOT120
BLX39	37.5	19	28	SOT120
BLW86	42.5	19	28	SOT123
BLX14	50	13	28	SOT55
BLW50F	65	18	50	SOT123
BLW99	80	12.5	12.5	SOT121
BLW76	80	13	28	SOT121
BLW78	100	19	28	SOT121
BLW77	130	12	28	SOT121
BLX15	150	14	50	SOT55
BLW95	160	14	50	SOT121
BLW97	175	11.5	28	SOT121
BLW96	200	13.5	50	SOT121

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
RF power transistors**
VHF 25 - 175 MHz BIPOLAR TRANSISTORS

type number	load power @ 175 MHz (W)	power gain @ 175 MHz (dB)	supply voltage (V)	envelope
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Class B 7.5 - 9.6 V supply voltage (portable)

2N4427	0.7	8	7.5	TO-39/1
BFQ42	1.5	8.4	7.5	TO-39/1
BFQ43	3	9.4	7.5	TO-39/3
BLW29	9	7.4	7.5	SOT120

Class B 12.5 - 13.5 V supply voltage (car mobile)

2N4427	1	10	12.5	TO-39/1
BFQ42	2	11	13.5	TO-39/1
BLW79	2	13.5	12.5	SOT122
BFQ43	4	12	13.5	TO-39/3
BFQ43S	4	12	13.5	TO-39/3
BFS22A	4	8	13.5	TO-39/1
BLW80	4	25	12.5	SOT122
BLV10	8	9	13.5	SOT123
BLY87C/01	8	9	13.5	SOT122
BLY87C	8	12	13.5	SOT120
BLW81	10	13.5	12.5	SOT122
BLV11	15	8	13.5	SOT123
BLW29	15	10	13.5	SOT120
BLY88C/01	15	8.0	13.5	SOT122
BLY88C	15	8	13.5	SOT120
BLW87	25	6	13.5	SOT123
BLY89C	25	6	13.5	SOT120
BLW31	28	9	13.5	SOT120
BLW30	30	10	12.5	SOT120
BLV12	30	9	12.5	SOT123
BLW40	40	10	12.5	SOT120
BLV13	40	8.5	12.5	SOT123
BLW60C	45	5	12.5	SOT120
BLW85	45	4.5	12.5	SOT123
BLV45/12	45	6.5	12.5	SOT119
BLV75/12	75	6.5	12.5	SOT119


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DISCRETE SEMICONDUCTORS

RF power transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

VHF 25 - 175 MHz BIPOLAR TRANSISTORS *continued*

type number	load power @ 175 MHz (W)	power gain @ 175 MHz (dB)	supply voltage (V)	envelope
Class B 28 V base stations				
2N3866	1	10	28	TO-39/1
2N3553	2.5	10	28	TO-39/1
BFS23A	4	10	28	TO-39/1
BLV20	8	12	28	SOT123
BLY91A	8	12	28	SOT48/2
BLY91C	8	12	28	SOT120
BLY91C/01	8	12	28	SOT122F
BLV21	15	10	28	SOT123
BLY92A	15	10	28	SOT48/2
BLY92C	15	10	28	SOT120
BLY92C/01	15	10	28	SOT122F
BLW84	25	9	28	SOT123
BLY93A	25	9	28	SOT56
BLY93C	25	9	28	SOT120
BLW86	45	7.5	28	SOT123
BLX39	45	7.5	28	SOT120
BLY94	50	7	28	SOT55
BLV80/28	80	6.5	28	SOT121
BLW76 ¹⁾	100	6	28	SOT121
BLW77 ²⁾	130	7.5	28	SOT121

¹⁾ load power and power gain measured at 150 MHz

²⁾ load power and power gain measured at 87.5 MHz

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
RF power transistors**
UHF 400 - 512 MHz BIPOLAR TRANSISTORS

type number	load power @ 470 MHz (W)	power gain @ 470 MHz (dB)	supply voltage (V)	envelope
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Class B 7.5 V supply; portable mobile

BLT50	1.2	10.5	7.5	SOT223
BLT53	8	6	7.5	SOT122D

Class B 12.5 V supply; car mobile

2N4427	0.4	10	12.5	TO-39/1
BLU56	1	12	12.5	SOT223
BLX65E	2	9	12.5	TO-39/3
BLX65ES	2	6	12.5	TO-39/3
BLX65	2	6	12.5	TO-39/1
BLW79	2	9	12.5	SOT122
BLU11/SL	2.5	10	12.5	SOT122D
BLW80	4	8	12.5	SOT122
BLU99	5	10.5	12.5	SOT122
BLU97	7	9	12.5	SOT122
BLW81	10	6	12.5	SOT122
BLU10/12	10	8	12.5	SOT122
BLU15/12	15	7.8	12.5	SOT122
BLU20/12	20	6.5	12.5	SOT119
BLU30/12	30	6.0	12.5	SOT119
BLU45/12	45	4.8	12.5	SOT119
BLU60/12	60	4.4	12.5	SOT119


Class B 28 V base stations

2N3866	1	10	28	TO-39/1
BLX91A	1	11	28	SOT48/3
BLW89	2	12	28	SOT122
BLX92A	2.5	11	28	SOT48/3
BLW90	4	11	28	SOT122
BLX93A	7	8.5	28	SOT48/3
BLW91	10	9	28	SOT122
BLX94A	25	6	28	SOT48/2
BLX94C	25	6.5	28	SOT122
BLU30/28	30	8	28	SOT119
BLU60/28	60	7	28	SOT119
BLX95	40	6.5	28	SOT56

DISCRETE SEMICONDUCTORS

RF power transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

SHF 900 MHz BIPOLAR TRANSISTORS

type number	load power @ 900 MHz (W)	power gain @ 900 MHz (dB)	supply voltage (V)	envelope
Class B 7.5 - 9.6 V supply portable mobile				
BFR90A	0.075	7.5	7.5	SOT37
BFG90A	0.075	9.5	7.5	SOT103
BFR91A	0.16	7	7.5	SOT37
BFG91A	0.16	9	7.5	SOT103
BLU98	0.5	6.8	7.5	SOT103
BLT80	0.8	6	7.5	SOT223
BLV90	0.75	7	9.6	SOT172
BLV90/SL	1	7	9.6	SOT172D
BLT81	1.2	6	7.5	SOT223
BLV91	1.5	6.6	9.6	SOT172
BLV91/SL	1.5	6.6	9.6	SOT172D
BLV92	3	7.3	9.6	SOT171
BLT90/SL	0.75	7	7.5	SOT172D
BLT91/SL	1.5	7.5	7.5	SOT172D
BLT92/SL	3	7	7.5	SOT122D
BLT93/SL	6	5.5	7.5	SOT122D

Class B 12.5 V car mobile

BLU98	0.5	8	12.5	SOT103
BLU86	1	7	12.5	SOT223
BLV90	1	7.5	12.5	SOT172
BLV90/SL	1	7.5	12.5	SOT172D
BLV91	2	6.5	12.5	SOT172
BLV91/SL	2	6.5	12.5	SOT172D
BLU99	4	7	12.5	SOT122
BLU99/SL	4	7	12.5	SOT122D
BLV92	4	7.5	12.5	SOT171
BLV93	8	6.5	12.5	SOT171
BLV193	12	6.5	12.5	SOT171
BLV94	15	6	12.5	SOT171
BLV194	16	6.0	12.5	SOT171
BLV95	22	5.5	12.5	SOT171

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
RF power transistors**
SHF 900 - 960 MHz BIPOLAR TRANSISTORS

type number	load power @ 900 MHz (W)	power gain @ 900 MHz (dB)	efficiency (%)	supply voltage (V)	envelope
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Class AB and class B 24 - 26 V base stations

BLV99	2	9	55	24	SOT172
BLV99/SL	2	8	55	24	SOT172D
ON4612	2	8	50	24	SOT122D
BLV103¹⁾	4	11.5	45	24	SOT171
BLV100¹⁾	8	8	50	24	SOT171
BLV98	14	8.5	55	24	SOT171
BLV98CE¹⁾	15	7.5	50	24	SOT171
BLV97	30	7	55	24	SOT171
BLV945A	30.(PEP)	10	35	25	SOT324
BLV97CE¹⁾	35	7	50	24	SOT171
BLV101A	50	8.5	48	26	SOT273
BLV101B¹⁾	50	7.5	46	26	SOT273
BLV948¹⁾	150.(PEP)	7.5	35	26	SOT262A2



¹⁾ load power and power gain measured at 960 MHz

DISCRETE SEMICONDUCTORS

RF power transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

FM BROADCAST 87 - 108 MHz BIPOLAR TRANSISTORS

type number	load power @ 108 MHz (W)	power gain @ 108 MHz (dB)	supply voltage (V)	envelope
Class B				
2N3866	1.8	10	28	TO-39/1
BLW90	4	20	28	SOT122
BLV21	15	10	28	SOT123
BLW86¹⁾	45	7.5	28	SOT123
BLX39	45	7.5	28	SOT120
BLV80/28	80	10	28	SOT121
BLW76	80	8	28	SOT121
BLW78	100	6	28	SOT121
BLV25	175	10	28	SOT119
BLV37	250	10.5	28	SOT179

¹⁾ load power and power gain measured at 175 MHz

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
RF power transistors**
TV TRANSPOSERS/TRANSMITTER TRANSISTORS

type number	output power P_o sync (W)	d_{im} (dB)	output power (W) $P_o - 1dB$	power gain @ 860 MHz (dB)	supply voltage (V)	envelope
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Class A Bands I (41 - 68 MHz) & III (174 - 230 MHz)

BLV30	1.5	-60	-	18	25	SOT122
BLV31	5	-58	-	15	25	SOT122
BLV32F	10	-55	-	16	25	SOT160
BLV33F	16	-55	-	13.5	25	SOT119
BLV33	19	-55	-	9	25	SOT147

Class AB Bands I (41 - 68 MHz) & III (174 - 230 MHz)

BLV30	-	-	10	15	28	SOT122
BLV31	-	-	20	12	28	SOT122
BLV32F	-	-	30	13	28	SOT160
BLV33F	-	-	85	10.5	28	SOT119
BLV33	-	-	90	6.5	28	SOT147
BLV36	-	-	115	11	28	SOT161
BLV38	-	-	225	8.0	35	SOT179

Class A Bands IV & V 470 - 860 MHz

BFR96S	0.12	-60	-	10	25	SOT37
BFQ34	0.3	-60	-	11	25	SOT122
BLW32	0.5	-60	-	11	25	SOT122
BLX96	0.5	-60	-	6	25	SOT48
BFQ68	0.7	-60	-	10	25	SOT122
BLW33	1	-60	-	10	25	SOT122
BLX97	1	-60	-	5.5	25	SOT48
BLW34	1.8	-60	-	9	25	SOT122
BLW98	3.5	-60	-	6.5	25	SOT122
BLX98	3.5	-60	-	5	25	SOT48/2
BLV57	6	-60	-	8	25	SOT161
BLV58	25	-45	-	10	25	SOT289

Class AB Bands IV & V 470 - 860 MHz

BLV57	-	-	30	6.5	25	SOT161
BLV59	-	-	30	7	25	SOT171
BLV62	-	-	150	8.5	28	SOT262A2

RF

DISCRETE SEMICONDUCTORS

RF power transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

RF POWER MOS TRANSISTORS

type number	P_L (PEP) (W)	V_{DS} (V)	G_p (dB)	envelope
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HF SSB class AB ($f = 28$ MHz, $d_3/d_5 < -30$ dB, 28 V & 50 V supply)

BLF145	30	28	20. ¹⁾	SOT123
BLF175	30	50	23	SOT123
BLF246	80	28	20. ¹⁾	SOT121
BLF147	150	28	17	SOT121
BLF177	150	50	20	SOT121

HF SSB class A ($f = 1.5 - 30$ MHz, $d_3/d_5 < -40$ dB, 28 V & 50 V supply)

BLF242	2	28	23. ¹⁾	SOT123
BLF244	4	28	23. ¹⁾	SOT123
BLF145	8	28	24	SOT123
BLF175	8	50	24	SOT123
BLF246	20	28	23. ¹⁾	SOT121

RF POWER MOS TRANSISTORS *continued*

type number	P_L (W)	V_{DS} (V)	f (MHz)	G_p (dB)	efficiency (%)	envelope
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VHF base stations ($f = 25 - 175$ MHz, class B operation, 28 V & 50 V supply)

BLF241	3	28	175	14. ¹⁾	50. ¹⁾	SOT5/11
BLF242	5	28	175	13	50	SOT123
BLF244	15	28	175	13	50	SOT123
BLF245	30	28	175	13	50	SOT123
BLF245B	30	28	175	14	55	SOT279
BLF175	30	50	108	20. ¹⁾	65. ¹⁾	SOT123
BLF246B	60	28	175	14	55	SOT161
BLF246	80	28	108	16	55	SOT121
BLF276	100	50	108	18	60	SOT119D3
BLF147	150	28	108	14. ¹⁾	70. ¹⁾	SOT121
BLF177	150	50	108	19. ¹⁾	70. ¹⁾	SOT121
BLF247B	150	28	175	13	50	SOT161
BLF277	150	50	175	14	50	SOT119
BLF248	300	28	175	13. ¹⁾	67. ¹⁾	SOT262A1
BLF278	300	50	108	20	70. ¹⁾	SOT262A1

