Kingbright

2007-2009

Soldering

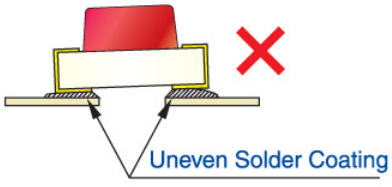
General Notes

1. We recommend manual soldering operations only for repair and rework purposes. The soldering iron should not exceed 30W in power. The maximum soldering temperature is 300°C for Pb-Sn solder and 350°C for lead-free solder for normal lamps and displays. For blue (425nm), and blue-green (525nm) LEDs, the maximum soldering iron temperature is 280°C. Do not place the soldering iron on the component for more than 3 seconds.

2. The tip of the soldering iron should never touch the lens epoxy.

3. Do not apply stress to the leads when the component is heated above 85°C, otherwise internal wire bonds may be damaged.

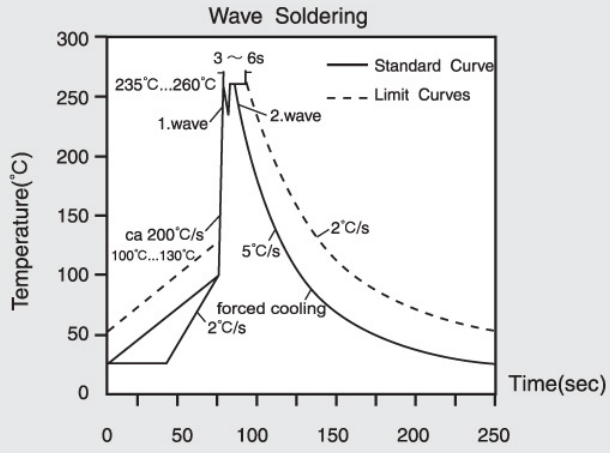
4. SMD products must be mounted according to specified soldering pad patterns. Refer to the product datasheet for details. Solder paste must be evenly applied to each soldering pad to insure proper bonding and positioning of the component.



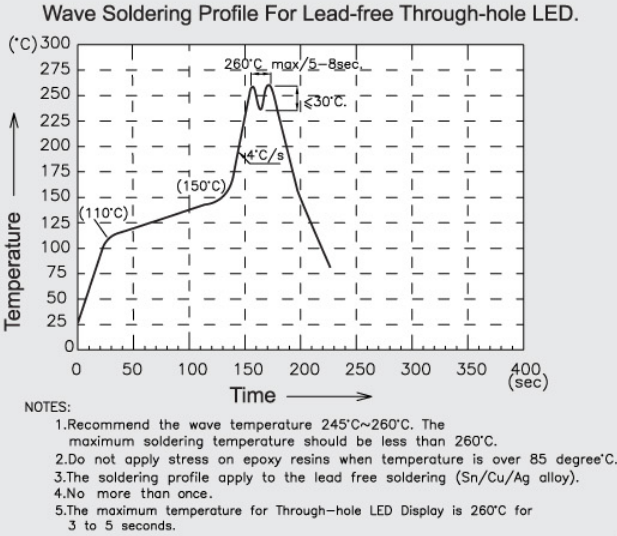
5. After soldering, allow at least three minutes for the component to cool to room temperature before further operations.

Recommended Wave Soldering Profiles For Kingbright Thru-Hole Products

1. Wave Soldering Profile With Pb-Sn Solder



2. Lead-Free Wave Soldering Profile

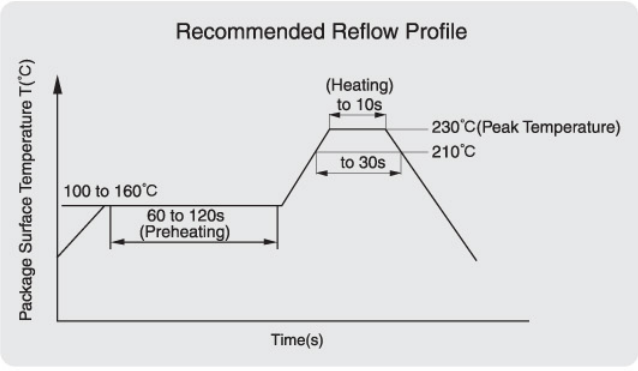


NOTES:
1. Recommend the wave temperature 245°C~260°C. The maximum soldering temperature should be less than 260°C.
2. Do not apply stress on epoxy resins when temperature is over 85 degree°C.
3. The soldering profile apply to the lead free soldering (Sn/Cu/Ag alloy).
4. No more than once.
5. The maximum temperature for Through-hole LED Display is 260°C for 3 to 5 seconds.

Recommended Reflow Soldering Profiles For Kingbright SMD Products

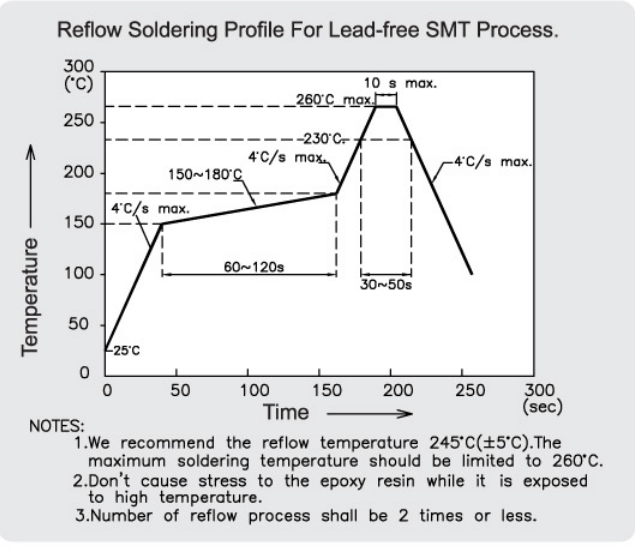
1. Reflow Soldering Profile With Pb-Sn Solder

No more than two soldering passes with the recommended profile.



2. Lead-Free Reflow Soldering Profile

No more than two soldering passes with the recommended profile.



NOTES:
1. We recommend the reflow temperature 245°C(±5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

Static Electricity and Voltage Spikes in InGaN/GaN Products

InGaN/GaN products are sensitive to electrostatic discharge (ESD) and other transient voltage spikes. ESD and voltage spikes can affect the component's reliability, increase reverse current, and decrease forward voltage. This may result in reduced light intensity or cause component failure.

Kingbright InGaN/GaN products are stored in anti-static packaging for protection during transport and storage. Please note the anti-static measures below when handling Kingbright InGaN/GaN products:

Design Precautions

Products using InGaN/GaN components must incorporate protection circuitry to prevent ESD and voltage spikes from reaching the vulnerable component.

ESD Protection During Production

Static discharge can result when static-sensitive products come in contact with the operator or other conductors. The following procedures may decrease the possibility of ESD damage:

a. Minimize friction between the product and surroundings to avoid static buildup.

b. All production machinery and test instruments must be electrically grounded.

c. Operators must wear anti-static bracelets.

d. Wear anti-static suit when entering work areas with conductive machinery.

e. Set up ESD protection areas using grounded metal plating for component handling.

f. All workstations that handle IC and ESD-sensitive components must maintain an electrostatic potential of 150V or less.

g. Maintain a humidity level of 50% or higher in production areas.

h. Use anti-static packaging for transport and storage.

i. All anti-static equipment and procedures should be periodically inspected and evaluated for proper functionality.

LED Mounting Method

1. The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement. Lead-forming may be required to insure the lead pitch matches the hole pitch. Refer to the figure below for proper lead forming procedures. (Fig. 1)

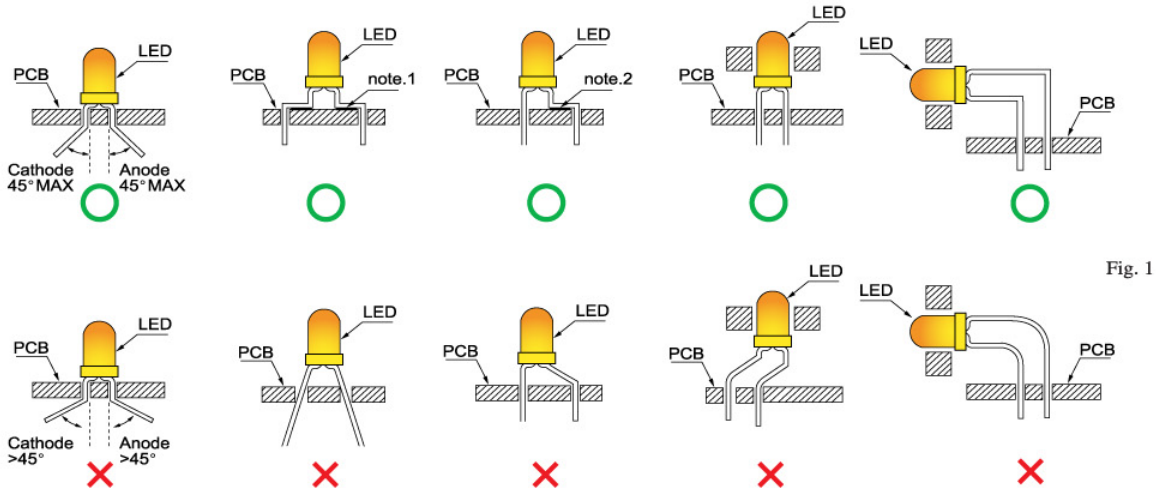


Fig. 1

" ○ " Correct mounting method " ✕ " Incorrect mounting method

Note 1-2 : Do not route PCB trace in the contact area between the leadframe and the PCB to prevent short-circuits.

2. When soldering wire to the LED, use individual heat-shrink tubing to insulate the exposed leads to prevent accidental contact short-circuit. (Fig. 2)

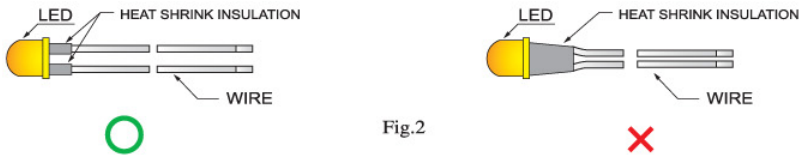


Fig.2

3. Use stand-offs (Fig. 3) or spacers (Fig. 4) to securely position the LED above the PCB

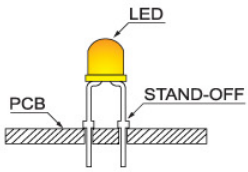


Fig.3

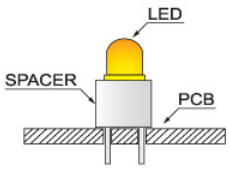


Fig.4

Lead Forming Procedures

1. Maintain a minimum of 2mm clearance between the base of the LED lens and the first lead bend. (Fig. 5 and 6)

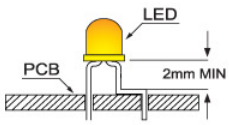


Fig.5

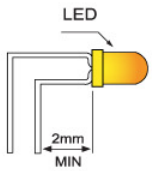


Fig.6

2. Lead forming or bending must be performed before soldering, never during or after soldering.
3. Do not stress the LED lens during lead-forming in order to prevent fractures in the lens epoxy and damage the internal structures.
4. During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures. Do not perform lead forming once the component has been mounted onto the PCB. (Fig. 7)

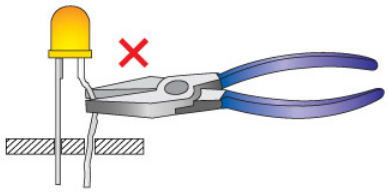


Fig.7

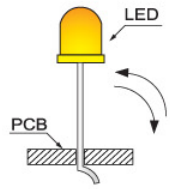


Fig.8

5. Do not bend the leads more than twice. (Fig. 8)
6. After soldering or other high-temperature assembly, allow the LED to cool down to 50°C before applying outside force (Fig. 9). In general, avoid placing excess force on the LED to avoid damage. For any questions please consult with Kingbright representative for proper handling procedures.

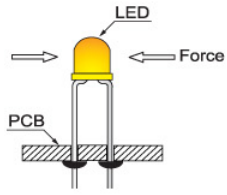


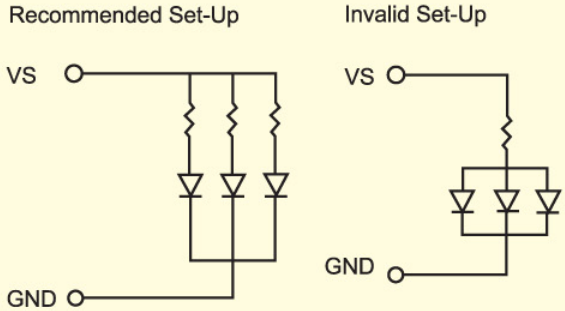
Fig.9

Cleaning

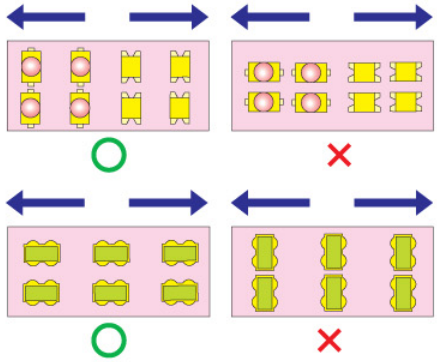
1. Do not use harsh organic solvents such as trichloroethylene, acetone, Chlorosen, and Diflon S3MC for cleaning because they may cloud or damage the LED lens.
2. Isopropyl alcohol or deionized water are recommended solvents for cleaning.
3. Special attention should be taken if other chemicals are used for cleaning because other solvents may damage the epoxy in the lens or housing.
4. The cleaning process should take place at room temperature and the devices should not be washed for more than one minute.
5. When water is used in the cleaning process, immediately remove excess moisture from the LED via forced-air drying afterwards.

Miscellaneous Design Notes

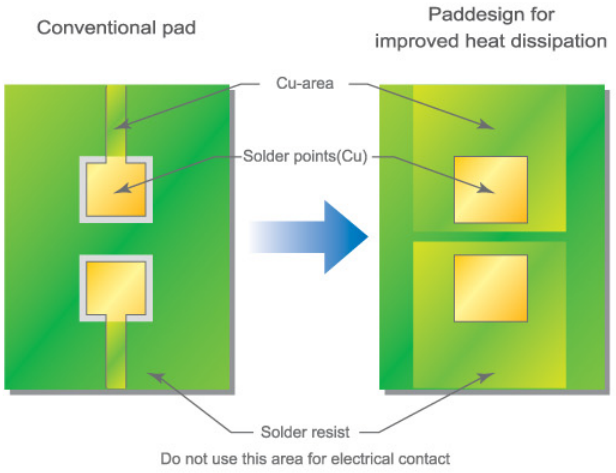
1. Protective current-limiting resistors may be necessary to operate the LEDs within the specified range.
2. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.



3. The driving circuit should be designed to avoid reverse voltages and transient voltage spikes when the circuit is powered up or shut down.
4. During soldering, SMD components should be mounted such that the leads are placed perpendicular to the direction of PCB travel to insure the solder on each lead melts simultaneously during reflow.



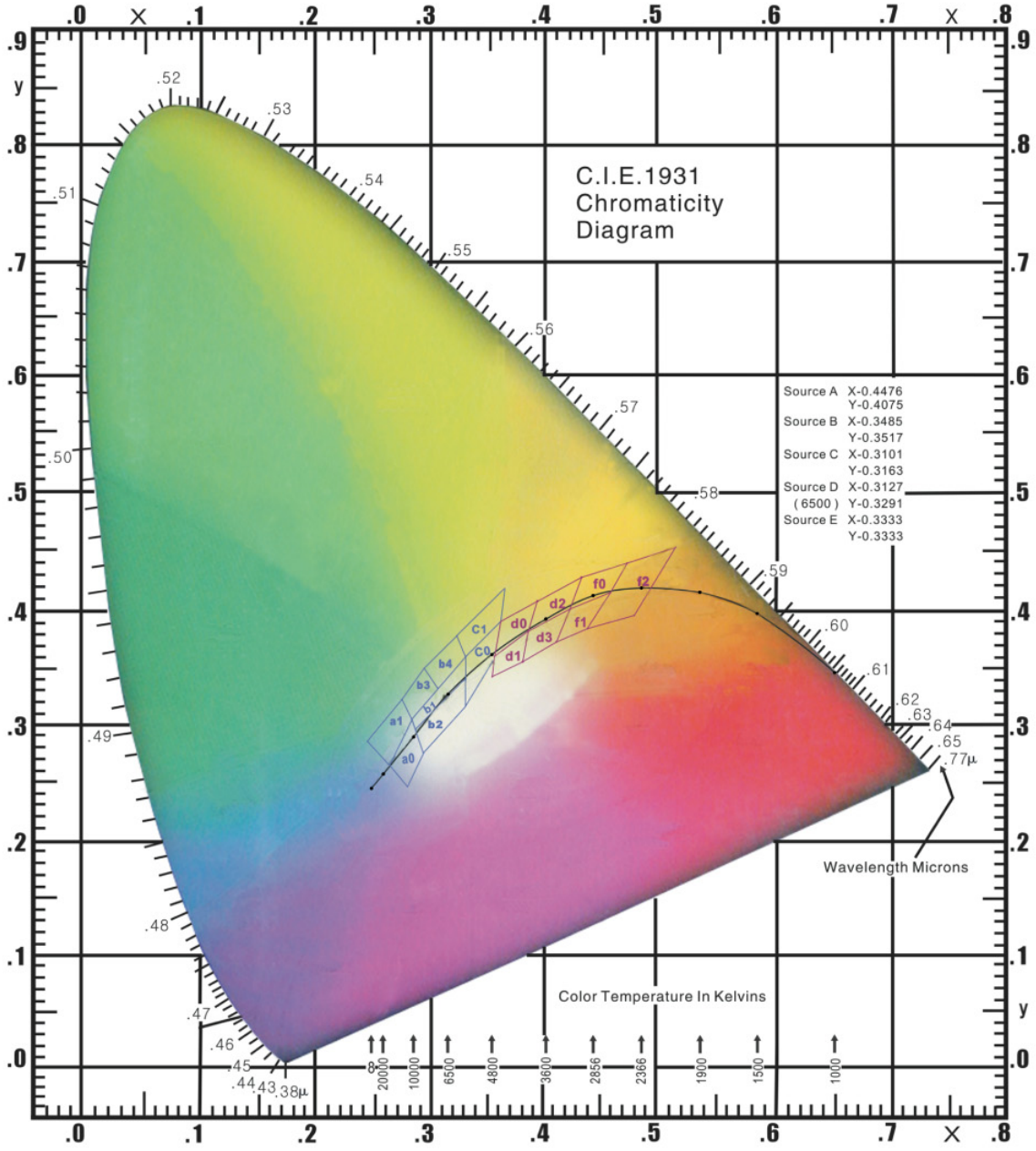
5. Optimal usage of high-power LED devices requires careful design by the end-user to optimize heat dissipation, such as increasing the size of the metal backing around the soldering pad. Refer to the product datasheet for specific design recommendations regarding heat dissipation.



6. High temperatures can reduce device performance and reliability. Keep LED devices away from heat sources for best performance.

Restrictions on Product Use

1. The information contained within this document is subject to change without notice. Before referencing this document, please confirm that it is the most current version available.
2. Not all devices and product families are available in every country.
3. The light output from UV, blue, white, and other high-power LEDs may cause injury to the human eye when viewed directly.
4. LED devices may contain gallium arsenide (GaAs) material. GaAs is harmful if ingested. GaAs dust and fumes are toxic. Do not break, cut, or pulverize LED devices. Do not dissolve LEDs in chemical solvents.
5. Semiconductor devices can fail or malfunction due to their sensitivity to electrical fluctuation and physical stress. It is the responsibility of the user to observe all safety standards when using Kingbright products, in order to avoid situations in which the malfunction or failure of a Kingbright product could cause injury, property damage, or the loss of human life. In developing designs, please insure that Kingbright products are used within specified operating conditions as set forth in the most recent product specification datasheet.



- Color and color coordinates on this diagram are approximate.

a0				
X	0.264	0.283	0.296	0.280
Y	0.267	0.305	0.276	0.248
Reference CCT: 14000~9000k				

a1				
X	0.248	0.275	0.283	0.264
Y	0.286	0.321	0.305	0.267
Reference CCT: 14000~9000k				

b1				
X	0.283	0.330	0.330	0.287
Y	0.305	0.360	0.339	0.295
Reference CCT: 9000~5600k				

b2				
X	0.287	0.330	0.330	0.296
Y	0.295	0.339	0.318	0.276
Reference CCT: 9000~5600k				

b3				
X	0.275	0.298	0.306	0.283
Y	0.321	0.350	0.332	0.305
Reference CCT: 9000~7000k				

b4				
X	0.298	0.321	0.330	0.306
Y	0.350	0.379	0.360	0.332
Reference CCT: 7600~5600k				

c0				
X	0.330	0.361	0.356	0.330
Y	0.360	0.385	0.351	0.318
Reference CCT: 5600~4600k				

c1				
X	0.321	0.366	0.361	0.330
Y	0.379	0.419	0.385	0.360
Reference CCT: 6000~4600k				

d0				
X	0.3610	0.3575	0.3870	0.3942
Y	0.3850	0.3612	0.3820	0.4068
Reference CCT: 4700~3900k				

d1				
X	0.3575	0.3545	0.3800	0.3870
Y	0.3612	0.3408	0.3580	0.3820
Reference CCT: 4700~3900k				

d2				
X	0.3870	0.4254	0.4350	0.3942
Y	0.3820	0.4044	0.4260	0.4068
Reference CCT : 3900~3200K				

d3				
X	0.4254	0.3870	0.3800	0.4119
Y	0.4044	0.3820	0.3580	0.3730
Reference CCT : 3900~3200K				

f0				
X	0.4350	0.4732	0.4600	0.4254
Y	0.4260	0.4398	0.4152	0.4044
Reference CCT : 3200~2700K				

f1				
X	0.4600	0.4254	0.4119	0.4440
Y	0.4152	0.4044	0.3730	0.3847
Reference CCT : 3200~2700K				

f2					
X	0.4732	0.4600	0.4440	0.4800	0.5165
Y	0.4398	0.4152	0.3847	0.3960	0.4510
Reference CCT : 2700~2300K					

- Typical measurement condition: IF=20mA, Ta=25°C.
- Measurement tolerance of the chromaticity coordinates is ±0.01 for flat lens types and ±0.02 for domed lens types.

Absolute maximum ratings (T_A=25°C)		E Hi.Eff.Red Orange (GaAsP/GaP)	H Bright Red (GaP)	SR Super Bright Red (GaAlAs)	SURK Hyper Red (InGaAlP)	SUR Hyper Red (InGaAlP)	SUR-E Hyper Red (InGaAlP)	N Pure Orange (GaAsP/GaP)	Unit
Reverse voltage	V_R	5	5	5	5	5	5	5	V
Forward current	I_F	30	25	30	30	30	30	25	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i_{FS}	160	130	155	185	185	200	145	mA
Power dissipation	P_T	75	62.5	75	75	75	75	62.5	mW
LED LAMPS:									
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:									
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating characteristics		E Hi.Eff.Red Orange (GaAsP/GaP)	H Bright Red (GaP)	SR Super Bright Red (GaAlAs)	SURK Hyper Red (InGaAlP)	SUR Hyper Red (InGaAlP)	SUR-E Hyper Red (InGaAlP)	N Pure Orange (GaAsP/GaP)	Unit
Forward voltage (typ.) I_F=20mA I_F=10mA I_F=2mA	V_F	2.0 1.9 1.7	2.25 2.05 1.85	1.85 1.8 1.65	1.95 1.85 1.75	1.9 1.85 1.7	1.9 1.8 1.7	2.05 1.95 1.85	V
Forward voltage (max.) I_F=20mA, 10mA, 2mA	V_F	2.5	2.5	2.5	2.5	2.5	2.5	2.5	V
Reverse current V_R=5V	I_R	10	10	10	10	10	10	10	uA
Peak Emission Wavelength I_F=20mA, 10mA, 2mA	λP	627	700	660	650	640	640	607	nm
Dominant Wavelength I_F=20mA, 10mA, 2mA	λD	625	660	640	635	628	630	610	nm
Spectral line half-width I_F=20mA, 10mA, 2mA	$\Delta\lambda 1/2$	45	45	20	28	27	25	35	nm
Capacitance V_F=0V,f=1MHZ	C	15	40	45	35	45	45	15	pF

Absolute maximum ratings (T_A=25°C)		SEK Super Bright Orange (InGaAlP)	SE Super Bright Orange (InGaAlP)	SE-E Hyper Orange (InGaAlP)	SE-H Hyper Orange (InGaAlP)	SE-J Hyper Orange (AlGaInP)	G,SG Green, Super Bright Green (GaP)	PG Pure Green (GaP)	Unit
Reverse voltage	V_R	5	5	5	5	5	5	5	V
Forward current	I_F	30	30	30	30	30	25	25	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i_{FS}	195	195	195	150	150	140	135	mA
Power dissipation	P_T	75	75	75	84	84	62.5	62.5	mW
LED LAMPS:									
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:									
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating characteristics		SEK Super Bright Orange (InGaAlP)	SE Super Bright Orange (InGaAlP)	SE-E Hyper Orange (InGaAlP)	SE-H Hyper Orange (InGaAlP)	SE-J Hyper Orange (AlGaInP)	G,SG Green, Super Bright Green (GaP)	PG Pure Green (GaP)	Unit
Forward voltage (typ.) I_F=20mA I_F=10mA I_F=2mA	V_F	 2.1 2.0 1.85	 2.0 1.9 1.8	 2.0 1.9 1.8	 2.2 2.05 1.85	 2.0 1.9 1.8	 2.2 2.0 1.9	 2.25 2.1 1.9	V
Forward voltage (max.) I_F=20mA, 10mA, 2mA	V_F	2.5	2.5	2.5	2.8	2.8	2.5	2.5	V
Reverse current V_R=5V	I_R	10	10	10	10	10	10	10	uA
Peak Emission Wavelength I_F=20mA, 10mA, 2mA	λP	610	610	630	640	640	565	555	nm
Dominant Wavelength I_F=20mA, 10mA, 2mA	λD	601	601	621	630	630	568	555	nm
Spectral line half-width I_F=20mA, 10mA, 2mA	$\Delta\lambda$ 1/2	29	29	20	25	25	30	30	nm
Capacitance V_F=0V,f=1MHZ	C	15	30	25	27	27	15	45	pF

Absolute maximum ratings (T_A=25°C)		CGK Green (InGaAlP)	MGK Mega Green (InGaAlP)	MG Mega Green (InGaAlP)	VG-A Green (InGaN)	VG-E Green (InGaN)	VG-Z Green (InGaN)	ZG Green (AlInGaN)	Unit
Reverse voltage	V_R	5	5	5	5	5	5	5	V
Forward current	I_F	30	30	30	30	30	30	25	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i_{FS}	150	150	150	100	100	100	150	mA
Power dissipation	P_T	75	75	75	120	120	111	102.5	mW
LED LAMPS:									
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:									
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating characteristics		CGK Green (InGaAlP)	MGK Mega Green (InGaAlP)	MG Mega Green (InGaAlP)	VG-A Green (InGaN)	VG-E Green (InGaN)	VG-Z Green (InGaN)	ZG Green (AlInGaN)	Unit
Forward voltage (typ.) I_F=20mA I_F=10mA I_F=2mA	V_F	2.1 2.0 1.9	2.1 2.0 1.9	2.1 2.0 1.9	3.2 3.05 2.8	3.2 3.05 2.8	3.2 3.05 2.85	3.3 3.0 2.65	V
Forward voltage (max.) I_F=20mA, 10mA, 2mA	V_F	2.5	2.5	2.5	4.0	4.0	3.7	4.1	V
Reverse current V_R=5V	I_R	10	10	10	10	10	10	10	uA
Peak Emission Wavelength I_F=20mA, 10mA, 2mA	λP	574	574	574	520	520	525	515	nm
Dominant Wavelength I_F=20mA, 10mA, 2mA	λD	570	570	568	525	525	535	525	nm
Spectral line half-width I_F=20mA, 10mA, 2mA	$\Delta\lambda$ 1/2	20	20	26	35	35	39	30	nm
Capacitance V_F=0V,f=1MHZ	C	15	15	20	100	100	65	45	pF

Absolute maximum ratings (T_A=25°C)		Y Yellow (GaAsP/GaP)	SYK Super Bright Yellow (InGaAlP)	SY Super Bright Yellow (InGaAlP)	SY-H Super Bright Yellow (InGaAlP)	SY-J Super Bright Yellow (AlGaInP)	Unit
Reverse voltage	V_R	5	5	5	5	5	V
Forward current	I_F	30	30	30	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i_{FS}	140	175	150	140	140	mA
Power dissipation	P_T	75	75	75	84	84	mW
LED LAMPS:							
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:							
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating characteristics		Y Yellow (GaAsP/GaP)	SYK Super Bright Yellow (InGaAlP)	SY Super Bright Yellow (InGaAlP)	SY-H Super Bright Yellow (InGaAlP)	SY-J Super Bright Yellow (AlGaInP)	Unit
Forward voltage (typ.) I_F=20mA I_F=10mA I_F=2mA	V_F	2.1 1.95 1.85	2.0 1.95 1.85	2.0 1.95 1.8	2.3 2.2 2.0	2.3 2.0 1.8	V
Forward voltage (max.) I_F=20mA, 10mA, 2mA	V_F	2.5	2.5	2.5	2.8	2.8	V
Reverse current V_R=5V	I_R	10	10	10	10	10	uA
Peak Emission Wavelength I_F=20mA, 10mA, 2mA	λP	590	590	590	590	590	nm
Dominant Wavelength I_F=20mA, 10mA, 2mA	λD	588	590	588	589	589	nm
Spectral line half-width I_F=20mA, 10mA, 2mA	$\Delta\lambda$ 1/2	35	20	28	20	20	nm
Capacitance V_F=0V,f=1MHZ	C	20	20	25	45	45	pF

Absolute maximum ratings (T_A=25°C)		PB-A Blue (InGaN)	PB-G Blue (InGaN)	PB-J Blue (InGaN)	PB-Z Blue (InGaN)	QB-X Blue (AlInGaN)	Unit
Reverse voltage	V_R	5	5	5	5	5	V
Forward current	I_F	30	30	30	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i_{FS}	100	100	100	100	150	mA
Power dissipation	P_T	120	120	120	111	120	mW
LED LAMPS:							
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:							
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating characteristics		PB-A Blue (InGaN)	PB-G Blue (InGaN)	PB-J Blue (InGaN)	PB-Z Blue (InGaN)	QB-X Blue (AlInGaN)	Unit
Forward voltage (typ.) I_F=20mA I_F=10mA I_F=2mA	V_F	3.2 3.05 2.8	3.2 3.05 2.8	3.2 2.95 2.8	3.2 3.05 2.85	3.3 3.0 2.65	V
Forward voltage (max.) I_F=20mA, 10mA, 2mA	V_F	4.0	4.0	4.0	3.7	4.0	V
Reverse current V_R=5V	I_R	10	10	10	10	10	uA
Peak Emission Wavelength I_F=20mA, 10mA, 2mA	λP	468	468	467	458	468	nm
Dominant Wavelength I_F=20mA, 10mA, 2mA	λD	470	470	470	465	470	nm
Spectral line half-width I_F=20mA, 10mA, 2mA	$\Delta\lambda$ 1/2	21	21	22	22	25	nm
Capacitance V_F=0V,f=1MHZ	C	100	100	110	110	100	pF

Absolute maximum ratings (T_A=25°C)		E Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	G,SG Green, Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	Unit
Reverse voltage	V_R	5	5	5	5	V
Forward voltage (Max.) for 5V	V_F	6	6	6	6	V
Forward voltage (Max.) for 12V	V_F	14	14	14	14	V
Forward voltage (Max.) for 14V	V_F	16	16	16	16	V
Power dissipation for 5V	P_T	85	85	85	85	mW
Power dissipation for 12V	P_T	120	120	120	120	mW
Power dissipation for 14V	P_T	160	160	160	160	mW
LED LAMPS:						
Operating temperature	T_A	- 40~+70	- 40~+70	- 40~+70	- 40~+70	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:						
Operating temperature	T_A	- 40~+70	- 40~+70	- 40~+70	- 40~+70	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating characteristics		E Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	G,SG Green, Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	Unit
Forward current (typ.) V_F=5V	I_F	13	13	11.5	13	mA
Forward current (typ.) V_F=12V	I_F	8.5	8.5	8.5	8.5	mA
Forward current (typ.) V_F=14V	I_F	10.5	10.5	10.5	10.5	mA
Forward current (max.) V_F=5V	I_F	17.5	17.5	17.5	17.5	mA
Forward current (max.) V_F=12V	I_F	11.5	11.5	11.5	11.5	mA
Forward current (max.) V_F=14V	I_F	13.5	13.5	13.5	13.5	mA
Reverse current V_R=5V	I_R	10	10	10	10	uA
Peak Emission Wavelength V_F=5V,12V,14V	λP	627	660	565	590	nm
Dominant Wavelength V_F=5V,12V,14V	λD	625	640	568	588	nm
Spectral line half-width V_F=5V,12V,14V	$\Delta\lambda 1/2$	45	20	30	35	nm

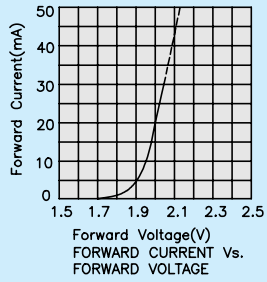
Absolute maximum ratings (T_A=25°C)		E Hi.Eff.Red (GaAsP/GaP)	H Bright Red (GaP)	SR Super Bright Red (GaAlAs)	G,SG Green, Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	Unit
Reverse voltage	V_R	0.5	0.5	0.5	0.5	0.5	V
Forward voltage (max.)	V_F	14	14	14	14	14	V
Total power dissipation	P_T	310	310	310	310	310	mW
Operating temperature	T_A	- 40~+70	- 40~+70	- 40~+70	- 40~+70	- 40~+70	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

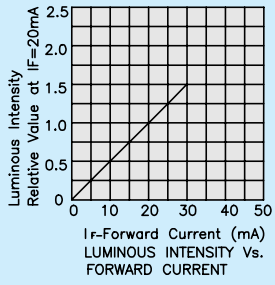
Operating characteristics		E Hi.Eff.Red (GaAsP/GaP)	H Bright Red (GaP)	SR Super Bright Red (GaAlAs)	G,SG Green, Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	Unit
Forward current (min.) V_F=3.5V	I_F	8	8	8	8	8	mA
Forward current (typ.) V_F=5V	I_F	22	22	22	22	22	mA
Supply current V_F=3.5V ~ 14V	I_{SON}	8 ~ 44	8 ~ 44	8 ~ 44	8 ~ 44	8 ~ 44	mA
Blink frequency V_F=3.5V ~ 14V	f	3 ~ 1.5	3 ~ 1.5	3 ~ 1.5	3 ~ 1.5	3 ~ 1.5	Hz
Peak Emission Wavelength	λP	627	700	660	565	590	nm
Dominant Wavelength	λD	625	660	640	568	588	nm
Spectral line half-width	$\Delta\lambda 1/2$	45	45	20	30	35	nm