VHF mobile transmitters ($f = 25 - 175$ MHz, class B operation, 12.5 V supply)

BLF221	2	12.5	175	10	50	TO-39/3
BLF241	2	12.5	175	10	50	SOT5/11
BLF244	6	12.5	175	15. ¹⁾	60. ¹⁾	SOT123
BLF245	12	12.5	175	12. ¹⁾	66. ¹⁾	SOT123
BLF225	30	12.5	175	8.5	60	SOT123

¹⁾ typical values

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
RF power transistors**
RF POWER MOS TRANSISTORS *continued*

type number	P_L (W)	V_{DS} (V)	f (MHz)	G_p (dB)	efficiency (%)	envelope
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UHF base stations (f = 100 - 500 MHz, class B operation, 28 V supply)

BLF521	2	12.5	500	10		SOT172D
BLF522	5	12.5	500	10		SOT171
BLF542	5	28	500	10	50	SOT171
BLF543	10	28	500	12		SOT171
BLF544	20	28	500	11		SOT171
BLF544B	20	28	500	11		SOT268
BLF545	40	28	500	11		SOT268
BLF546	80	28	500	11		SOT268
BLF547	100	28	500	10	50	SOT262A2
BLF548	150	28	500	9		SOT262A2

UHF base stations (f= 225 - 400 MHz, class B operation, 28 V supply)

BLF242	5	28	400	13.0 ¹⁾		SOT123
BLF244	15	28	400	11.0 ¹⁾		SOT123
BLF245	30	28	400	10.0 ¹⁾		SOT123

UHF base stations (f= 860 - 960 MHz, class B operation, 28 V supply)

BLF521	2	12.5	960	7.5 ¹⁾	50 ¹⁾	SOT172D
BLF542	5	28	960	8.0 ¹⁾	50 ¹⁾	SOT171
BLF543	10	28	960	8.0 ¹⁾	50 ¹⁾	SOT171
BLF544	20	28	960	7.0 ¹⁾	50 ¹⁾	SOT171
BLF545	40	28	960	7.0 ¹⁾	50 ¹⁾	SOT268
BLF546	80	28	960	9.0 ¹⁾	50 ¹⁾	SOT268


RF POWER MOS TRANSISTORS *continued*

type number	P_o sync (W)	V_{DS} (V)	f (MHz)	G_p (dB)	d_{im} (dB)	I_D (mA)	envelope
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TV transposers (band 3, f = 174 - 230 MHz, class A operation, 28 V supply)

BLF346	25. ³⁾	28	225	14	-52	3000	SOT119
BLF348	67. ³⁾	28	225	11	-52	2 × 4600	SOT262A1

TV transmitters (band 3, f = 174 - 230 MHz, class AB operation)

BLF276	100	50	225	13	-	50	SOT119D3
BLF378	250. ²⁾	50	225	14	-	2 × 500	SOT262A1
BLF278	250	50	225	14	-	2 × 500	SOT262A1
BLF248	300	28	225	10	-	2 × 250	SOT262A1
BLF368	300. ²⁾	32	225	12	-	2 × 250	SOT262A1

¹⁾ typical values

²⁾ at 1 dB power gain compression

³⁾ typical value at heatsink temperature of 70 °C

DISCRETE SEMICONDUCTORS

Microwave transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

CONTINUOUS POWER TYPES

CLASS-A MEDIUM POWER

type number	f (GHz)	V _{CE} (V)	I _C (mA)	P _{L1} ²⁾ (mW)	G _{po} ³⁾ (dB)	envelope
L EE1015T	1	20	200	1500. ¹⁾	14. ¹⁾	SOT122
L TE1015T	1	20	200	1500. ¹⁾	14. ¹⁾	FO41B
L BE2003S	2	18	30	200	10	FO45
L CE2003S	2	18	30	200	10	FO46
L UE2003S	2	18	30	200	10	FO163
L BE2009S	2	18	110	700	9	FO45
L CE2009S	2	18	110	700	9	FO46
L UE2009S	2	18	110	700	9	FO163
L TE21009R	2.1	16	150	1000. ¹⁾	8.5 ¹⁾	FO41B
L TE21015R	2.1	16	250	1500	8.5	FO41B
L TE21025R	2.1	16	400	2800. ¹⁾	7.8 ¹⁾	FO41B
L WE2010S	2.3	18	110	800	8	FO93
L WE2015R	2.3	16	250	1200	7.5	FO93
L WE2025R	2.3	16	400	2000	7	FO93
L AE4001R	4	15	25	85	8.5	SOT100
L AE4002S	4	18	30	126	7.5	SOT100
L TE4002S	4	18	30	200. ¹⁾	8. ¹⁾	FO41B
L TE42005S	4.2	18	110	450	6.6	FO41B
L TE42008R	4.2	16	250	800	7	FO41B
L TE42012R	4.2	16	400	1000	6	FO41B

CLASS-A HIGH POWER

type number	f (GHz)	V _{CE} (V)	I _C (A)	P _{L1} ²⁾ (W)	G _{po} ³⁾ (dB)	envelope
L Z1418E100R	1.4 to 1.8	16	2	9	10	FO57C
L V1721E50R	1.7 to 2.1	16	1.1	5	7	FO83
L V2024E45R	2.0 to 2.4	16	1.1	4	6	FO83
L VE21050R	2.1	16	1.1	5.5 ¹⁾	8. ¹⁾	FO83
L V2327E40R	2.3 to 2.7	16	1	4	7	FO83
L V2931E50R	2.9 to 3.1	16	1	4.5	6	FO83B

¹⁾ typical values

²⁾ load power for 1 dB compressed power gain

³⁾ low-level power gain associated with P_{L1}

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
Microwave transistors**
CLASS-AB

type number	f (GHz)	V _{CE} (V)	I _{CQ} (mA)	P _{L1} ^{1,2)} (W)	G _{po} ³⁾ (dB)	η _c ¹⁾ (%)	envelope
LLE15370X	1.5	24	300	37	8.7	52	FO229
LLE16045X	1.65	24	50	5.0	10	50	FO229
LLE16120X	1.65	24	100	11	10	45	FO229
LLE16350X	1.65	24	100	35	8	48	FO229
LLE18010X	1.85	24	10	1.5	10	40	FO229
LLE18040X	1.85	24	50	4.5	10	48	FO229
LLE18100X	1.85	24	100	13	10.8	42	FO229
LLE18150X	1.85	24	50	15	8.5	40	FO229
LLE18300X	1.85	24	100	30	9	40	FO229
LXE16350X	1.65	24	300	35	10		FO91
LXE18300X	1.85	24	300	30	9		FO91

CLASS-B MEDIUM POWER

type number	f (GHz)	V _{CC} (V)	P _L (W)	G _p (dB)	η _c (%)	envelope
PLB16004U	1.65	28	4	10	45	FO229
PTB23001X	2	24	1	7	45	FO41B
PTB23002U	2.3	28	2	9	45	FO41B
PTB23003X	2	24	3	8.75	45	FO41B
PTB23005X	2	24	5	9.2	50	FO41B
PTB32001X	3	24	1.3	8	35	FO41B
PTB32003X	3	24	2.5	8	35	FO41B
PTB32005X	3	24	4.5	8	35	FO41B
PTB42001X	4.2	24	0.8	5	28	FO41B
PTB42002X	4.2	24	1.6	5	28	FO41B
PTB42003X	4.2	24	2.5	5	28	FO41B
PVB42004X	1	24	13. ¹⁾	11. ¹⁾	60. ¹⁾	FO83
PVB42004X	2	24	10. ¹⁾	10. ¹⁾	48. ¹⁾	FO83
PVB42004X	3	24	7.5 ¹⁾	8.8 ¹⁾	30. ¹⁾	FO83
PVB42004X	4	24	4. ¹⁾	6. ¹⁾	25. ¹⁾	FO83



¹⁾ typical values at P_{L1}

²⁾ load power for 1 dB compressed power gain

³⁾ low-level power gain associated with P_{L1}

DISCRETE SEMICONDUCTORS

Microwave transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

CLASS-B HIGH POWER

type number	f (GHz)	V _{CC} (V)	P _L (W)	G _p (dB)	η _c (%)	envelope
PZ1418B15U	1.4 to 1.8	28	12.5	7	38	FO57C
PZ1418B30U	1.4 to 1.8	28	27	7.3	38	FO57C
PLB16012U	1.6	28	10	8	45	FO229
PLB16030U	1.6	28	30	7	45	FO229
PZB16035U	1.6	28	35	8	45	FO57C
PXB16050U	1.65	28	45	8.5	45	FO91
PZ1721B12U	1.7 to 2.1	28	12	6.8	35	FO57C
PZ1721B25U	1.7 to 2.1	28	25	7	35	FO57C
PZ2024B10U	2.0 to 2.4	28	9	5.6	35	FO57C
PZ2024B20U	2.0 to 2.4	28	20	6	35	FO57C
PZ2327B15U	2.3 to 2.7	28	15	7	40	FO57D

OSCILLATOR POWER TRANSISTORS

type number	f (GHz)	V _{CC} (V)	I _C (mA)	P _L ¹⁾ (mW)	envelope
PTC4001T	3	20	200	550	FO41B
PPC5001T	5	20	200	450	FO102
PQC5001T	5	20	200	450	FO85

¹⁾ typical values

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**DISCRETE SEMICONDUCTORS
Microwave transistors**
PULSED POWER TYPES
AVIONICS PULSED POWER TRANSISTORS

type number	f (GHz)	V _{CC} (V)	t _p (μs)	δ (%)	P _L (W)	G _p (dB)	η _c (%)	envelope
MF1011B900Y	1.03 to 1.09	50	10	1	800	6	40	FO231
MTB10010U	1.03	24	10	1	9.5	9.5	50	FO41B
MRB11040W	1.03	50	1	1	60	10	35	FO67
MX1011B430W	1.03	45	30	1	480	6.7	45	FO91
MX1011B200Y	1.09	50	10	1	200	7	48	FO91
MX1011B700Y	1.09	50	10	1	650	6	48	FO91
MZ0912B50Y	0.96 to 1.215	50	10	10	50	7	42	FO57C
MZ0912B100Y	0.96 to 1.215	50	10	10	100	7	42	FO57C
MZ0912B100Y	1.03 to 1.09	50	300. ²⁾	10	125. ¹⁾	8. ¹⁾	50. ¹⁾	FO57C
MX0912B250Y	0.96 to 1.215	50	10	10	235	7	42	FO91
MX0912B250Y	1.03 to 1.09	50	300. ²⁾	10	280. ¹⁾	8. ¹⁾	48. ¹⁾	FO91
MX0912B350Y	0.96 to 1.215	50	10	10	325	7	40	FO91
MX0912B350Y	1.03 to 1.09	50	300. ²⁾	10	350. ¹⁾	8. ¹⁾	48. ¹⁾	FO91


¹⁾ typical values

²⁾ pulse burst; 1 μs on, 1 μs off

DISCRETE SEMICONDUCTORS

Microwave transistors

RF & MICROWAVE SEMICONDUCTORS & MODULES

RADAR PULSED POWER TRANSISTORS

type number	f (GHz)	V _{CC} (V)	t _p (μs)	δ (%)	P _L ²⁾ (W)	G _p ²⁾ (dB)	η _c ²⁾ (%)	envelope
L-band								
RZ1214B35U	1.2 to 1.4	28	200	10	35	8	48	FO57C
RZ1214B35Y	1.2 to 1.4	50	150	5	35	7	30	FO57C
RZ1214B35Y	1.2 to 1.4	50	300	10	40. ¹⁾	7. ¹⁾	35. ¹⁾	FO57C
RZ1214B65Y	1.2 to 1.4	50	150	5	70	7	35	FO57C
RZ1214B65Y	1.2 to 1.4	50	300	10	80. ¹⁾	7. ¹⁾	30. ¹⁾	FO57C
RX1214B80W	1.2 to 1.4	40	500	10	80	7	40	FO91
RX1214B130Y	1.2 to 1.4	50	150	5	130	7	35	FO91
RX1214B150W	1.2 to 1.4	50	1000	10	135	6.5	35	FO91
RX1214B150W	1.2 to 1.4	50	150	5	220. ¹⁾	8. ¹⁾	45. ¹⁾	FO91
RX1214B170W	1.2 to 1.4	42	500	10	170	6.7	40	FO91
RX1214B300Y	1.2 to 1.4	50	150	5	250	7	35	FO91
RX1214B300Y	1.2 to 1.4	50	300	10	300. ¹⁾	7.5 ¹⁾	35. ¹⁾	FO91
RX1214B350Y	1.2 to 1.4	50	130	6	280	7	40	FO91
S-band								
RZ2731B16W	2.7 to 3.1	40	100	10	15	6	32	FO57D
RZ2731B32W	2.7 to 3.1	40	100	10	30	6	32	FO57D
RZ2731B48W	2.7 to 3.1	40	100	10	45	6	32	FO57D
RZ2731B60W	2.7 to 3.1	40	100	10	60	6	35	FO57D
RX2731B90W	2.7 to 3.1	40	100	10	90	6	35	FO125A
RV3135B5X	3.1 to 3.5	24	100	10	4	4.3	30	FO83
RZ3135B14W	3.1 to 3.5	40	100	10	13	5.5	30	FO57D
RZ3135B28W	3.1 to 3.5	40	100	10	27	5.5	30	FO57D
RZ3135B42W	3.1 to 3.5	40	100	10	40	5.5	30	FO57D
RZ3135B50W	3.1 to 3.5	40	100	10	50	5.2	30	FO57D
RX3034B70W	3.0 to 3.4	40	100	10	70	5.4	30	FO125A
RZB06050W	0.54 to 0.61	37	500	15	30	7.5	50	FO57C
RXB06150W	0.54 to 0.61	37	500	15	150	7.5	50	FO91