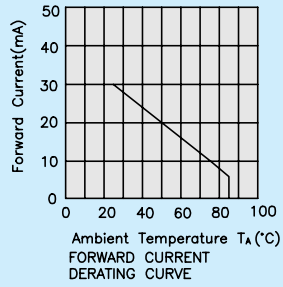
Absolute maximum ratings (T_A=25°C)		F3 (GaAs)	SF4 (GaAlAs)	SF6 (GaAlAs)	SF7 (GaAlAs)	Unit
Reverse voltage	V_R	5	5	5	5	V
Forward current	I_F	50	50	50	50	mA
Forward current (Peak) 1/100 Duty Cycle, 10us Pulse Width	i_{FS}	1.2	1.2	1	1	A
Power dissipation	P_T	80	80	80	80	mW
LED LAMPS:						
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:						
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

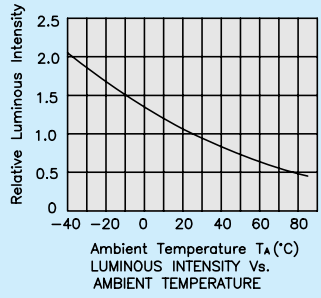
Operating characteristics		F3 (GaAs)	SF4 (GaAlAs)	SF6 (GaAlAs)	SF7 (GaAlAs)	Unit
Forward voltage (typ.) I_F=20mA	V_F	1.2	1.3	1.35	1.4	V
Forward voltage (max.) I_F=20mA	V_F	1.6	1.6	1.6	1.6	V
Reverse current V_R=5V	I_R	10	10	10	10	uA
Peak Emission Wavelength I_F=20mA	λP	940	880	860	850	nm
Spectral line half-width I_F=20mA	$\Delta\lambda 1/2$	50	50	50	50	nm
Capacitance V_F=0V,f=1MHZ	C	90	90	30	30	pF

High Efficiency Red,Orange — E : GaAsP/GaP

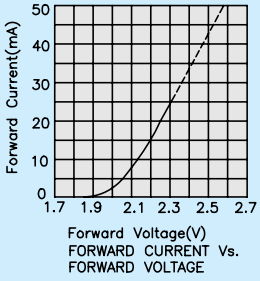


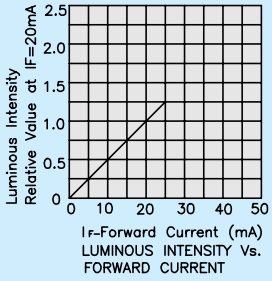


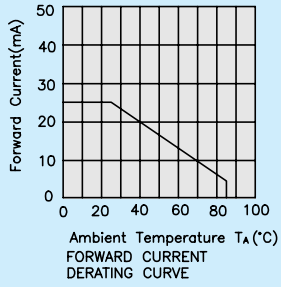


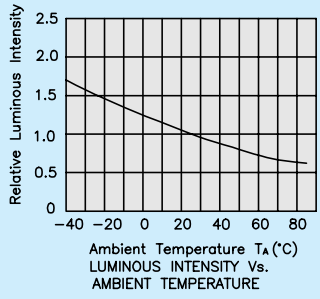


Bright Red — H : GaP

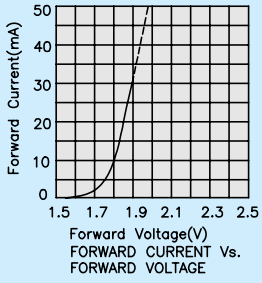


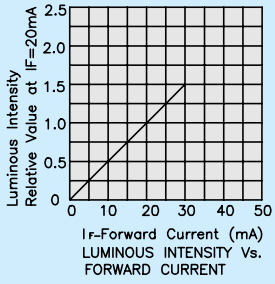


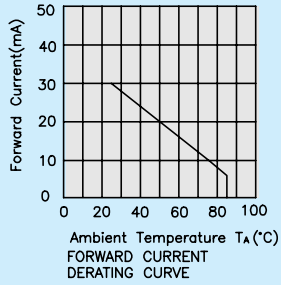


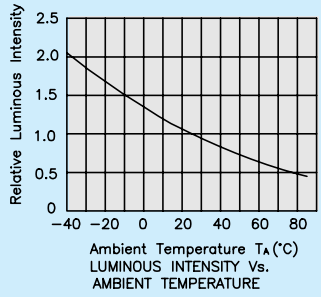


Super Bright Red — SR : GaAlAs

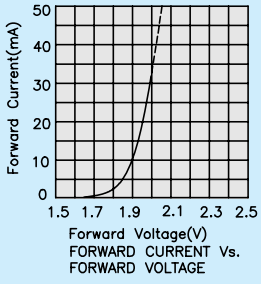


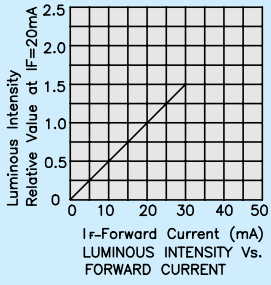


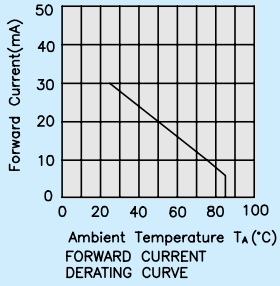


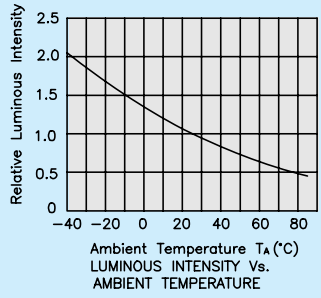


Hyper Red — SURK : InGaAlP

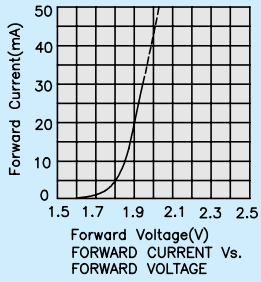


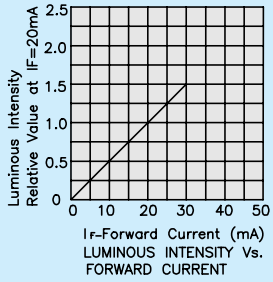


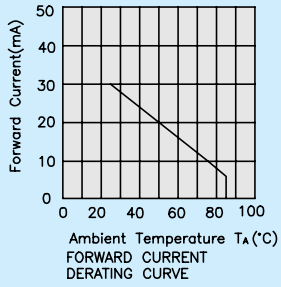


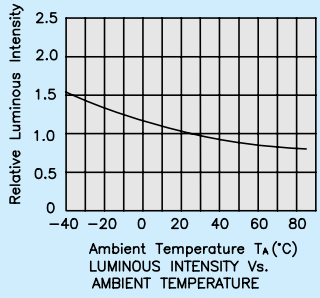


Hyper Red | SUR : InGaAlP

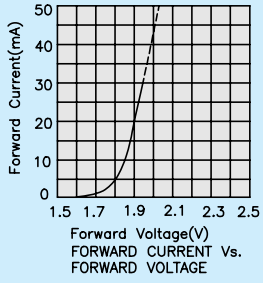


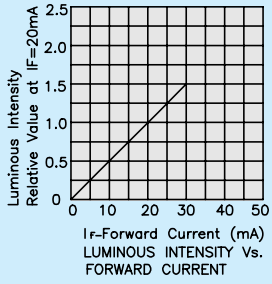


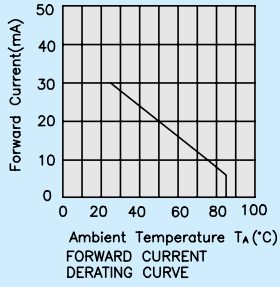


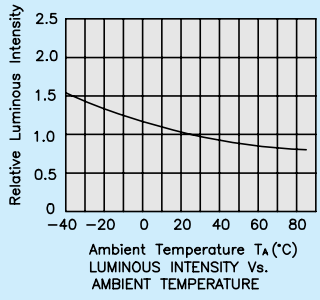


Hyper Red | SUR-E : InGaAlP

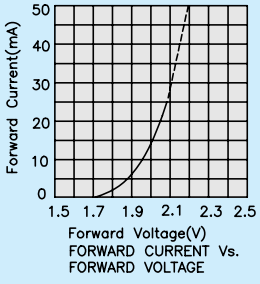


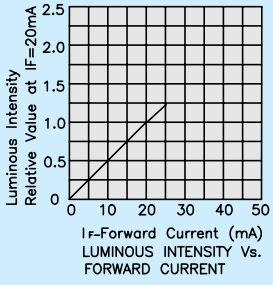


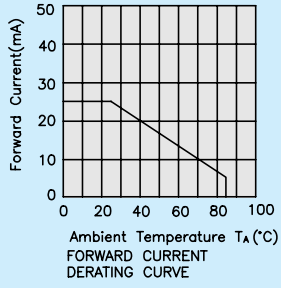


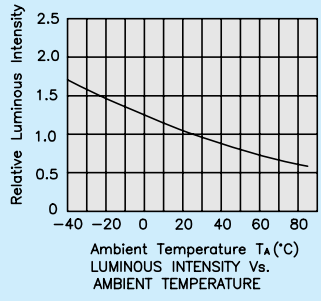


Pure Orange | N : GaAsP/GaP

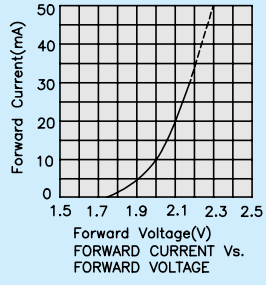


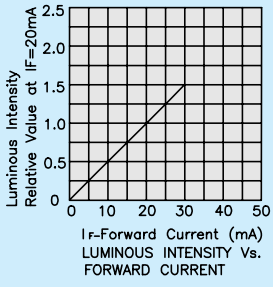


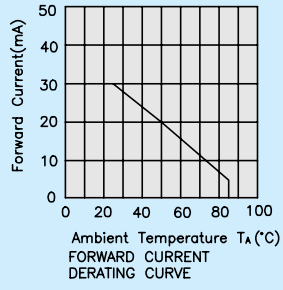


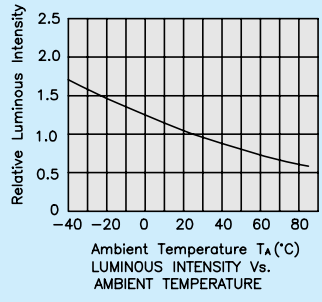


Super Bright Orange | SEK : InGaAlP

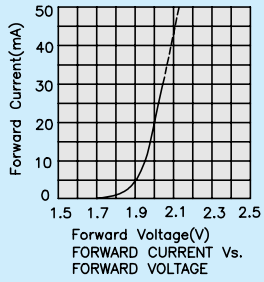


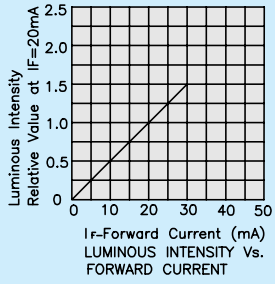


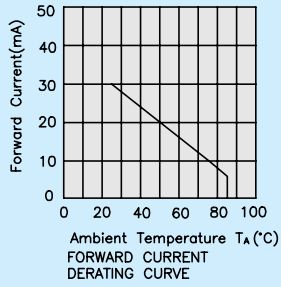


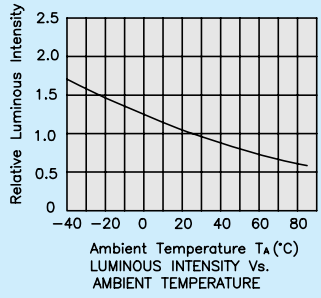


Super Bright Orange | SE : InGaAlP

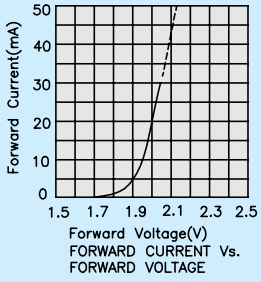


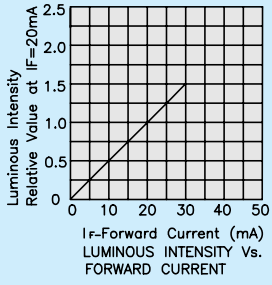


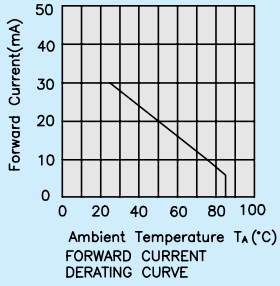


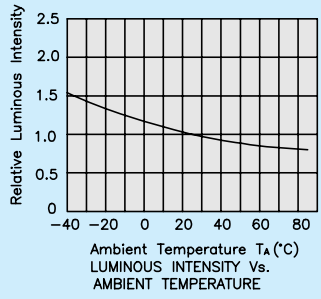


Hyper Orange | SE-E : InGaAlP

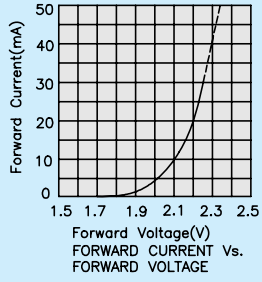


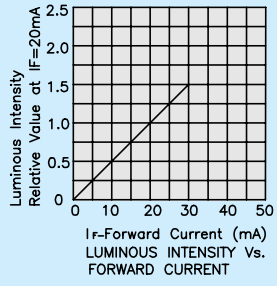


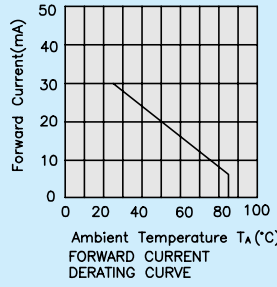


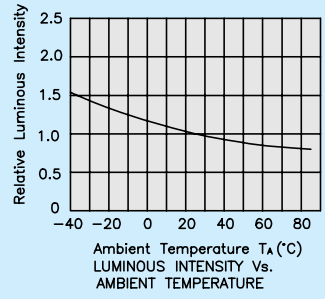


Hyper Orange | SE-H : InGaAlP

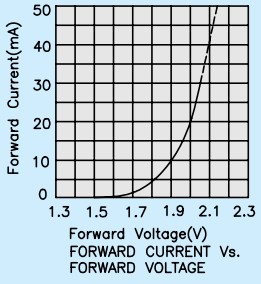


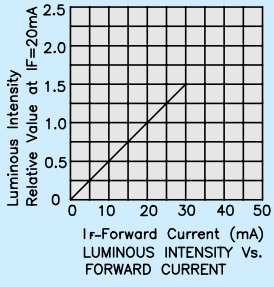


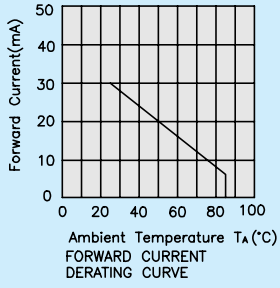


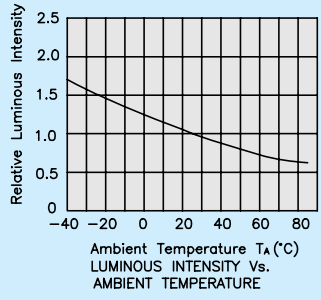


Hyper Orange | SE-J : AlGaInP

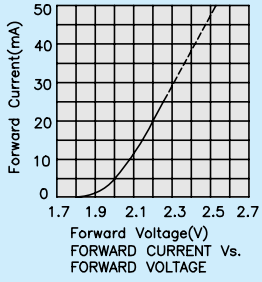


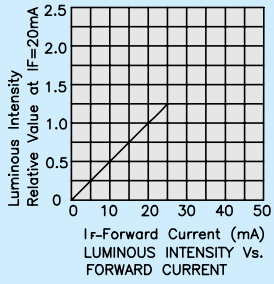


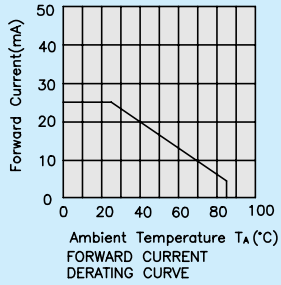


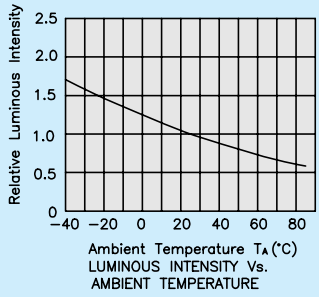


Green/Super Bright Green | G,SG : GaP

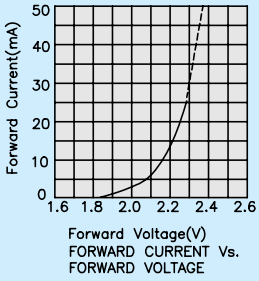


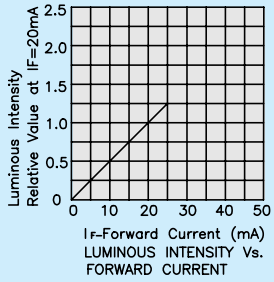


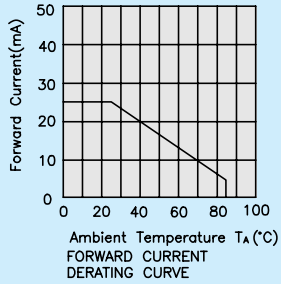


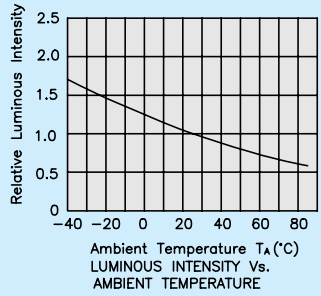


Pure Green | PG : GaP

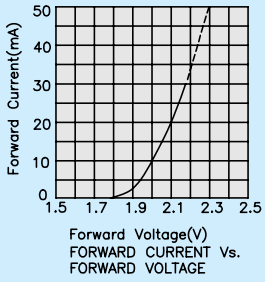


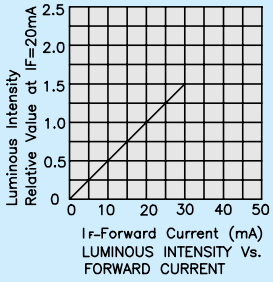


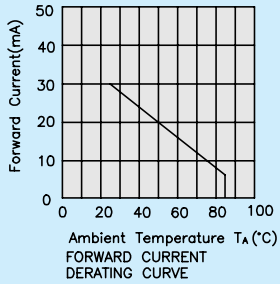


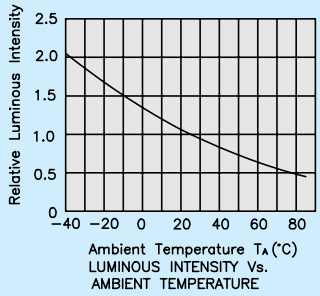


Green | CGK : InGaAlP

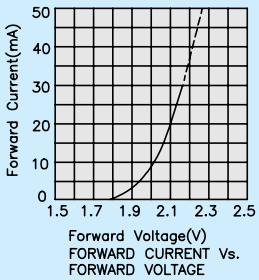


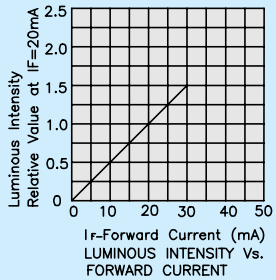


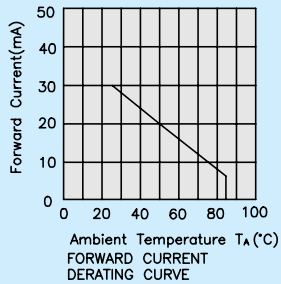


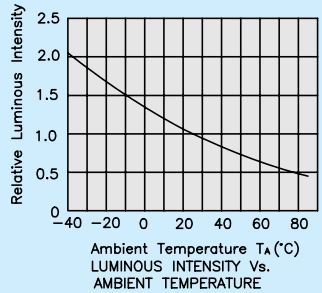


Mega Green | MGK : InGaAlP

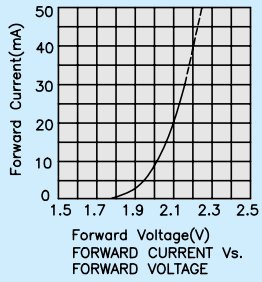


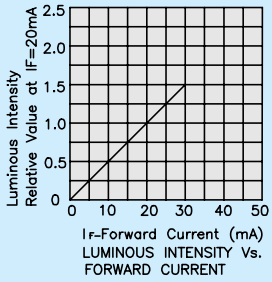


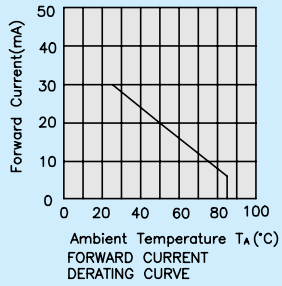


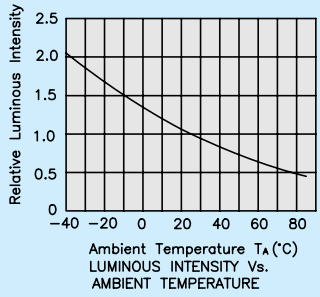


Mega Green — MG : InGaAlP

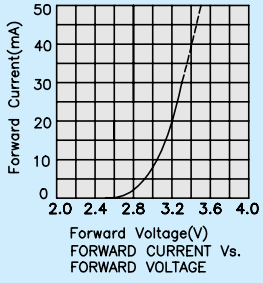


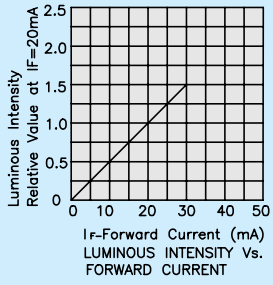


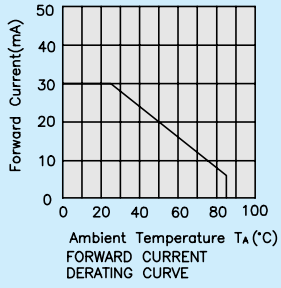


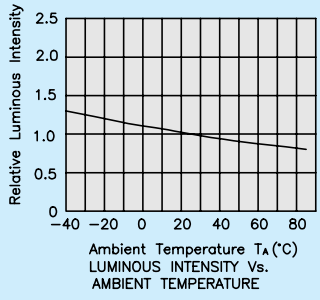


Green — VG-A : InGaN

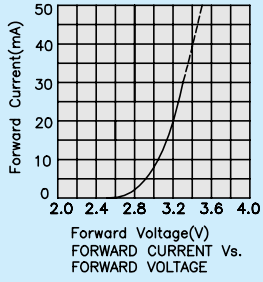


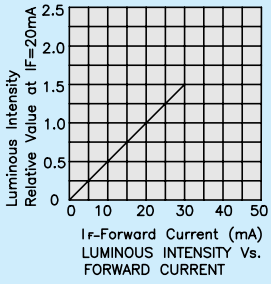


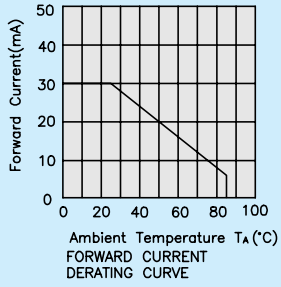


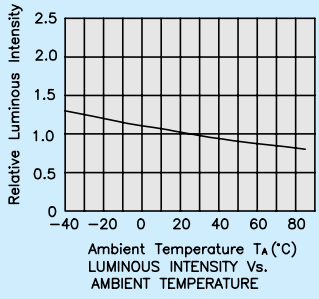


Green — VG-E : InGaN

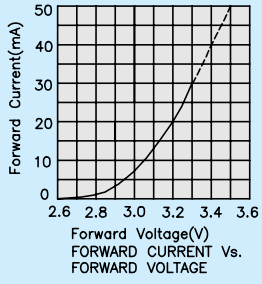


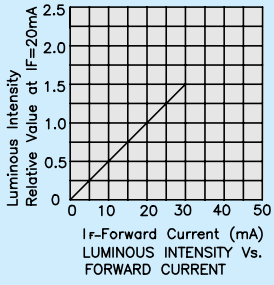


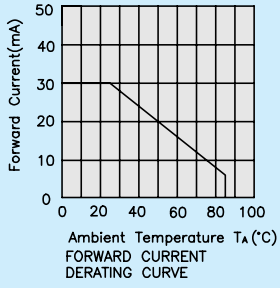


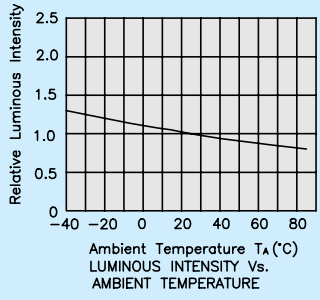


Green — VG-Z : InGaN

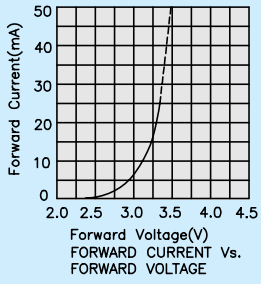


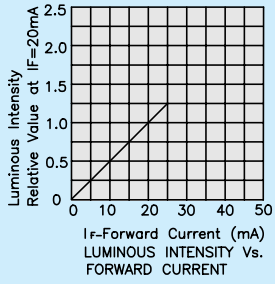


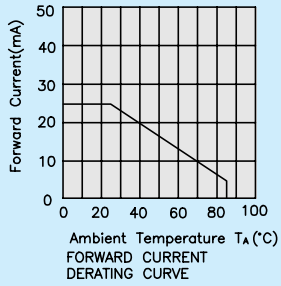


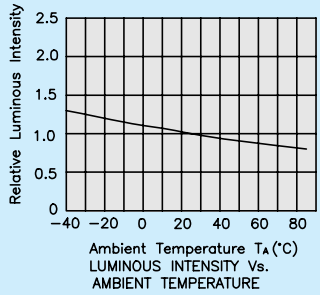


Green | ZG : AlInGaN

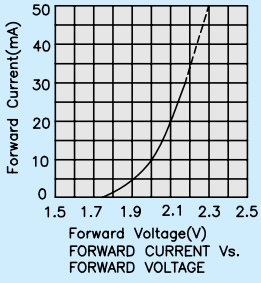


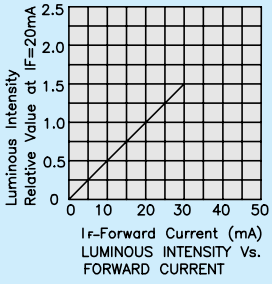


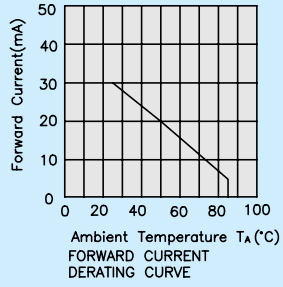


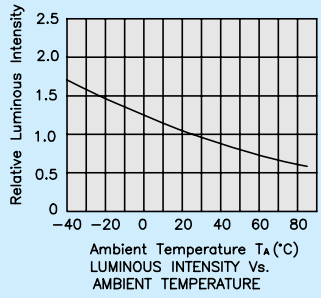


Yellow | Y : GaAsP/GaP

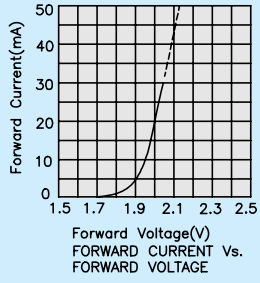


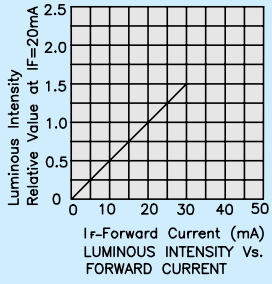


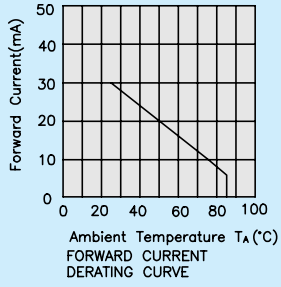


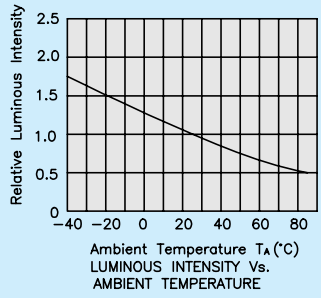


Super Bright Yellow | SYK : InGaAlP

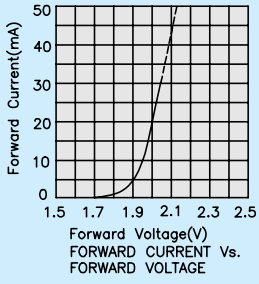


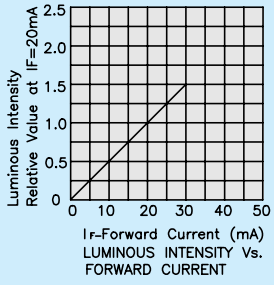


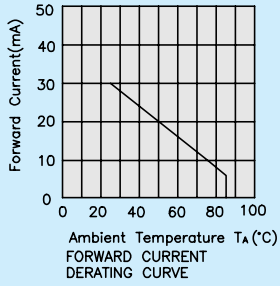


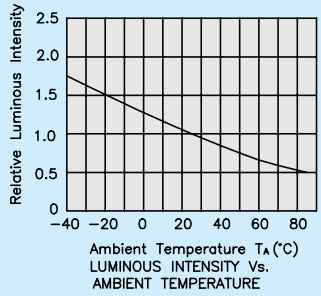


Super Bright Yellow | SY : InGaAlP

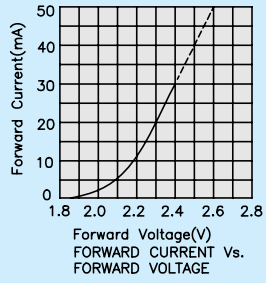


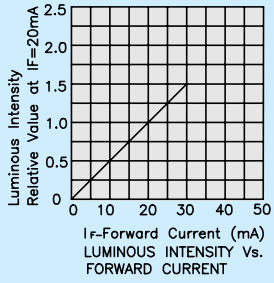


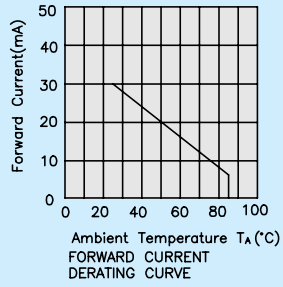


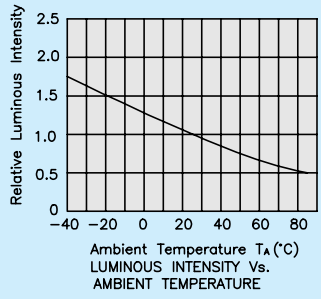


Super Bright Yellow | SY-H: InGaAlP

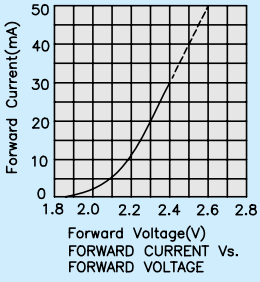


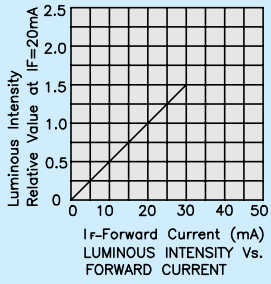


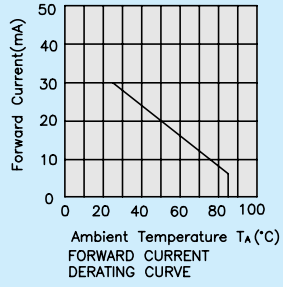


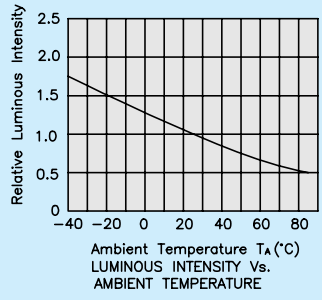


Super Bright Yellow | SY-J : AlGaInP

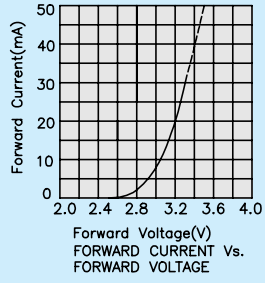


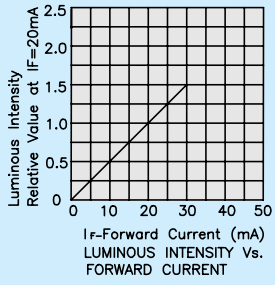


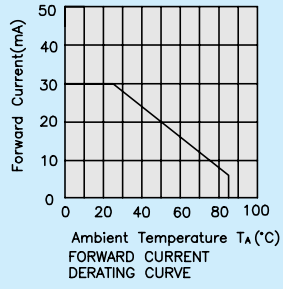


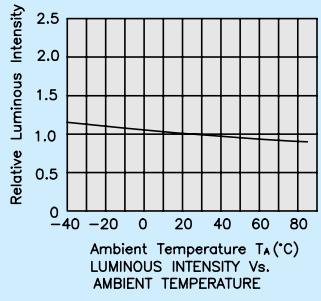


Blue | PB-A : InGaN

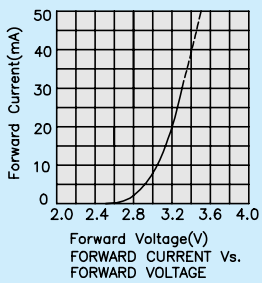


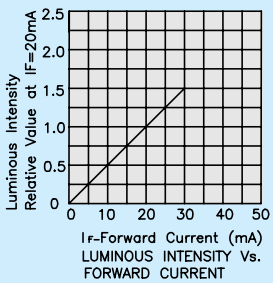


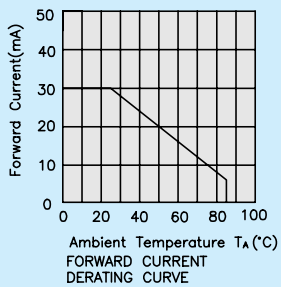


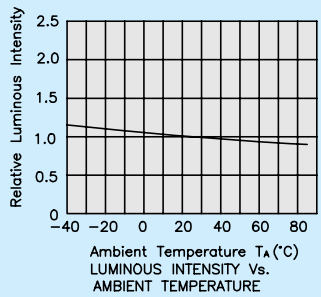


Blue | PB-G : InGaN

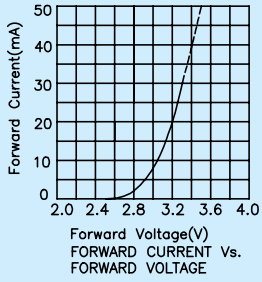


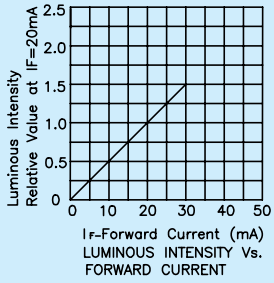


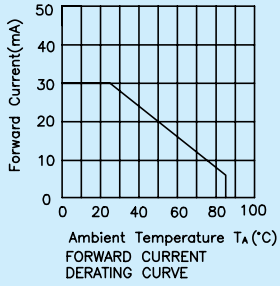


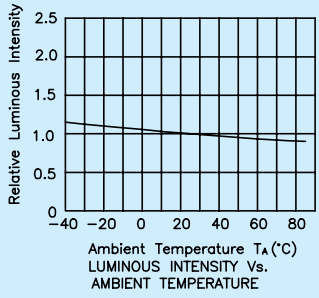


Blue — PB-J : InGaN

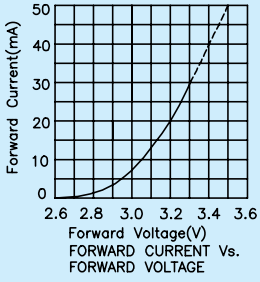


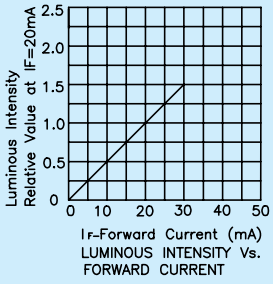


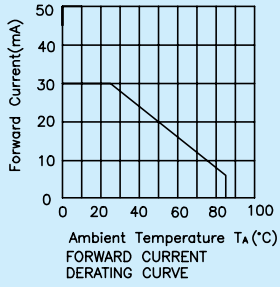


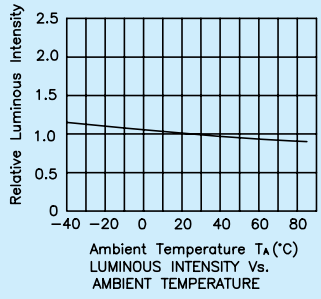


Blue — PB-Z : InGaN

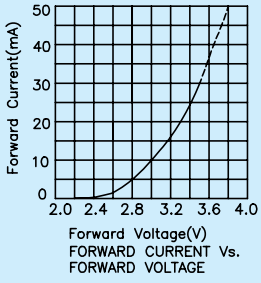


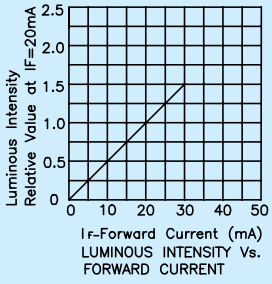


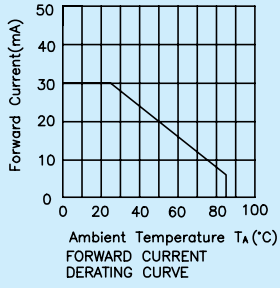


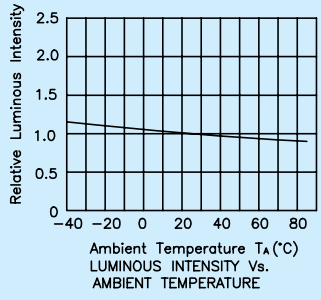


Blue — QB-X: AlInGaN









SELECTION CODE FOR STANDARD LEDS

(T_A=25°C)

Group	Light intensity in mcd(10mA)		Group	Light intensity in mcd(10mA)	
	min.	max.		min.	max.
F	0.1	0.25	R	12	23
G	0.2	0.4	S	18	35
H	0.3	0.6	T	28	55
I	0.4	1	U	40	90
K	0.7	1.5	V	70	130
L	1	3	W	110	200
M	1.8	5	X	170	280
N	3	7	Y	230	350
P	5	12	Z	300	500
Q	8	17			

SELECTION CODE FOR DISPLAYS

(T_A=25°C)

Group	Light intensity in ucd(10mA)		Group	Light intensity in ucd(10mA)	
	min.	max.		min.	max.
C	60	160	P	12000	24000
D	120	280	Q	18000	36000
E	200	410	R	26000	60000
F	300	640	S	44000	101000
G	480	1040	T	75000	173000
H	800	1600	U	128000	293000
I	1200	2500	V	217000	498000
K	1900	4100	W	368000	846000
L	3000	6400	X	626000	1438000
M	4700	10500	Y	1063000	2445000
N	8000	16000	Z	1807000	4156000

SELECTION CODE FOR NPN PHOTOTRANSISTORS

(T_A=25°C)

Group	Photocurrent(mA)		Group	Photocurrent(mA)	
	min.	max.		min.	max.
F	0.1	0.25	L	1	3
G	0.2	0.4	M	1.8	5
H	0.3	0.6	N	3	7
I	0.4	1	P	5	12
K	0.7	1.5			

SELECTION CODE FOR SUPER BRIGHT LEDS

(T_A=25°C)

Group	Light intensity in mcd(20mA)		Group	Light intensity in mcd(20mA)	
	min.	max.		min.	max.
A	1.6	3.5	ZA	2800	3800
B	2.6	5.5	ZB	3300	4500
C	4	10	ZC	3800	5500
D	7	15	ZD	4700	6500
E	10	24	ZE	5700	7500
F	18	44	ZF	6700	8500
G	36	60	ZG	7500	10000
H	50	90	ZH	8000	12000
M	70	130	ZM	10000	16000
N	110	220	ZN	12000	20000
P	180	320	ZP	16000	24000
Q	280	420	ZQ	20000	32000
R	380	550	ZR	24000	40000
S	480	750	ZS	32000	50000
T	650	1100	ZT	40000	60000
U	900	1500	ZU	50000	80000
V	1200	1800	ZV	70000	150000
W	1500	2100	ZW	110000	220000
X	1800	2500	ZX	180000	360000
Y	2200	3000	ZY	280000	560000
Z	2500	3300	ZZ	420000	900000

SELECTION CODE FOR INFRARED EMITTING DIODES

(T_A=25°C)

Group	Radiant intensity in mW/sr(20mA)		Group	Radiant intensity in mW/sr(20mA)	
	min.	max.		min.	max.
AK	0.5	2	D	7	15
AL	0.8	3.2	E	10	24
A	1.6	3.5	F	18	44
B	2.6	5.5	G	36	60
C	4	10	H	50	90

SELECTION CODE FOR LUMINOUS FLUX (T_A=25°C;Tolerance: +/-15%)								
Group	Luminous Flux in mlm		Group	Luminous Flux in mlm		Group	Luminous Flux in mlm	
	min.	max.		min.	max.		min.	max.
A-L	12.5	20	L-L	1250	2000	W-L	125000	200000
B-L	20	32	M-L	2000	3200	X-L	200000	320000
C-L	32	50	N-L	3200	5000	Y-L	320000	500000
D-L	50	80	P-L	5000	8000	Z-L	500000	800000
E-L	80	125	Q-L	8000	12500	ZA-L	800000	1250000
F-L	125	200	R-L	12500	20000	ZB-L	1250000	2000000
G-L	200	320	S-L	20000	32000	ZC-L	2000000	3200000
H-L	320	500	T-L	32000	50000	ZD-L	3200000	5000000
J-L	500	800	U-L	50000	80000	ZE-L	5000000	8000000
K-L	800	1250	V-L	80000	125000			

COLOR CODE FOR BLUE LEDS + DISPLAYS (T_A=25°C)					
Group	Dom. WaveLength (nm)		Group	Dom. WaveLength (nm)	
	min.	max.		min.	max.
1	443	452	3A	469	475
2	448	457	3B	471	477
3	453	462	4A	473	479
1A	458	465	4B	475	481
1B	461	468	5A	477	483
2A	464	471	5B	479	485
2B	467	473	5C	481	488

COLOR CODE FOR LEDS + DISPLAYS (T_A=25°C;Tolerance: +/-1nm)				
Group	Dom. WaveLength (nm)			
	Green		Yellow	
	min.	max.	min.	max.
0	556	559		
1	559	561	581	584
2	561	563	584	586
3	563	565	586	588
4	565	567	588	590
5	567	569	590	592
6	569	571	592	594
7	571	573	594	597
8	573	575	597	600

SOLDERING INSTRUCTIONS						
Types	Dip soldering / * wave soldering			Iron soldering (with 1.5mm iron tip)		
	Temperature of the soldering bath	Maximum soldering time	Distance from solder joint to package	Temperature of soldering iron	Maximum soldering time	Distance from solder joint to package
LEDS	<=260°C	3s	>=2mm	<=350°C	3s	>2mm
	<=260°C	5s	>=5mm	<=350°C	5s	>5mm
SMDS [1]	/	/	/	<=350°C	3s	/
DISPLAYS	* <=260°C	* 3s	* >2mm	<=350°C	3s	>2mm
PHOTOCOUPLER	<=260°C	3s	>2mm	<=310°C	3s	/
	/	/	/	<=260°C	10s	/

Note:
1.one time only.

Kingbright

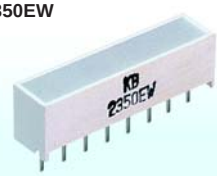
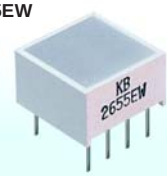
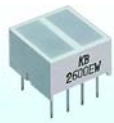
2007-2009

L-1043	L-835/2	DE/2	DF-3	DE/4
				

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-1043IDT	GaAsP/GaP	625	red diffused	1.8	10	100°	3.65mm x 6.15mm
L-1043SRDT	GaAlAs	640	red diffused	*36	*90	100°	
L-1043YDT	GaAsP/GaP	588	yellow diffused	1	4	100°	
L-1043GDT	GaP	568	green diffused	1	4	100°	
L-1043SGDT	GaP	568	green diffused	*4	*10	100°	
L-835/2IDT	GaAsP/GaP	625	red diffused	5	10	120°	5mm x 10mm
L-835/2SRDT	GaAlAs	640	red diffused	*18	*60	120°	
L-835/2YDT	GaAsP/GaP	588	yellow diffused	1.8	4	120°	
L-835/2GDT	GaP	568	green diffused	1.8	5	120°	

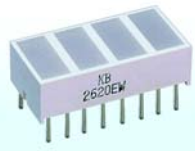
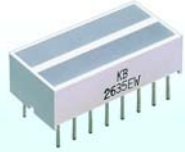
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Dimension
				Min.	Typ.	
DE/2ID	GaAsP/GaP	625	red diffused	8	31	7.5mm x 14mm
DE/2SRD	GaAlAs	640	red diffused	*70	*300	
DE/2YD	GaAsP/GaP	588	yellow diffused	8	31	
DE/2GD	GaP	568	green diffused	12	52	
DE/2SGD	GaP	568	green diffused	*18	*80	
DF-3ID	GaAsP/GaP	625	red diffused	8	31	6.8mm x 19.9mm
DF-3SRD	GaAlAs	640	red diffused	*70	*300	
DF-3YD	GaAsP/GaP	588	yellow diffused	8	31	
DF-3GD	GaP	568	green diffused	12	52	
DF-3SGD	GaP	568	green diffused	*36	*100	
DE/4ID	GaAsP/GaP	625	red diffused	8	31	15mm x 15mm
DE/4SRD	GaAlAs	640	red diffused	*70	*300	
DE/4YD	GaAsP/GaP	588	yellow diffused	8	31	
DE/4GD	GaP	568	green diffused	12	52	
DE/4SGD	GaP	568	green diffused	*18	*80	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KB-2300EW	KB-2350EW	KB-2655EW	KB-2600EW
			

Part No.	Emitting Color + Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Dimension
				Min.	Typ.	
KB-2300EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	7	40	8.89mm x 3.81mm Size of Light Emitting Areas
KB-A100SRW	Super Bright Red GaAlAs	640	white diffused	18	80	
KB-2400YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB-2500SGD	Super Bright Green GaP	568	green diffused	7	40	
KB-2350EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	19.05mm x 3.81mm Size of Light Emitting Areas
KB-B100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB-2450YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB-2550SGD	Super Bright Green GaP	568	green diffused	18	70	
KB-2655EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	60	8.89mm x 8.89mm Size of Light Emitting Areas
KB-C100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB-2755YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB-2855SGD	Super Bright Green GaP	568	green diffused	18	80	
KB-2600EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	8.89mm x 3.81mm Size of Light Emitting Areas
KB-D100SRW	Super Bright Red GaAlAs	640	white diffused	36	100	
KB-2700YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB-2800SGD	Super Bright Green GaP	568	green diffused	10	50	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KB-2620EW	KB-2635EW	KB-2670EW	KB-2685EW
			

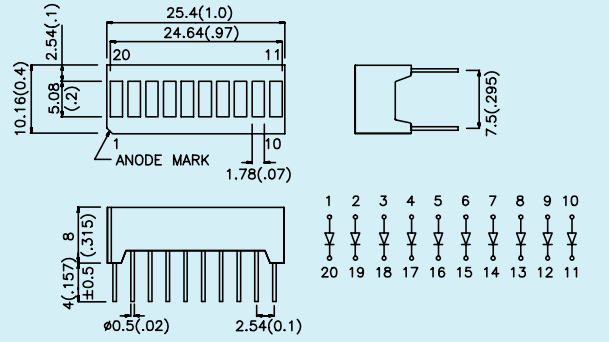
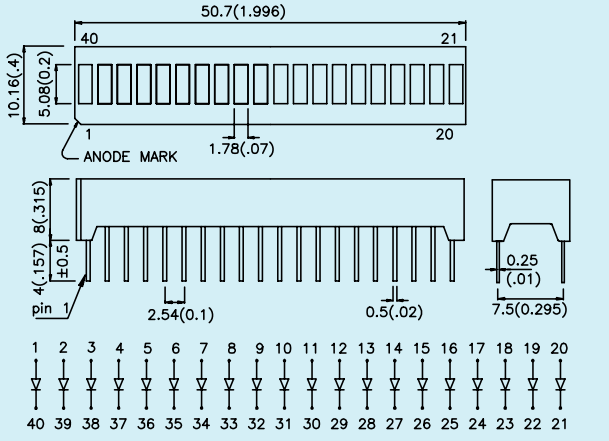
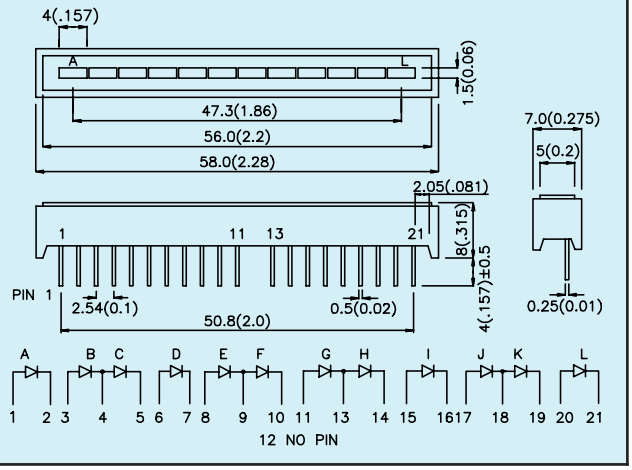
Part No.	Emitting Color + Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Dimension
				Min.	Typ.	
KB-2620EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	8.89mm x 3.81mm Size of Light Emitting Areas
KB-E100SRW	Super Bright Red GaAlAs	640	white diffused	18	90	
KB-2720YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB-2820SGD	Super Bright Green GaP	568	green diffused	7	40	
KB-2635EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	60	3.81mm x 19.05mm Size of Light Emitting Areas
KB-F100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB-2735YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB-2835SGD	Super Bright Green GaP	568	green diffused	36	100	
KB-2670EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	8.89mm x 8.89mm Size of Light Emitting Areas
KB-G100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB-2770YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB-2870SGD	Super Bright Green GaP	568	green diffused	18	70	
KB-2685EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	60	8.89mm x 19.05mm Size of Light Emitting Areas
KB-H100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB-2785YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB-2885SGD	Super Bright Green GaP	568	green diffused	50	200	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

DC-10

DC-20/20

DD-12

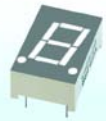
Part No.	Emitting Color + λ D (nm) + Material	Iv (ucd) @10mA Min.	Iv (ucd) @10mA Typ.	Description	Dimension
DC-10EWA	Hi.Eff.Red 625 GaAsP/GaP	1900	9000	10 Segments Bar graph-Display Gray Face White Segment	
DC-10SRWA	Super Bright Red 640 GaAlAs	8000	31000		
DC-10YWA	Yellow 588 GaAsP/GaP	1900	9000		
DC-10GWA	Green 568 GaP	3000	16000		
DC-7G3HWA	Green 568 GaP	3000	16000	10 Segments Bar graph-Display 7 x Green, 3 x Red Gray Face White Segment	
	Bright Red 660 GaP	800	4000		
DC-20/20EWA	Hi.Eff.Red 625 GaAsP/GaP	1900	9000	20 Segments Bar graph-Display Gray Face White Segment	
DC-20/20SRWA	Super Bright Red 640 GaAlAs	8000	31000		
DC-20/20YWA	Yellow 588 GaAsP/GaP	1900	9000		
DC-20/20GWA	Green 568 GaP	1900	9000		
DD-12HWB	Bright Red 660 GaP	300	1400		
DD-12YWB	Yellow 588 GaAsP/GaP	1900	8000	12 Segments Bar graph-Display Black Face White Segment	
DD-12GWB	Green 568 GaP	3000	16000		

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Kingbright

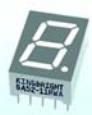
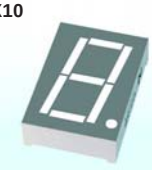
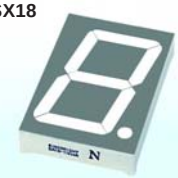
Optoelectronic Components

2007-2009

SX03	SX36	SX39	SX04	SX43	SX05
					

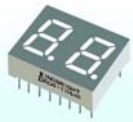
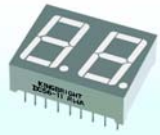
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
SA03-11EWA	SC03-12EWA	0.3 inch (7.62mm) Gray Face White Segment	GaAsP/GaP	625	1900	8500	11
SA03-11SRWA	SC03-12SRWA		GaAlAs	640	8000	26000	
SA03-11YWA	SC03-12YWA		GaAsP/GaP	588	1900	8000	
SA03-11GWA	SC03-12GWA		GaP	568	1900	8000	
SA36-11EWA	SC36-11EWA	0.36 inch (9.14mm) Gray Face White Segment	GaAsP/GaP	625	480	1900	12
SA36-11SRWA	SC36-11SRWA		GaAlAs	640	1900	8200	
SA36-11YWA	SC36-11YWA		GaAsP/GaP	588	800	3200	
SA36-11GWA	SC36-11GWA		GaP	568	800	3500	
SA39-11EWA SA39-12EWA	SC39-11EWA SC39-12EWA	0.39 inch (9.9mm) Gray Face White Segment	GaAsP/GaP	625	800	4100	13
SA39-11SRWA SA39-12SRWA	SC39-11SRWA SC39-12SRWA		GaAlAs	640	4700	20000	
SA39-11YWA SA39-12YWA	SC39-11YWA SC39-12YWA		GaAsP/GaP	588	800	3000	
SA39-11GWA SA39-12GWA	SC39-11GWA SC39-12GWA		GaP	568	1200	6400	
SA04-11EWA SA04-12EWA	SC04-11EWA SC04-12EWA	0.4 inch (10.16mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	14
SA04-11SRWA SA04-12SRWA	SC04-11SRWA SC04-12SRWA		GaAlAs	640	4700	18000	
SA04-11YWA SA04-12YWA	SC04-11YWA SC04-12YWA		GaAsP/GaP	588	1200	4700	
SA04-11GWA SA04-12GWA	SC04-11GWA SC04-12GWA		GaP	568	3000	12000	
SA43-11EWA SA43-13EWA	SC43-11EWA SC43-13EWA	0.43 inch (10.92mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	15
SA43-11SRWA SA43-13SRWA	SC43-11SRWA SC43-13SRWA		GaAlAs	640	8000	26000	
SA43-11YWA SA43-13YWA	SC43-11YWA SC43-13YWA		GaAsP/GaP	588	1200	4700	
SA43-11GWA SA43-13GWA	SC43-11GWA SC43-13GWA		GaP	568	1900	10500	
SA05-11EWA	SC05-11EWA	0.5 inch (12.7mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	16
SA05-11SRWA	SC05-11SRWA		GaAlAs	640	8000	29500	
SA05-11YWA	SC05-11YWA		GaAsP/GaP	588	1200	4700	
SA05-11GWA	SC05-11GWA		GaP	568	1900	10500	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SX52	SX56	SX08	SX10	SX15	SX18
					

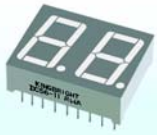
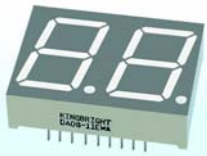
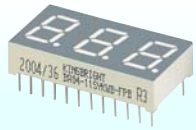
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
SA52-11EWA	SC52-11EWA	0.52 inch (13.2mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	17
SA52-11SRWA	SC52-11SRWA		GaAlAs	640	8000	29000	
SA52-11YWA	SC52-11YWA		GaAsP/GaP	588	1200	4700	
SA52-11GWA	SC52-11GWA		GaP	568	1900	10500	
SA56-11EWA SA56-21EWA	SC56-11EWA SC56-21EWA	0.56 inch (14.2mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	18
SA56-11SRWA SA56-21SRWA	SC56-11SRWA SC56-21SRWA		GaAlAs	640	4700	24000	
SA56-11YWA SA56-21YWA	SC56-11YWA SC56-21YWA		GaAsP/GaP	588	1200	4700	
SA56-11GWA SA56-21GWA	SC56-11GWA SC56-21GWA		GaP	568	1900	10500	
SA08-11EWA SA08-12EWA SA08-13EWA SA08-21EWA	SC08-11EWA SC08-12EWA SC08-13EWA SC08-21EWA	0.8 inch (20.32mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	19
SA08-11SRWA SA08-12SRWA SA08-13SRWA SA08-21SRWA	SC08-11SRWA SC08-12SRWA SC08-13SRWA SC08-21SRWA		GaAlAs	640	8000	36000	
SA08-11YWA SA08-12YWA SA08-13YWA SA08-21YWA	SC08-11YWA SC08-12YWA SC08-13YWA SC08-21YWA		GaAsP/GaP	588	1200	4700	
SA08-11GWA SA08-12GWA SA08-13GWA SA08-21GWA	SC08-11GWA SC08-12GWA SC08-13GWA SC08-21GWA		GaP	568	3000	16000	
SA10-11EWA SA10-21EWA	SC10-11EWA SC10-21EWA	1.0 inch (25.4mm) Gray Face White Segment	GaAsP/GaP	625	3000	16000	20
SA10-11SRWA SA10-21SRWA	SC10-11SRWA SC10-21SRWA		GaAlAs	640	12000	60000	
SA10-11YWA SA10-21YWA	SC10-11YWA SC10-21YWA		GaAsP/GaP	588	3000	16000	
SA10-11GWA SA10-21GWA	SC10-11GWA SC10-21GWA		GaP	568	4700	24000	
SA15-11EWA	SC15-11EWA	1.5 inch (38.1mm) Gray Face White Segment	GaAsP/GaP	625	3000	16000	21
SA15-11SRWA	SC15-11SRWA		GaAlAs	640	12000	60000	
SA15-11YWA	SC15-11YWA		GaAsP/GaP	588	1900	8000	
SA15-11GWA	SC15-11GWA		GaP	568	4700	24000	
SBA15-11EGWA	SBC15-11EGWA		GaAsP/GaP	625	3000	16000	
			GaP	568	4700	24000	
SA18-11EWA	SC18-11EWA	1.75 inch (44.5mm) Gray Face White Segment	GaAsP/GaP	625	4700	24000	22
SA18-11SRWA	SC18-11SRWA		GaAlAs	640	18000	75000	
SA18-11YWA	SC18-11YWA		GaAsP/GaP	588	1900	8000	
SA18-11GWA	SC18-11GWA		GaP	568	3000	12000	
SBA18-11EGWA	SBC18-11EGWA		GaAsP/GaP	625	4700	24000	
			GaP	568	3000	12000	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SX23	SX40	DX03	DX04	DX56-11
				

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
SA23-11EWA SA23-12EWA	SC23-11EWA SC23-12EWA	2.24 inch (56.9mm) Gray Face White Segment	GaAsP/GaP	625	12000	55500	23
SA23-11SRWA SA23-12SRWA	SC23-11SRWA SC23-12SRWA		GaAlAs	640	18000	75000	
SA23-11YWA SA23-12YWA	SC23-11YWA SC23-12YWA		GaAsP/GaP	588	8000	26500	
SA23-11GWA SA23-12GWA	SC23-11GWA SC23-12GWA		GaP	568	12000	53000	
SBA23-11EGWA	SBC23-11EGWA		GaAsP/GaP	625	12000	55500	
			GaP	568	12000	53000	
SA40-18EWA SA40-19EWA	SC40-18EWA SC40-19EWA	3.984 inch (101.2mm) Gray Face White Segment	GaAsP/GaP	625	12000	44000	24
SA40-18SRWA SA40-19SRWA	SC40-18SRWA SC40-19SRWA		GaAlAs	640	26000	105000	
SA40-18YWA SA40-19YWA	SC40-18YWA SC40-19YWA		GaAsP/GaP	588	8000	26000	
SA40-18GWA SA40-19GWA	SC40-18GWA SC40-19GWA		GaP	568	12000	60000	
DA03-11EWA	DC03-11EWA	0.3 inch (7.62mm) Gray Face White Segment	GaAsP/GaP	625	800	3100	25
DA03-11SRWA	DC03-11SRWA		GaAlAs	640	3000	13600	
DA03-11YWA	DC03-11YWA		GaAsP/GaP	588	480	1900	
DA03-11GWA	DC03-11GWA		GaP	568	800	3000	
DA04-11EWA	DC04-11EWA	0.394 inch (10mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	26
DA04-11SRWA	DC04-11SRWA		GaAlAs	640	4700	18000	
DA04-11YWA	DC04-11YWA		GaAsP/GaP	588	1200	4700	
DA04-11GWA	DC04-11GWA		GaP	568	1900	8000	
DA56-11EWA	DC56-11EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	27
DA56-11SRWA	DC56-11SRWA		GaAlAs	640	8000	27500	
DA56-11YWA	DC56-11YWA		GaAsP/GaP	588	1200	4700	
DA56-11GWA	DC56-11GWA		GaP	568	1900	10500	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

DX56-51	DX08	BX04	BX56	CX25
				

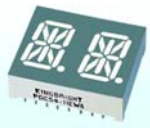
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
DA56-51EWA	DC56-51EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	3000	12000	28
DA56-51SRWA	DC56-51SRWA		GaAlAs	640	8000	29500	
DA56-51YWA	DC56-51YWA		GaAsP/GaP	588	1200	5300	
DA56-51GWA	DC56-51GWA		GaP	568	3000	14400	
DA08-11EWA	DC08-11EWA	0.8 inch (20.32mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	29
DA08-11SRWA	DC08-11SRWA		GaAlAs	640	8000	29000	
DA08-11YWA	DC08-11YWA		GaAsP/GaP	588	1200	4700	
DA08-11GWA	DC08-11GWA		GaP	568	3000	13000	
BA04-11EWA	BC04-11EWA	0.4 inch (10.2mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	30
BA04-11SRWA	BC04-11SRWA		GaAlAs	640	4700	18000	
BA04-11YWA	BC04-11YWA		GaAsP/GaP	588	1200	4700	
BA04-11GWA	BC04-11GWA		GaP	568	1900	8500	
BA56-11EWA BA56-12EWA BA56-13EWA	BC56-11EWA BC56-12EWA BC56-13EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	3000	16000	31
BA56-11SRWA BA56-12SRWA BA56-13SRWA	BC56-11SRWA BC56-12SRWA BC56-13SRWA		GaAlAs	640	12000	45000	
BA56-11YWA BA56-12YWA BA56-13YWA	BC56-11YWA BC56-12YWA BC56-13YWA		GaAsP/GaP	588	1900	8000	
BA56-11GWA BA56-12GWA BA56-13GWA	BC56-11GWA BC56-12GWA BC56-13GWA		GaP	568	3000	16000	
CA25-11EWA CA25-12EWA	CC25-11EWA CC25-12EWA	0.244 inch (6.2mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	32
CA25-11YWA CA25-12YWA	CC25-11YWA CC25-12YWA		GaAsP/GaP	588	1200	4850	
CA25-11GWA CA25-12GWA	CC25-11GWA CC25-12GWA		GaP	568	1900	10500	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

CX04	CX56	PSX05	PSX08	PSX12
				

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
CA04-41EWA	CC04-41EWA	0.4 inch (10.16mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	33
CA04-41SRWA	CC04-41SRWA		GaAlAs	640	4700	18000	
CA04-41YWA	CC04-41YWA		GaAsP/GaP	588	1200	4700	
CA04-41GWA	CC04-41GWA		GaP	568	1900	8500	
CA56-11EWA CA56-12EWA CA56-21EWA	CC56-11EWA CC56-12EWA CC56-21EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	34
CA56-11SRWA CA56-12SRWA CA56-21SRWA	CC56-11SRWA CC56-12SRWA CC56-21SRWA		GaAlAs	640	12000	45000	
CA56-11YWA CA56-12YWA CA56-21YWA	CC56-11YWA CC56-12YWA CC56-21YWA		GaAsP/GaP	588	1900	8000	
CA56-11GWA CA56-12GWA CA56-21GWA	CC56-11GWA CC56-12GWA CC56-21GWA		GaP	568	3000	13000	
PSA05-11EWA PSA05-12EWA	PSC05-11EWA PSC05-12EWA	0.5 inch (12.7mm) Gray Face White Segment	GaAsP/GaP	625	800	4100	35
PSA05-11SRWA PSA05-12SRWA	PSC05-11SRWA PSC05-12SRWA		GaAlAs	640	4700	18000	
PSA05-11YWA PSA05-12YWA	PSC05-11YWA PSC05-12YWA		GaAsP/GaP	588	800	3000	
PSA05-11GWA PSA05-12GWA	PSC05-11GWA PSC05-12GWA		GaP	568	1200	4700	
PSA08-11EWA PSA08-12EWA	PSC08-11EWA PSC08-12EWA	0.8 inch (20.32mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	36
PSA08-11SRWA PSA08-12SRWA	PSC08-11SRWA PSC08-12SRWA		GaAlAs	640	4700	18000	
PSA08-11YWA PSA08-12YWA	PSC08-11YWA PSC08-12YWA		GaAsP/GaP	588	1200	4700	
PSA08-11GWA PSA08-12GWA	PSC08-11GWA PSC08-12GWA		GaP	568	1900	8200	
PSA12-11EWA	PSC12-11EWA	1.2 inch (30.48mm) Gray Face White Segment	GaAsP/GaP	625	3000	12000	37
PSA12-11SRWA	PSC12-11SRWA		GaAlAs	640	8000	26000	
PSA12-11YWA	PSC12-11YWA		GaAsP/GaP	588	1200	4700	
PSA12-11GWA	PSC12-11GWA		GaP	568	3000	12000	

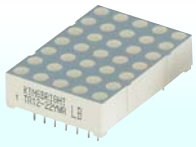
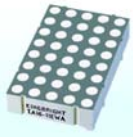
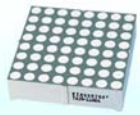
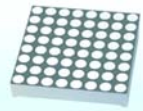
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

PSX23	PDX54	TX07
		

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
PSA23-11EWA	PSC23-11EWA	2.24 inch (56.8mm) Gray Face White Segment	GaAsP/GaP	625	1900	8000	38
PSA23-11SRWA	PSC23-11SRWA		GaAlAs	640	12000	75000	
PSA23-11YWA	PSC23-11YWA		GaAsP/GaP	588	1900	8000	
PSA23-11GWA	PSC23-11GWA		GaP	568	1900	10500	
PDA54-11EWA PDA54-12EWA	PDC54-11EWA PDC54-12EWA	0.543 inch (13.8mm) Gray Face White Segment	GaAsP/GaP	625	1200	4700	39
PDA54-11SRWA PDA54-12SRWA	PDC54-11SRWA PDC54-12SRWA		GaAlAs	640	4700	18000	
PDA54-11YWA PDA54-12YWA	PDC54-11YWA PDC54-12YWA		GaAsP/GaP	588	800	3000	
PDA54-11GWA PDA54-12GWA	PDC54-11GWA PDC54-12GWA		GaP	568	1900	8000	

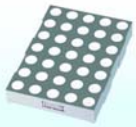
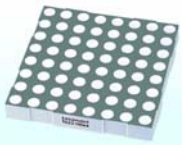
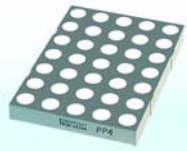
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Column Anode	Column Cathode				Min.	Typ.	
TA07-11EWA	TC07-11EWA	0.7 inch (18mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	1900	8000	40
TA07-11SRWA	TC07-11SRWA		GaAlAs	640	8000	30000	
TA07-11YWA	TC07-11YWA		GaAsP/GaP	588	1900	8100	
TA07-11GWA	TC07-11GWA		GaP	568	4700	18000	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

TX12	TX16	TX15	TX18
			

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Column Anode	Column Cathode				Min.	Typ.	
TA12-11EWA	TC12-11EWA	1.2 inch (30mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	3000	12000	42
TA12-11SRWA	TC12-11SRWA		GaAlAs	640	8000	36000	
TA12-11YWA	TC12-11YWA		GaAsP/GaP	588	3000	12500	
TA12-11GWA	TC12-11GWA		GaP	568	4700	19000	
TA12-22EWA	TC12-22EWA		GaAsP/GaP	625	3000	12000	
TA12-22SRWA	TC12-22SRWA		GaAlAs	640	12000	37800	
TA12-22YWA	TC12-22YWA		GaAsP/GaP	588	3000	12500	
TA12-22GWA	TC12-22GWA		GaP	568	3000	15033	
TBA12-11EGWA	TBC12-11EGWA		GaAsP/GaP	625	3000	12000	
			GaP	568	4700	19000	
TBA12-12EGWA	TBC12-12EGWA		GaAsP/GaP	625	3000	12000	
			GaP	568	4700	19000	
TBA12-22EGWA	TBC12-22EGWA		GaAsP/GaP	625	3000	12000	
			GaP	568	4700	19000	
TA16-11EWA	TC16-11EWA	1.38 inch (35.2mm) 5x8 Gray Face White Dot	GaAsP/GaP	625	1900	8000	43
TA16-11SRWA	TC16-11SRWA		GaAlAs	640	8000	36000	
TA16-11YWA	TC16-11YWA		GaAsP/GaP	588	3000	12500	
TA16-11GWA	TC16-11GWA		GaP	568	3000	12000	
TA15-11EWA	TC15-11EWA	1.5 inch (38mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	3000	12500	41
TA15-11SRWA	TC15-11SRWA		GaAlAs	640	12000	45500	
TA15-11YWA	TC15-11YWA		GaAsP/GaP	588	1900	8000	
TA15-11GWA	TC15-11GWA		GaP	568	4700	19500	
TBA15-11EGWA	TBC15-11EGWA		GaAsP/GaP	625	3000	12500	
			GaP	568	4700	19500	
TA18-21EWA	TC18-21EWA	1.85 inch (47mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	4700	19650	44
TA18-21SRWA	TC18-21SRWA		GaAlAs	640	12000	44000	
TA18-21YWA	TC18-21YWA		GaAsP/GaP	588	3000	14850	
TA18-21GWA	TC18-21GWA		GaP	568	8000	29200	
TBA18-21EGWA	TBC18-21EGWA		GaAsP/GaP	625	4700	19650	
			GaP	568	8000	29200	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