¹⁾ typical values

²⁾ minimum values

RF & MICROWAVE SEMICONDUCTORS & MODULES

MODULES Wideband amplifiers

GENERAL-PURPOSE HYBRID AMPLIFIERS

type number	supply current (mA)	stages	gain (dB)	noise figure (dB)	output at 1 dB gain comp (dBm)	third-order intercept point (dBm)	V_o rms ¹⁾ (dB μ V)	V_{out} $d_{im}=-60$ dB (DIN45004A1) (dB μ V)	max VSWR ²⁾ input output	envelope
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12 V supply - "low noise" - CECC, 40 - 860 MHz

OM2045	11.5	1	12	3.6	+5.4	+17.2	99	76	2.0	1.4	Fig.a
OM2050	18	2	18	5.2	+6.7	+18.2	100	81	1.5	1.9	Fig.b
OM2052	42	2	28	4.5	+13.4	+25.2	107		2.2	2.1	Fig.b
OM2060	56	3	23	5.4	+13.4	+25.2	107	87	1.4	1.6	Fig.c
OM2061	51	3	28	4.4	+13.4	+25.2	107	86	1.5	1.7	Fig.c
OM2063	52	3	29	3.6		+23.2	105	85	2.3	1.4	Fig.c
OM2064	52	3	28	4.0		+23.2	105		1.3	1.5	Fig.c
OM2070	100	3	28	4.8	+20.8	+30.2	112	95	2.3	1.9	Fig.d

12 V supply - "high level", 40 - 860 MHz

OM2046	61	1	10	8.4		+32.2	114		1.5	1.5	Fig.a
OM2070B	100	3	30	4.8		+30.2	112	95	2.3	1.9	Fig.d
OM2081 ⁴⁾	85	1	10	7.5		+33.2	115	105	1.4	1.4	Fig.d
OM2082 ⁶⁾	135	2	20	7.5		+33.2	115	105	1.4	1.4	Fig.d
OM2083 ⁶⁾	165	3	27	7.5		+33.8	115	105	1.4	1.4	Fig.d

24 V supply, 40 - 860 MHz

OM320	33	2	15.5	5.5			92		2.2	2.5	Fig.e
OM321	33	2	15.5	6.0			98		2.5	2.0	Fig.e
OM335	35	3	27	5.5			99		1.9	3.2	Fig.e
OM322	60	2	15	7.0			103		1.7	1.7	Fig.f
OM336	65	3	22	7.0			105		1.4	1.6	Fig.g
OM339	66	3	28	6.0			107		1.5	1.5	Fig.g
OM323 ³⁾	100	2	15	9.0			111		1.9	2.3	Fig.h
OM337	115	3	26	9.8			113		2.3	1.8	Fig.h

12 V supply "satellite IF band"

type number	supply current (mA)	stages	gain (dB)	noise figure (dB)	frequency range	V_o rms ⁵⁾ (dB μ V)	max VSWR ²⁾ input output	envelope	
OM926	28	2	15-18	6.5	10-1750	111	1.7	1.7	Fig.b
OM926E	37.5	2	15-20	6.5	10-2050	113	2.2	1.9	Fig.b
OM926ESMD ⁶⁾	40	2	15-20	4.5	950-2050	115	1.7	1.7	Fig.i
OM956/1 ⁶⁾	45	3	20-24	4.5	950-2050	111	1.7	1.7	Fig.i

¹⁾ measured at -60 dB intermodulation distortion to DIN45004B, par.6.3, 3-tone

²⁾ the typical maximum VSWR occurring in the frequency range for a sample connected to a 75 Ω line

³⁾ also available as A version without internal collector coil and blocking capacitor

⁴⁾ for 40 - 600 MHz frequency range

⁵⁾ measured at -35 dB intermodulation distortion to DIN45004B, par.6.3, 3-tone

⁶⁾ under development

MODULES

Video amplifiers

RF & MICROWAVE SEMICONDUCTORS & MODULES

VIDEO OUTPUT AMPLIFIERS

type number	supply (V)	total power dissipation (W)	voltage gain ³⁾ (V_o/V_i)	external load resistance (Ω)	output signal ³⁾ peak-peak (V)	rise & fall times ¹⁾ (ns)	package outline	remarks
CR2424	70		12.4		40	2.3	SOT115L	mono/colour, 1 channel
CR2425	70		12.4		40	2.3	SOT115C	
CR2427	70		12.4		40	2.3	SOT348	
CR3424	90		12.4		50	2.5	SOT115L	mono/colour, 1 channel
CR3425	90		12.4		50	2.5	SOT115C	
CR3427	90		12.4		50	2.5	SOT348	
CR4424 ²⁾	90		12.4		50	1.9	SOT115L	1 channel
CR4425 ²⁾	90		12.4		50	1.9	SOT115C	
CR4427 ²⁾	90		12.4		50	1.9	SOT348	
CR5527 ²⁾	90		12.4		50	3.0	SOT347	3 channels
OM978	95	≤ 20	18	–	50	≤ 2.8	SOT115LR/L	3 channels

¹⁾ with 8.5 pF load at 40 V_{p-p}

²⁾ subject to modification

³⁾ typical value

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**MODULES
CATV amplifiers**
CATV AMPLIFIER MODULES

type number	power gain (dB)	composite triple beat (dB)	output voltage (dBmV)	total DC current consumption (mA)
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Reverse amplifiers 5 to 200 MHz range

	@ 10 MHz	max 22 chs ²⁾	min 3)	min 4)	max
BGY61	13	-68	67	64	230
BGY65	18.5	-68	67	64	230
BGY67	22	-67	67	64	230
BGY67A	24	-67	67	64	230

Forward amplifiers 40 to 450 MHz range

	@ 50 MHz	max 60 chs ⁵⁾	min 6)	max
BGE85A	18.4	-	60.5	230
BGE88	34.5	-	60	330
BGY80	12.5	-54	61.5	200
BGY81	12.5	-58	64	240
BGY82	14	-55	61.5	200
BGY83	14	-59	64	240
BGY84	17	-55	60	200
BGY85	17	-58	62.5	240
BGY84A	18.4	-55	60	200
BGY85A	18.4	-59	62.5	240
BGY85H/01⁷⁾	14.8 - 16.4	-65.8)	62.5	230
BGY86	22	-54	61.5	200
BGY87	22	-58	64	240
BGY87B	27	-58	64	340
BGY88	34.5	-58	62	340
BGY89	38	-58	63	340

40 to 450 MHz range power doublers

BGD102	18.5	-65	65	435
BGD104	20	-64	64.5	435
BGD106	22	-63	66.5	435
BGD108	36	-64	67	625



MODULES

CATV amplifiers

RF & MICROWAVE

SEMICONDUCTORS & MODULES

CATV AMPLIFIER MODULES (continued)

type number	power gain (dB)	composite triple beat (dB)	output voltage (dBmV)	total DC current consumption (mA)
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Forward amplifiers 40 to 550 MHz range

	@ 50 MHz	max 77 chs ⁹⁾	min 10)	max
BGY580	12.5	-52	59	200
BGY581	12.5	-56	61.5	240
BGY582	14	-55	59	200
BGY583	14	-59	61.5	240
BGY584	17	-56	58.5	200
BGY585	17	-59	61	240
BGY584A	18.2	-56	59	200
BGY585A	18.2	-59	61.5	240
BGY586	22	-53	58.5	200
BGY587	22	-57	61	240
BGY587B	27	-57	61	340
BGY588	34.5	-57	61	340

40 to 550 MHz range power doublers

BGD502	18.5	-65	64	435
BGD504	20	-64	63.5	435
BGD506	22	-62	62.5	435
BGD508	36	-62	63	625

Forward amplifiers 40 to 600 MHz range

	@ 50 MHz	max 85 chs ¹¹⁾	min 12)	max
BGY681	12.5	-52	59.5	240
BGY683	14	-55	58	240
BGY685	17	-55	60	240
BGY685A	18.2	-55	60	240
BGY685AD¹⁾	18.5	-62	62	250
BGY685AL	18.5	-56	59	260
BGY687	21.5	-54	58	240
BGY687B	27	-53	60	340

40 to 600 MHz range power doublers

BGD601	12.5	-62	63	435
BGD602	18.5	-62	63	435
BGD602D¹⁾	18	-68	66	440

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**MODULES
CATV amplifiers**
CATV AMPLIFIER MODULES *(continued)*

type number	power gain (dB)	composite triple beat (dB)	output voltage (dBmV)	total DC current consumption (mA)
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Forward amplifiers 40 to 750 MHz range

	@ 50 MHz	max 110 chs ¹³⁾	min 14)	max
BGY785A	18.5	-53	59	235
BGY787	21.5	-51	59	235

40 to 750 MHz range power doublers

BGD702	18	-58	61	435
BGD704 ¹⁾	20	-57	60.5	435

Forward amplifiers 40 to 860 MHz range

	@ 50 MHz	max	min		max
			15)	16)	
BGE884 ¹⁾	17	-	55	55	150
BGE885	17	-	-	59	240
BGE887 ¹⁷⁾	23.17)	-	-	60.5	280
BGX881	12.5	-	60.5	59.5	240
BGX885N	17	-	61	60	240
BGY885A	18.5	18)	-	18)	240

40 to 860 MHz range power doublers

BGD885	17	-	64	63	450
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Forward amplifiers 40 to 1000 MHz range

BGY1085A	18.5	18)	18)	240
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MODULES

CATV amplifiers

RF & MICROWAVE SEMICONDUCTORS & MODULES

CATV AMPLIFIER MODULES (continued)

General remarks

- Source and load impedance of all devices = 75 Ω
- Characteristics of all devices specified at
T_{amb} = 30 °C
- Characteristics of all devices measured at 24 V DC supply
- For more information, please consult the relevant data sheet

Notes

- 1) provisional data/advance information
- 2) measured at 175.25 MHz (ch 7) with V_o = 50 dBmV
- 3) intermodulation distortion = -60 dB (DIN 45004, para. 6.3 : tone), V_p = V_o, f_p = 35.25 MHz, V_q = V_o-6 dB, f_q = 42.25 MHz, V_r = V_o-6 dB, f_r = 44.25 MHz, measured at f_(p+q-r) = 33.25 MHz
- 4) as 3) but with f_p = 187.25 MHz, f_q = 194.25 MHz, f_r = 196.25 MHz, f_(p+q-r) = 185.25 MHz
- 5) measured at 445.25 MHz (ch H22) with V_o = 46 dBmV
- 6) as 3) but with f_p = 440.25 MHz, f_q = 447.25 MHz, f_r = 449.25 MHz, f_(p+q-r) = 438.25 MHz
- 7) high slope pre-amphasis, for details see data sheet
- 8) 36 channels; measured at 433.25 MHz (ch H20) with V_o = 46 dBmV
- 9) measured at 547.25 MHz (ch 27) with V_o = 44 dBmV
- 10) as 3) but with f_p = 540.25 MHz, f_q = 547.25 MHz, f_r = 549.25 MHz, f_(p+q-r) = 538.25 MHz
- 11) measured at 595.25 MHz (ch 35) with V_o = 44 dBmV
- 12) as 3) but with f_p = 590.25 MHz, f_q = 597.25 MHz, f_r = 599.25 MHz, f_(p+q-r) = 588.25 MHz
- 13) measured at 745.25 MHz with V_o = 44 dBmV
- 14) as 3) but with f_p = 740.25 MHz, f_q = 747.25 MHz, f_r = 749.25 MHz, f_(p+q-r) = 738.25 MHz
- 15) as 3) but with f_p = 341.25 MHz, f_q = 348.25 MHz, f_r = 350.25 MHz, f_(p+q-r) = 339.25 MHz
- 16) as 3) but with f_p = 851.25 MHz, f_q = 858.25 MHz, f_r = 860.25 MHz, f_(p+q-r) = 849.25 MHz
- 17) frequency range: 470 - 860 MHz, gain measured at 470 MHz
- 18) see specific data sheet for preliminary data

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**MODULES
RF power amplifiers**
RF POWER AMPLIFIER MODULES

type number	frequency band (MHz)	output power (W)	power gain (dB)	supply voltage (V)	efficiency (%)	envelope
VHF portable						
BGY112A	68 - 88	7.0	38.5	7.5	40	SOT288C
BGY112B	132 - 156	7.0	38.5	7.5	40	SOT288C
BGY112C	146 - 174	7.0	38.5	7.5	40	SOT288C
VHF car mobile						
BGY43	148 - 174	13	19.4	12.5	40	SOT132B
BGY32	68 - 88	18	22.6	12.5	40	SOT132B
BGY33	80 - 108	18	22.6	12.5	40	SOT132B
BGY35	132 - 156	18	20.8	12.5	40	SOT132B
BGY36	148 - 174	18	20.8	12.5	40	SOT132B
BGY145A	68 - 88	29	22.9	12.5	37	SOT183
BGY145B	146 - 174	28	19.7	12.5	40	SOT183
UHF portable						
BGY46A	400 - 440	1.4	15.0	9.6	40	SOT181
BGY46B	430 - 470	1.4	15.0	9.6	40	SOT181
BGY47A	400 - 470	2	16.0	7.5	40	SOT181
BGY47A	400 - 470	3.2	18.0	9.6	40	SOT181
BGY113A	400 - 440	7.0	38.5	7.5	40	SOT288D
BGY113B	430 - 470	7.0	38.5	7.5	40	SOT288D
SHF portable						
BGY115A	824 - 849	1.2	27.8	6.0	45	SOT321
BGY115B	872 - 905	1.2	27.8	6.0	45	SOT321
BGY115C	890 - 915	1.6	29.0	6.0	45	SOT321
BGY118A	824 - 849	1.2	27.8	4.8	50	SOT321
BGY118B	872 - 905	1.2	27.8	4.8	50	SOT321
BGY118C	890 - 915	1.4	27.8	4.8	50	SOT321
BGY110D	824 - 849	1.7	32.3	7.2	39	SOT246
BGY110E	872 - 905	1.7	32.3	7.2	39	SOT246
BGY110F	890 - 915	1.7	32.3	7.2	39	SOT246
BGY110G	902 - 928	1.7	32.3	7.2	39	SOT246
SHF car mobile						
BGY114A	824 - 849	6	37.8	12.5	35	SOT278A
BGY114B	872 - 905	6	37.8	12.5	35	SOT278A
BGY114C	890 - 915	8	39.0	12.5	35	SOT278A
BGY114D	800 - 870	6	37.8	12.5	30	SOT278A
BGY114E	890 - 950	6	37.8	12.5	30	SOT278A
BGY116A	824 - 849	6	37.8	12.5	40	SOT278B
BGY116B	872 - 905	6	37.8	12.5	40	SOT278B
BGY116C	890 - 915	8	39.0	12.5	40	SOT278B
BGY116D	800 - 870	6	37.8	12.5	35	SOT278B
BGY116E	890 - 950	6	37.8	12.5	35	SOT278B



MODULES
RF power amplifiers
RF & MICROWAVE
SEMICONDUCTORS & MODULES
RF POWER AMPLIFIER MODULES *(continued)*

type number	frequency band (MHz)	output power (W)	power gain (dB)	supply voltage (V)	efficiency (%)	envelope
GSM						
BGY200	890 - 915	3.5	35.4	7.2	40	SOT350
BGY201	890 - 915	14.0	41.5	12.5	35	SOT278A
BGY202	890 - 915	1.4	-	6.0	45	SOT321
BGY203	890 - 915	3.5	35.4	6.0	40	SOT342

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**

**LINE-UPS
Tuner semiconductors**

RECOMMENDED LINE-UPS FOR RF TUNERS

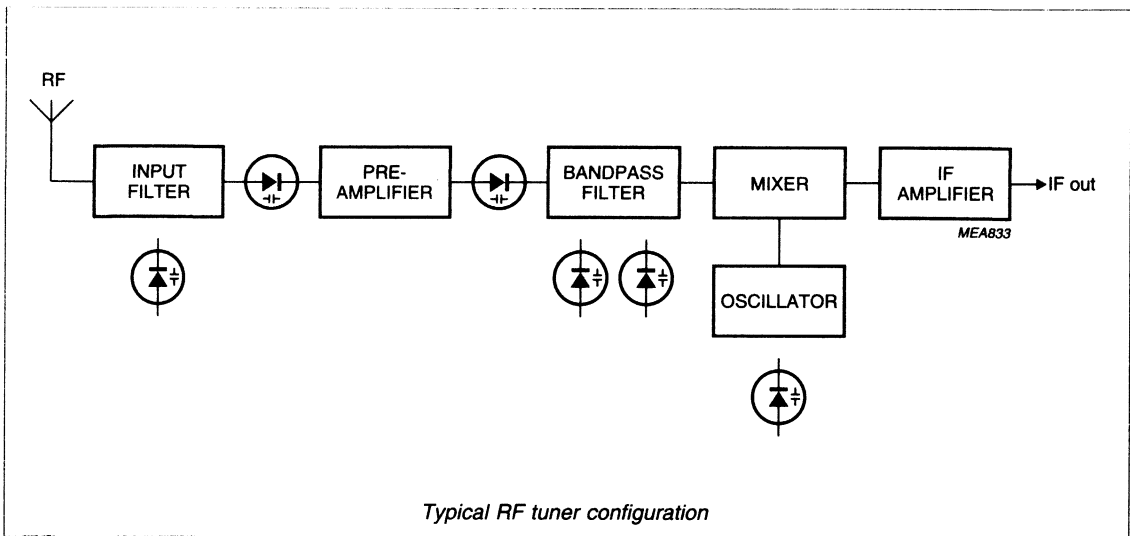
VARICAPS

	VHF I		VHF III		UHF	
	leaded	SMD	leaded	SMD	leaded	SMD
Input filter	BB911	BB132	BB910	BB133	BB405B	BB134
Coupling	BB405B	BB131	BB909B	BB135	-	-
Bandpass filter	BB911	BB132	BB910	BB133	BB405B	BB134
Oscillator	BB911	BB132	BB910	BB133	BB405B	BB134

MOSFETS AND BIPOLAR TRANSISTORS

		VHF I	VHF III	UHF
Pre-amplifier	12 V	BF998	BF998	BF998
	5 V	BF904	BF904	BF904
Mixer		BF547	BF547	BFS17A
Oscillator		BF547	BF547	BF547
IF amplifier		BFS17	-	-

RF



LINE-UPS
Wideband transistors

RF & MICROWAVE
SEMICONDUCTORS & MODULES

RF WIDEBAND TRANSISTORS FOR PAGERS (see Fig.1)

	SOT323	SOT23	SOT143
RF amp	BFR92AW BFS25A BFS505 BFS520	BFR92A BFT25A BFR505 BFR520	BFG92A/X BFG25A/X BFG505/X BFG520/X
MIX	see RF amp		
OSC	see RF amp		

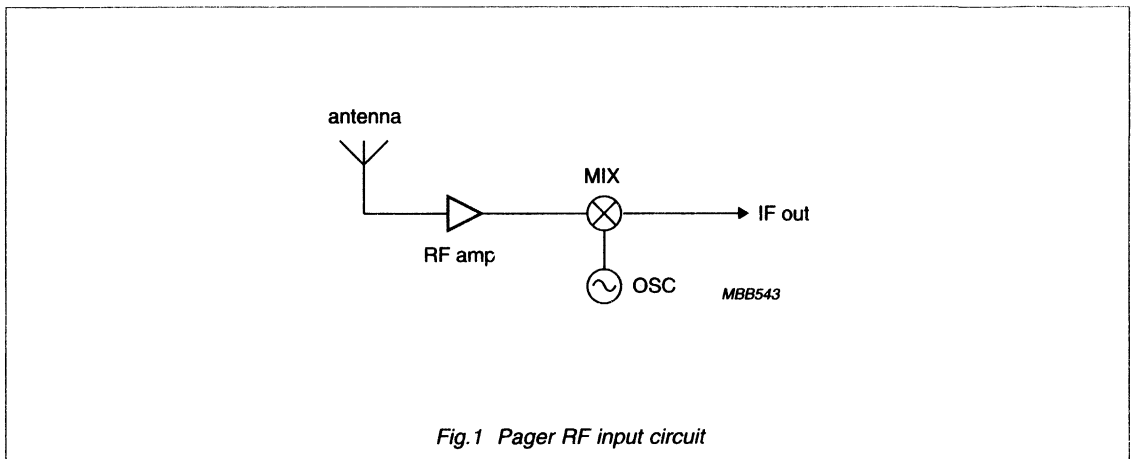


Fig.1 Pager RF input circuit

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**LINE-UPS
Wideband transistors**
RF WIDEBAND TRANSISTORS FOR CELLULAR PHONES (see Figs.2 and 3)

	SOT323	SOT23	SOT143	SOT223
Receiver				
Input amp and MIX1	BFQ67W BFS25A BFS505 BFS520	BFQ67 BFT25A BFR505 BFR520	BFG67/X BFG25A/X BFG505/X BFG520/X	
B1 amp	BFR92AW BFR93AW BFS505 BFS520	BFR92A BFR93A BFR505 BFR520	BFG92A/X BFG93A/X BFG505/X BFG520/X	
IF amp	BFS25A BFS505	BFT25A BFR505	BFG25A/X BFG505/X	
VCO1 and VCO2				
OSC	BFR92AW BFR93AW BFS505 BFS520	BFR92A BFR93A BFR505 BFR520	BFG92A/X BFG93A/X BFG505/X BFG520/X	
B2 amp: as OSC, plus:	BFQ67W	BFQ67	BFG67/X	
Transmitter				
Pre-amp	BFQ67W BFS505 BFS520	BFQ67 BFR505 BFR520	BFG67/X BFG505/X BFG520/X	
MIX2 and B1 amp: as OSC				
Driver amp		BFQ67 BFR520	BFG67/X BFG520/X	
PA1			BFG540/X BFG590/X	BFG35 BFG198 BFG541 BFG591
PA2				BLT50 BFG135 BFG621 ¹⁾
PA3				BLT80 BLT81


¹⁾ under development

LINE-UPS
Wideband transistors

RF & MICROWAVE
SEMICONDUCTORS & MODULES

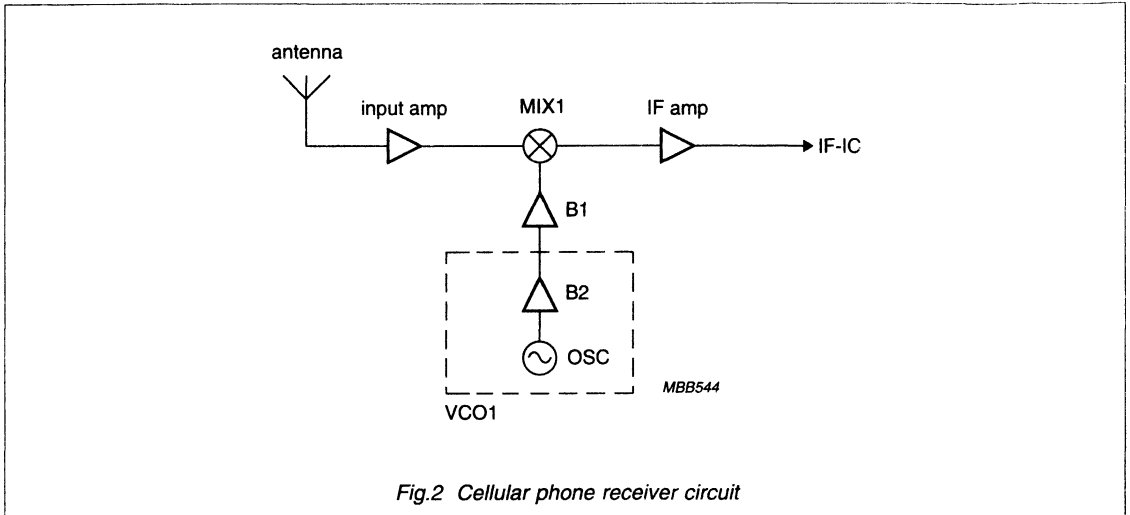


Fig.2 Cellular phone receiver circuit

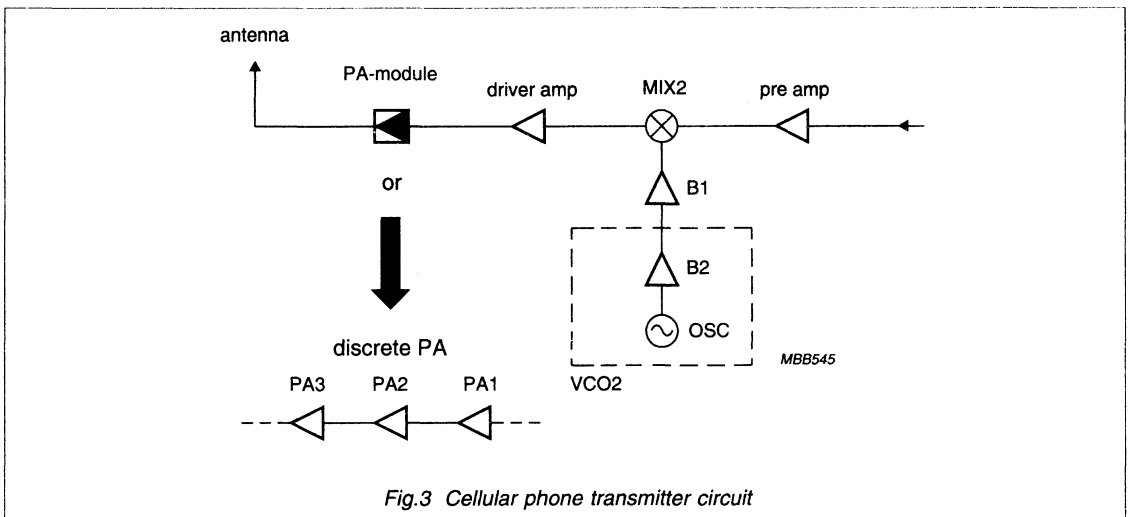


Fig.3 Cellular phone transmitter circuit

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**LINE-UPS
Wideband transistors**
RF WIDEBAND TRANSISTORS FOR CORDLESS PHONES (see Fig.4)