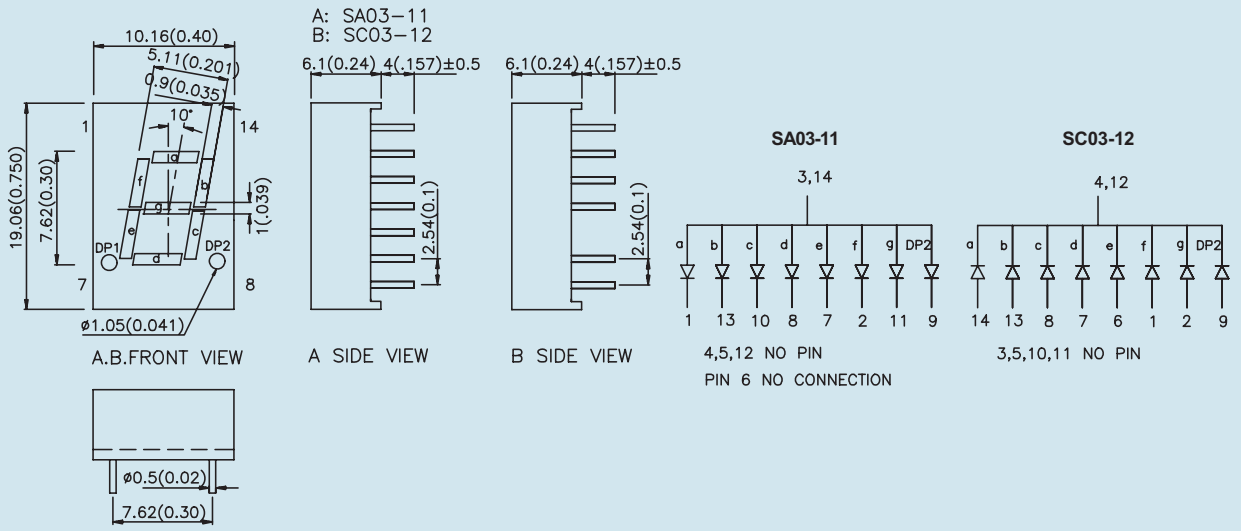
TX20	TX23	TX24	TX30	TX40
				

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Column Anode	Column Cathode				Min.	Typ.	
TA20-11EWA	TC20-11EWA	2.0 inch (50mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	3000	12000	45
TA20-11SRWA	TC20-11SRWA		GaAlAs	640	8000	26000	
TA20-11YWA	TC20-11YWA		GaAsP/GaP	588	1900	8000	
TA20-11GWA	TC20-11GWA		GaP	568	3000	16000	
TBA20-11EGWA	TBC20-11EGWA		GaAsP/GaP	625	3000	12000	
			GaP	568	3000	16000	
TBA20-12EGWA	TBC20-12EGWA		GaAsP/GaP	625	3000	12000	
			GaP	568	3000	16000	
TBA20-22EGWA	TBC20-22EGWA		GaAsP/GaP	625	3000	12000	
			GaP	568	3000	16000	
TA23-11EWA	TC23-11EWA	2.3 inch (58mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	3000	14000	46
TA23-11SRWA	TC23-11SRWA		GaAlAs	640	12000	44000	
TA23-11YWA	TC23-11YWA		GaAsP/GaP	588	1900	8000	
TA23-11GWA	TC23-11GWA		GaP	568	4700	18500	
TBA23-11EGWA	TBC23-11EGWA		GaAsP/GaP	625	3000	14000	
			GaP	568	4700	18500	
TBA23-12EGWA	TBC23-12EGWA		GaAsP/GaP	625	3000	14000	
			GaP	568	4700	18500	
TA24-11EWA	TC24-11EWA	2.4 inch (60.8mm) 5x8 Gray Face White Dot	GaAsP/GaP	625	3000	13500	47
TA24-11SRWA	TC24-11SRWA		GaAlAs	640	18000	61000	
TA24-11YWA	TC24-11YWA		GaAsP/GaP	588	1900	8000	
TA24-11GWA	TC24-11GWA		GaP	568	4700	20000	
TBA24-11EGWA	TBC24-11EGWA		GaAsP/GaP	625	3000	13500	
			GaP	568	4700	20000	
TBA24-22EGWA	TBC24-22EGWA		GaAsP/GaP	625	3000	13500	
			GaP	568	4700	20000	
TA30-11EWA	TC30-11EWA	3.0 inch (76.2mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	8000	32000	48
TA30-11SRWA	TC30-11SRWA		GaAlAs	640	18000	88000	
TA30-11YWA	TC30-11YWA		GaAsP/GaP	588	8000	28570	
TA30-11GWA	TC30-11GWA		GaP	568	12000	56100	
TA40-11EWA	TC40-11EWA	4.0 inch (100mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	8000	33000	49
TA40-11SRWA	TC40-11SRWA		GaAlAs	640	18000	90500	
TA40-11YWA	TC40-11YWA		GaAsP/GaP	588	4700	18000	
TA40-11GWA	TC40-11GWA		GaP	568	12000	42000	
TBA40-11EGWA	TBC40-11EGWA		GaAsP/GaP	625	8000	33000	
			GaP	568	12000	42000	
TBA40-12EGWA	TBC40-12EGWA		GaAsP/GaP	625	8000	33000	
			GaP	568	12000	42000	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

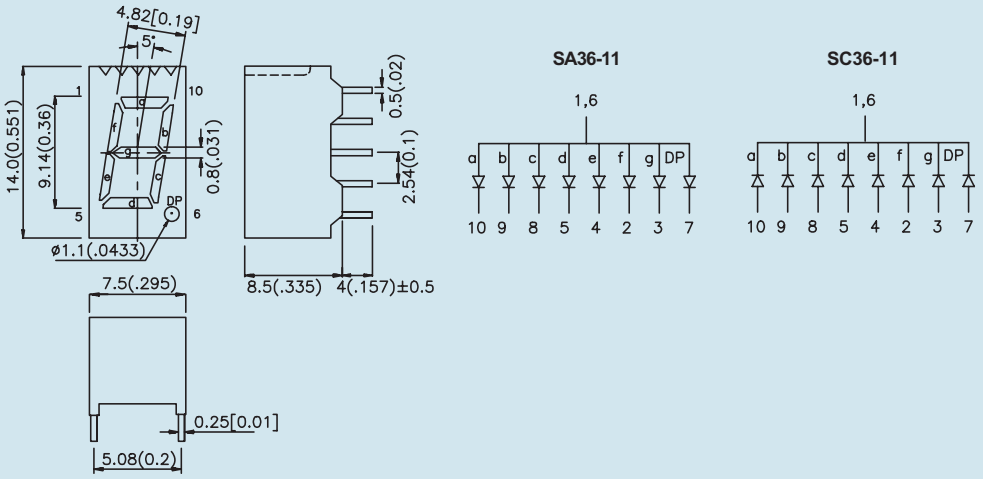
SA/SC03 Series

11



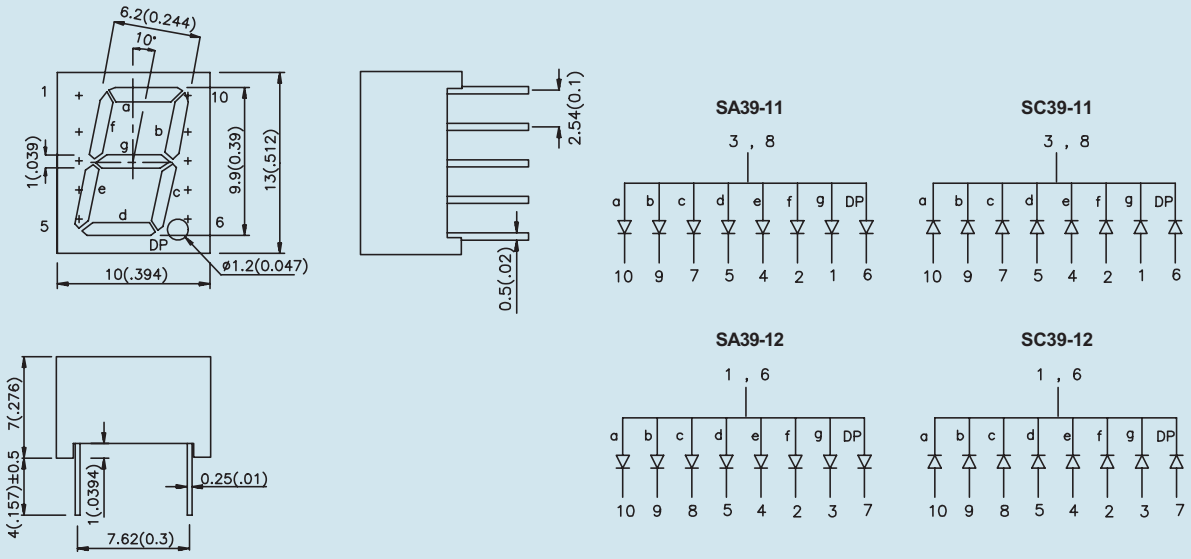
SA/SC36 Series

12



SA/SC39 Series

13

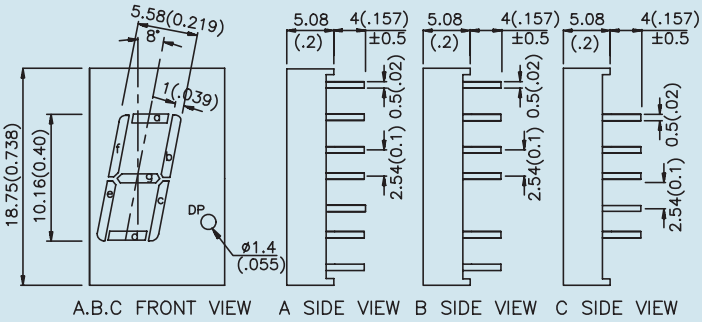


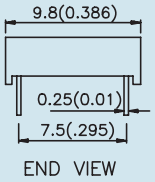
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

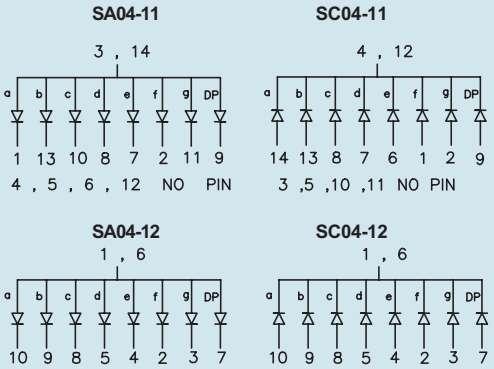
SA/SC04 Series

14

A: SA04−11
B: SC04−11
C: SA/SC04−12

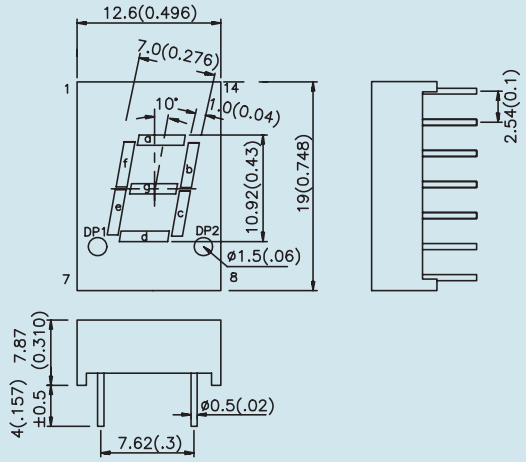


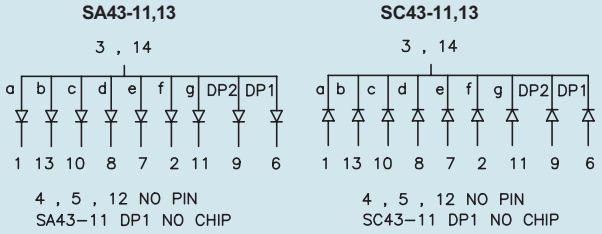




SA/SC43 Series

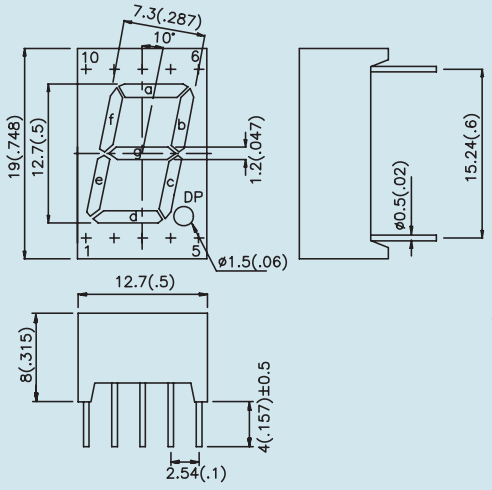
15

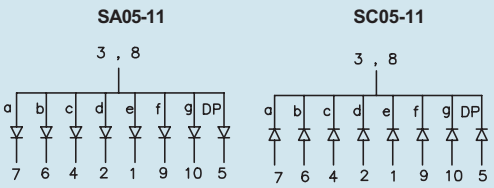




SA/SC05 Series

16

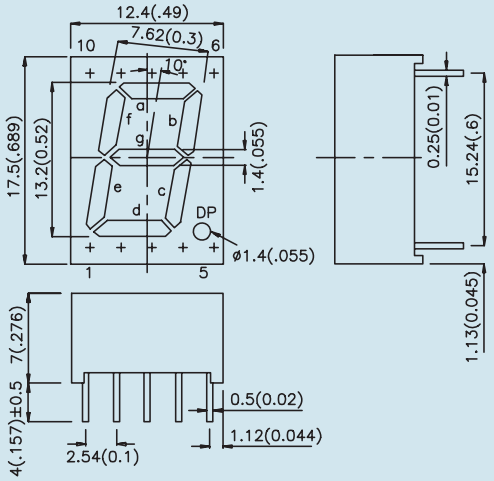


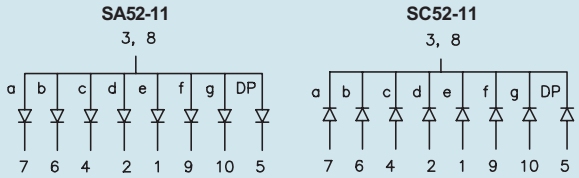


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

SA/SC52 Series

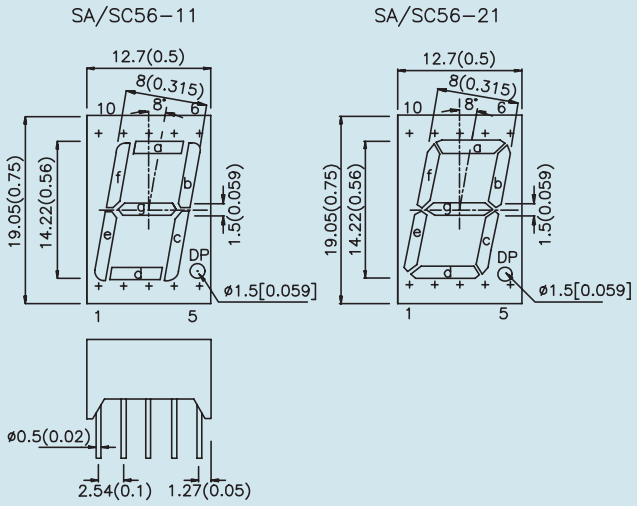
17

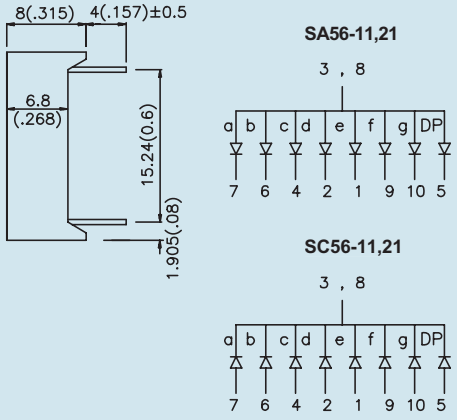




SA/SC56 Series

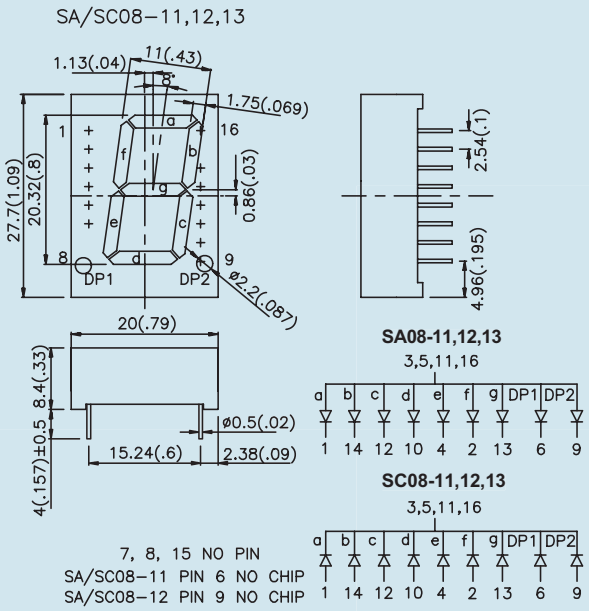
18

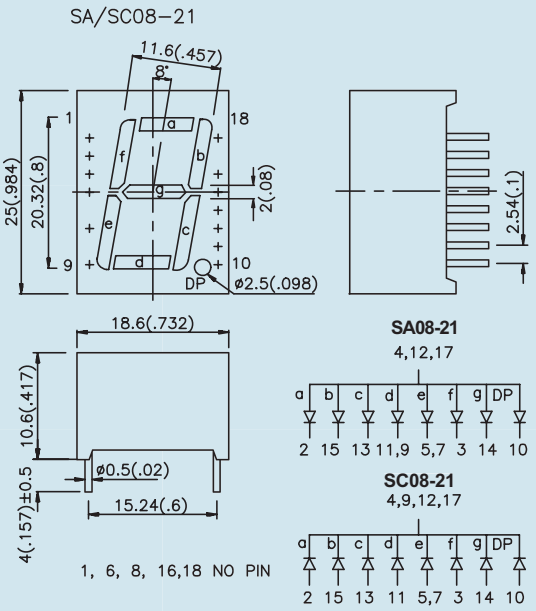




SA/SC08 Series

19

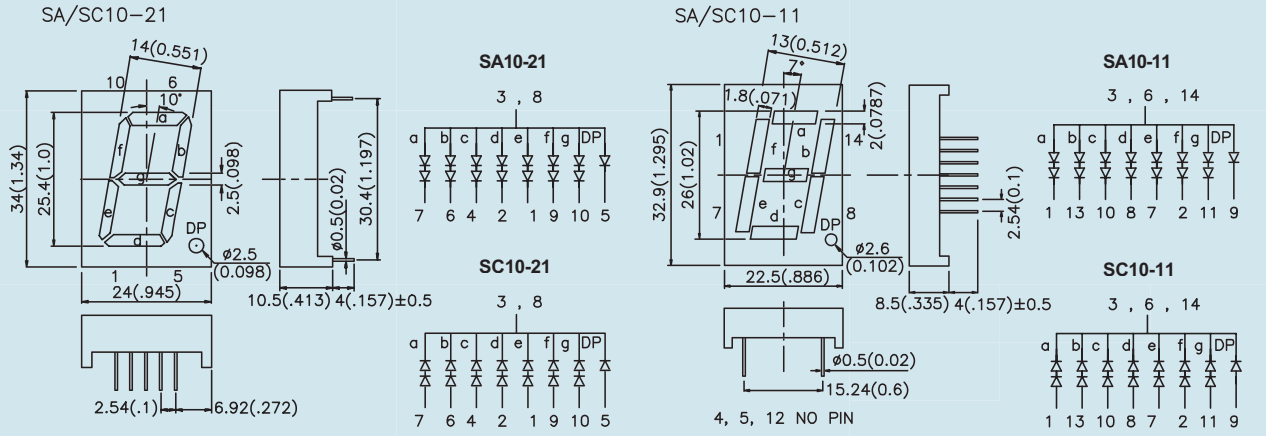




NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

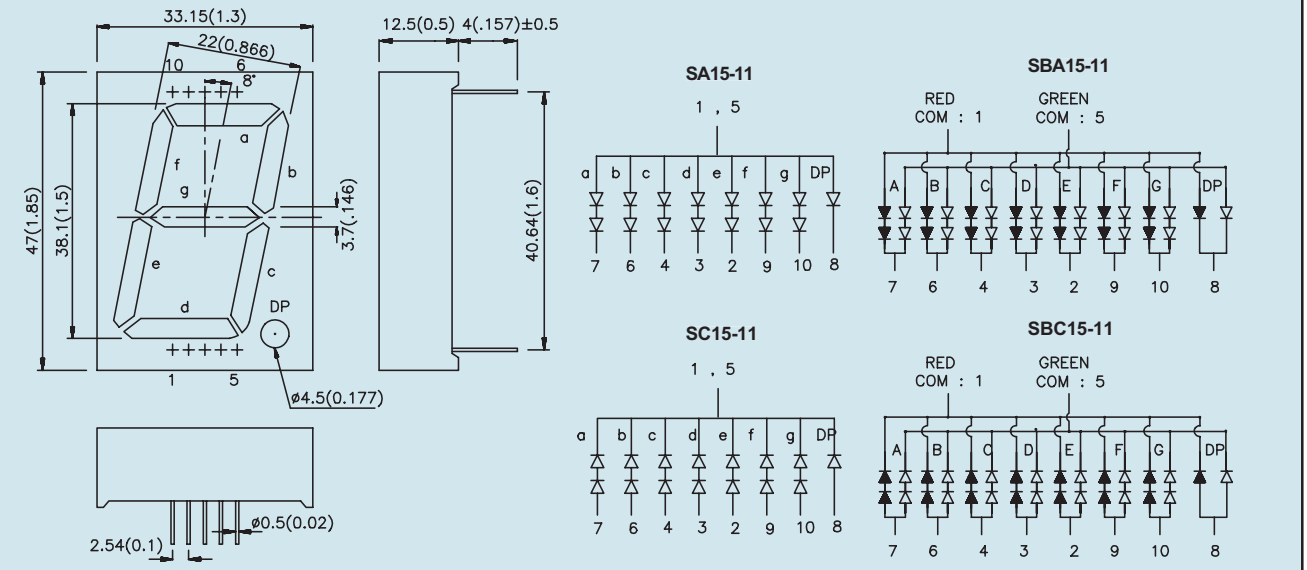
SA/SC10 Series

20



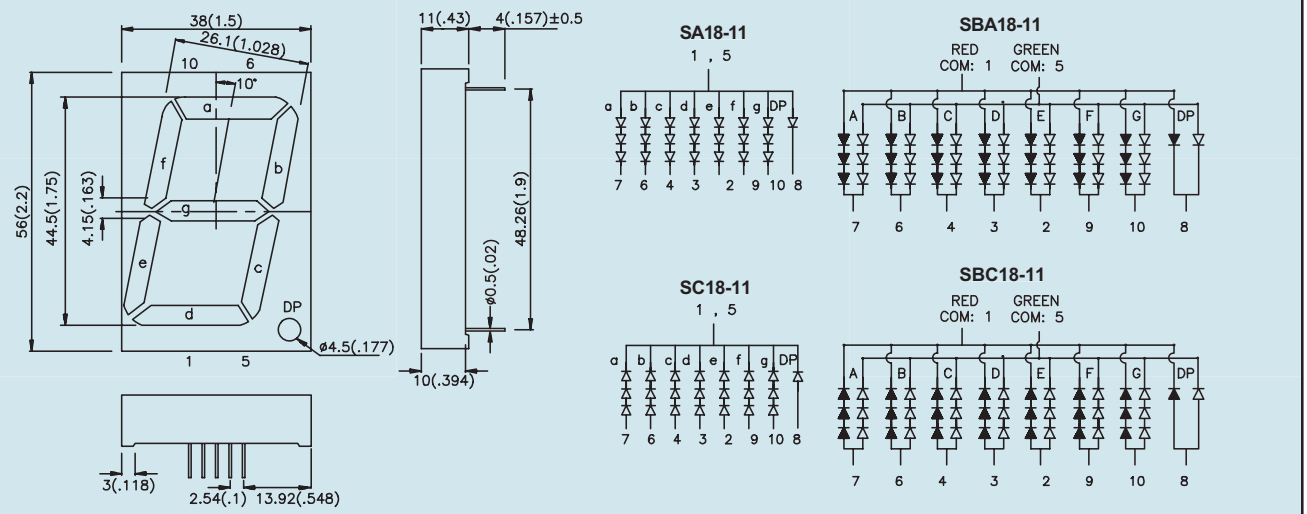
SA/SC15, SBA/SBC15 Series

21



SA/SC18, SBA/SBC18 Series

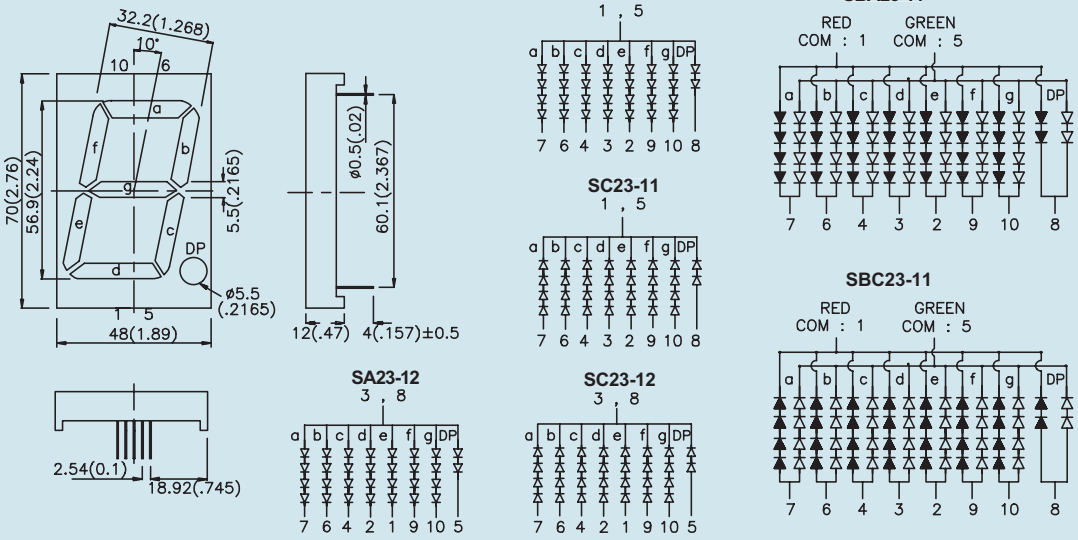
22



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

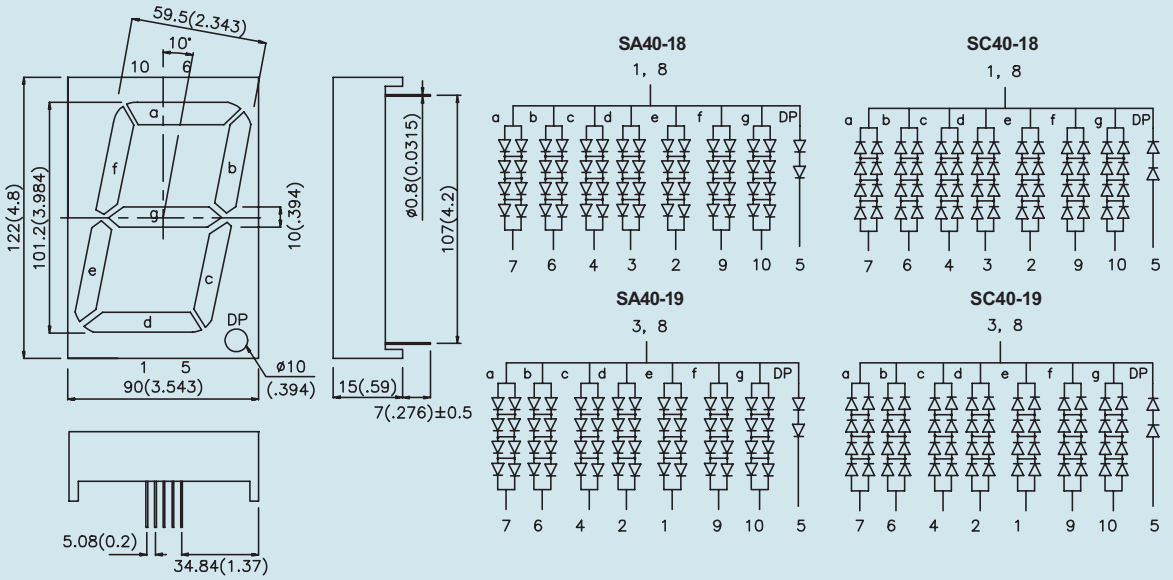
SA/SC23,SBA/SBC23 Series

23



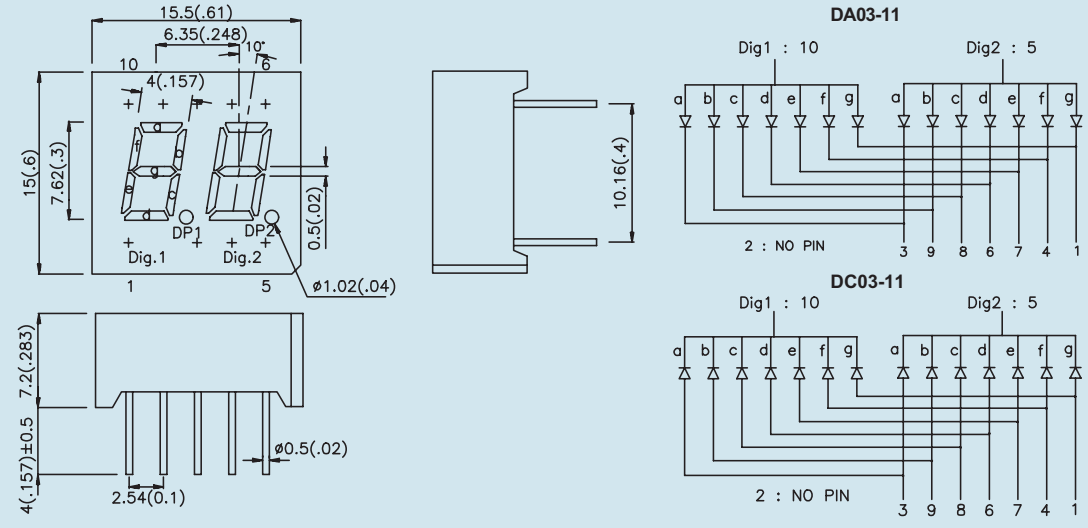
SA/SC40 Series

24



DA/DC03 Series

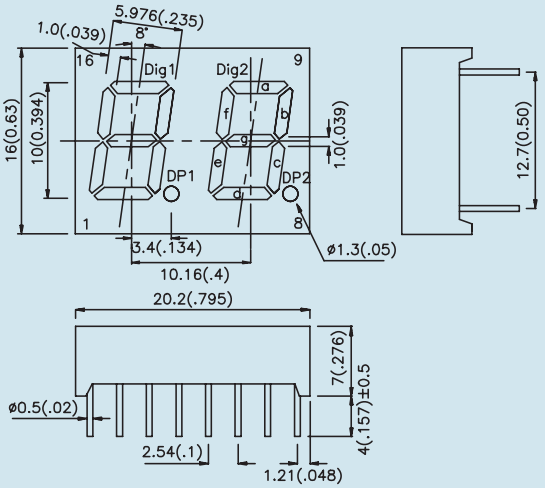
25



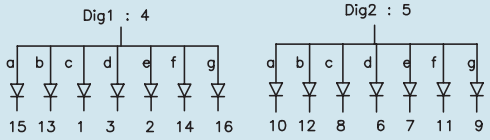
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

DA/DC04 Series

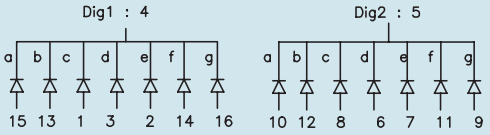
26



DA04-11

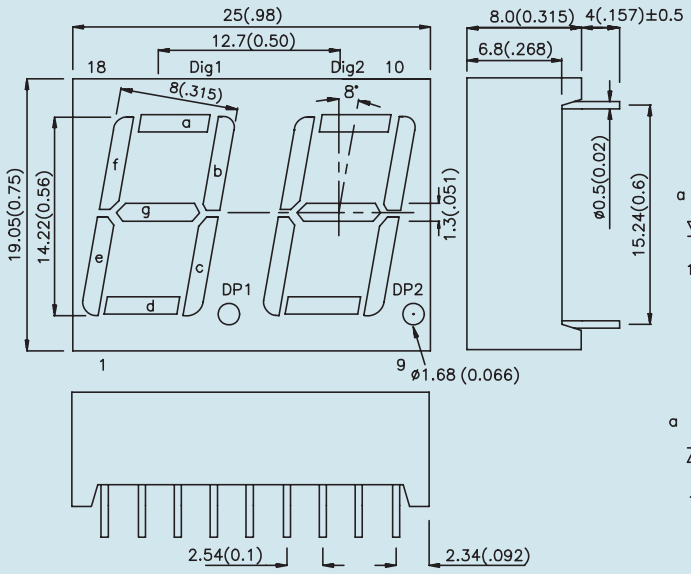


DC04-11

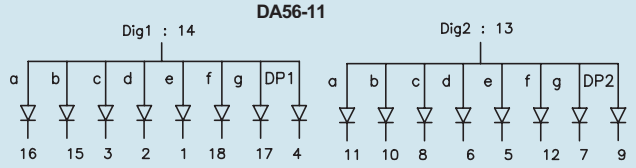


DA/DC56-11 Series

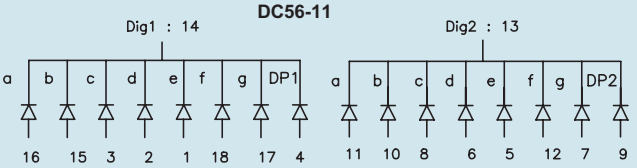
27



DA56-11

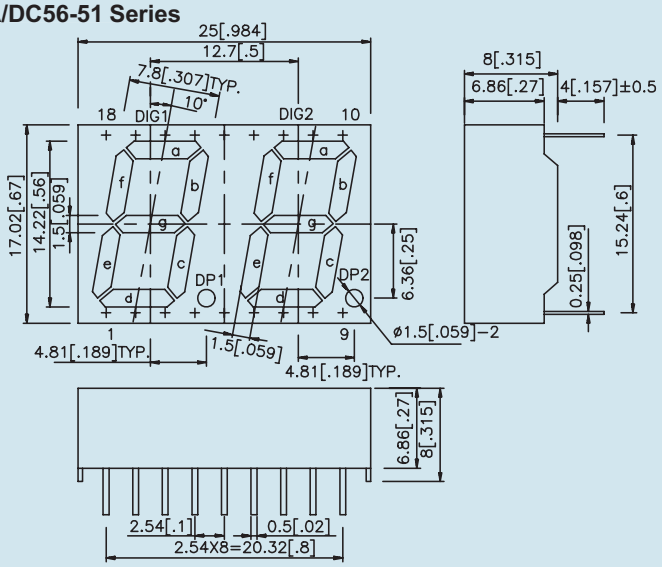


DC56-11



DA/DC56-51 Series

28



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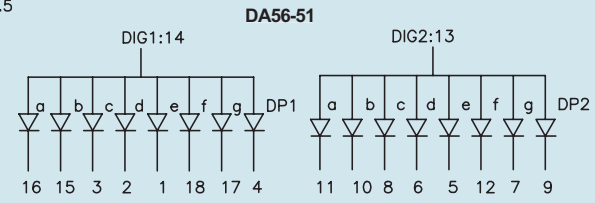
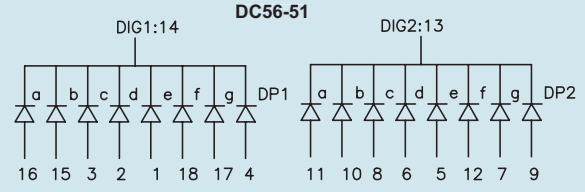