	SOT323	SOT23	SOT143	SOT223	SOT103
Receiver					
See selection guide for cellular phones					
VCO1 and VCO2					
See selection guide for cellular phones					
Transmitter					
Pre-amp	BFQ67W BFS505 BFS520	BFQ67 BFR505 BFR520	BFG67/X BFG505/X BFG520/X		
MIX2 and B1 amp: as pre-amp, plus:	BFR92AW BFR93AW	BFR92A BFR93A	BFG92A/X BFG93A/X		
PA1	BFQ67W BFS505 BFS520	BFQ67 BFR505 BFR520	BFG67/X BFG505/X BFG520/X		
PA2 and PC1			BFG67/X BFG520/X BFG540/X		
PB1			BFG540/X		
PB2			BFG590/X BFG10/X ¹⁾	BFG541 BFG591	BLT10 ¹⁾
PB3			BFG11/X ¹⁾	BFG135 BFG621 ¹⁾ BFG741 ¹⁾	BLT11 ¹⁾


RF POWER TRANSISTORS (CLASS-AB) FOR CELLULAR AND CORDLESS TELEPHONES

type number	V _{CE} (V)	P _L (W)	f (MHz)	G _p (dB)	η _c (%)	envelope
BLT50	7.5	1.2	470	>10.5	>55	SOT223
BLT50	7.5	0.8	900	>4.5	>65	SOT223
BLT80	7.5	0.8	900	>6.0	>60	SOT223
BLT81	7.5	1.2	900	>6.0	>65	SOT223
BLT10	6.0	0.3	1900	>6.0	>50	SOT103
BLT11	6.0	0.6	1900	>6.0	>50	SOT103
BFG10(/X)	3.6	0.2	1900	>5	>50	SOT143(/X)
BFG11(/X)	3.6	0.4	1900	>4	>50	SOT143(/X)

¹⁾ under development

LINE-UPS
Wideband transistors

RF & MICROWAVE
SEMICONDUCTORS & MODULES

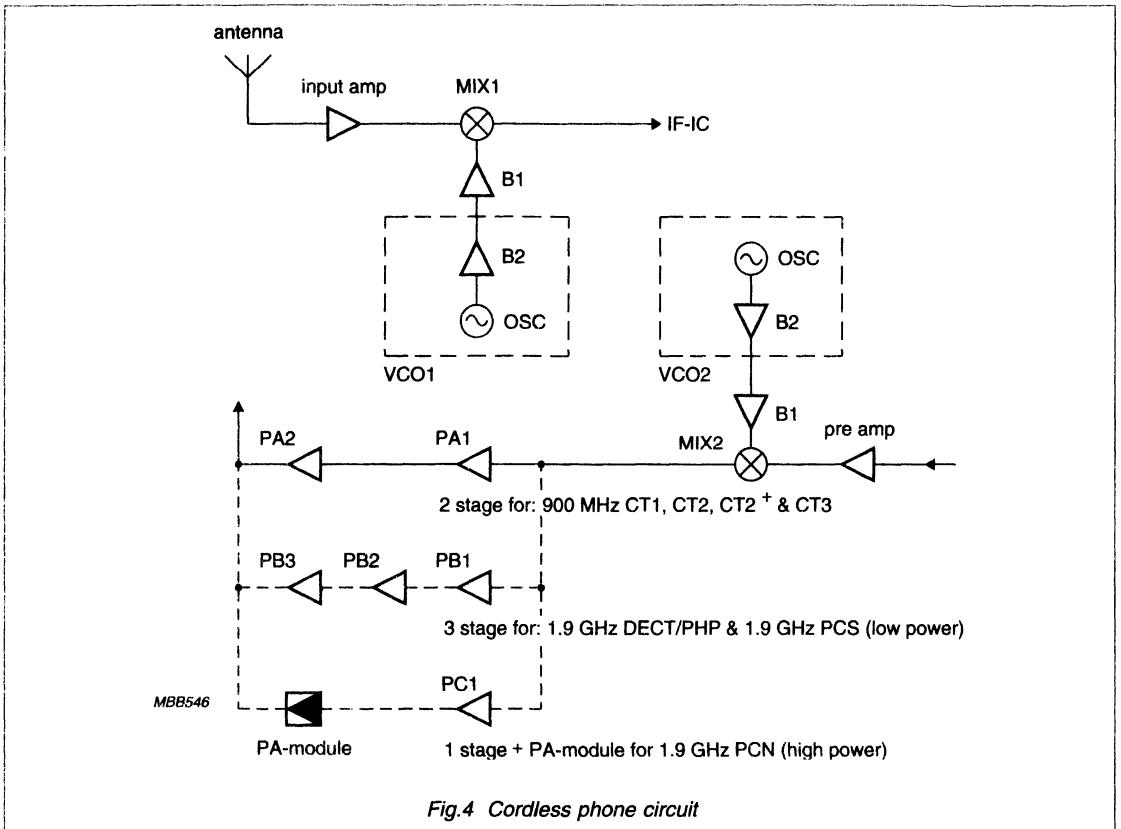


Fig.4 Cordless phone circuit

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**LINE-UPS
Video amplifiers**
WIDEBAND TRANSISTORS FOR APPLICATION IN VIDEO OUTPUT AMPLIFIERS IN MONITORS

application	envelope					
	SOT54 (TO-92)	SOT5 (TO-39)	SOT32 (TO-126)	SOT128 (TO-202)	SOT172	SOT223
npn cascode driver	BFQ161	BFQ163	BFQ162			BFQ166
npn low-current cascode output ($I_{CM} = 300$ mA)			BFQ232 BFQ232A	BFQ235 BFQ235A	BFQ234(/I)	
npn high-current cascode output ($I_{CM} = 400$ mA)		BFQ263 BFQ263A	BFQ262 BFQ262A	BFQ265 BFQ265A	BFQ268(/I)	
npn buffer	BFQ231 BFQ231A	BFQ233 BFQ233A	BFQ232 BFQ232A	BFQ235 BFQ235A	BFQ234(/I)	BFQ236 BFQ236A
pnP buffer	BFQ251 BFQ251A	BFQ253 BFQ253A	BFQ252 BFQ252A	BFQ255 BFQ255A	BFQ254(/I)	BFQ256 BFQ256A

WIDEBAND TRANSISTORS FOR APPLICATION IN VIDEO OUTPUT AMPLIFIERS IN HDTV

application	envelope		
	SOT32 (TO-126)	SOT128 (TO-202)	SOT172
npn cascode output			BFQ291
pnP cascode output			BFQ290
npn buffer	BFQ293	BFQ296	
pnP buffer	BFQ292	BFQ295	BFQ290



LINE-UPS

RF power amplifiers

RF & MICROWAVE

SEMICONDUCTORS & MODULES

RF POWER TRANSISTORS AND MODULES - RECOMMENDED LINE-UPS

SSB TRANSMITTERS (1.5 MHz - 30 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P _L (PEP) (W)	supply voltage (V)	stud S flange F
Bipolar						
30	BLY87C ¹⁾	2 × BLY89C		30	13	S
30	BLV10 ¹⁾	2 × BLW87		30	13	F
50	BLY88C ¹⁾	2 × BLW60C		50	13	S
50	BLV11 ¹⁾	2 × BLW85		50	13	F
100	BLY89C ¹⁾	4 × BLW60C		100	13	S
100	BLW87 ¹⁾	4 × BLW85		100	13	F
140	2 × BLW87 ¹⁾	2 × BLW99		150	13	F
50	BLY91C ¹⁾	2 × BLX13C		50	28	S
50	BLV20 ¹⁾	2 × BLW83		50	28	F
150	BLW83 ¹⁾	2 × BLW76		150	28	F
250	2 × BLW83 ¹⁾	2 × BLW77		250	28	F
220	2 × BLW86 ¹⁾	2 × BLW97		300	28	F
500	2 × BLW86	4 × BLW77		450	28	F
680	2 × BLW78 ¹⁾	4 × BLW97		600	28	F
300	2 × BLX13C ²⁾	2 × BLX15		250	50	S
300	2 × BLW83 ²⁾	2 × BLW96		350	50	F
600	2 × BLX39 ²⁾	4 × BLX15		500	50	S
600	2 × BLW50F ¹⁾	4 × BLW95		500	50	F
40	BLY91C ²⁾	2 × BLW78 ²⁾	8 × BLX15	1000	50	S/F
40	BLV20 ²⁾	4 × BLW50F	8 × BLW96	1200	50	F
PowerMOS						
15	BLF244 ¹⁾	2 × BLF246		150	28	
30	BLF145 ¹⁾	2 × BLF147		300	28	
60	BLF246 ¹⁾	4 × BLF147		550	28	
15	BLF244 ^{1) 2)}	2 × BLF177		300	50	
10	BLF175 ¹⁾	4 × BLF177		550	50	
20	2 × BLF175 ¹⁾	8 × BLF177		1000	50	

¹⁾ Class A operation

²⁾ 28 V supply in class A operation

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**LINE-UPS
RF power amplifiers**
MOBILE TRANSMITTERS (68 MHz - 87.5 MHz)

input power (mW)	1st stage	2nd stage	P_L (W)	supply voltage (V)	stud S flange F
Bipolar					
20	2N4427	BLY87C	8	13	S
20	2N4427	BLV10	8	13	F
35	2N4427	BLW29	14	13	S
10	BSX190	BLY32	18	13	F
70	BFQ42	BLW31	28	13	S
160	BFQ43	BLW60C	45	13	S
160	BFQ43	BLW85	45	13	F
190	BLV10	BLV75/12	75	13	F

PowerMOS

15	BLF221	BLF245	12	12.5	
25	BLF221	BLF225	25	12.5	

BASE STATIONS (68 MHz - 87.5 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P_L (W)	supply voltage (V)	stud S flange F
Bipolar						
65	BFS23A	BLY93C		25	28	S
65	BFS23A	BLW84		25	28	F
125	BLX92A	BLX39		50	28	S
15	2N3866	BLV21	BLW78	100	28	F
50	2N3866 ²⁾	BLY93C ²⁾	BLX15	150	50	S
50	2N3866 ²⁾	BLW84 ²⁾	BLW95	150	50	F

PowerMOS

30	BLF241	BLF245		30	28	
80	BLF242	BLF246		80	28	
150	BLF244	BLF147		150	28	

1) Class A operation

2) 28 V supply in class A operation



LINE-UPS

RF power amplifiers

RF & MICROWAVE

SEMICONDUCTORS & MODULES

FM BROADCAST TRANSMITTERS (87.5 MHz - 106 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P_L (W)	supply voltage (V)	stud S flange F
Bipolar						
100	BLW90	BLX39		50	28	S
40	2N3866	BLV21	BLW78	100	28	F
100	BLW90	BLW86	2 × BLV25	300	28	F
500	BLV21	BLW78	2 × BLV37	500	28	F
600	BLV21	BLV25	4 × BLV37	1000	28	F
PowerMOS						
240	BLF244	BLF248		300	28	
120	BLF244 ²⁾	BLF278		300	50	
240	BLF244 ²⁾	2 × BLF278		550	50	
320	BLF175	4 × BLF278		1000	50	

AM AIRCRAFT TRANSMITTERS (118 MHz - 136 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P_L (W)	supply voltage (V)	stud S flange F
Bipolar						
110	BLX92A	BLY93C		6	13/28	S
240	BLY91C	BLX39		12	13/28	S
240	BLV20	BLW86		12	13/28	F
100	BLX92A	BLY93C	BLW78	25	13/28	S/F
100	BLX92A	BLW84	BLW78	25	13/28	S/F

AM AIRCRAFT TRANSMITTERS (100 MHz - 400 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P_L (W)	supply voltage (V)	stud S flange F
Bipolar						
40	BLX91A	2 × BLW90	2 × BLX94C	40	28	S
120	BLX91A	2 × BLX93A	2 × BLU30/28	60	28	S/F
500	BLW90	2 × BLX94C	2 × BLU60/28	120	28	S/F
PowerMOS						
30	BLF521 ⁴⁾	BLF522 ⁴⁾	BLF545	40	28	
25	BLF521 ⁴⁾	BLF543	BLF546	80	28	
100	BLF521 ⁴⁾	BLF544	BLF548	150	28	

⁴⁾ $V_{DS} = 12.5 \text{ V}$

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**LINE-UPS
RF power amplifiers**
PORTABLE AND MOBILE TRANSMITTERS (132 MHz - 174 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P _L (W)	supply voltage (V)	stud S flange F
Bipolar						
40	2N4427	BFQ43		2	7.5	-
100	2N4427	BLY87C		8	13	S
100	2N4427	BLV10		8	13	F
125	BFQ42	BLW29		14	13	S
150	BGY36			18	13	F
200	BFQ43	BLW30		30	12.5	S
200	BFQ43	BLV12		30	12.5	F
250	BFQ43	BLW31		28	13	S
100	2N4427	BLW29	BLV45/12	45	13	S/F
115	BGY43	BLV45/12		45	13	F
120	BFQ42	BLW29	BLV75/12	75	13	S/F

PowerMOS

100	BLF221	BLF245		12	12.5	
150	BLF522	BLF225		25	12.5	

BASE STATIONS (132 MHz - 174 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P _L (W)	supply voltage (V)	stud S flange F
Bipolar						
200	BLY91C	BLY93C		25	28	S
200	BLV20	BLW84		25	28	F
25	2N3866	BLY91C	BLX39	50	28	S
25	2N3866	BLV20	BLW86	50	28	F
200	BFS23A	BLY93C	2 × BLX39	100	28	S
200	BFS23A	BLW84	2 × BLW86	100	28	F

PowerMOS

120	BLF241	BLF245		30	28	
220	BLF242	BLF246		80	28	
70	BLF241	BLF245		150	28	



LINE-UPS

RF power amplifiers

RF & MICROWAVE

SEMICONDUCTORS & MODULES

TV TRANSPOSERS (BAND III: 174 MHz - 230 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	4th stage	P _o sync (W)	P _o sat (W)	supply voltage (V)
Bipolar							
6	BGY55	2 × BLV31			10	10	25
7	BLV30	2 × BLV32F			20	20	25
3	BGY55	2 × BLV31	2 × BLV33		30	40	25
6	BLV30	2 × BLV33F	4 × BLV33		60	75	25
2	BGY55	2 × BLV31	4 × BLV33	8 × BLV33	100	140	25
PowerMOS							
5	BLF242 ³⁾	2 × BLF244 ³⁾	BLF348		40	60	28
12	BLF244 ³⁾	2 × BLF245 ³⁾	2 × BLF348		75	115	28
20	BLF244 ³⁾	2 × BLF346	4 × BLF348		140	220	28

TV TRANSMITTERS (BAND III: 174 MHz - 230 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P _o sync (W)	supply voltage (V)
Bipolar					
8	BGY55	2 × BLV31	2 × BLV33F	130	28
10	BLV30	2 × BLV32F	2 × BLV38	225	5/28/35
35	BLV30	2 × BLV33F	4 × BLV38	420	25/28/35
75	2 × BLV30	4 × BLV33F	8 × BLV38	800	25/28/35
PowerMOS					
50	BLF242 ³⁾	2 × BLF244 ³⁾	BLF368	300	32
100	BLF242 ³⁾	2 × BLF245 ³⁾	2 × BLF368	550	32
160	BLF242 ³⁾	2 × BLF346	2 × BLF368	1000	32
50	BLF242 ^{2) 3)}	2 × BLF175 ³⁾	6 × BLF378	1250	50

²⁾ 28 V supply in class A operation

³⁾ Recommended types based on typical behaviour. Bipolar alternatives are BLV30, BLV31, BLV32F

RF & MICROWAVE SEMICONDUCTORS & MODULES

LINE-UPS RF power amplifiers

PORTABLE AND MOBILE TRANSMITTERS (400 MHz - 512 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P_L (W)	supply voltage (V)	stud S flange F
Bipolar						
15	BFR96	BLW79	BLW80	2	7.5	S
45	BLV90	BLU99		3	7.5	S
15	BFR96S	BLU99	BLW81	10	13	S
250	BLU99	BLU15/12		15	12.5	S
400	BLU99	BLU20/12		20		S/F
280	BLU99	BLU20/12	BLU45/12	45	13	S/F
400	BLU99	BLU20/12	BLU60/12	60	13	S/F

BASE STATIONS (400 MHz - 470 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P_L (W)	supply voltage (V)	stud S flange F
Bipolar						
40	BLX91A	BLW91	BLX94C	30	28	S
220	BLW90	BLX94C	BLU60/28	60	28	S/F
60	BLX91A	BLX93A	BLU30/28	30	28	S/F
PowerMOS						
35	BLF521 ⁴⁾	BLF522 ⁴⁾	BLF545	40	28	
40	BLF521 ⁴⁾	BLF543	BLF546	80	28	
150	BLF521 ⁴⁾	BLF544	BLF548	150	28	

TV TRANSPOSERS (BAND IV/V: 470 MHz - 860 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	4th stage	P_o sync (W)	P_o sat (W)	supply voltage (V)
Bipolar							
5	BFQ34	BFQ68	2 × BFQ68		1.4	1.4	15
6	BLW32	BLW33	2 × BLW34		4.4	5.7	25
2	BLW32	BLW33	2 × BLW34	2 × BLW98	8	8	25
3	BLW32	BLW33	2 × BLW34	2 × BLV57	13	15	25
3	BFQ68	BLW34	BLW98	2 × BLV58	25. ⁵⁾	30	25

⁴⁾ $V_{DS} = 12.5$ V

⁵⁾ 25 W sync, -51 dB (-8/-16/-7 dB)

LINE-UPS

RF power amplifiers

RF & MICROWAVE

SEMICONDUCTORS & MODULES

TV TRANSMITTERS (BAND IV/V: 470 MHz - 860 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	4th stage	P _o sync (W)	supply voltage (V)
Bipolar						
12	BFR96S	BFQ68	2 × BLW34	2 × BLV59	60	28
15	BFQ34	BLW34	BLV58	BLV62	150	28
30	BF234	2 × BLW33	2 × BLV58	4 × BLV62	500	28

MOBILE TRANSMITTERS (860 MHz - 960 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	4th stage	P _L (W)	supply voltage (V)	stud S flange F
Bipolar							
60	BLU98	BLV91	BLV93		8	13	S/F
100	BLV90	BLV92	BLV94		15	13	S/F
50	BLV98	BLV91	BLV93	BLV95	22	13	S/F

BASE STATIONS (860 MHz - 960 MHz), CLASS AB OPERATION

input power (mW)	1st stage	2nd stage	3rd stage	4th stage	P _L (W)	supply voltage (V)	freq MHz
Bipolar							
64	BLV99SL	BLV100	BLV101A		45	25	900
100	BLV99SL	BLV100	BLV101B		45	25	960
7	BLV99SL	BLV103	BLV98CE	2 × BLV101A	85	25	960
8	BLV99SL	BLV103	BLV97CE	2 × BLV101	85	25	960
9	BLV99SL	BLV103	BLV945A	BLV948	120	25	900
7	BLV99SL	BLV103	BLV945A	BLV948	150.(PEP)	25	900 ⁶⁾

PORTABLE TRANSMITTERS (860 - 960 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P _L (W)	supply voltage (V)
Bipolar					
5	BFG90A	BFG96	BLTxX/SL	1.5	7.5
15	BFG91A	BLTxX/SL	BLTxX/SL	3	7.5

⁶⁾ IMD -30 dB

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**
**LINE-UPS
RF power amplifiers**
AM AIRCRAFT TRANSMITTERS (108 MHz - 144 MHz)

input power (mW)	1st stage	2nd stage	P _L (W)	supply voltage (V)
PowerMOS				
100	BLF242	BLF246	20	28
80	BLF244	BLF147	35	28
120	BLF242 ²⁾	BLF278	75	50

MILITARY COMMUNICATION TRANSMITTERS (25 MHz - 110 MHz)

input power (mW)	1st stage	2nd stage	3rd stage	P _L (W)	supply voltage (V)
PowerMOS					
150	BLF242	2 × BLF244		12	12.5
500	BLF244 ¹⁾	2 × BLF245		60	28
100	BLF242 ¹⁾	BLF245 ¹⁾	2 × BLF246	150	28



¹⁾ Class A operation

²⁾ 28 V supply in class A operation

LINE-UPS

Microwave amplifiers

RF & MICROWAVE SEMICONDUCTORS & MODULES

MICROWAVE TRANSISTORS - RECOMMENDED LINE-UPS

BASE STATIONS, COMMON EMITTER

input power (mW)	1st stage	2nd stage	3rd stage	P _L (W)	supply voltage (V)
1.5 GHz to 1.70 GHz — narrow band					
100	LBE2009SA	LLE16120X	2 × LLE16350X	60	24
50	LBE2009SA	LLE16045X	LLE16350X	32	24
1.70 GHz to 2.0 GHz — narrow band					
100	LBE2009SA	LLE18100X	2 × LLE18300X	50	24
50	LBE2009SA	LLE18040X	LLE18300X	27	24
1.6 GHz — mobile VSAT					
50	LLE18010X	PLB16004U	PLB16030U	30	28

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**

**MODULES
Circulators and Isolators**

Circulators and Isolators



See data handbook PC06 for full data

MODULES
Circulators and Isolators

RF & MICROWAVE
SEMICONDUCTORS & MODULES

Circulators and Isolators

With more than 20 years' design and manufacturing experience, we offer circulators and isolators with outstanding performance.

They cover the following specifications:

- **Frequency range:** 50 MHz to 18 GHz
- **Isolation:** up to 55 dB
- **Insertion loss:** down to 0.2 dB
- **CW power rating:** up to 6.5 kW

Over the years, we've made circulators and isolators to meet a wide range of VHF, UHF and microwave requirements, and most of these are now available as standard types. If your needs are not met by a standard type, our experts will design and build custom-made devices to your specifications. Furthermore, for parallel operation or for monopulse applications, we can provide phase-matched sets.

Our circulators and isolators are designed for the following applications:

- TV and radio transmitters
- Communication systems:
 - radio links
 - air traffic control
 - mobile telephone
 - paging systems
 - private networks
- Navigation aids
- Radar
- Diathermy and magnetic resonance tomography
- Industrial microwave heating systems and plasma heating
- Wideband measurements

To meet the needs of hybrid circuit designers, we also make isoductors. These have only the non-reciprocal element of a circulator, and require matching networks for operation.

Choosing from our standard type range

As an indication of our capabilities, this catalogue shows a selection from our extensive standard type range. More detailed information on all standard types is given in Data Handbook PC06, ordering code: 9398 181 70011.

The table below explains our 12-digit type number system used to uniquely identify the devices.

digits 1-4	digits 5-7	digits 8 and 9
2722	161 waveguide	0 1 field displacement or slimline isolator
		0 2 circulator
		0 3 X-configuration 4-port circulator
		0 4 isolator
	162 coaxial	0 1,3,5,7 circulator
		0 2,6,8 isolator
		0 4 4-port circulator
		0 9 isoductor
	163 industrial	0 1 circulator
		0 2 isolator