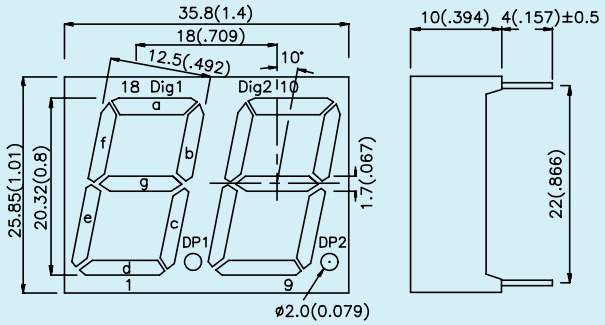
DC56-51

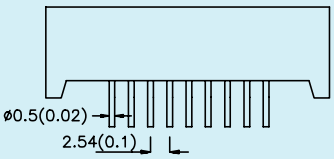


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

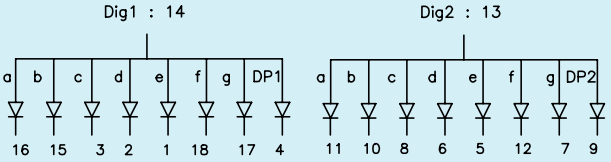
DA/DC08 Series

29

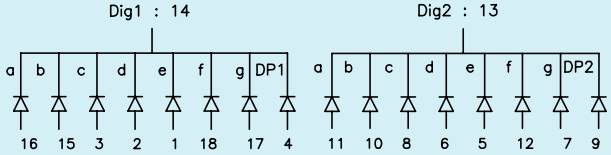




DA08-11

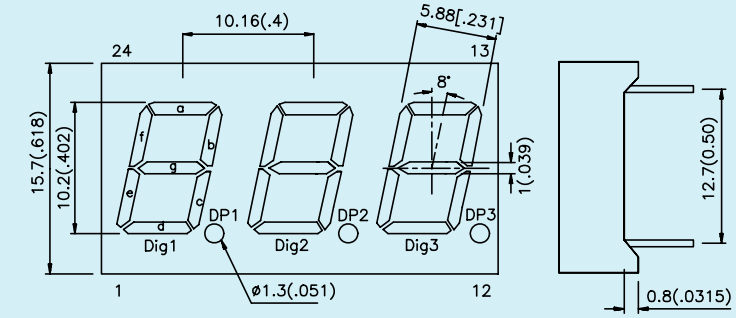


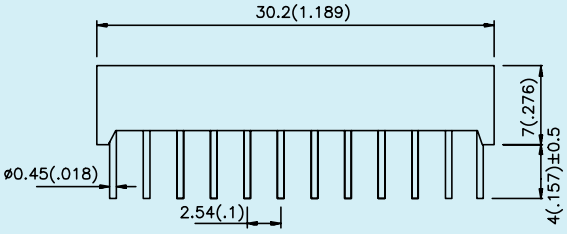
DC08-11



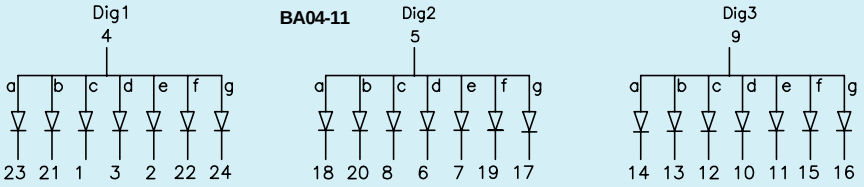
BA/BC04 Series

30

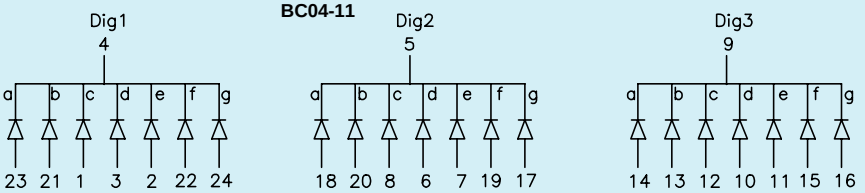




BA04-11



BC04-11

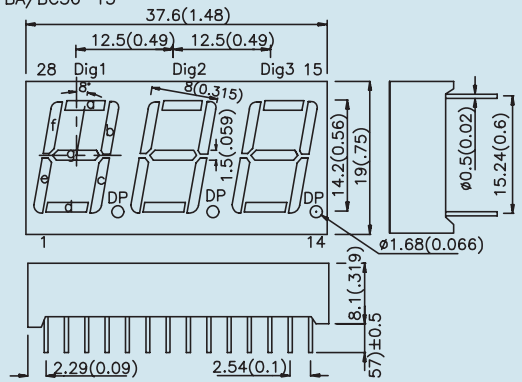


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

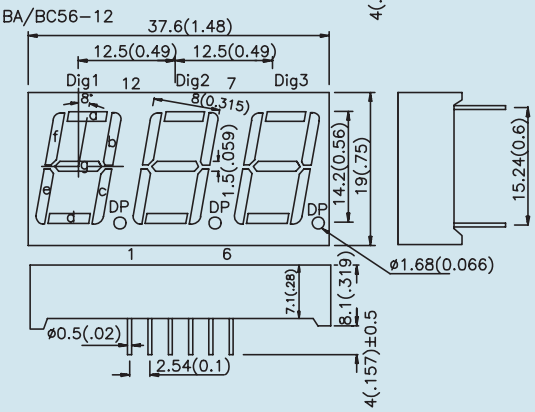
BA/BC56 Series

31

BA/BC56-11
BA/BC56-13



BA/BC56-12



BA56-11

Dig1: 3,26
Dig2: 19
Dig3: 18

	a	b	c	d	e	f	g	DP
Dig1:	25	24	4	2	1	27	28	5
Dig2:	21	20	8	7	6	23	22	9
Dig3:	16	15	13	11	10	17	12	14

BC56-11

Dig1: 3,26
Dig2: 19
Dig3: 18

	a	b	c	d	e	f	g	DP
Dig1:	25	24	4	2	1	27	28	5
Dig2:	21	20	8	7	6	23	22	9
Dig3:	16	15	13	11	10	17	12	14

BA56-13

Dig1: 26
Dig2: 8,21
Dig3: 15

	a	b	c	d	e	f	g	DP
Dig1:	27	24	3	2	1	28	25	4
Dig2:	22	19	7	6	5	23	20	9
Dig3:	16	14	12	11	10	17	18	13

BC56-13

Dig1: 26
Dig2: 8,21
Dig3: 15

	a	b	c	d	e	f	g	DP
Dig1:	27	24	3	2	1	28	25	4
Dig2:	22	19	7	6	5	23	20	9
Dig3:	16	14	12	11	10	17	18	13

BA56-12

Dig1: 12
Dig2: 9
Dig3: 8

a	b	c	d	e	f	g	DP
11	7	4	2	1	10	5	3

BC56-12

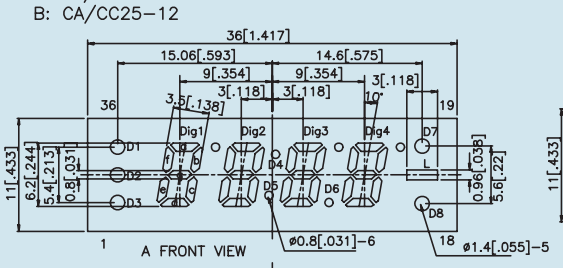
Dig1: 12
Dig2: 9
Dig3: 8

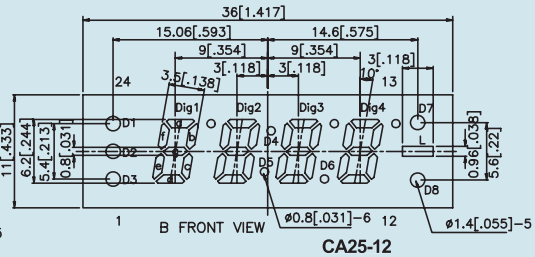
a	b	c	d	e	f	g	DP
11	7	4	2	1	10	5	3

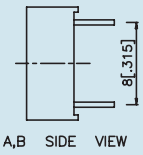
CA/CC25 Series

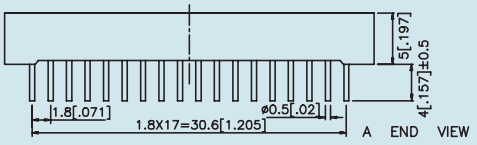
32

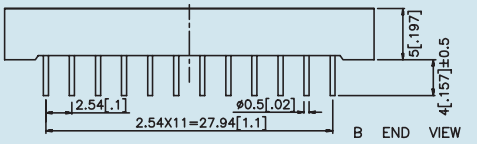
A: CA/CC25-11
B: CA/CC25-12



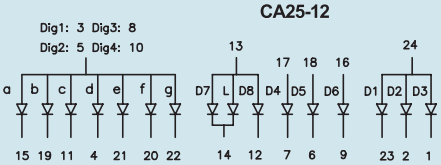




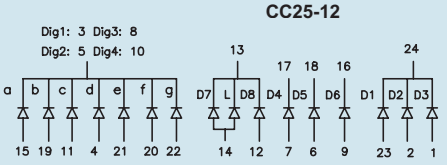




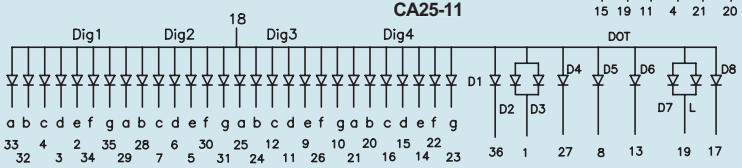
CA25-12



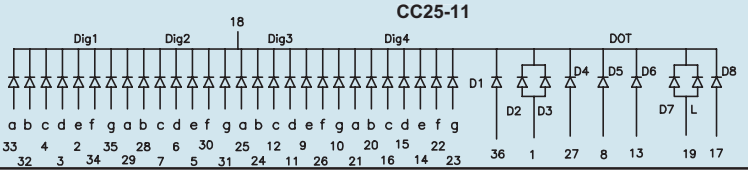
CC25-12



CA25-11



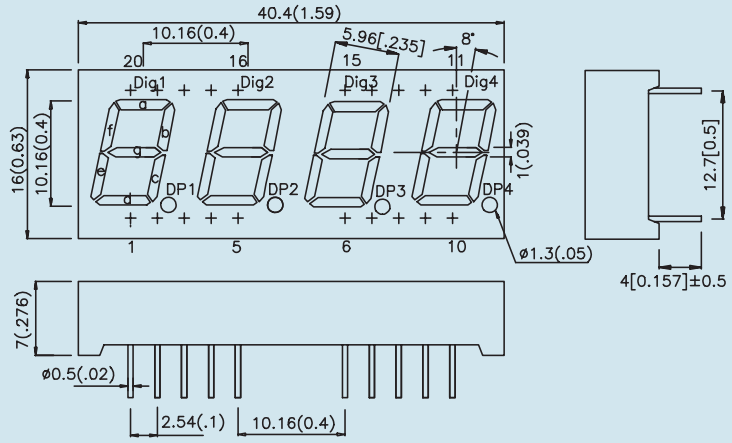
CC25-11



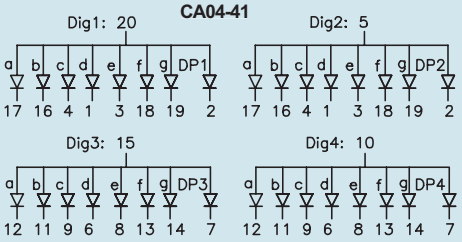
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

CA/CC04 Series

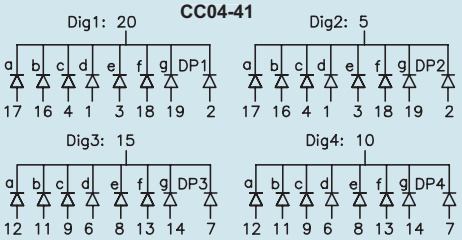
33



CA04-41



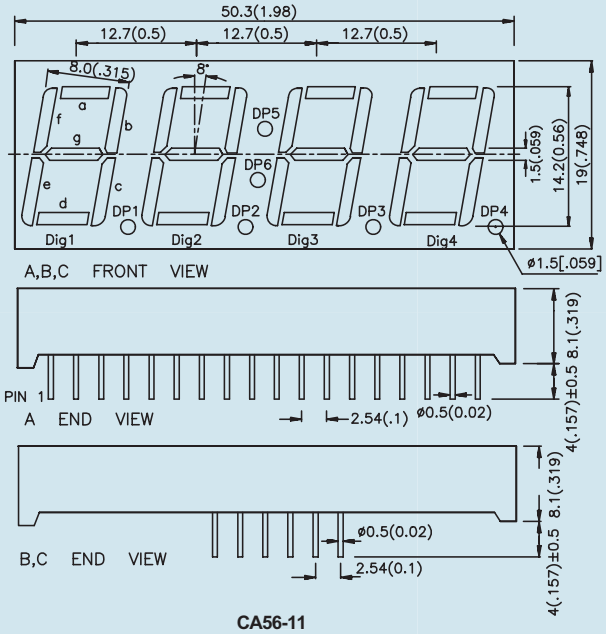
CC04-41

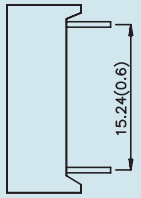


CA/CC56 Series

34

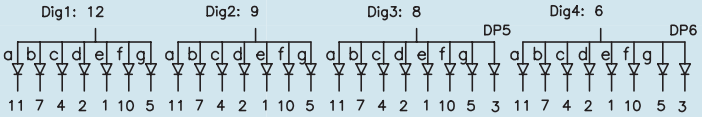
A: CA/CC56−11
B: CA/CC56−12
C: CA/CC56−21



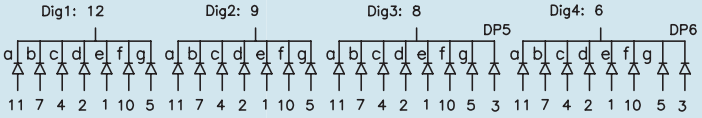


A,B,C SIDE VIEW

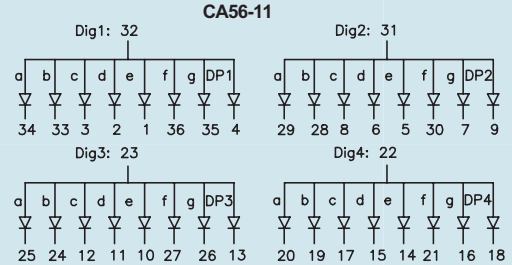
CA56-21



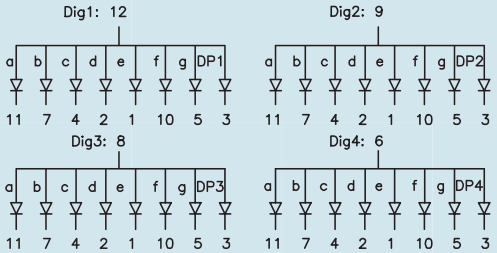
CC56-21



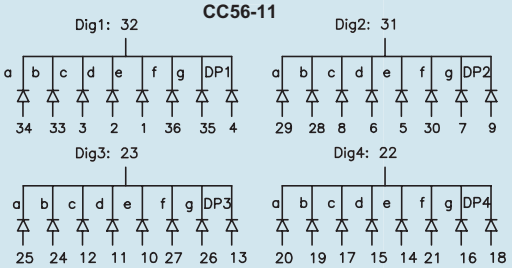
CA56-11



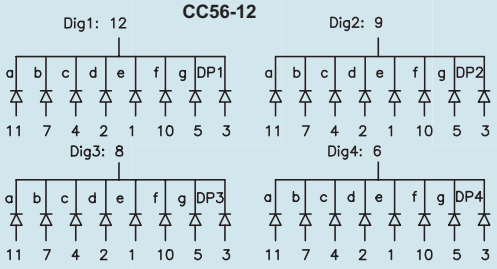
CA56-12



CC56-11



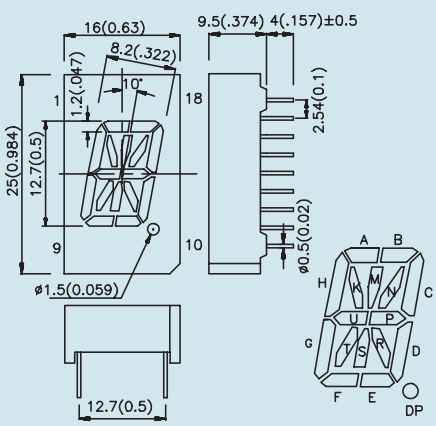
CC56-12

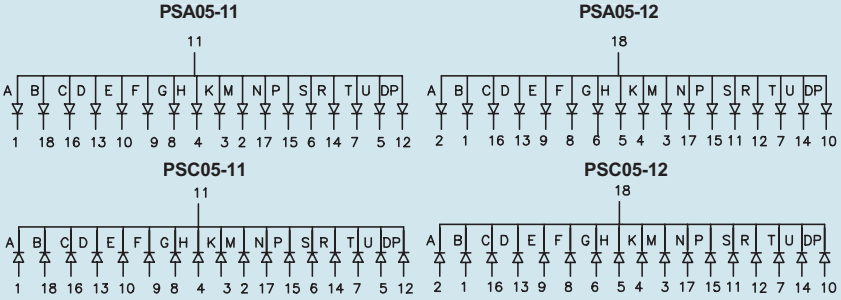


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

PSA/PSC05 Series

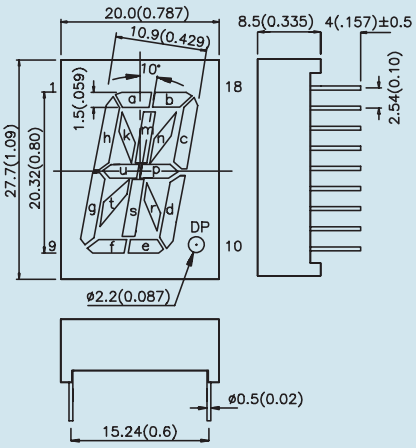
35

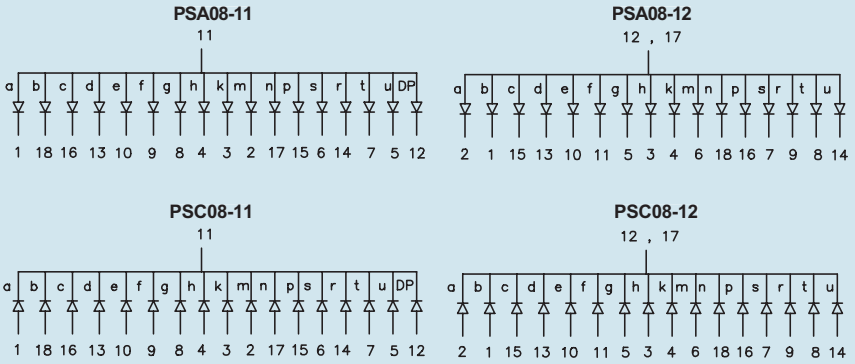




PSA/PSC08 Series

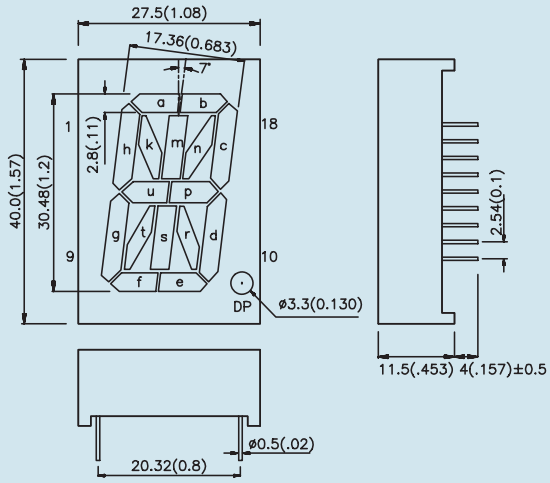
36

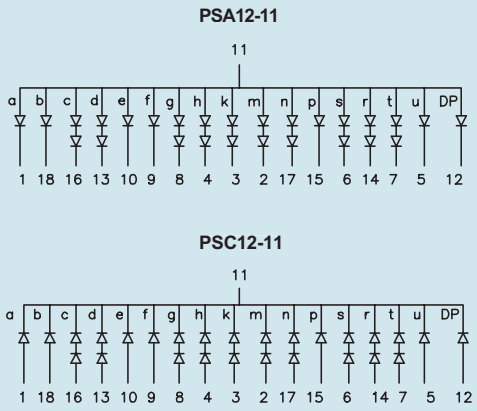




PSA/PSC12 Series

37

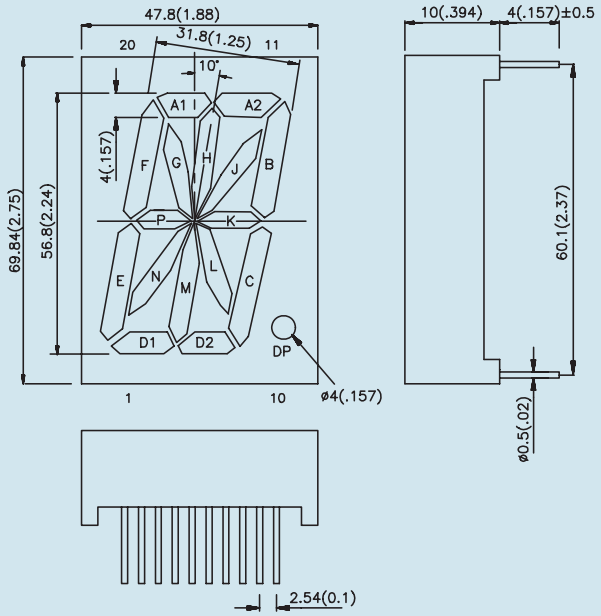




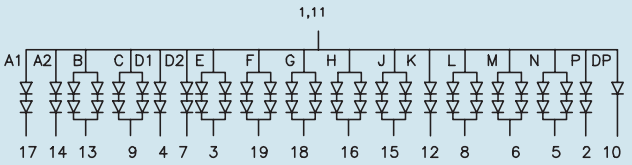
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

PSA/PSC23 Series

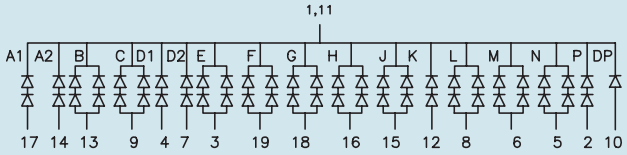
38



PSA23-11

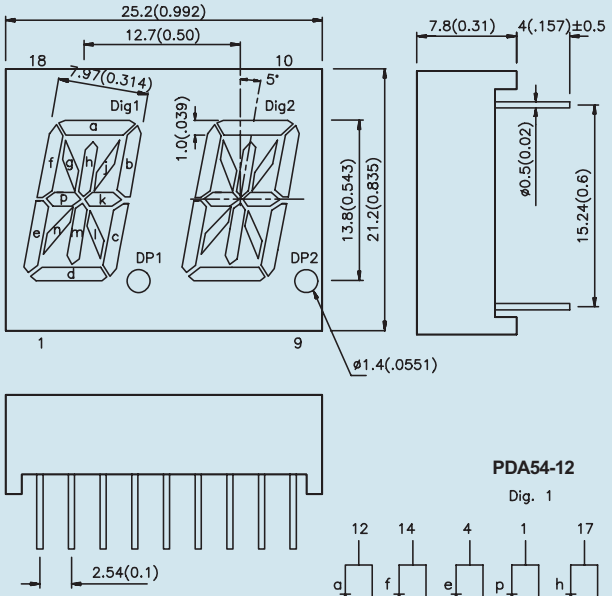


PSC23-11

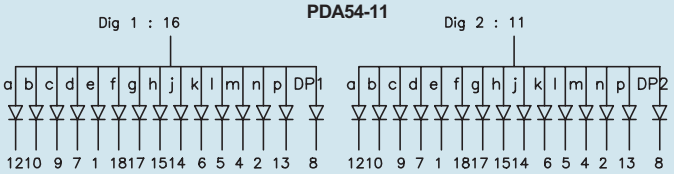


PDA/PDC54 Series

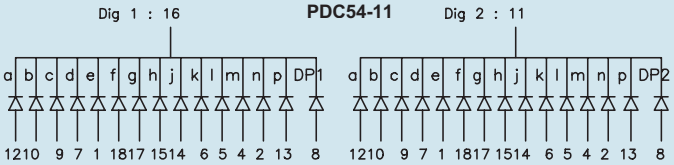
39



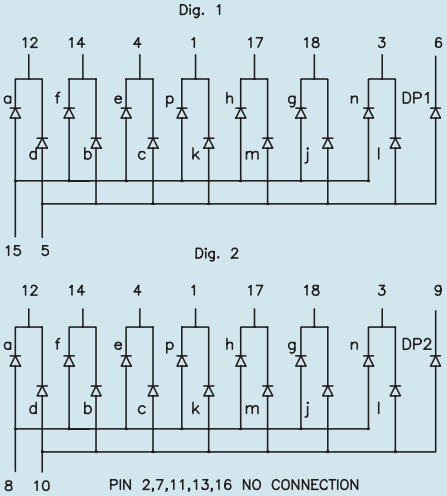
PDA54-11



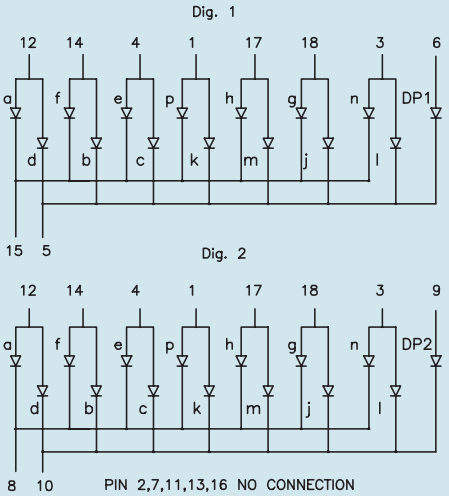
PDC54-11



PDA54-12



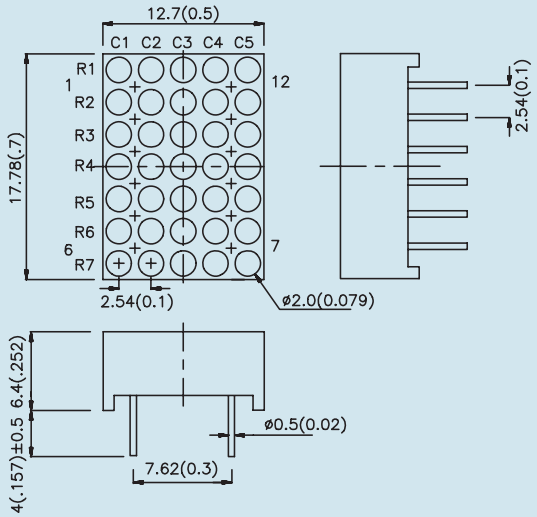
PDC54-12



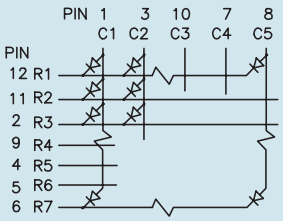
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

TA/TC07 Series

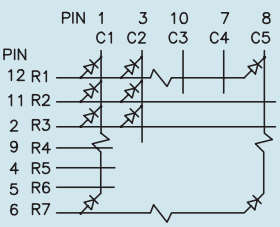
40



TA07-11



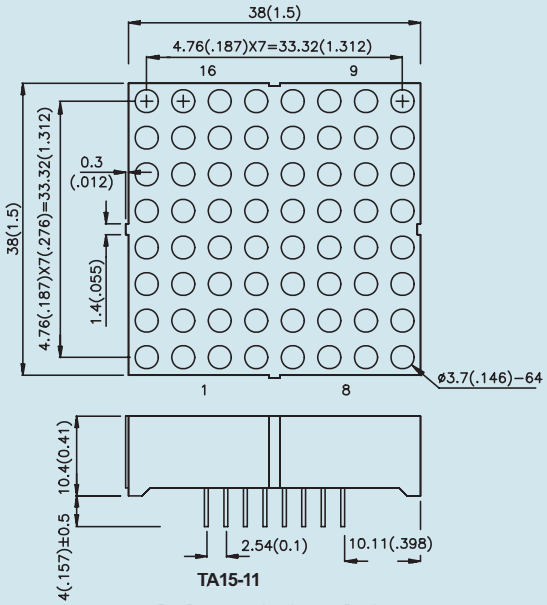
TC07-11



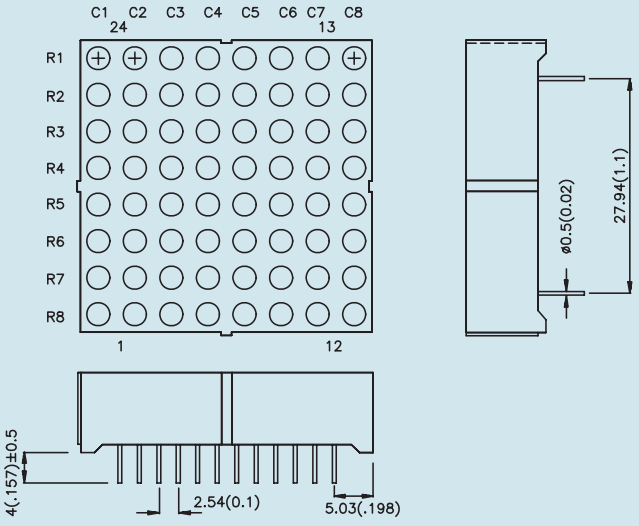
TA/TC15,TBA/TBC15 Series

41

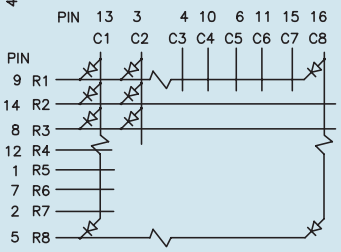
TA/TC15−11



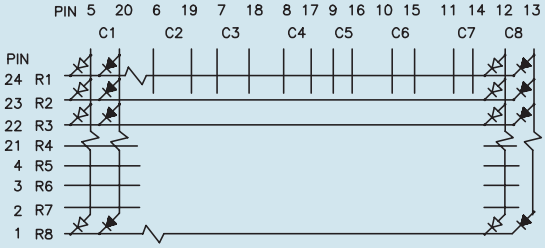
TBA/TBC15−11



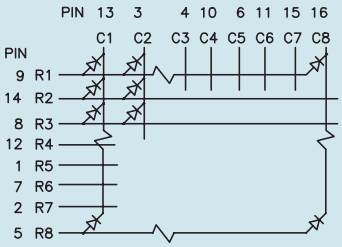
TA15-11



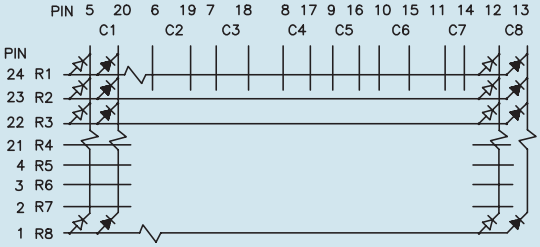
TBA15-11



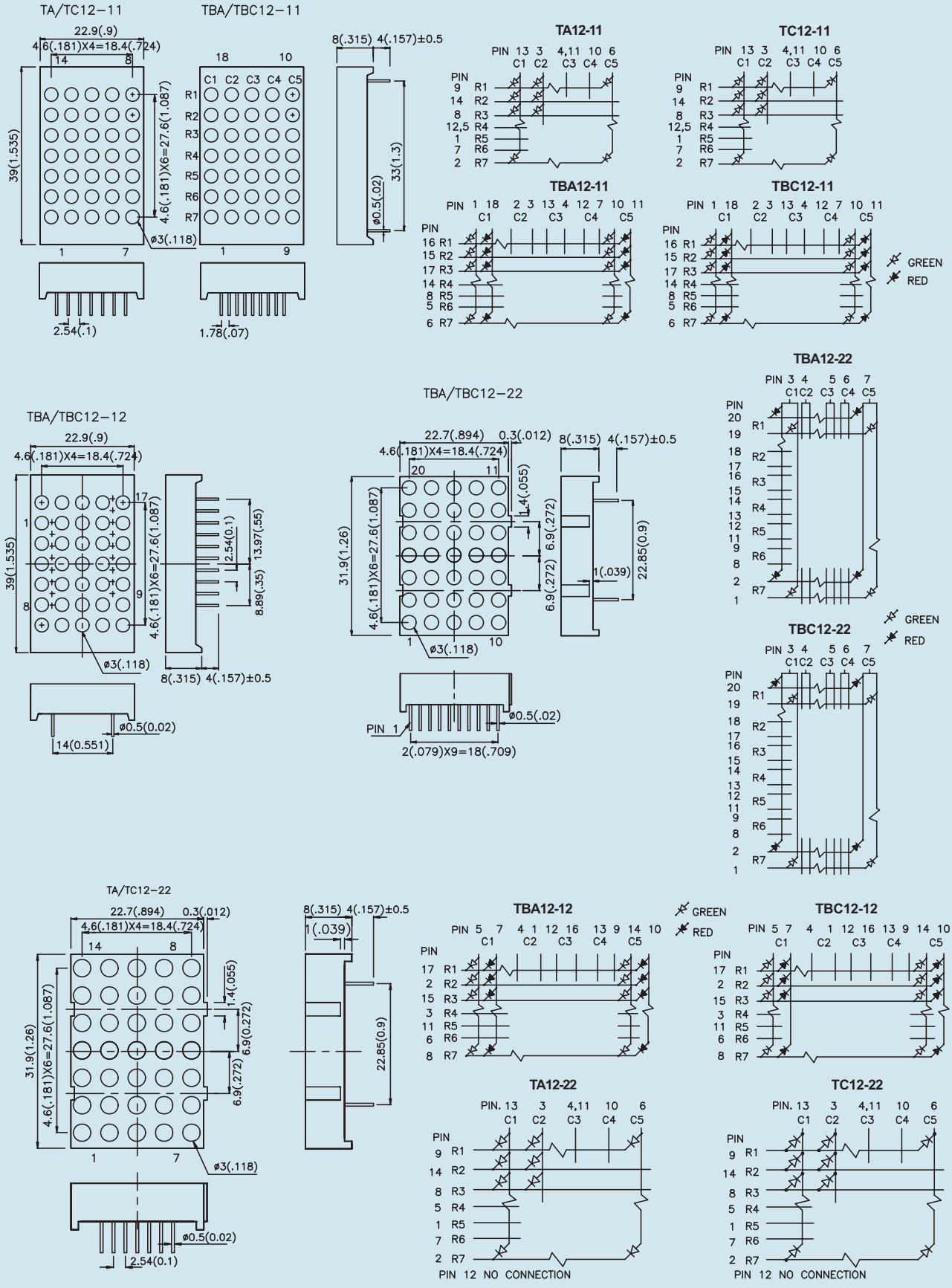
TC15-11



TBC15-11



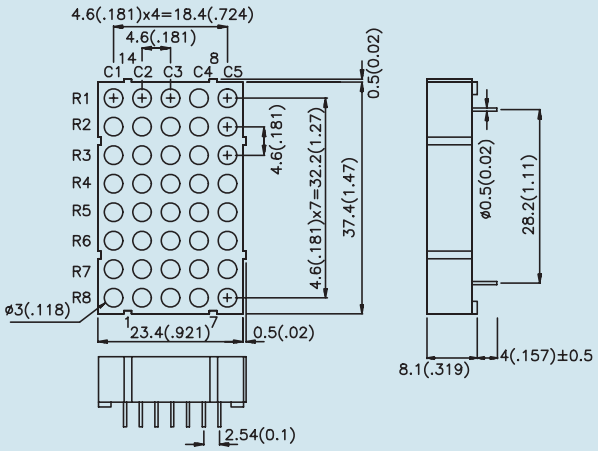
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.