RF & MICROWAVE SEMICONDUCTORS & MODULES

MODULES Circulators and Isolators

Circulators and Isolators

type number	frequency range	CW power (load VSWR = 2)	isolation	insertion loss	VSWR	dimensions (mm)			connectors	
						Fig	W	L		T
2722	(MHz)	max (W)	min (dB)	max (dB)	max					
162 07271	54-60	130	17	0.7	1.4	2	65	80	33	N
162 07281	66-72	130	17	0.7	1.4	2	65	80	33	N
162 02912	72-73	20	20	0.7	1.25	1	49	52	27	N
162 02732	73-74	20	20	0.8	1.25	1	49	52	27	N
162 05151	74.5-75.5	25	20	0.8	1.25	1	49	52	27	N
162 07031	82-88	200	18	0.6	1.35	2	65	80	33	N
162 02722	83-84	20	20	0.7	1.25	1	49	52	27	N
162 05991	88-108	50	18	0.8	1.3	2	53	67	28	N
162 07021	88-108	300	16	0.8	1.4	2	65	80	33	N
162 03342	96-146	50	18	1.3	1.3	2	53	67	28	N
162 03332	96-146	50	18	1.3	1.3	2	53	67	28	SMA
162 02942	100-101	20	20	0.7	1.25	1	49	52	27	N
162 05881	100-163	75	15	1	1.5	2	53	67	28	N
162 05891	100-163	300	15	1	1.5	2	65	80	33	N
162 02902	138-141	25	20	0.4	1.25	1	49	52	27	N
162 05001	138-141	110	20	0.4	1.25	1	49	52	27	N
162 05755	146-174	110	20	0.4	1.25	1	49	52	27	N
162 05201	150.9-156.1	110	20	0.4	1.25	1	49	52	27	N
162 06002	156-157	20	20	0.6	1.25	1	49	52	27	N
162 03841	157.9-163.1	110	20	0.4	1.25	1	49	52	27	N
162 01871	160-178	500	20	0.35	1.25	3	112	-	72	N
162 01901	160-178	1000	20	0.35	1.25	3	112	-	72	HF 7/16"
162 02992	161-162	15	20	0.6	1.25	1	49	52	27	N
162 03851	165.4-170.6	110	20	0.4	1.25	1	49	52	27	N
162 07005	170-230	100	20	0.5	1.25	1	49	52	27	N
162 01861	173-204	500	20	0.35	1.25	3	112	-	72	N
162 01891	173-204	1000	20	0.35	1.25	3	112	-	72	HF 7/16"
162 05971	173-204	1500	20	0.35	1.25	4	175	175	81	EIA 1 5/8"
162 05031	195-205	1000	20	0.4	1.25	3	112	-	72	N
162 01851	200-230	500	20	0.35	1.25	3	112	-	72	N
162 01881	200-230	1000	20	0.35	1.25	3	112	-	72	HF 7/16"
162 05981	200-230	1500	20	0.35	1.25	4	175	175	81	EIA 1 5/8"
162 06901	200.5-207.5	20	20	0.6	1.25	1	49	52	27	N
162 06291	201-209	100	20	0.5	1.25	1	49	52	27	N
162 01931	225-270	150	18	0.35	1.35	1	63	70	30	N
162 03171	225-270	500	20	0.35	1.25	3	112	-	72	N
162 03181	225-270	1000	20	0.35	1.25	3	112	-	72	HF 7/16"
162 03722	225-400	60	15	1.4	1.6	2	53	67	28	SMA
162 03732	225-400	60	15	1.4	1.6	2	53	67	28	N
162 05781	225-400	230	16	0.7	1.4	2	53	67	28	N
162 01941	270-330	150	18	0.35	1.35	1	63	70	30	N
162 01951	330-400	150	18	0.35	1.35	1	63	70	30	N
162 02712	400-470	20	20	0.5	1.25	1	49	52	27	N
162 03411	400-470	100	20	0.5	1.25	1	49	52	27	N
162 01572	400-470	300	20	0.35	1.25	1	65	72	38	N



MODULES

Circulators and Isolators

RF & MICROWAVE

SEMICONDUCTORS & MODULES

Circulators and Isolators *continued*

type number	frequency range	CW power (load VSWR = 2)	isolation	insertion loss	VSWR	dimensions (mm)			connectors	
						Fig	W	L		T
2722	(MHz)	max (W)	min (dB)	max (dB)	max					
162 02931	406-414	70	45	1	1.25	5	97	52	27	N
162 06161	406-470	100	50	0.8	1.25	5	97	52	27	N
162 03991	433-435	2000	20	0.4	1.25	3	112	-	72	EIA 7/8"
162 02981	450-458	70	45	0.8	1.25	5	97	52	27	N
162 02857	460-468	100	50	0.6	1.25	5	97	52	27	N
162 01555	462-468	100	25	0.5	1.2	1	49	52	27	N
162 02691	470-600	10	20	0.5	1.25	1	49	52	27	N
162 01551	470-600	100	20	0.5	1.25	1	49	52	27	N
162 01582	470-600	300	20	0.35	1.25	1	65	72	38	N
162 01632	470-600	300	20	0.35	1.25	1	65	72	38	HF 7/16"
162 01121	460-600	500	22	0.35	1.2	3	112	-	72	N
162 05371	470-600	700. ¹⁾	20	0.4	1.25	3	112	-	72	HF 7/16"
162 01261	470-600	2000	20	0.35	1.25	3	112	-	72	HF 7/16"
162 01771	470-600	2000	20	0.35	1.25	3	112	-	72	EIA 7/8"
162 03001	470-600	2000. ¹⁾	20	0.4	1.25	4	175	175	81	EIA 1 5/8"
162 07411	470-610	150	18	0.4	1.35	1	42	48	27	solder pins
162 02921	510-514	70	45	0.8	1.25	5	97	52	27	N
162 01563	550-650	100	20	0.5	1.25	1	49	52	27	N
162 01592	590-720	300	20	0.35	1.25	1	65	72	38	N
162 01642	590-720	300	20	0.35	1.25	1	65	72	38	HF 7/16"
162 01131	590-720	500	22	0.35	1.2	3	112	-	72	N
162 05381	590-720	700. ¹⁾	20	0.4	1.25	3	112	-	72	HF 7/16"
162 01281	590-720	2000	22	0.35	1.2	3	112	-	72	HF 7/16"
162 01781	590-720	2000	20	0.35	1.25	3	112	-	72	EIA 7/8"
162 03011	590-720	2000. ¹⁾	20	0.4	1.25	4	175	175	81	EIA 1 5/8"
162 02701	600-800	10	20	0.5	1.25	1	49	52	27	N
162 01561	600-800	100	20	0.5	1.25	1	49	52	27	N
162 03191	600-800	500	20	0.35	1.2	3	112	-	72	N
162 01331	600-800	2000	20	0.35	1.25	3	112	-	72	HF 7/16"
162 01791	600-800	2000	20	0.35	1.25	3	112	-	72	EIA 7/8"
162 07421	610-860	150	18	0.4	1.35	1	42	48	27	solder pins
162 05321	600-960	10	13	0.9	1.65	1	53	54	30	SMA
162 06111	600-960	10	13	0.9	1.65	1	53	54	30	SMA
162 01612	710-860	300	20	0.35	1.25	1	65	72	38	N
162 01662	710-860	300	20	0.35	1.25	1	65	72	38	HF 7/16"
162 01141	710-860	500	22	0.35	1.2	3	112	-	72	N
162 05391	710-860	700. ¹⁾	20	0.4	1.25	3	112	-	72	HF 7/16"
162 01271	710-860	2000	22	0.35	1.2	3	112	-	72	HF 7/16"
162 01801	710-860	2000	20	0.35	1.25	3	112	-	72	EIA 7/8"
162 01981	710-860	2000. ¹⁾	20	0.4	1.25	4	175	175	81	EIA 1 5/8"
162 02401	790-1000	10	20	0.5	1.25	1	49	52	27	N
162 03261	790-1000	100	20	0.5	1.25	1	49	52	27	N
162 06671	806-960	100	45	0.8	1.25	5	97	52	27	N
162 06962	935-960	35	50	0.6	1.25	5	70	42	20	N

¹⁾ 8000 W peak

RF & MICROWAVE SEMICONDUCTORS & MODULES

MODULES Circulators and Isolators

Circulators and Isolators *continued*

type number	frequency range (MHz)	CW power (load VSWR = 2) max (W)	isolation min (dB)	insertion loss max (dB)	VSWR max	dimensions (mm)			connectors	
						Fig	W	L T		
2722										
162 03591	960-1225	100	20	0.5	1.25	1	49	52	27	N
162 05331	1350-1700	10	20	0.4	1.2	1	35	36	20	SMA
162 05562	1350-1850	20	16	0.6	1.4	1	35	36	20	solder pins
162 05571	1350-2100	10	17	0.5	1.35	1	35	36	20	SMA
162 06701	1350-2100	10	17	0.5	1.35	1	35	36	20	SMA
162 02492	1427-1535	10	20	0.4	1.15	1	49	52	27	N
162 03802	1427-1535	10	20	0.4	1.15	1	49	52	27	N
162 02521	1470-1620	1	20	0.4	1.22	1	35	36	20	solder pins
162 02631	1470-1620	15	20	0.4	1.22	1	35	36	20	SMA
162 02531	1590-1800	1	20	0.4	1.22	1	35	36	20	solder pins
162 02641	1590-1800	15	20	0.4	1.22	1	35	36	20	SMA
162 03881	1680-1920	20	25	0.35	1.12	1	49	52	28	SMA
162 03911	1680-1920	50	23	0.4	1.15	1	49	52	28	N
162 05311	1700-2100	10	20	0.4	1.2	1	35	36	20	SMA
162 02571	1700-2100	15	26	0.25	1.11	1	35	36	20	SMA
162 05241	1700-2100	30	26	0.3	1.11	1	35	36	20	SMA
162 04051	1700-2100	30	26	0.25	1.11	6	86	35	20	SMA
162 03951	1700-2300	20	20	0.3	1.25	1	49	52	28	SMA
162 03941	1700-2300	50	20	0.3	1.25	1	49	52	28	N
162 02541	1760-1940	1	20	0.4	1.22	1	35	36	20	solder pins
162 02651	1760-1940	15	20	0.4	1.22	1	35	36	20	SMA
162 03891	1880-2120	20	25	0.35	1.12	1	49	52	28	SMA
162 03921	1880-2120	20	23	0.4	1.15	1	49	52	28	N
162 02551	1890-2110	1	20	0.4	1.22	1	35	36	20	solder pins
162 02661	1890-2110	15	20	0.4	1.22	1	35	36	20	SMA
162 05341	1900-2300	10	20	0.4	1.2	1	35	36	20	SMA
162 05471	1900-2300	15	23	0.3	1.1	1	35	43	20	N/SMA
162 02591	1900-2300	15	26	0.25	1.11	1	35	36	20	SMA
162 04061	1900-2300	15	26	0.25	1.11	6	86	35	20	SMA
162 05271	1900-2300	30	26	0.3	1.11	1	35	36	20	SMA
162 05411	2000-2700	10	20	0.4	1.2	1	35	36	20	SMA
162 01491	2000-4000	50	20	0.5	1.25	1	52	67	28	N
162 01501	2000-4000	50	20	0.5	1.25	1	52	67	28	SMA
162 02091	2000-4000	50	20	0.5	1.25	1	52	67	28	N
162 02101	2000-4000	50	20	0.5	1.25	1	52	67	28	SMA
162 03901	2080-2320	20	25	0.35	1.12	1	49	52	28	SMA
162 03931	2080-2320	50	23	0.4	1.15	1	49	52	28	N
162 05351	2100-2500	10	20	0.4	1.2	1	35	36	20	SMA
162 08091	2300-2700	1	20	0.4	1.2	1	35	36	20	SMA
162 05361	2300-2700	10	20	0.4	1.2	1	35	36	20	SMA
163 02081	2350-2400	3000	20	0.3	1.25 ²⁾	7	292	191	116	IEC-PDR 26
163 02091	2350-2400	3000	20	0.3	1.25 ²⁾	8	182	300	116	IEC-PDR 26
163 02024	2350-2400	6500	20	0.3	1.25 ²⁾	8	182	300	116	IEC-PDR 26
163 02025	2350-2400	6500	20	0.3	1.25 ²⁾	7	292	191	116	IEC-PDR 26
163 02061	2425-2475	3000	20	0.3	1.25 ²⁾	7	292	191	116	IEC-PDR 26
163 02071	2425-2475	3000	20	0.3	1.25 ²⁾	8	182	300	116	IEC-PDR 26
163 01021	2425-2475	6500	20	0.3	1.25 ²⁾	9	182	191	116	IEC-PDR 26
163 02004	2425-2475	6500	20	0.3	1.25 ²⁾	8	182	300	116	IEC-PDR 26
163 02005	2425-2475	6500	20	0.3	1.25 ²⁾	7	292	191	116	IEC-PDR 26

²⁾ with output short circuited: load VSWR = 1.5 maximum



MODULES

Circulators and Isolators

RF & MICROWAVE SEMICONDUCTORS & MODULES

Circulators and Isolators *continued*

type number	frequency range (MHz)	CW power (load VSWR = 2) max (W)	isolation min (dB)	insertion loss max (dB)	VSWR max	dimensions (mm)			connectors	
						Fig	W	L		T
2722										
162 05401	2450-2850	10	20	0.4	1.2	1	35	36	20	SMA
162 01511	3000-6000	20	20	0.5	1.25	1	39	47	23	SMA
162 02071	3000-6000	20	20	0.5	1.25	1	39	47	23	SMA
162 03431	3800-4200	10	25	0.25	1.12	1	27	27	20	SMA
162 04031	3800-4200	10	25	0.25	1.12	6	53	27	20	SMA
162 01811	4000-8000	10	20	0.5	1.25	1	30	38	20	SMA
162 02111	4000-8000	10	20	0.5	1.25	1	30	38	20	SMA
162 02471	4200-4400	10	23	0.3	1.2	1	28	30	16	SMA
162 03441	4400-5000	10	25	0.25	1.12	1	27	27	20	SMA
162 04041	4400-5000	10	25	0.25	1.12	6	53	27	20	SMA
161 02212	5925-6425	200	28	0.2	1.08	10	83	81	39	IEC-UER 70
161 04003	5925-6425	200	28	0.2	1.08	10	83	90	39	IEC-UER 70
161 02312	6425-7125	200	28	0.2	1.08	10	83	81	39	IEC-UER 70
161 04052	6425-7125	200	28	0.2	1.08	10	83	90	39	IEC-UER 70
162 01822	7000-12400	10	20	0.6	1.25	1	27	31	21	SMA
162 02122	7000-12400	10	20	0.6	1.25	1	27	31	21	SMA
161 02322	7125-7750	200	28	0.2	1.08	10	83	81	39	IEC-UER 70
161 04062	7125-7750	200	28	0.2	1.08	10	83	90	39	IEC-UER 70
161 02071	8200-11200	50	22	0.5	1.18	11	63	55	57	IEC-UER 70
161 01222	8500-9600	1	15	0.6	1.15	12	35	43	54	IEC-UER 100
161 01361	8500-9600	5	30	0.5	1.05	12	86	43	43	IEC-UER 100
161 01211	8500-9600	10	30	0.5	1.05	12	76	47	50	IEC-UER 100
161 01261	8500-9600	10	55	1.2	1.2	12	100	47	50	IEC-UER 100
162 02221	12000-18000	5	20	0.6	1.3	1	14	18	16	SMA
162 03301	12000-18000	5	18	0.6	1.3	1	14	18	16	SMA