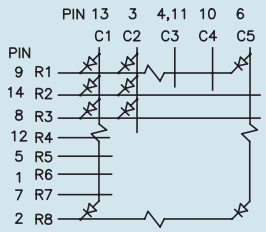
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

TA/TC16 Series

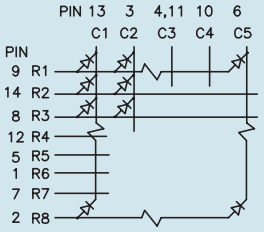
43



TA16-11



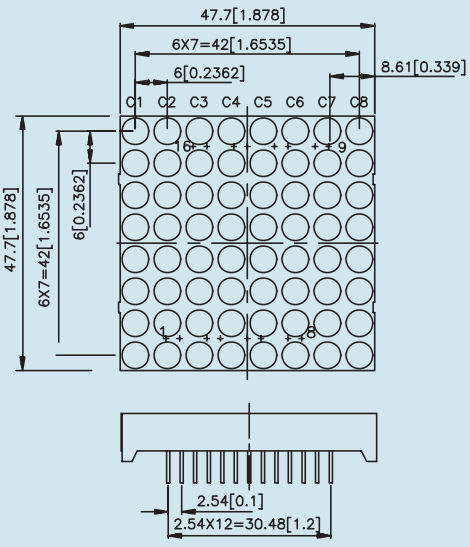
TC16-11



TA/TC18,TBA/TBC18 Series

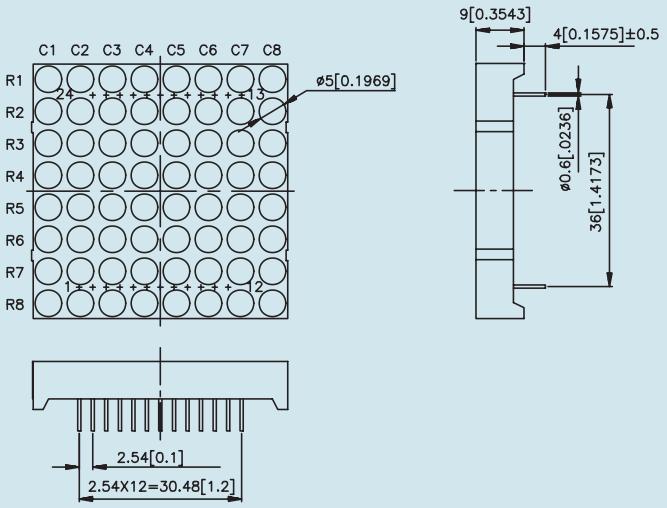
44

TA/TC18−21

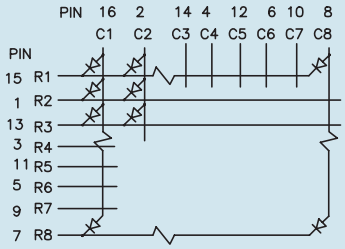


TA18-21

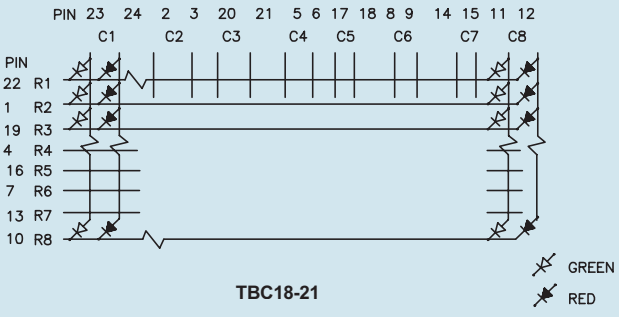
TBA/TBC18−21



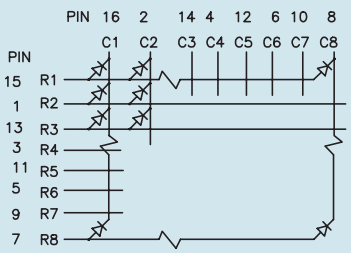
TBA18-21

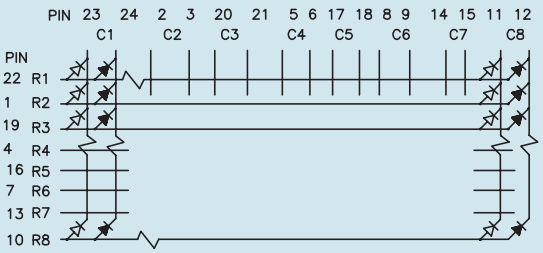


TC18-21

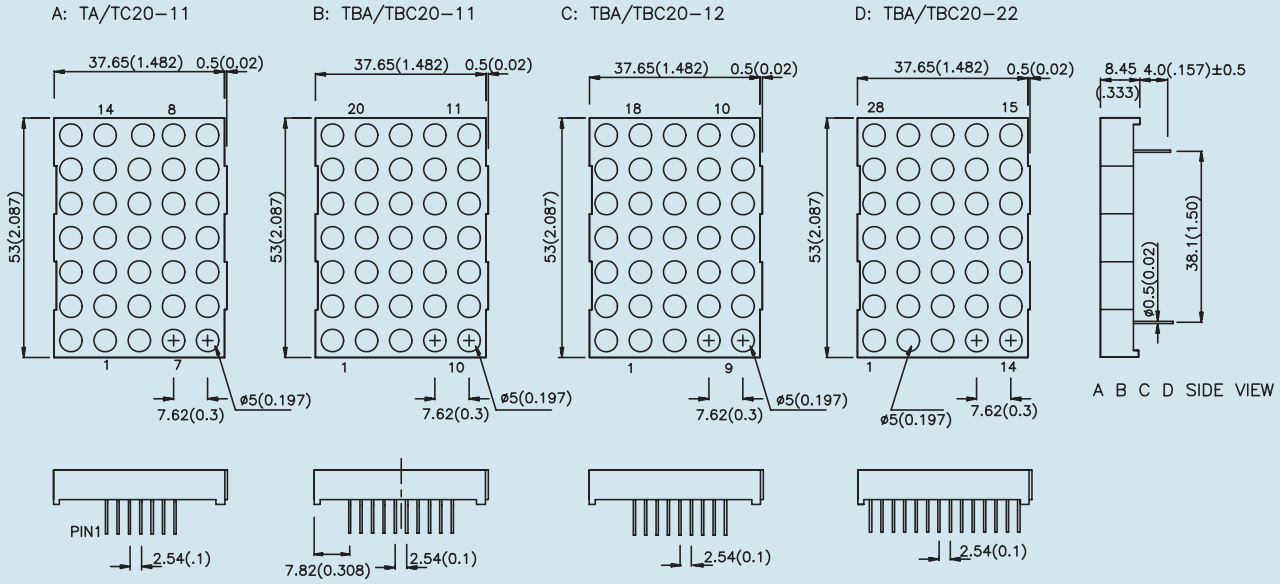


TBC18-21

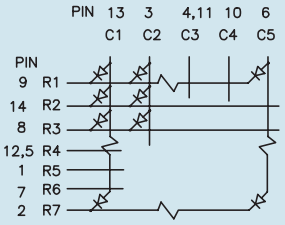




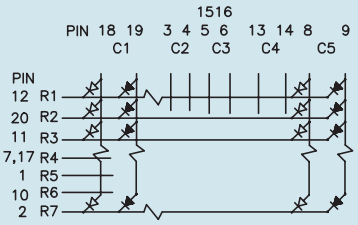
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.



TA20-11



TBA20-11



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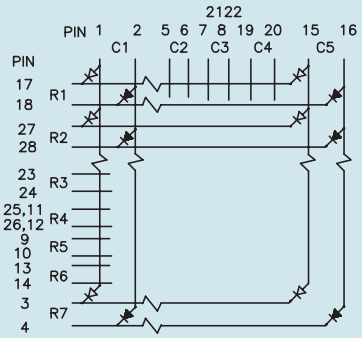
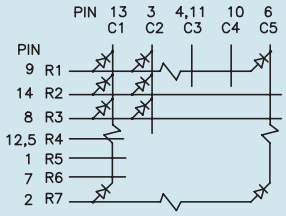
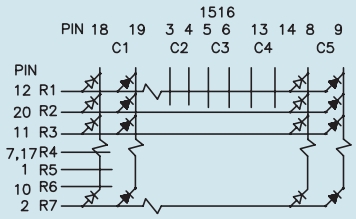


TC20-11



TBC20-11



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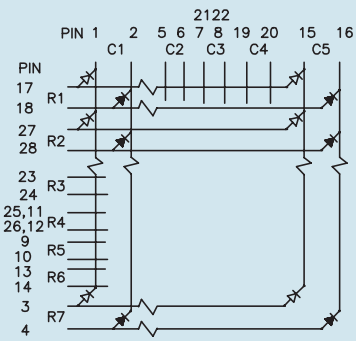
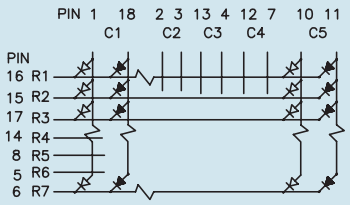


TBA20-12



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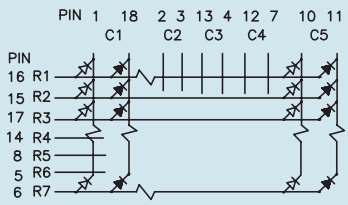
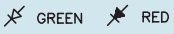
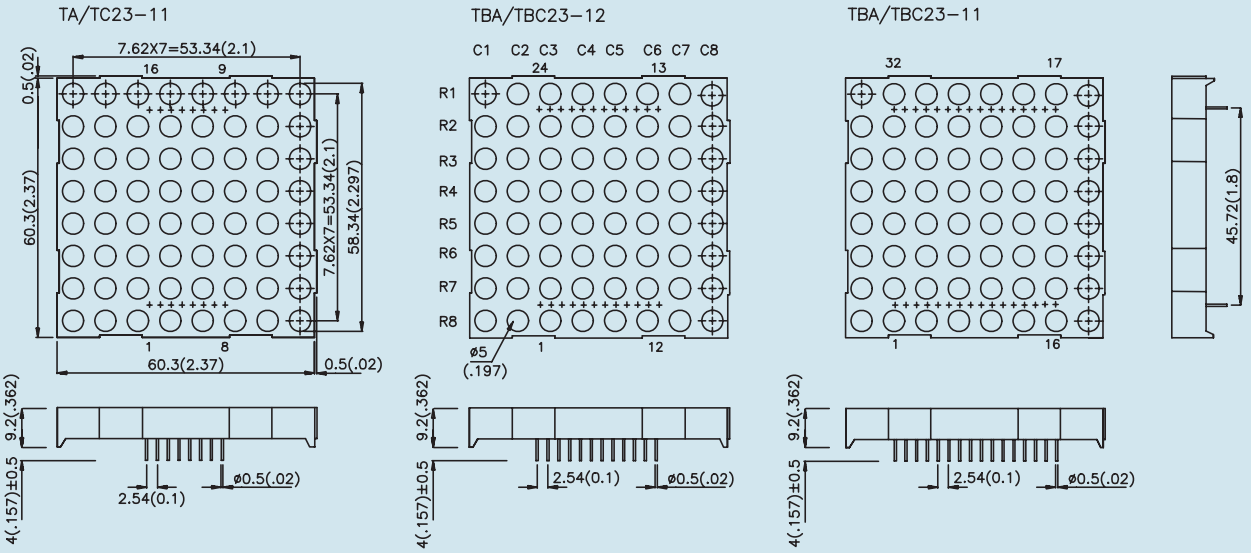
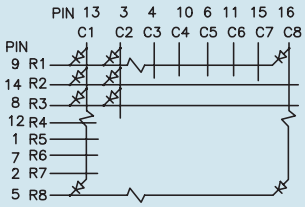




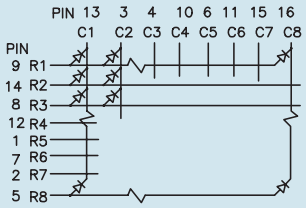
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.



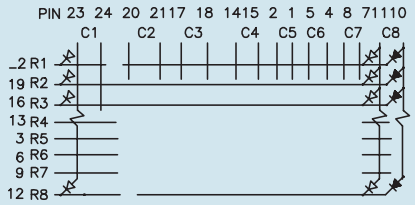
TA23-11



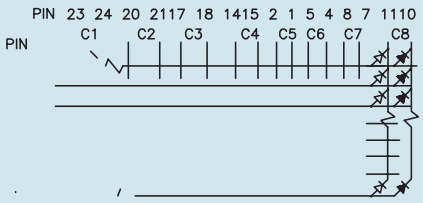
TC23-11



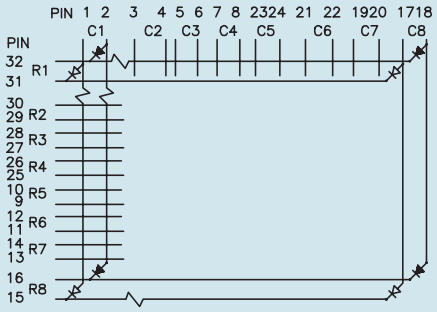
TBA23-12



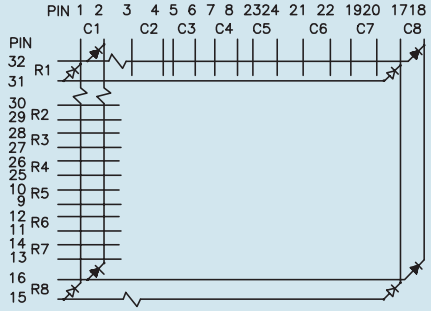
TBC23-12



TBA23-11



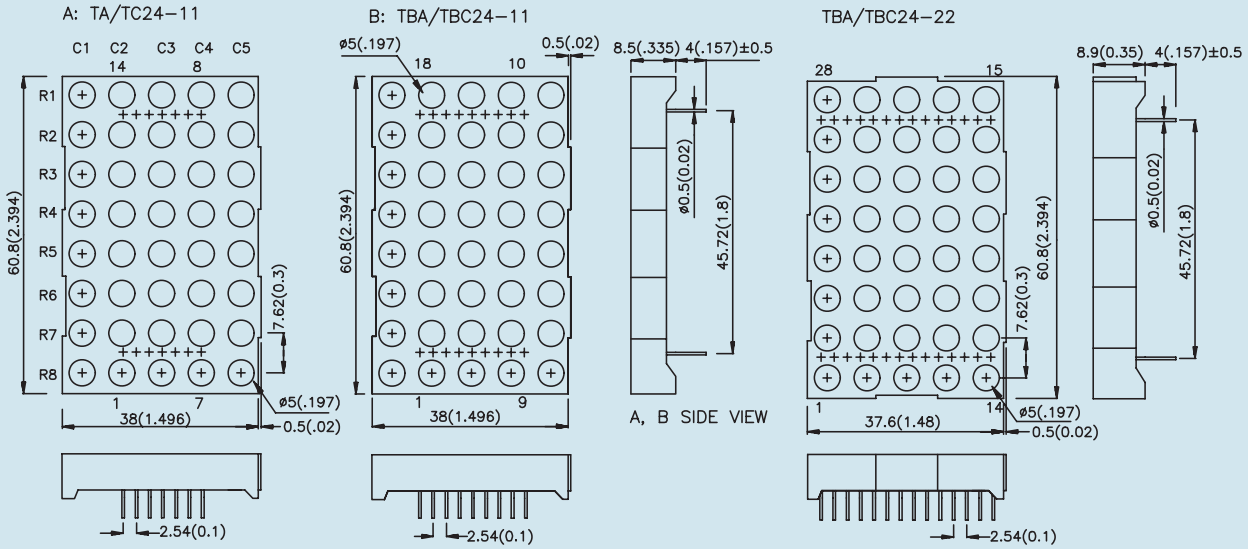
TBC23-11



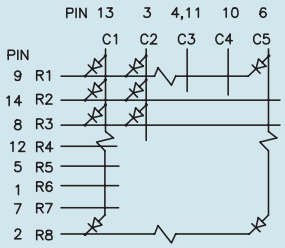
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

TA/TC24,TBA/TBC24 Series

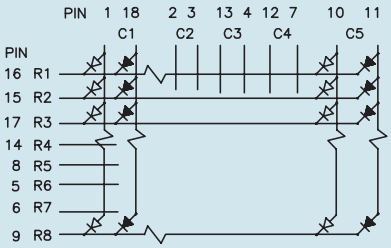
47



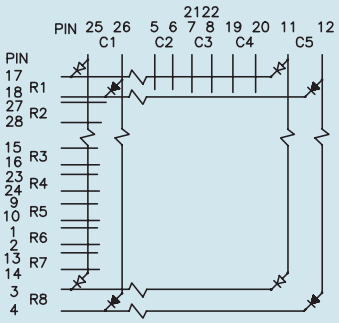
TA24-11



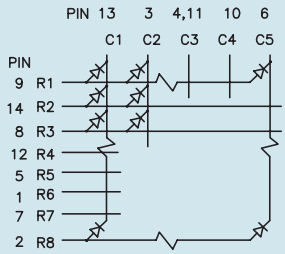
TBA24-11



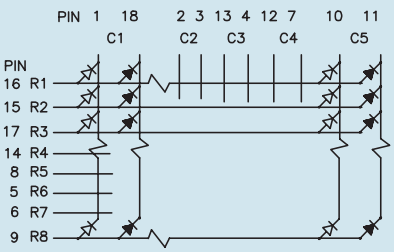
TBA24-22



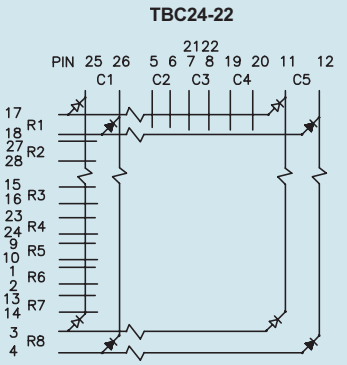
TC24-11



TBC24-11

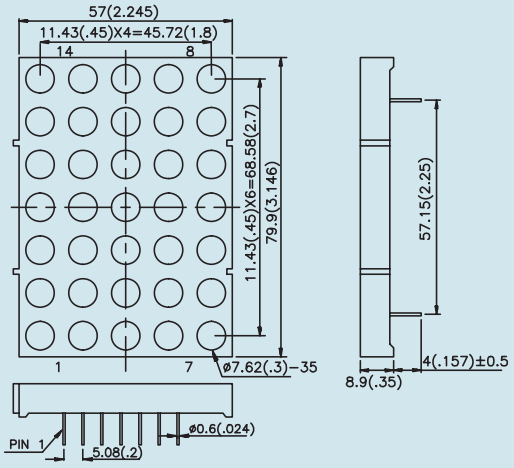


TBC24-22

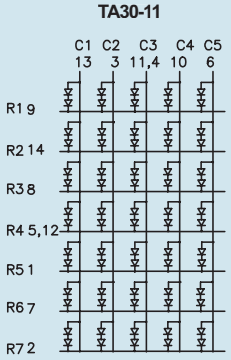


TA/TC30 Series

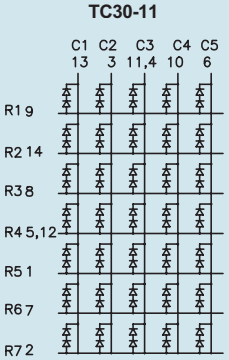
48



TA30-11

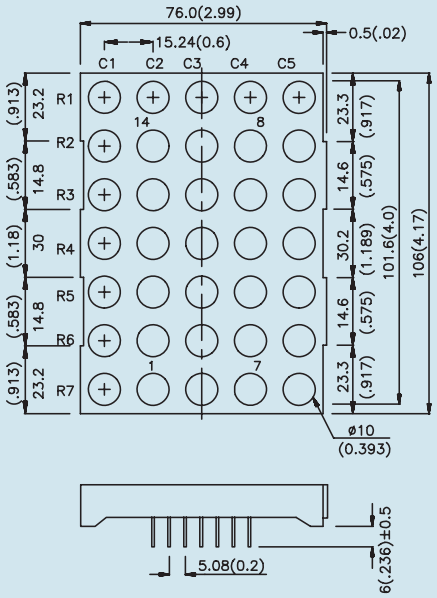


TC30-11

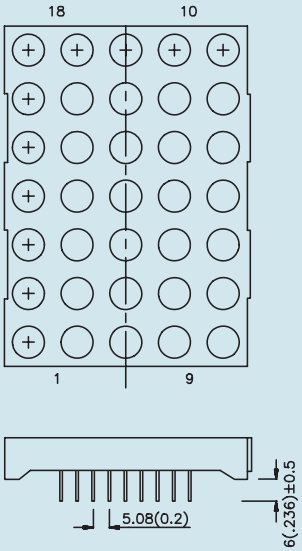


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

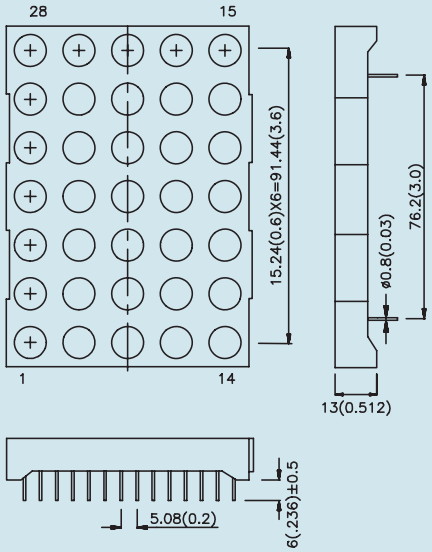
TA/TC40−11



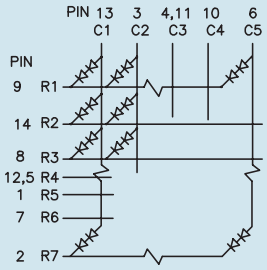
TBA/TBC40−11



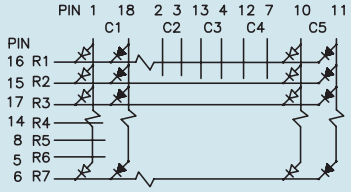
TBA/TBC40−12



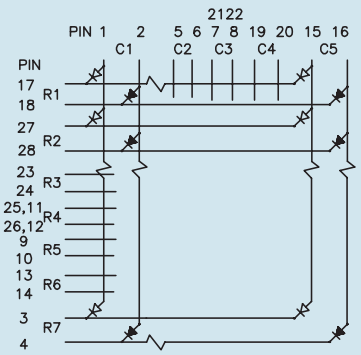
TA40-11



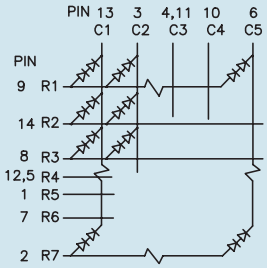
TBA40-11



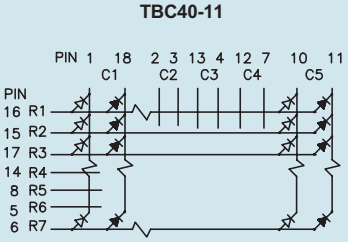
TBA40-12



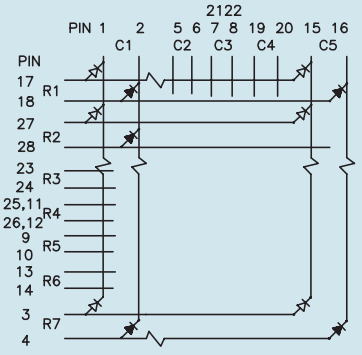
TC40-11



TBC40-11



TBC40-12

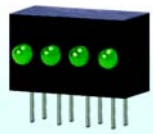
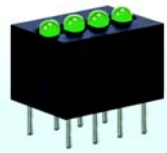


FOR 2 RED CHIPS FOR 2 GREEN CHIPS

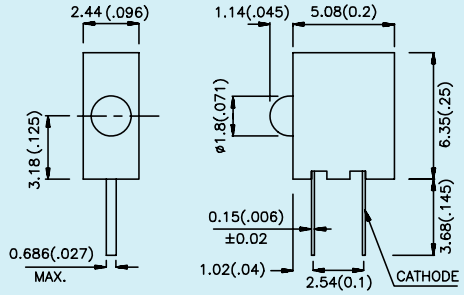
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

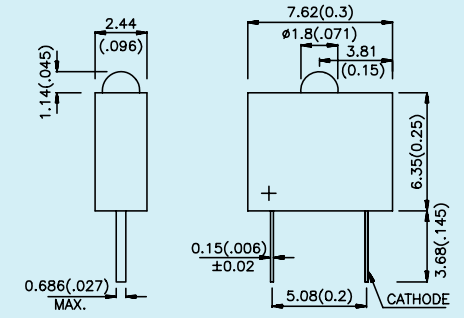
Kingbright

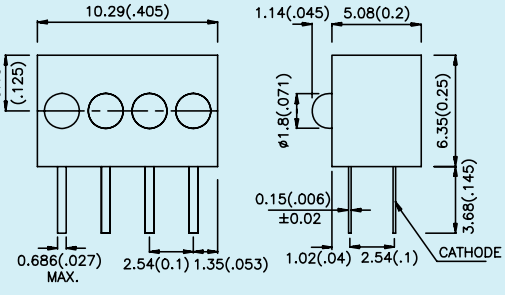
2007-2009

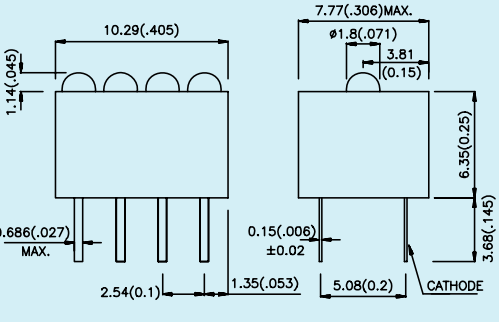
KM2520EH/1	KM2520EJ/1	KM2520EF/4	KM2520EG/4
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA *V=5V		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KM2520EH/1ID	GaAsP/GaP	625	red diffused	7	30	40°	Subminiature Solid State Lamps
KM2520EH/1ID-5V	GaAsP/GaP	625	red diffused	*1.8	*8	40°	
KM2520EH/1YD	GaAsP/GaP	588	yellow diffused	2.6	10	40°	
KM2520EH/1YD-5V	GaAsP/GaP	588	yellow diffused	*1	*3	40°	
KM2520EH/1SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EH/1SGD-5V	GaP	568	green diffused	*1.8	*8	40°	
KM2520EJ/1ID	GaAsP/GaP	625	red diffused	7	30	40°	Subminiature Solid State Lamps
KM2520EJ/1ID-5V	GaAsP/GaP	625	red diffused	*1.8	*8	40°	
KM2520EJ/1YD	GaAsP/GaP	588	yellow diffused	2.6	10	40°	
KM2520EJ/1YD-5V	GaAsP/GaP	588	yellow diffused	*1	*3	40°	
KM2520EJ/1SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EJ/1SGD-5V	GaP	568	green diffused	*1.8	*8	40°	
KM2520EF/4ID	GaAsP/GaP	625	red diffused	7	30	40°	Subminiature Solid State Lamps
KM2520EF/4ID-5V	GaAsP/GaP	625	red diffused	*1.8	*8	40°	
KM2520EF/4YD	GaAsP/GaP	588	yellow diffused	2.6	10	40°	
KM2520EF/4YD-5V	GaAsP/GaP	588	yellow diffused	*1	*3	40°	
KM2520EF/4SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EF/4SGD-5V	GaP	568	green diffused	*1.8	*8	40°	
KM2520EG/4ID	GaAsP/GaP	625	red diffused	7	30	40°	Subminiature Solid State Lamps
KM2520EG/4ID-5V	GaAsP/GaP	625	red diffused	*1.8	*8	40°	
KM2520EG/4YD	GaAsP/GaP	588	yellow diffused	2.6	10	40°	
KM2520EG/4YD-5V	GaAsP/GaP	588	yellow diffused	*1	*3	40°	
KM2520EG/4SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EG/4SGD-5V	GaP	568	green diffused	*1.8	*8	40°	

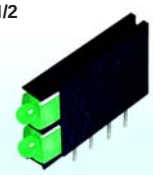
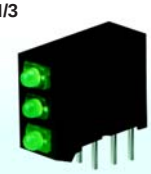
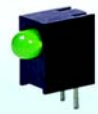




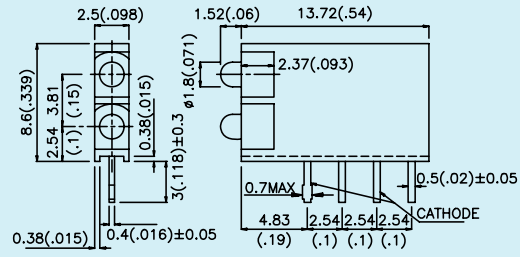


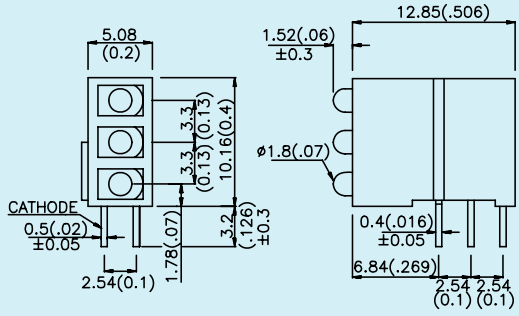


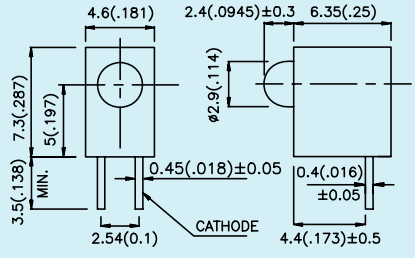
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.
3. Parts with different 6V, 12V & 24V internal resistor are available.
   Please check with our sales offices worldwide.

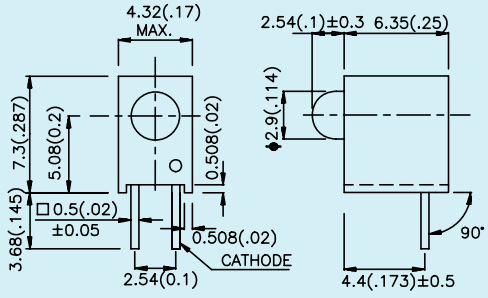
L-4060VH/2	L-4060XH/3	L-710A8CB/1	L-7104EW/1
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-4060VH/2ID	GaAsP/GaP	625	red diffused	8	15	70°	1.8mm Bi-Level
L-4060VH/2SRD	GaAlAs	640	red diffused	*70	*200	70°	
L-4060VH/2YD	GaAsP/GaP	588	yellow diffused	1.8	5	70°	
L-4060VH/2GD	GaP	568	green diffused	5	10	70°	
L-4060XH/3ID	GaAsP/GaP	625	red diffused	8	15	70°	1.8mm Tri-Level
L-4060XH/3SRD	GaAlAs	640	red diffused	*70	*200	70°	
L-4060XH/3YD	GaAsP/GaP	588	yellow diffused	1.8	5	70°	
L-4060XH/3GD	GaP	568	green diffused	5	10	70°	
L-710A8CB/1ID	GaAsP/GaP	625	red diffused	12	25	40°	T-1 (3mm) Right Angle
L-710A8CB/1SRD	GaAlAs	640	red diffused	*110	*280	40°	
L-710A8CB/1YD	GaAsP/GaP	588	yellow diffused	5	12	40°	
L-710A8CB/1GD	GaP	568	green diffused	8	20	40°	
L-7104EW/1ID	GaAsP/GaP	625	red diffused	12	25	40°	T-1 (3mm) Right Angle
L-7104EW/1SRD	GaAlAs	640	red diffused	*110	*280	40°	
L-7104EW/1YD	GaAsP/GaP	588	yellow diffused	5	12	40°	
L-7104EW/1GD	GaP	568	green diffused	8	20	40°	

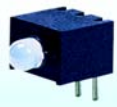
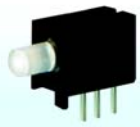






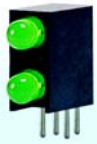
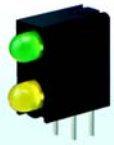
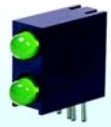
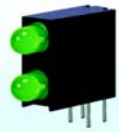


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-710A8RS/1	L-7104ZH/1	L-130WDT/1	L-42WUM/1
			

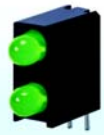
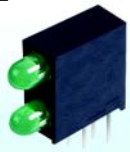
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-710A8RS/1ID	GaAsP/GaP	625	red diffused	12	25	40°	T-1 (3mm) Right Angle
L-710A8RS/1SRD	GaAlAs	640	red diffused	*110	*280	40°	
L-710A8RS/1YD	GaAsP/GaP	588	yellow diffused	5	12	40°	
L-710A8RS/1GD	GaP	568	green diffused	8	20	40°	
L-7104ZH/1ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Right Angle
L-7104ZH/1SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104ZH/1YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104ZH/1GD	GaP	568	green diffused	8	20	40°	
L-130WDT/1EGW	GaAsP/GaP	625	white diffused	*7	*30	60°	T-1 (3mm) Right Angle
	GaP	568		*7	*25		
L-130WDT/1EYW	GaAsP/GaP	625	white diffused	*7	*30	60°	
	GaAsP/GaP	588		*7	*20		
L-130WDT/1GYW	GaP	568	white diffused	*7	*25	60°	
	GaAsP/GaP	588		*7	*20		
L-42WUM/1EGWT	GaAsP/GaP	625	white diffused	*4	*13	100°	T-1 (3mm) Right Angle
	GaP	568		*4	*13		
L-42WUM/1EYWT	GaAsP/GaP	625	white diffused	*4	*13	100°	
	GaAsP/GaP	588		*2.6	*6		
L-42WUM/1GYWT	GaP	568	white diffused	*4	*13	100°	
	GaAsP/GaP	588		*2.6	*6		

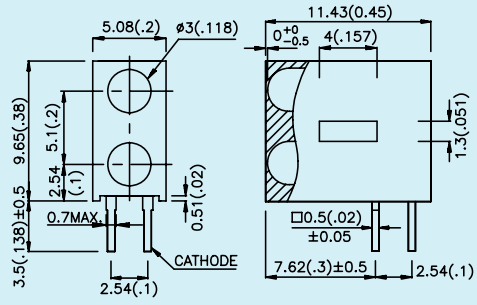
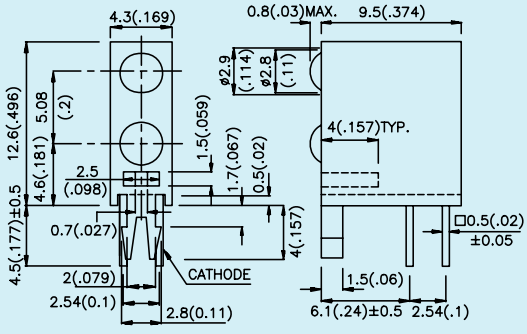
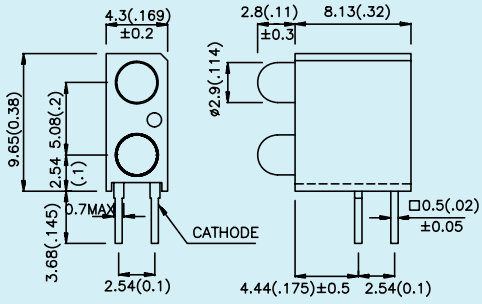
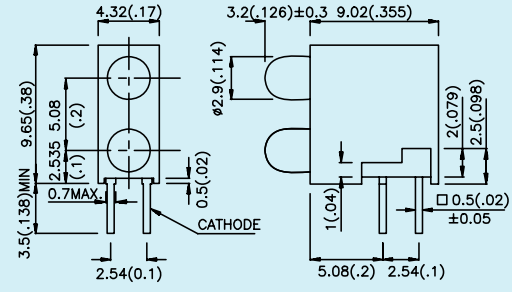
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-7104EB/2	L-7104FG/2	L-7104FO/2	L-7104GE/2
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-7104EB/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104EB/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104EB/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104EB/2GD	GaP	568	green diffused	8	20	40°	
L-7104FG/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104FG/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104FG/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104FG/2GD	GaP	568	green diffused	8	20	40°	
L-7104FO/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104FO/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104FO/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104FO/2GD	GaP	568	green diffused	8	20	40°	
L-7104GE/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104GE/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104GE/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104GE/2GD	GaP	568	green diffused	8	20	40°	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-7104GO/2	L-7104JQ/2	L-7104MD/2	L-7104RK/2
			