Isolators

type number	frequency range (MHz)	CW power (load VSWR = 2) max (W)	isolation min (dB)	insertion loss max (dB)	VSWR max	dimensions (mm)			connectors	
						Fig	W	L		T
2722										
162 09002	68-150	40	20	0.7 ³⁾	1.22	13	19	30	19	solder pins
162 09012	140-260	40	20	0.6	1.22	13	19	30	19	solder pins
162 09022	230-470	40	20	0.5	1.22	13	19	30	19	solder pins
162 09041	400-500	25	20	0.5	1.25	13	16	20	15.5	solder pins

³⁾ insertion loss = 0.7 dB max. @ >100 MHz; 0.9 dB max. @ ≤100 MHz

**RF & MICROWAVE
SEMICONDUCTORS & MODULES**

High-power klystrons

High-power Klystrons



See data handbook PC01 for full data

High-power klystrons

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High-power klystrons

UHF POWER KLYSTRONS

type number	product status	cooling	output power, peak sync. (kW)	frequency range (MHz)
YK1151	M	FA	25	470 to 860
YK1190	M	V/VC/W,FA	45	470 to 610
YK1191	M	V/VC/W,FA	45	590 to 720
YK1192	M	V/VC/W,FA	45	710 to 860
YK1198	M	V/VC/W,FA	60 CW	600 to 800
YK1220	P	V/VC/W,FA	16.5	470 to 860
YK1221	P	V/VC/W,FA	7.5	470 to 860
YK1223	P	V/VC/W,FA	16.5	470 to 860
YK1230	P	V/VC/W,FA	27	470 to 860
YK1233	P	V/VC/W,FA	27	470 to 860
YK1234	N	V/VC/W,FA	33	470 to 860
YK1235	N	V/VC/W,FA	33	470 to 860
YK1263	P	V/VC/W,FA	44	470 to 810
YK1265	P	V/VC/W,FA	64	470 to 860
YK1266	N	V/VC/W,FA	74	470 to 860
YK1267	N	V/VC/W,FA	74	470 to 860
YK1270	N	FA	16.5	470 to 860
YK1273	N	FA	16.5	470 to 860
YK1280	N	FA	33	470 to 860
YK1283	N	FA	44	470 to 810
YK1285	N	W,FA	64	470 to 860
YK1290	C	V/VC/W,FA	45	470 to 610
YK1291	C	V/VC/W,FA	45	590 to 720
YK1292	C	V/VC/W,FA	45	710 to 860
YK1295	C	V/VC/W,FA	58	470 to 610
YK1296	C	V/VC/W,FA	58	590 to 720
YK1297	C	V/VC/W,FA	58	710 to 860
YK2000	N	W,FA	44	470 to 810

Cooling: FA = forced air; W = water; V = vapour; VC = vapour condensation.



RF & MICROWAVE SEMICONDUCTORS & MODULES

High-power klystrons

HIGH-POWER KLYSTRONS

type number	product status	cooling	output power (kW)	gain (dB)	frequency (MHz)
YK1240	P	W	330	41	1300
YK1250	P	W	400	43	999.3
YK1300	M	W	600	43	499.7
YK1304	P	W	800	43	499.7
YK1302	C	V,FA	800	41	508.6
YK1303	P	V,FA	1000	41	508.6
YK1305	P	W	350	43	499.7
YK1350	P	W	1000	40	352.21
YK1353	N	W	1300	42	352.21

PULSED-POWER KLYSTRONS

type number	product status	cooling	output power (kW)	gain (dB)	frequency (MHz)
YK1110	C	W	6000	30	2998 ±5
YK1420	C	W	10000	42	L-band
YK1510	P	W	20000	44	S-band
YK1511	P	W	20000	44	S-band
YK1512	P	W	20000	44	S-band
YK1600	P	W	35000	53	2998.5

Cooling: FA = forced air; W = water; V = vapour; VC = vapour condensation

PRODUCT STATUS

The devices are classified as follows:

- N = New type.** Recommended for new equipment design. Data sheets contain advance information and specifications are subject to change without notice.
- P = Preferred type.** Recommended for equipment design; production quantities available at date of publication.
- C = Current type.** Available for equipment production and for use in existing equipment. No longer recommended for equipment design.
- M = Maintenance type.** Available for maintenance of existing equipment. No longer recommended for equipment production.
- O = Obsolescent type.** Available until present stocks are exhausted.
Obsolescent types of which all stocks are exhausted are called **obsolete**; any data still published on these types is for reference purposes only.

SEMICONDUCTORS & MODULES

Semiconductor sensors

Semiconductor Sensors



See data handbook IC17 for full data

Semiconductor sensors

SEMICONDUCTORS & MODULES

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Semiconductor sensors

MAGNETIC FIELD SENSORS

type number	field range ¹⁾ (kA/m)	supply voltage (V)	T _{amb} (°C)	sensitivity ($\frac{mV/V}{kA/m}$)	bridge resistance (k Ω)
KM110B/1	-2.0 to +2.0	5	-40 to +150	1.7	2.1
KMZ10A	-0.5 to +0.5	5	-40 to +150	16	1.2
KMZ10A1	-0.05 to +0.05 ²⁾	5	-40 to +150	22 ²⁾	1.3
KMZ10B	-2.0 to +2.0	5	-40 to +150	4	2.1
KMZ10C	-7.5 to +7.5	5	-40 to +150	1.5	1.4

SENSOR HYBRID MODULES AND INTEGRATED SENSORS

Integrated sensor for rotational speed measurement and reference-mark detection

type number	sensing distance ³⁾ (mm)	sensing frequency (Hz)	output current (mA)	determination of rotational direction
KMI10/1	2.5	0 to 25000	7/14	no

Sensors for rotational speed measurement and reference-mark detection

type number	sensing distance ⁴⁾ (mm)	sensing frequency (Hz)	mounting direction relative to gear wheel	determination of rotational direction
KM110BH/11	2.5	0 to 3000	tangential	no
KM110BH/12	3.5	1 to 3000	tangential	no
KM110BH/13	2.5	0 to 3000	radial	no
KM110BH/14	3.5	1 to 3000	radial	no
KM110BH/31	3.0	2 to 50000	radial	yes

Sensor modules for angle measurement

type number	angle range (deg)	output voltage ⁵⁾ (V)	supply voltage (V)	T _{amb} °C
KM110BH/2130	30	0.5 to 4.5; linear	5	-40 to +125
KM110BH/2190	90	0.5 to 4.5; sinusoidal	5	-40 to +125



¹⁾ In air, 1 kA/m corresponds to approximately 12.5 G or 1.25 mT.

²⁾ With switched Hx.

³⁾ Gear wheel: pitch diameter = 100 mm; module 2; material: steel (1.0715)

⁴⁾ Gear wheel: pitch diameter = 44 mm; width = 16 mm; module 2; material: steel (1.0715)

⁵⁾ Sensor signal is generated by a magnetic field H = 100 kA/m. For example: rare earth magnet 11.2 × 5.5 × 8.0 mm, distance 2.5 mm from the KMZ10B chip in the sensor module.

Semiconductor sensors

SEMICONDUCTORS & MODULES

TEMPERATURE SENSORS

type number	temperature range (°C)	R (Ω)	resistance		sensor accuracy at T _{amb}		sensor current (mA)
				at T _{amb} (°C)	(°C)	(°C)	
KTY81-110	-55 to +150	990 to 1010		25	±1.3	25	1
KTY81-120	-55 to +150	980 to 1020		25	±2.5	25	1
KTY81-121	-55 to +150	980 to 1000		25	±1.3	25	1
KTY81-122	-55 to +150	1000 to 1020		25	±1.3	25	1
KTY81-150	-55 to +150	950 to 1050		25	±6.3	25	1
KTY81-151	-55 to +150	950 to 1000		25	±3.2	25	1
KTY81-152	-55 to +150	1000 to 1050		25	±3.2	25	1
KTY81-210	-55 to +150	1980 to 2020		25	±1.3	25	1
KTY81-220	-55 to +150	1960 to 2040		25	±2.5	25	1
KTY81-221	-55 to +150	1960 to 2000		25	±1.3	25	1
KTY81-222	-55 to +150	2000 to 2040		25	±1.3	25	1
KTY81-250	-55 to +150	1900 to 2100		25	±6.3	25	1
KTY81-251	-55 to +150	1900 to 2000		25	±3.2	25	1
KTY81-252	-55 to +150	2000 to 2100		25	±3.2	25	1
KTY82-110	-55 to +150	990 to 1010		25	±1.3	25	1
KTY82-120	-55 to +150	980 to 1020		25	±2.5	25	1
KTY82-121	-55 to +150	980 to 1000		25	±1.3	25	1
KTY82-122	-55 to +150	1000 to 1020		25	±1.3	25	1
KTY82-150	-55 to +150	950 to 1050		25	±6.3	25	1
KTY82-151	-55 to +150	950 to 1000		25	±3.2	25	1
KTY82-152	-55 to +150	1000 to 1050		25	±3.2	25	1
KTY82-210	-55 to +150	1980 to 2020		25	±1.3	25	1
KTY82-220	-55 to +150	1960 to 2040		25	±2.5	25	1
KTY82-221	-55 to +150	1960 to 2000		25	±1.3	25	1
KTY82-222	-55 to +150	2000 to 2040		25	±1.3	25	1
KTY82-250	-55 to +150	1900 to 2100		25	±6.3	25	1
KTY82-251	-55 to +150	1900 to 2000		25	±3.2	25	1
KTY82-252	-55 to +150	2000 to 2100		25	±3.2	25	1
KTY83-110	-55 to +175	990 to 1010		25	±1.3	25	1
KTY83-120	-55 to +175	980 to 1020		25	±2.6	25	1
KTY83-121	-55 to +175	980 to 1000		25	±1.3	25	1
KTY83-122	-55 to +175	1000 to 1020		25	±1.3	25	1
KTY83-150	-55 to +175	950 to 1050		25	±6.6	25	1
KTY83-151	-55 to +175	950 to 1000		25	±3.3	25	1
KTY83-152	-55 to +175	1000 to 1050		25	±3.3	25	1
KTY84-130	-40 to +300	970 to 1030		100	±4.8	100	2
KTY84-150	-40 to +300	950 to 1050		100	±8.0	100	2
KTY84-151	-40 to +300	950 to 1000		100	±4.0	100	2
KTY84-152	-40 to +300	1000 to 1050		100	±4.0	100	2

SEMICONDUCTORS & MODULES

Semiconductor sensors

TEMPERATURE SENSORS

type number	temperature range (°C)	R (Ω)	resistance at T _{amb}		sensor accuracy at T _{amb}		sensor current (mA)
				(°C)	(°C)	(°C)	
KTY85-110	-40 to +125	990 to 1010		25	±1.3	25	1
KTY85-120	-40 to +125	980 to 1020		25	±2.6	25	1
KTY85-121	-40 to +125	980 to 1000		25	±1.3	25	1
KTY85-122	-40 to +125	1000 to 1020		25	±1.3	25	1
KTY85-150	-40 to +125	950 to 1050		25	±6.6	25	1
KTY85-151	-40 to +125	950 to 1000		25	±3.3	25	1
KTY85-152	-40 to +125	1000 to 1050		25	±3.3	25	1
KTY86-205	-40 to +150	1990 to 2010		25	±0.7	25	0.1
KTY87-205	-40 to +125	1990 to 2010		25	±0.7	25	0.1
		3327 to 3361		100	±0.8	100	0.1

PROXIMITY DETECTORS (T_{amb} = -40 to +85 °C)

type number	switching distance (mm)	supply voltage (V)	max. output current (mA)	at V _B	
					(V)
OM386B	1 to 5	10 to 30	250		10 to 30
OM387B	1 to 5	-10 to -30	250		-10 to -30
OM386M	1 to 5	10 to 30	250		10 to 30
OM387M	1 to 5	-10 to -30	250		-10 to -30
OM388B	2 to 5	10 to 30	250		10 to 30
OM389B	2 to 5	-10 to -30	250		-10 to -30
OM390	2 to 5	10 to 30	250		10 to 30
OM391	2 to 5	-10 to -30	250		-10 to -30
OM2860	0.8 to 5	4.7 to 30	250		24
OM2870	0.8 to 5	-4.7 to -30	250		-24



Semiconductor sensors

SEMICONDUCTORS & MODULES

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