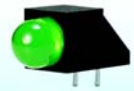
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-7104GO/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level 
L-7104GO/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104GO/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104GO/2GD	GaP	568	green diffused	8	20	40°	
L-7104JQ/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level 
L-7104JQ/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104JQ/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104JQ/2GD	GaP	568	green diffused	8	20	40°	
L-7104MD/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level 
L-7104MD/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104MD/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104MD/2GD	GaP	568	green diffused	8	20	40°	
L-7104RK/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level 
L-7104RK/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104RK/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104RK/2GD	GaP	568	green diffused	8	20	40°	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

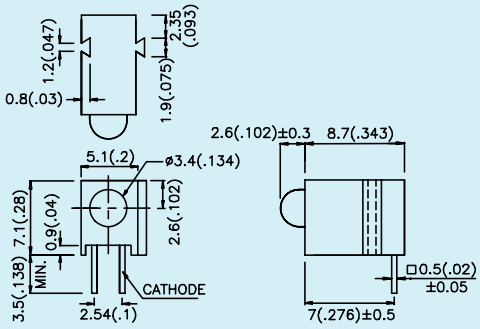
L-964ZM/2-RV	L-130WCP/2	L-7104SA/3	L-7104SB/4
			

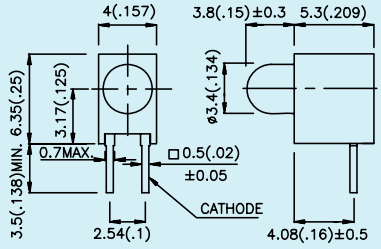
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-964ZM/2ID-RV	GaAsP/GaP	625	red diffused	8	20	60°	T-1 (3mm) Bi-Level
L-964ZM/2SRD-RV	GaAlAs	640	red diffused	*70	*250	60°	
L-964ZM/2YD-RV	GaAsP/GaP	588	yellow diffused	3	10	60°	
L-964ZM/2GD-RV	GaP	568	green diffused	5	15	60°	
L-130WCP/2EGW	GaAsP/GaP	625	white diffused	*7	*30	60°	T-1(3mm) Bi-Level
	GaP	568		*7	*25		
L-130WCP/2EYW	GaAsP/GaP	625	white diffused	*7	*30	60°	
	GaAsP/GaP	588		*7	*20		
L-130WCP/2GYW	GaP	568	white diffused	*7	*25	60°	
	GaAsP/GaP	588		*7	*20		
L-7104SA/3ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Tri-Level
L-7104SA/3SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104SA/3YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104SA/3GD	GaP	568	green diffused	8	20	40°	
L-7104SB/4ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Quad-Level
L-7104SB/4SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104SB/4YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104SB/4GD	GaP	568	green diffused	8	20	40°	

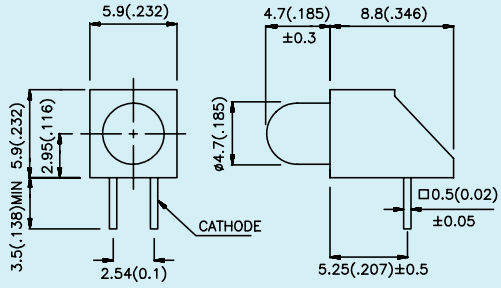
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

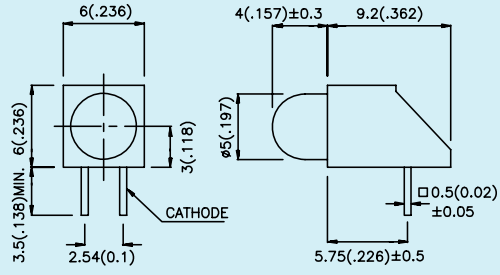
L-1384AL/1	L-1384AD/1	L-1533BQ/1	L-1503CB/1
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-1384AL/1ID	GaAsP/GaP	625	red diffused	12	20	60°	3.4mm Right Angle
L-1384AL/1SRD	GaAlAs	640	red diffused	*70	*200	60°	
L-1384AL/1YD	GaAsP/GaP	588	yellow diffused	8	15	60°	
L-1384AL/1GD	GaP	568	green diffused	8	15	60°	
L-1384AD/1ID	GaAsP/GaP	625	red diffused	12	20	60°	3.4mm Right Angle
L-1384AD/1SRD	GaAlAs	640	red diffused	*70	*200	60°	
L-1384AD/1YD	GaAsP/GaP	588	yellow diffused	8	15	60°	
L-1384AD/1GD	GaP	568	green diffused	8	15	60°	
L-1533BQ/1ID	GaAsP/GaP	625	red diffused	8	30	60°	4.7mm Right Angle
L-1533BQ/1SRD	GaAlAs	640	red diffused	*110	*400	60°	
L-1533BQ/1YD	GaAsP/GaP	588	yellow diffused	5	18	60°	
L-1533BQ/1GD	GaP	568	green diffused	5	20	60°	
L-1503CB/1ID	GaAsP/GaP	625	red diffused	8	30	60°	T-1 3/4 (5mm) Right Angle
L-1503CB/1SRD	GaAlAs	640	red diffused	*380	*700	60°	
L-1503CB/1YD	GaAsP/GaP	588	yellow diffused	5	20	60°	
L-1503CB/1GD	GaP	568	green diffused	5	20	60°	

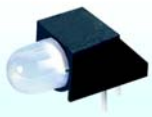
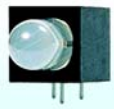
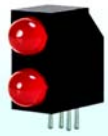








NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-150A9VS/1	L-59CB/1	L-59BL/1	L-73EB/2
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-150A9VS/1EGW	GaAsP/GaP	625	white diffused	*18	*50	30°	T-1 3/4 (5mm) Right Angle
	GaP	568		*10	*45		
L-150A9VS/1EYW	GaAsP/GaP	625	white diffused	*18	*50	30°	
	GaAsP/GaP	588		*7	*30		
L-150A9VS/1GYW	GaP	568	white diffused	*10	*45	30°	
	GaAsP/GaP	588		*7	*30		
L-59CB/1EGW	GaAsP/GaP	625	white diffused	*18	*60	60°	T-1 3/4 (5mm) Right Angle
	GaP	568		*18	*50		
L-59CB/1EYW	GaAsP/GaP	625	white diffused	*18	*60	60°	
	GaAsP/GaP	588		*18	*40		
L-59CB/1GYW	GaP	568	white diffused	*18	*50	60°	
	GaAsP/GaP	588		*18	*40		
L-59BL/1EGW	GaAsP/GaP	625	white diffused	*18	*60	60°	T-1 3/4 (5mm) Right Angle
	GaP	568		*18	*50		
L-59BL/1EYW	GaAsP/GaP	625	white diffused	*18	*60	60°	
	GaAsP/GaP	588		*18	*40		
L-59BL/1GYW	GaP	568	white diffused	*18	*50	60°	
	GaAsP/GaP	588		*18	*40		
L-73EB/2IDA	GaAsP/GaP	625	red diffused	8	30	60°	4.8mm Bi-Level
L-73EB/2SRDA	GaAlAs	640	red diffused	*110	*300	60°	
L-73EB/2YDA	GaAsP/GaP	588	yellow diffused	5	20	60°	
L-73EB/2GDA	GaP	568	green diffused	8	20	60°	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

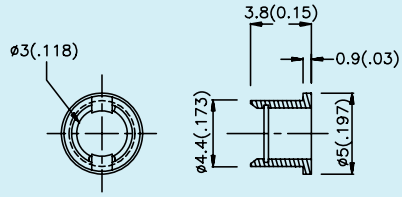
L-1503EB/2	L-7113BR	L-914CK/4
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-1503EB/2ID	GaAsP/GaP	625	red diffused	8	30	60°	T-1 3/4 (5mm) Bi-Level
L-1503EB/2SRD	GaAlAs	640	red diffused	*380	*700	60°	
L-1503EB/2YD	GaAsP/GaP	588	yellow diffused	5	20	60°	
L-1503EB/2GD	GaP	568	green diffused	5	20	60°	
L-7113BR-5.08/ID L-7113BR-6.35/ID L-7113BR-9.52/ID L-7113BR-17.8/ID L-7113BR-23.5/ID	GaAsP/GaP	625	red diffused	8	45	30°	T-1 3/4 (5mm) With Spacer
L-7113BR-5.08/SRD L-7113BR-6.35/SRD L-7113BR-9.52/SRD L-7113BR-17.8/SRD L-7113BR-23.5/SRD	GaAlAs	640	red diffused	*110	*300	30°	
L-7113BR-5.08/YD L-7113BR-6.35/YD L-7113BR-9.52/YD L-7113BR-17.8/YD L-7113BR-23.5/YD	GaAsP/GaP	588	yellow diffused	5	20	30°	
L-7113BR-5.08/GD L-7113BR-6.35/GD L-7113BR-9.52/GD L-7113BR-17.8/GD L-7113BR-23.5/GD	GaP	568	green diffused	5	20	30°	
L-7113BR-5.08/SGD L-7113BR-6.35/SGD L-7113BR-9.52/SGD L-7113BR-17.8/SGD L-7113BR-23.5/SGD	GaP	568	green diffused	*18	*40	30°	
L-914CK/4IDT	GaAsP/GaP	625	red diffused	1.8	8	100°	2mm x 3mm Quad-Level
L-914CK/4YDT	GaAsP/GaP	588	yellow diffused	1	4	100°	
L-914CK/4GDT	GaP	568	green diffused	1.8	6	100°	

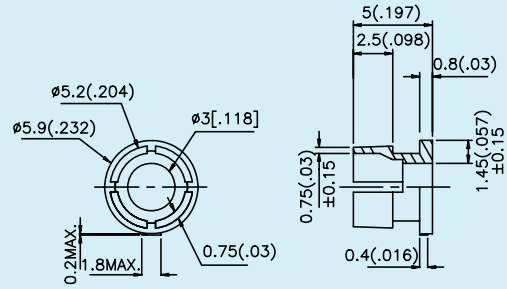
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

RTC-31	RTC-32	RTC-51	RTC-52	CB-30	CB-50	CB-55
						

RTC-31



CB-30



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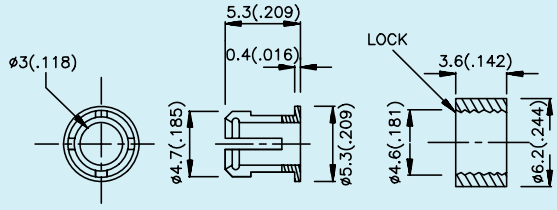
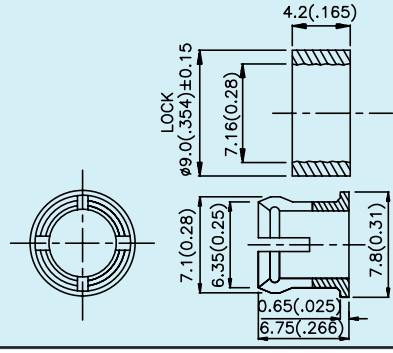
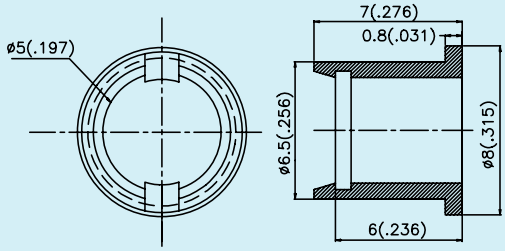


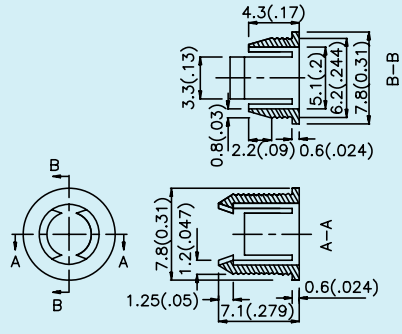
CB-50



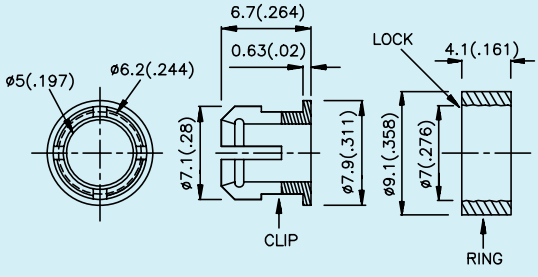
RTC-51



CB-55



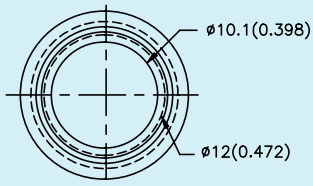
RTC-52

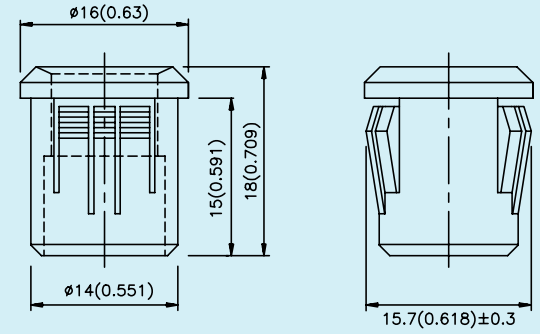


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

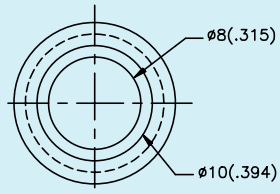
RTF-1090	RTF-8080	RTF-5010	RTF-5020
			

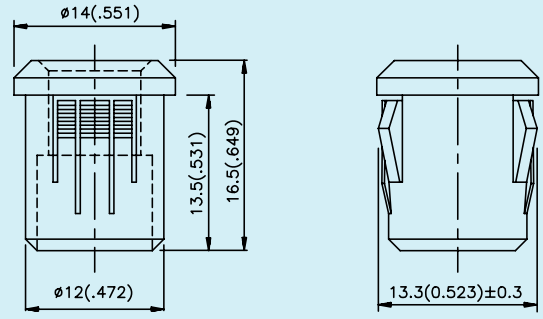
RTF-1090



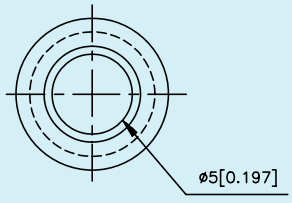


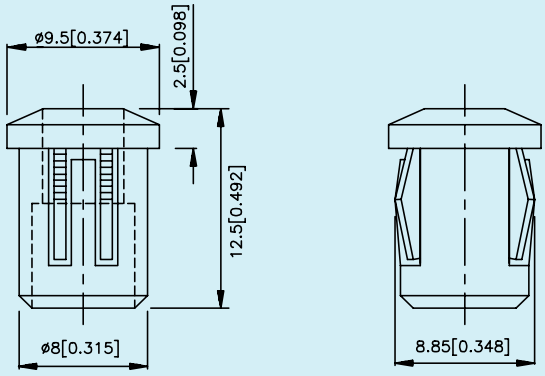
RTF-8080



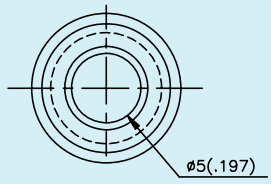


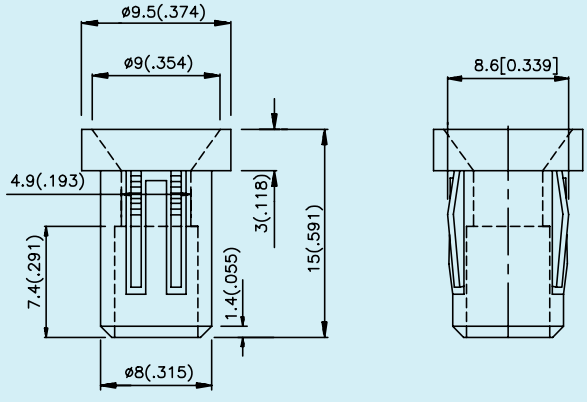
RTF-5010





RTF-5020



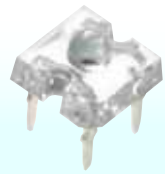


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

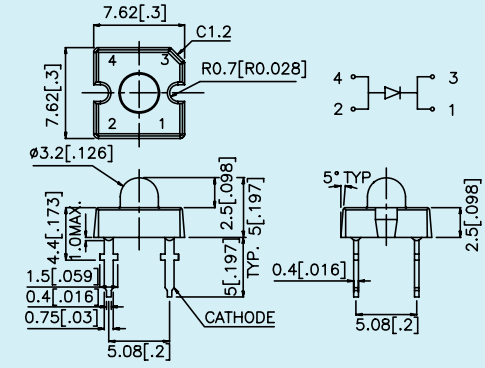
Kingbright

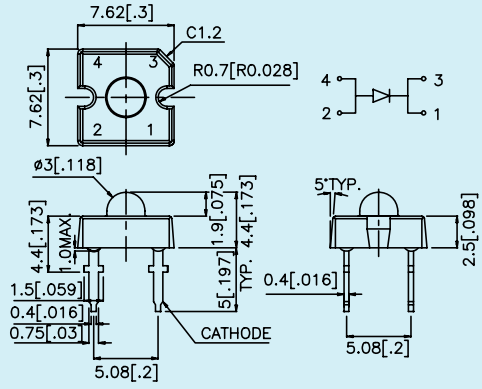
Optoelectronic Components

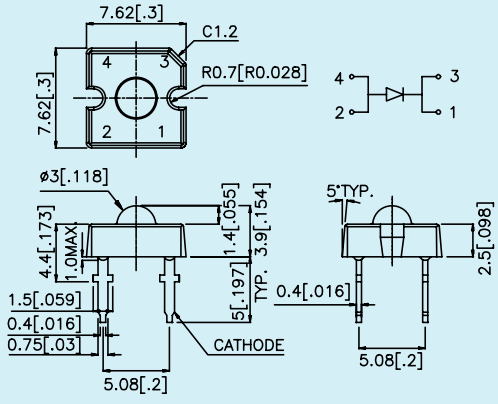
2007-2009

L-7677C2	L-7678C2	L-7679C1
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @70mA *50mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-7677C2SEC-H	InGaAlP	630	water clear	10000	20000	30°	7.62mm x 7.62mm
L-7677C2SYC-H	InGaAlP	589	water clear	1500	5000	30°	
L-7677C2SURC-G	InGaAlP	630	water clear	4700	8000	30°	
L-7677C2PBC-Z-DTS	InGaN	465	water clear	*5700	*9500	15°	
L-7677C2VGC-Z	InGaN	535	water clear	*10000	*25000	30°	
L-7678C2SEC-H	InGaAlP	630	water clear	7500	18000	40°	7.62mm x 7.62mm
L-7678C2SYC-H	InGaAlP	589	water clear	1200	4500	40°	
L-7678C2SURC-G	InGaAlP	630	water clear	2500	4500	40°	
L-7678C2PBC-Z-DTS	InGaN	465	water clear	*3300	*7000	30°	
L-7678C2VGC-Z	InGaN	535	water clear	*10000	*23000	40°	
L-7679C1SEC-H	InGaAlP	630	water clear	6500	8000	70°	7.62mm x 7.62mm
L-7679C1SYC-H	InGaAlP	589	water clear	1200	4000	70°	
L-7679C1SURC-G	InGaAlP	630	water clear	1800	3000	70°	
L-7679C1PBC-Z-DTS	InGaN	465	water clear	*900	*2500	50°	
L-7679C1VGC-Z	InGaN	535	water clear	*5700	*10000	70°	





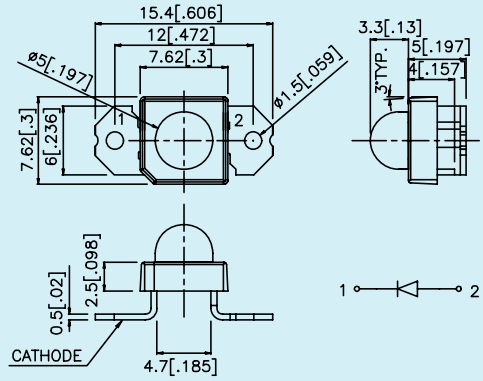


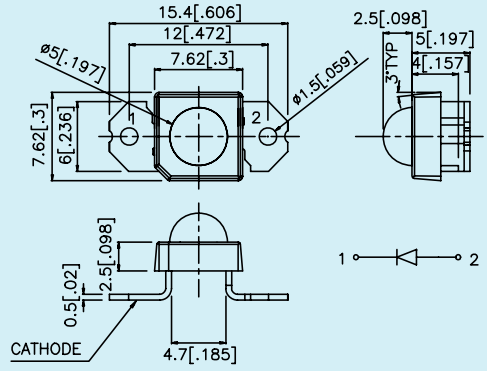
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-7700C4

L-7701C4

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @70mA *50mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-7700C4SEC-H	InGaAlP	630	water clear	6700	12000	30°	7.62mm x 7.62mm
L-7700C4SYC-H	InGaAlP	589	water clear	3300	5000	30°	
L-7700C4SURC-G	InGaAlP	630	water clear	4700	7000	30°	
L-7700C4PBC-Z-DTS	InGaN	465	water clear	*3800	*8000	25°	
L-7700C4VGC-Z	InGaN	535	water clear	*8000	*18000	30°	
L-7701C4SEC-H	InGaAlP	630	water clear	5700	10000	50°	7.62mm x 7.62mm
L-7701C4SYC-H	InGaAlP	589	water clear	2200	3700	50°	
L-7701C4SURC-G	InGaAlP	630	water clear	2800	4100	50°	
L-7701C4PBC-Z-DTS	InGaN	465	water clear	*1800	*3500	50°	
L-7701C4VGC-Z	InGaN	535	water clear	*5700	*9500	50°	

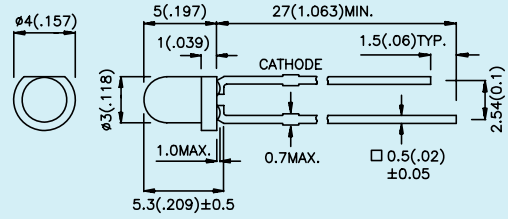


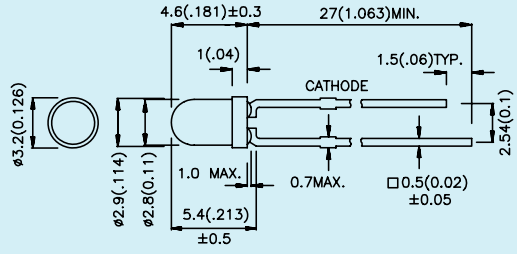


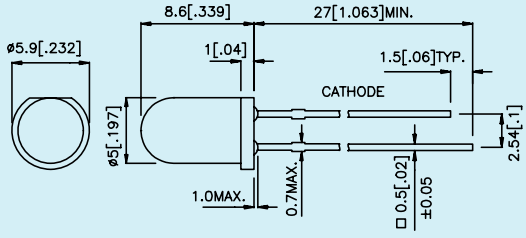
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-34F3C	L-7104F3C	L-7113F3C
		

Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA *50mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-34F3C	GaAs	940	water clear	1.6	10	50°	T-1 (3mm) Round
				*4	*20	50°	
L-34F3BT	GaAs	940	blue transparent	1.6	10	50°	
				*7	*20	50°	
L-34SF4C	GaAlAs	880	water clear	1.6	4	50°	
				*4	*20	50°	
L-34SF4BT	GaAlAs	880	blue transparent	1.6	4	50°	
				*7	*20	50°	
L-34SF6C	GaAlAs	860	water clear	7	15	50°	
				*10	*40	50°	
L-34SF6BT	GaAlAs	860	blue transparent	7	15	50°	
				*10	*40	50°	
L-34SF7C	GaAlAs	850	water clear	7	18	50°	
				*10	*45	50°	
L-34SF7BT	GaAlAs	850	blue transparent	7	18	50°	
				*10	*45	50°	
L-7104F3C	GaAs	940	water clear	7	30	34°	T-1 (3mm) Round
				*18	*80	34°	
L-7104F3BT	GaAs	940	blue transparent	7	28	34°	
				*18	*70	34°	
L-7113F3C	GaAs	940	water clear	7	20	20°	T-1 3/4 (5mm) Round
				*10	*30	20°	
L-7113F3BT	GaAs	940	blue transparent	4	20	20°	
				*7	*30	20°	
L-7113SF4C	GaAlAs	880	water clear	7	20	20°	
				*10	*30	20°	
L-7113SF4BT	GaAlAs	880	blue transparent	4	20	20°	
				*7	*30	20°	
L-7113SF6C	GaAlAs	860	water clear	10	40	20°	
				*50	*100	20°	
L-7113SF6BT	GaAlAs	860	blue transparent	10	40	20°	
				*50	*100	20°	
L- 7113SF7C	GaAlAs	850	water clear	10	40	20°	
				*50	*100	20°	
L-7113SF7BT	GaAlAs	850	blue transparent	10	40	20°	
				*50	*100	20°	





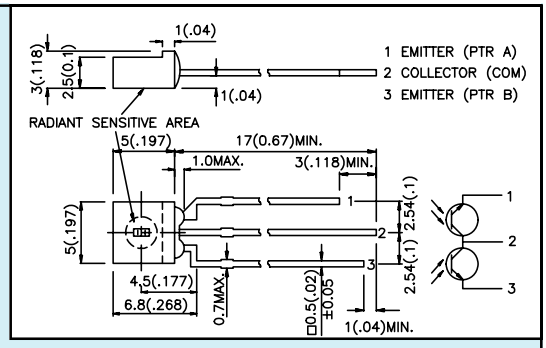


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-610MP4BT/BD	L-32P3C	L-7113P3C
		

PHOTOTRANSISTOR

L-610MP4BT/BD NPN BLACK PLASTIC PHOTOTRANSISTOR



ELECTRICAL AND RADIANT CHARACTERISTICS T_A=25°C

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Condition
$V_{BR\,CEO}$	Collector-to-Emitter Breakdown Voltage	30	-	-	V	I_C=100μA Ee=0mW/cm²
$V_{BR\,ECO}$	Emitter-to-Collector Breakdown Voltage	5	-	-	V	I_E=100μA Ee=0mW/cm²
$V_{CE\,(SAT)}$	Collector-to-Emitter Saturation Voltage	-	-	0.4	V	I_C=500μA Ee=5mW/cm²
I_{CEO}	Collector Dark Current	-	-	100	nA	V_{CE}=10V Ee=0mW/cm²
T_R	Rise Time (10% to 90%)	-	16	-	μs	V_{CE}=5V I_C=1mA R_L=1KΩ
T_F	Fall Time (90% to 10%)	-	18	-	μs	
$I_{(ON)}$	On State Collector Current	0.1	0.5	-	mA	V_{CE}=5V, Ee=1mW/cm², λ=940nm
R	Collector Current Ratio of 2 Phototransistor	0.8	1	1.25		Ic (on) (a) / Ic (on) (b)

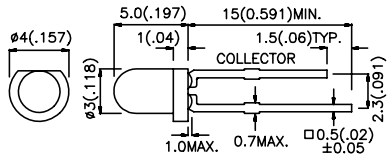
ABSOLUTE MAXIMUM RATING T_A=25°C

Parameter	Max. Ratings
Collector-to-Emitter Voltage	30V
Emitter-to-Collector Voltage	5V
Power Dissipation at (or below) 25°C Free Air Temperature	100mW
Operating Temperature Range	-55°C ~ +100°C
Storage Temperature Range	-55°C ~ +100°C
Lead Soldering Temperature (>5mm For 5sec)	260°C

T-1 (3mm) PHOTOTRANSISTOR

L-32P3C WATER CLEAR LENS

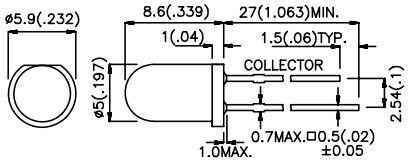
L-32P3C



T-1 3/4 (5mm) PHOTOTRANSISTOR

L-7113P3C WATER CLEAR LENS

L-7113P3C



ELECTRICAL AND RADIANT CHARACTERISTICS T_A=25°C

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Condition
$V_{BR\,CEO}$	Collector-to-Emitter Breakdown Voltage	30	-	-	V	I_C=100μA Ee=0mW/cm²
$V_{BR\,ECO}$	Emitter-to-Collector Breakdown Voltage	5	-	-	V	I_E=100μA Ee=0mW/cm²
$V_{CE\,(SAT)}$	Collector-to-Emitter Saturation Voltage	-	-	0.8	V	I_C=2mA Ee=20mW/cm²
I_{CEO}	Collector Dark Current	-	-	100	nA	V_{CE}=10V Ee=0mW/cm²
T_R	Rise Time (10% to 90%)	-	15	-	μs	V_{CE}=5V I_C=1mA R_L=1KΩ
T_F	Fall Time (90% to 10%)	-	15	-	μs	
$I_{(ON)}$	On State Collector Current	0.1	0.5	-	mA	V_{CE}=5V, Ee=1mW/cm², λ=940nm

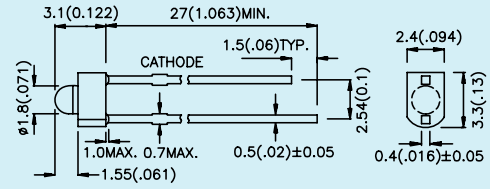
ABSOLUTE MAXIMUM RATING T_A=25°C

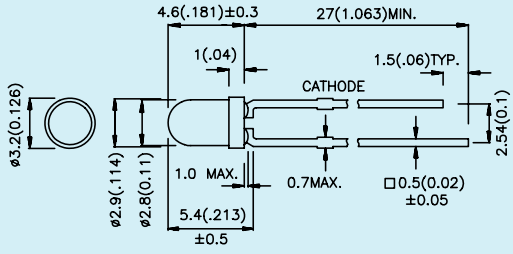
Parameter	Max. Ratings
Collector-to-Emitter Voltage	30V
Emitter-to-Collector Voltage	5V
Power Dissipation at (or below) 25°C Free Air Temperature	100mW
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C
Lead Soldering Temperature (>5mm For 5sec)	260°C

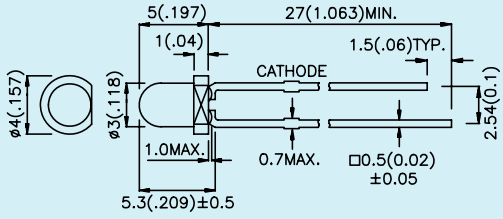
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

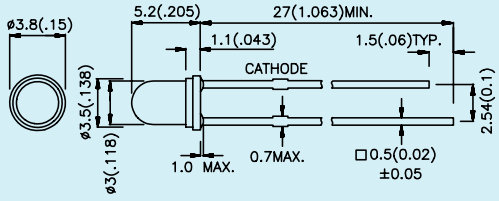
L-2060	L-7104	L-1154	L-132X
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-2060ID	GaAsP/GaP	625	red diffused	8	15	70°	1.8mm Round
L-2060SRD	GaAlAs	640	red diffused	*70	*200	70°	
L-2060SRC	GaAlAs	640	water clear	*110	*300	30°	
L-2060ED	GaAsP/GaP	625	orange diffused	8	15	70°	
L-2060YD	GaAsP/GaP	588	yellow diffused	5	8	70°	
L-2060GD	GaP	568	green diffused	5	10	70°	
L-7104ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Round
L-7104IT	GaAsP/GaP	625	red transparent	18	60	34°	
L-7104EC	GaAsP/GaP	625	water clear	18	60	34°	
L-7104ED	GaAsP/GaP	625	orange diffused	8	20	40°	
L-7104ND	GaAsP/GaP	610	orange diffused	8	30	40°	
L-7104NT	GaAsP/GaP	610	orange transparent	18	50	34°	
L-7104NC	GaAsP/GaP	610	water clear	18	50	34°	
L-7104YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104YT	GaAsP/GaP	588	yellow transparent	8	30	34°	
L-7104YC	GaAsP/GaP	588	water clear	8	30	34°	
L-7104GD	GaP	568	green diffused	8	20	40°	
L-7104GT	GaP	568	green transparent	18	60	34°	
L-7104GC	GaP	568	water clear	18	60	34°	
L-7104PGD	GaP	555	green diffused	1.8	5	40°	
L-7104PGT	GaP	555	green transparent	3	15	34°	
L-7104PGC	GaP	555	water clear	3	15	34°	
L-1154ID	GaAsP/GaP	625	red diffused	8	25	60°	T-1 (3mm) Round
L-1154IT	GaAsP/GaP	625	red transparent	18	60	50°	
L-1154ND	GaAsP/GaP	610	orange diffused	8	30	60°	
L-1154NT	GaAsP/GaP	610	orange transparent	18	50	50°	
L-1154YD	GaAsP/GaP	588	yellow diffused	5	15	60°	
L-1154YT	GaAsP/GaP	588	yellow transparent	8	20	50°	
L-1154GD	GaP	568	green diffused	8	15	60°	
L-1154GT	GaP	568	green transparent	18	40	50°	
L-1154PGD	GaP	555	green diffused	1.8	5	60°	
L-1154PGT	GaP	555	green transparent	3	10	50°	
L-132XID	GaAsP/GaP	625	red diffused	8	25	60°	T-1 (3mm) Round
L-132XIT	GaAsP/GaP	625	red transparent	18	60	50°	
L-132XND	GaAsP/GaP	610	orange diffused	8	30	60°	
L-132XNT	GaAsP/GaP	610	orange transparent	18	50	50°	
L-132XNC	GaAsP/GaP	610	water clear	18	50	50°	
L-132XYD	GaAsP/GaP	588	yellow diffused	5	15	60°	
L-132XYT	GaAsP/GaP	588	yellow transparent	8	20	50°	
L-132XYC	GaAsP/GaP	588	water clear	8	20	50°	
L-132XGD	GaP	568	green diffused	8	15	60°	
L-132XGT	GaP	568	green transparent	12	40	50°	
L-132XGC	GaP	568	water clear	12	40	50°	
L-132XPGD	GaP	555	green diffused	1.8	5	60°	
L-132XPGT	GaP	555	green transparent	3	10	50°	
L-132XPGC	GaP	555	water clear	3	15	50°	





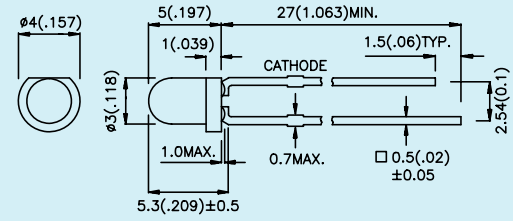


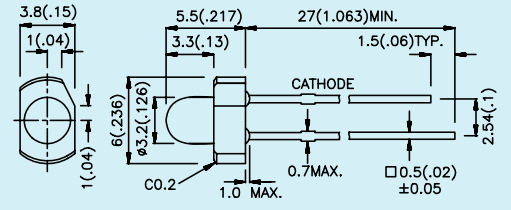


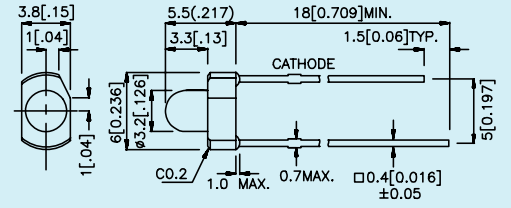
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

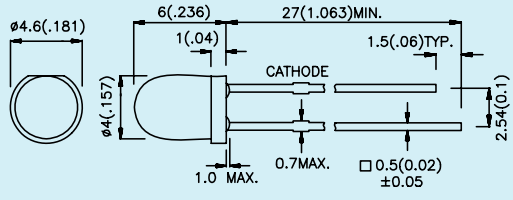
L-34	L-174X	L-174A2	L-43	L-1503
				

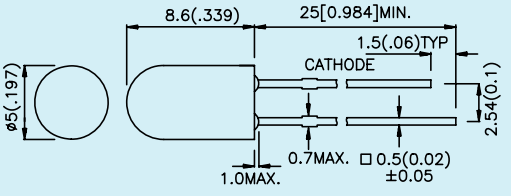
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA Min.	Iv (mcd) @10mA *20mA Typ.	Viewing Angle 2θ1/2	Dimension
L-34HD	GaP	660	red diffused	1	3	60°	T-1 (3mm) Round
L-34ID	GaAsP/GaP	625	red diffused	8	25	60°	
L-34YD	GaAsP/GaP	588	yellow diffused	1.8	6	60°	
L-34AD	GaAsP/GaP	588	amber diffused	3	12	60°	
L-34GD	GaP	568	green diffused	5	20	60°	
L-174XHT	GaP	660	red transparent	1.8	5	35°	3.2mm Round
L-174XIT	GaAsP/GaP	625	red transparent	8	30	35°	
L-174XSRT	GaAlAs	640	red transparent	*110	*400	35°	
L-174XYT	GaAsP/GaP	588	yellow transparent	8	30	35°	
L-174XGT	GaP	568	green transparent	8	30	35°	
L-174A2HT	GaP	660	red transparent	1.8	6	35°	3.2mm Round
L-174A2IT	GaAsP/GaP	625	red transparent	28	90	35°	
L-174A2SRT	GaAlAs	640	red transparent	*380	*900	35°	
L-174A2YT	GaAsP/GaP	588	yellow transparent	18	35	35°	
L-174A2GT	GaP	568	green transparent	12	40	35°	
L-43HD	GaP	660	red diffused	0.7	2	80°	4mm Round
L-43ID	GaAsP/GaP	625	red diffused	5	15	80°	
L-43YD	GaAsP/GaP	588	yellow diffused	3	10	80°	
L-43GD	GaP	568	green diffused	3	12	80°	
L-1503ID	GaAsP/GaP	625	red diffused	8	30	60°	T-1 3/4 (5mm) Round
L-1503IT	GaAsP/GaP	625	red transparent	28	80	30°	
L-1503EC	GaAsP/GaP	625	water clear	28	80	30°	
L-1503SRC-D	GaAlAs	640	water clear	*900	*1500	30°	
L-1503SRD	GaAlAs	640	red diffused	*380	*700	60°	
L-1503YD	GaAsP/GaP	588	yellow diffused	5	20	60°	
L-1503YT	GaAsP/GaP	588	yellow transparent	18	40	30°	
L-1503YC	GaAsP/GaP	588	water clear	18	40	30°	
L-1503GD	GaP	568	green diffused	5	20	60°	
L-1503GT	GaP	568	green transparent	18	60	30°	
L-1503GC	GaP	568	water clear	18	60	30°	
L-1503SGC	GaP	568	water clear	*70	*200	30°	
L-1503SGT	GaP	568	green transparent	*70	*150	30°	







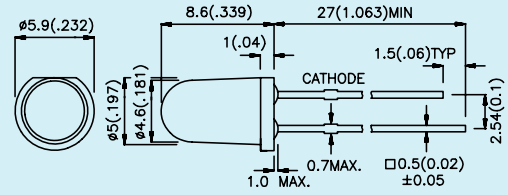


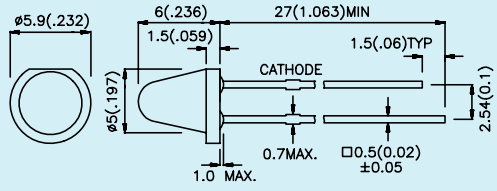


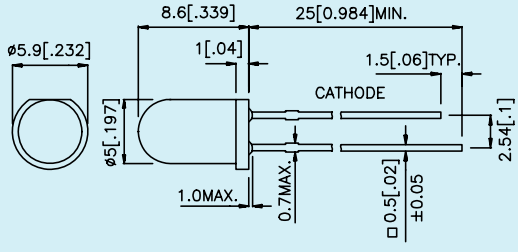
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

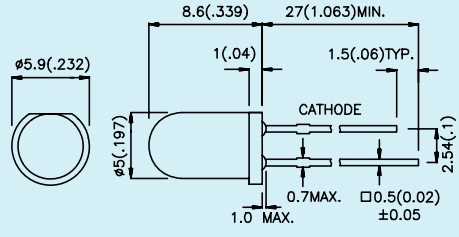
L-1513	L-63	L-7143	L-7113
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-1513IT	GaAsP/GaP	625	red transparent	40	80	20°	T-1 3/4 (5mm) Round
L-1513EC	GaAsP/GaP	625	water clear	40	80	20°	
L-1513SURC	InGaAlP	628	water clear	*1200	*1800	20°	
L-1513SURC-E	InGaAlP	630	water clear	*1500	*2200	20°	
L-1513YT	GaAsP/GaP	588	yellow transparent	18	40	20°	
L-1513YC	GaAsP/GaP	588	water clear	18	40	20°	
L-1513GT	GaP	568	green transparent	18	50	20°	
L-1513GC	GaP	568	water clear	18	50	20°	
L-63ID	GaAsP/GaP	625	red diffused	12	20	60°	T-1 3/4 (5mm) Round
L-63IT	GaAsP/GaP	625	red transparent	28	50	30°	
L-63SRD	GaAlAs	640	red diffused	*110	*300	60°	
L-63SRT	GaAlAs	640	red transparent	*280	*600	30°	
L-63SRC	GaAlAs	640	water clear	*180	*700	30°	
L-63YD	GaAsP/GaP	588	yellow diffused	1.8	6	60°	
L-63YT	GaAsP/GaP	588	yellow transparent	18	35	30°	
L-63GD	GaP	568	green diffused	5	12	60°	
L-63GT	GaP	568	green transparent	18	40	30°	
L-7143SRC-C	GaAlAs	640	water clear	*380	*600	30°	T-1 3/4 (5mm) Round
L-7143SRC-D	GaAlAs	640	water clear	*650	*900	30°	
L-7143SGC	GaP	568	water clear	*70	*150	30°	
L-7113ID	**GaAsP/GaP**	**625**	**red diffused**	**8**	**45**	**30°**	T-1 3/4 (5mm) Round
L-7113IT	GaAsP/GaP	625	red transparent	28	80	20°	
L-7113EC	GaAsP/GaP	625	water clear	28	80	20°	
L-7113ED	GaAsP/GaP	625	orange diffused	8	25	30°	
L-7113ND	GaAsP/GaP	610	orange diffused	12	30	30°	
L-7113NT	GaAsP/GaP	610	orange transparent	40	80	20°	
L-7113NC	GaAsP/GaP	610	water clear	40	80	20°	
L-7113YD	GaAsP/GaP	588	yellow diffused	5	20	30°	
L-7113YT	GaAsP/GaP	588	yellow transparent	18	40	20°	
L-7113YC	GaAsP/GaP	588	water clear	18	40	20°	
L-7113GD	GaP	568	green diffused	5	20	30°	
L-7113GT	GaP	568	green transparent	18	60	20°	
L-7113GC	GaP	568	water clear	18	60	20°	
L-7113PGD	GaP	555	green diffused	1.8	5	30°	
L-7113PGT	GaP	555	green transparent	5	10	20°	
L-7113PGC	GaP	555	water clear	5	10	20°	









NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-793	L-813	L-374A2	L-5603
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-793ID	GaAsP/GaP	625	red diffused	*36	*100	30°	8mm Round
L-793SRC-D	GaAlAs	640	water clear	*1500	*1700	15°	
L-793SRC-E	GaAlAs	640	water clear	*1800	*2700	15°	
L-793SRD-C	GaAlAs	640	red diffused	*180	*250	30°	
L-793SRD-D	GaAlAs	640	red diffused	*280	*350	30°	
L-793SRD-E	GaAlAs	640	red diffused	*380	*450	30°	
L-793ED	GaAsP/GaP	625	orange diffused	*36	*100	30°	
L-793YD	GaAsP/GaP	588	yellow diffused	*18	*50	30°	
L-793GD	GaP	568	green diffused	*18	*60	30°	
L-813ID	GaAsP/GaP	625	red diffused	*36	*100	30°	10mm Round
L-813SRC-D	GaAlAs	640	water clear	*1500	*1700	15°	
L-813SRD-C	GaAlAs	640	red diffused	*180	*250	30°	
L-813SRD-D	GaAlAs	640	red diffused	*280	*350	30°	
L-813SRD-E	GaAlAs	640	red diffused	*380	*450	30°	
L-813ED	GaAsP/GaP	625	orange diffused	*36	*100	30°	
L-813YD	GaAsP/GaP	588	yellow diffused	*10	*50	30°	
L-813GD	GaP	568	green diffused	*18	*60	30°	
L-374A2IT	GaAsP/GaP	625	red transparent	8	20	60°(H) 55°(V)	3.6mm x 3.1mm Oval
L-374A2AT	GaAsP/GaP	588	amber transparent	3	9	60°(H) 55°(V)	
L-374A2YT	GaAsP/GaP	588	yellow transparent	3	10	60°(H) 55°(V)	
L-374A2GT	GaP	568	green transparent	5	15	60°(H) 55°(V)	
L-5603SIDL/SD-H	InGaAlP	630	red semi diffused	*650	*2500	100°(H) 50°(V)	5.2mm Oval
L-5603SYDL/SD-H	InGaAlP	589	yellow semi diffused	*380	*750	100°(H) 50°(V)	
L-5603VGDL/SD-Z	InGaN	535	green semi diffused	*2800	*6000	100°(H) 50°(V)	
L-5603PBDL/SD-Z -DTS	InGaN	465	blue semi diffused	*480	*1100	90°(H) 30°(V)	

NOTES:
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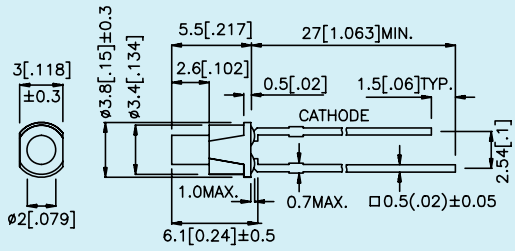
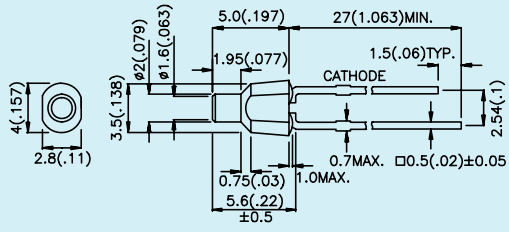
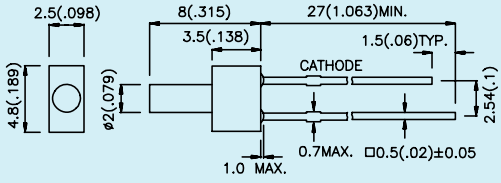
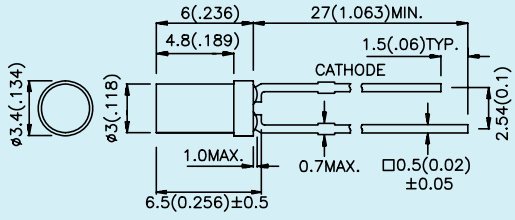
L-1394	L-1034	L-13	L-424
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-1394HDT	GaP	660	red diffused	0.4	1	120°	2mm Flat Top
L-1394IDT	GaAsP/GaP	625	red diffused	5	8	120°	
L-1394YDT	GaAsP/GaP	588	yellow diffused	1.8	5	120°	
L-1394GDT	GaP	568	green diffused	3	5	120°	
L-1034HDT	GaP	660	red diffused	0.4	1	70°	2mm Flat Top
L-1034IDT	GaAsP/GaP	625	red diffused	3	8	70°	
L-1034YDT	GaAsP/GaP	588	yellow diffused	1.8	5	70°	
L-1034GDT	GaP	568	green diffused	1.8	6	70°	
L-13HD	GaP	660	red diffused	0.4	1.5	70°	2mm Flat Top
L-13ID	GaAsP/GaP	625	red diffused	5	10	70°	
L-13YD	GaAsP/GaP	588	yellow diffused	3	8	70°	
L-13GD	GaP	568	green diffused	3	10	70°	
L-424HDT	GaP	660	red diffused	0.4	1	100°	T-1 (3mm) Cylindrical
L-424IDT	GaAsP/GaP	625	red diffused	3	5	100°	
L-424SRDT	GaAlAs	640	red diffused	*36	*100	100°	
L-424EDT	GaAsP/GaP	625	orange diffused	3	5	100°	
L-424YDT	GaAsP/GaP	588	yellow diffused	1	4	100°	
L-424GDT	GaP	568	green diffused	1	4	100°	









NOTES:
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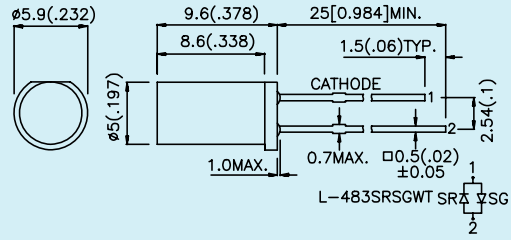
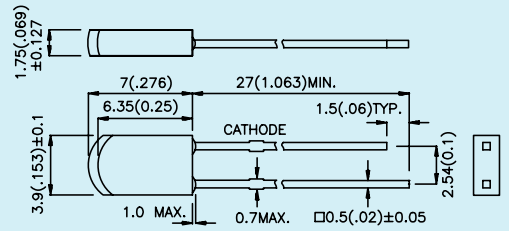
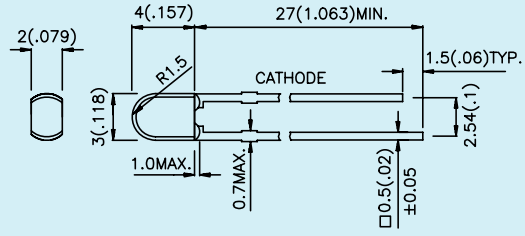
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

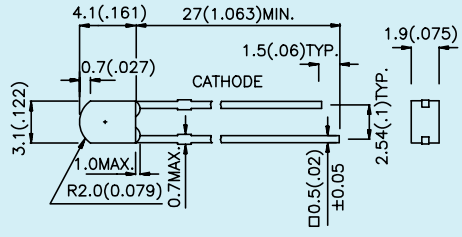
L-483	L-2773	L-2914	L-292X	L-144
				

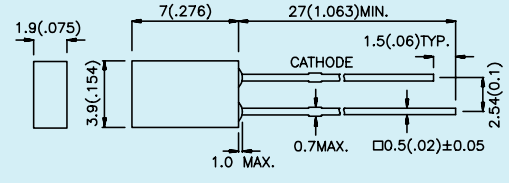
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-483HDT	GaP	660	red diffused	0.4	1	100°	T-1 3/4 (5mm) Cylindrical
L-483IDT	GaAsP/GaP	625	red diffused	1.8	5	100°	
L-483EDT	GaAsP/GaP	625	orange diffused	3	7	100°	
L-483YDT	GaAsP/GaP	588	yellow diffused	0.7	3	100°	
L-483GDT	GaP	568	green diffused	1	4	100°	
L-483SRSGW	GaAlAs	640	white diffused	*18	*50	80°	
	GaP	568		*4	*10		
L-2773HD	GaP	660	red diffused	0.7	2	100°	1.75mm x 3.9mm Rectangular
L-2773ID	GaAsP/GaP	625	red diffused	5	10	100°	
L-2773ED	GaAsP/GaP	625	orange diffused	5	10	100°	
L-2773ND	GaAsP/GaP	610	orange diffused	5	8	100°	
L-2773YD	GaAsP/GaP	588	yellow diffused	3	8	100°	
L-2773GD	GaP	568	green diffused	3	10	100°	
L-2914ID	GaAsP/GaP	625	red diffused	12	25	50°	2mm x 3mm Rectangular
L-2914YD	GaAsP/GaP	588	yellow diffused	5	13	50°	
L-2914GD	GaP	568	green diffused	5	15	50°	
L-292XGD	GaP	568	green diffused	5	12	110°	1.9mm x 3.1mm Rectangular
L-292XGT	GaP	568	green transparent	5	14	90°	
L-292XIT	GaAsP/GaP	625	red transparent	5	14	90°	
L-292XYD	GaAsP/GaP	588	yellow diffused	1.8	8	110°	
L-292XYT	GaAsP/GaP	588	yellow transparent	1.8	9	90°	
L-144HDT	GaP	660	red diffused	0.4	1	110°	1.9mm x 3.9mm Rectangular
L-144IDT	GaAsP/GaP	625	red diffused	3	6	110°	
L-144SRDT	GaAlAs	640	red diffused	*36	*70	110°	
L-144EDT	GaAsP/GaP	625	orange diffused	3	6	110°	
L-144YDT	GaAsP/GaP	588	yellow diffused	1	3	110°	
L-144GDT	GaP	568	green diffused	1	4	110°	





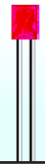






NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

RECTANGULAR LED LAMPS

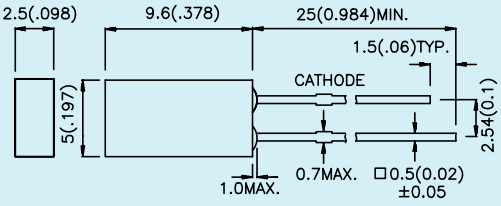
L-914	L-169X	L-91A7	L-103	L-113
				

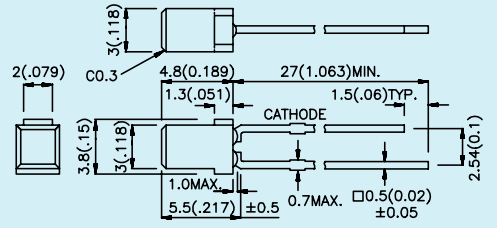
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-914HDT	GaP	660	red diffused	0.2	1	100°	2mm x 3mm Rectangular
L-914HT	GaP	660	red transparent	0.4	1	90°	
L-914IDT	GaAsP/GaP	625	red diffused	1.8	8	100°	
L-914IT	GaAsP/GaP	625	red transparent	3	8	90°	
L-914EDT	GaAsP/GaP	625	orange diffused	1.8	8	100°	
L-914ET	GaAsP/GaP	625	orange transparent	3	8	90°	
L-914ADT	GaAsP/GaP	588	amber diffused	1.8	5	100°	
L-914AT	GaAsP/GaP	588	amber transparent	1.8	7	90°	
L-914GDT	GaP	568	green diffused	1.8	6	100°	
L-914GT	GaP	568	green transparent	3	8	90°	
L-914PGT	GaP	555	green transparent	0.4	1	90°	
L-169XHD	GaP	660	red diffused	1	3	60°	2mm x 3mm Rectangular
L-169XHT	GaP	660	red transparent	1.8	5	50°	
L-169XID	GaAsP/GaP	625	red diffused	8	15	60°	
L-169XIT	GaAsP/GaP	625	red transparent	12	30	50°	
L-169XYD	GaAsP/GaP	588	yellow diffused	5	10	60°	
L-169XYT	GaAsP/GaP	588	yellow transparent	5	15	50°	
L-169XAT	GaAsP/GaP	588	amber transparent	5	15	50°	
L-169XGD	GaP	568	green diffused	5	15	60°	
L-169XGT	GaP	568	green transparent	5	20	50°	
L-169XPGD	GaP	555	green diffused	1.8	5	60°	
L-169XPGTL	GaP	555	green transparent	3	8	50°	
L-91A7IDT	GaAsP/GaP	625	red diffused	3	8	60°	2mm x 3mm Rectangular
L-91A7YDT	GaAsP/GaP	588	yellow diffused	1	3.5	60°	
L-91A7GDT	GaP	568	green diffused	3	7	60°	
L-103HDT	GaP	660	red diffused	0.4	1	110°	2mm x 5mm Rectangular
L-103IDT	GaAsP/GaP	625	red diffused	1.8	5	110°	
L-103SRDT	GaAlAs	640	red diffused	*36	*80	110°	
L-103EDT	GaAsP/GaP	625	orange diffused	1.8	5	110°	
L-103YDT	GaAsP/GaP	588	yellow diffused	1	4	110°	
L-103GDT	GaP	568	green diffused	1.8	5	110°	
L-113HDT	GaP	660	red diffused	0.4	1	110°	2mm x 5mm Rectangular
L-113IDT	GaAsP/GaP	625	red diffused	3	5	110°	
L-113SRDT	GaAlAs	640	red diffused	*36	*80	110°	
L-113EDT	GaAsP/GaP	625	orange diffused	3	5	110°	
L-113YDT	GaAsP/GaP	588	yellow diffused	1	4	110°	
L-113GDT	GaP	568	green diffused	1.8	5	110°	
L-113SRSGWT	GaAlAs	640	white diffused	*36	*70	110°	
	GaP	568		*7	*10		

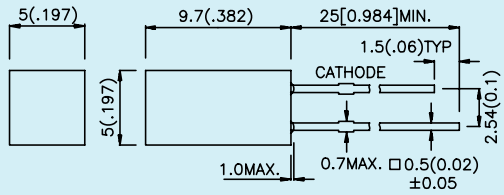
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

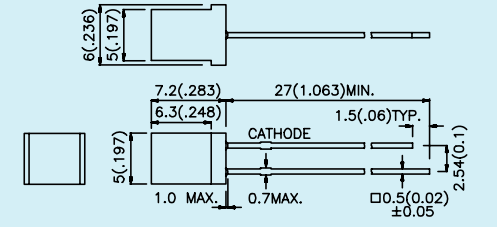
L-383	L-714	L-1553	L-503	DLX/6
				

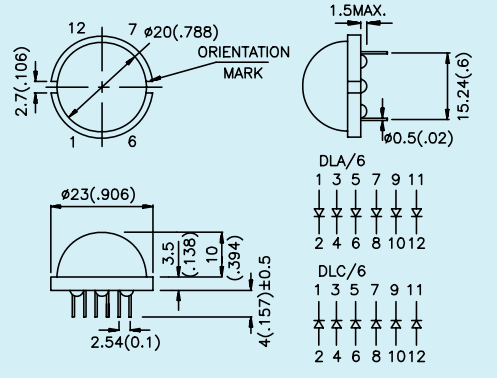
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-383HDT	GaP	660	red diffused	0.4	1	110°	2.5mm x 5mm Rectangular
L-383IDT	GaAsP/GaP	625	red diffused	3	5	110°	
L-383SRDT	GaAlAs	640	red diffused	*36	*70	110°	
L-383SRWT	GaAlAs	640	white diffused	*36	*70	110°	
L-383EDT	GaAsP/GaP	625	orange diffused	3	5	110°	
L-383YDT	GaAsP/GaP	588	yellow diffused	1	4	110°	
L-383GDT	GaP	568	green diffused	1	4	110°	
L-383SGWT	GaP	568	white diffused	*7	*15	110°	
L-714HDT	GaP	660	red diffused	0.4	1	110°	3mm x 3mm Square
L-714IDT	GaAsP/GaP	625	red diffused	3	5	110°	
L-714SRDT	GaAlAs	640	red diffused	*36	*70	110°	
L-714EDT	GaAsP/GaP	625	orange diffused	3	5	110°	
L-714YDT	GaAsP/GaP	588	yellow diffused	1	5	110°	
L-714GDT	GaP	568	green diffused	1	5	110°	
L-1553HDT	GaP	660	red diffused	0.4	1	110°	5mm x 5mm Square
L-1553IDT	GaAsP/GaP	625	red diffused	3	8	110°	
L-1553SRDT	GaAlAs	640	red diffused	*36	*80	110°	
L-1553EDT	GaAsP/GaP	625	orange diffused	3	8	110°	
L-1553YDT	GaAsP/GaP	588	yellow diffused	1	5	110°	
L-1553GDT	GaP	568	green diffused	1	5	110°	
L-503HDT	GaP	660	red diffused	0.4	1	110°	5mm x 5mm Square
L-503IDT	GaAsP/GaP	625	red diffused	3	6	110°	
L-503YDT	GaAsP/GaP	588	yellow diffused	1	3	110°	
L-503GDT	GaP	568	green diffused	1	3	110°	
DLA/6ID DLC/6ID	GaAsP/GaP	625	red diffused	12	50	120°	20mm
DLA/6SRD DLC/6SRD	GaAlAs	640	red diffused	*110	*400	120°	
DLA/6YD DLC/6YD	GaAsP/GaP	588	yellow diffused	12	50	120°	
DLA/6GD DLC/6GD	GaP	568	green diffused	18	80	120°	
DLA/6SGD DLC/6SGD	GaP	568	green diffused	*70	*200	120°	









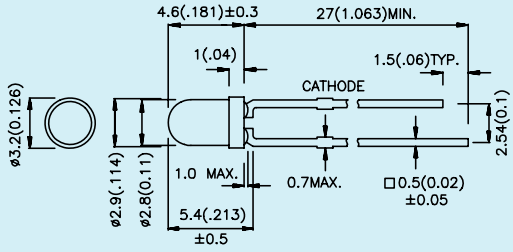


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

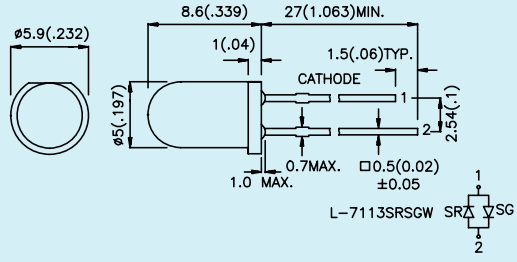
L-7104

L-7113

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-7104SRC-D	GaAlAs	640	water clear	480	600	34°	T-1 (3mm) Round
L-7104SRC-E	GaAlAs	640	water clear	650	800	34°	
L-7104SRD-D	GaAlAs	640	red diffused	110	150	40°	
L-7104SRD-E	GaAlAs	640	red diffused	180	250	40°	
L-7104SRD-F	GaAlAs	640	red diffused	280	350	40°	
L-7104SURC-E	InGaAlP	630	water clear	900	1300	34°	
L-7104SEC	InGaAlP	601	water clear	480	1300	34°	
L-7104SET	InGaAlP	601	orange transparent	480	1300	34°	
L-7104SED	InGaAlP	601	orange diffused	280	800	40°	
L-7104SEC-E	InGaAlP	621	water clear	900	2000	34°	
L-7104SEC-H	InGaAlP	630	water clear	1800	3500	34°	
L-7104SYC	InGaAlP	588	water clear	280	700	34°	
L-7104SYT	InGaAlP	588	yellow transparent	280	700	34°	
L-7104SYD	InGaAlP	588	yellow diffused	110	250	40°	
L-7104SYC-H	InGaAlP	589	water clear	480	900	34°	
L-7104SGC	GaP	568	water clear	70	150	34°	
L-7104SGD	GaP	568	green diffused	18	40	40°	
L-7104CGCK	InGaAlP	570	water clear	110	350	34°	
L-7104VGC-E	InGaN	525	water clear	1500	4000	34°	
L-7104PBD-A	InGaN	470	blue diffused	180	700	30°	
L-7104PBT-A	InGaN	470	blue transparent	180	800	20°	
L-7104PBC-A	InGaN	470	water clear	180	1000	20°	



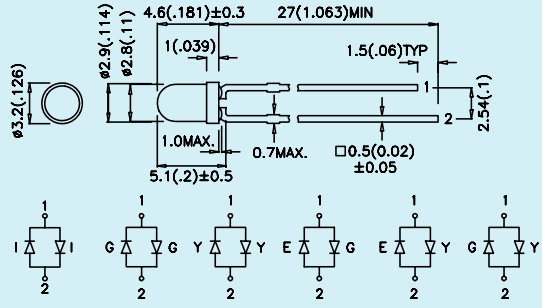
L-7113SRC-DU	GaAlAs	640	water clear	900	1100	20°	T-1 3/4 (5mm) Round
L-7113SRC-DV	GaAlAs	640	water clear	1200	1400	20°	
L-7113SRC-DW	GaAlAs	640	water clear	1500	1700	20°	
L-7113SRD-D	GaAlAs	640	red diffused	180	250	30°	
L-7113SRD-E	GaAlAs	640	red diffused	280	400	30°	
L-7113SRD-F	GaAlAs	640	red diffused	480	600	30°	
L-7113SURC	InGaAlP	628	water clear	1200	1400	20°	
L-7113SURC-E	InGaAlP	630	water clear	1500	2200	20°	
L-7113SEC	InGaAlP	601	water clear	650	2500	20°	
L-7113SET	InGaAlP	601	orange transparent	650	2500	20°	
L-7113SED	InGaAlP	601	orange diffused	380	800	30°	
L-7113SEC-E	InGaAlP	621	water clear	1500	5000	20°	
L-7113SEC-H	InGaAlP	630	water clear	3800	10000	20°	
L-7113SYC	InGaAlP	588	water clear	650	2000	20°	
L-7113SYT	InGaAlP	588	yellow transparent	650	2000	20°	
L-7113SYD	InGaAlP	588	yellow diffused	180	600	30°	
L-7113SYC-H	InGaAlP	589	water clear	1500	3300	20°	
L-7113SGC	GaP	568	water clear	70	200	20°	
L-7113SGD	GaP	568	green diffused	18	40	30°	
L-7113CGCK	InGaAlP	570	water clear	380	900	20°	
L-7113VGC-E	InGaN	525	water clear	2800	6000	20°	
L-7113PBD-A	InGaN	470	blue diffused	70	400	20°	
L-7113PBT-A	InGaN	470	blue transparent	280	450	16°	
L-7113PBC-A	InGaN	470	water clear	280	1000	16°	
L-7113SRSGW	GaAlAs	640	white diffused	110	200	35°	
	GaP	568		18	60		

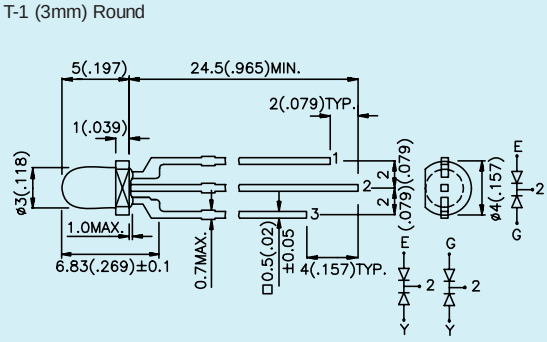


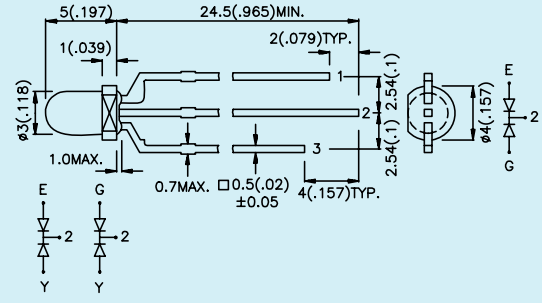
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

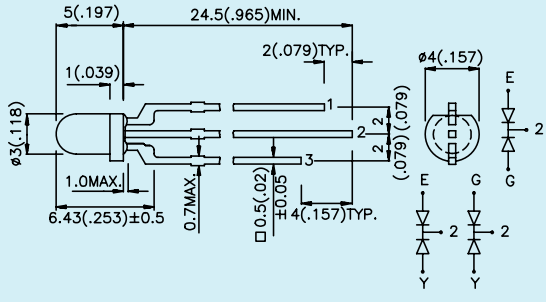
L-937	L-115V	L-115W	L-3V
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-937IID	GaAsP/GaP	625	red diffused	7	20	60°	T-1 (3mm) Round
	GaAsP/GaP	625		7	20		
L-937GGD	GaP	568	green diffused	4	15	60°	
	GaP	568		4	15		
L-937YYD	GaAsP/GaP	588	yellow diffused	4	10	60°	
	GaAsP/GaP	588		4	10		
L-937EGW	GaAsP/GaP	625	white diffused	7	20	60°	
	GaP	568		7	16		
L-937EYW	GaAsP/GaP	625	white diffused	7	20	60°	
	GaAsP/GaP	588		1.6	7		
L-937GYW	GaP	568	white diffused	7	16	60°	
	GaAsP/GaP	588		1.6	7		
L-115VEGW	GaAsP/GaP	625	white diffused	10	50	60°	T-1 (3mm) Round
	GaP	568		10	30		
L-115VEYW	GaAsP/GaP	625	white diffused	10	50	60°	
	GaAsP/GaP	588		7	15		
L-115VGYW	GaP	568	white diffused	10	30	60°	
	GaAsP/GaP	588		7	15		
L-115WEGW	GaAsP/GaP	625	white diffused	10	40	60°	T-1 (3mm) Round
	GaP	568		10	35		
L-115WEYW	GaAsP/GaP	625	white diffused	10	40	60°	
	GaAsP/GaP	588		7	20		
L-115WGYW	GaP	568	white diffused	10	35	60°	
	GaAsP/GaP	588		7	20		
L-3VEGW	GaAsP/GaP	625	white diffused	10	40	60°	T-1 (3mm) Round
	GaP	568		10	35		
L-3VEYW	GaAsP/GaP	625	white diffused	10	40	60°	
	GaAsP/GaP	588		7	15		
L-3VGYW	GaP	568	white diffused	10	35	60°	
	GaAsP/GaP	588		7	15		





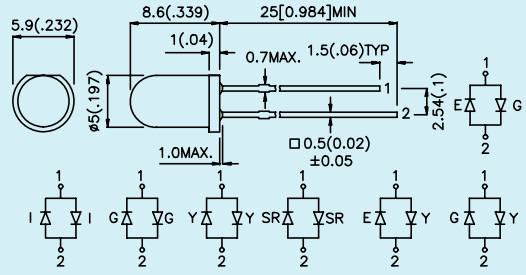


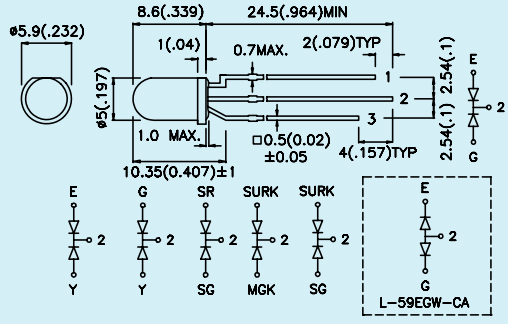


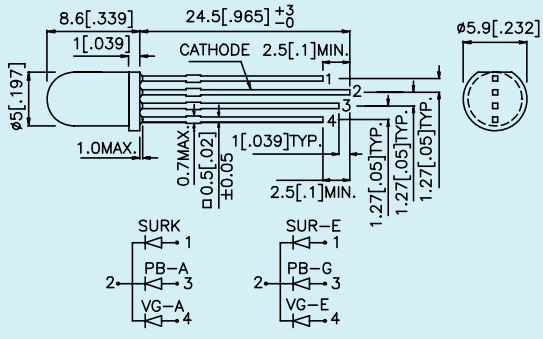
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-57	L-59	L-154A4
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA Min.	Iv (mcd) @ 20mA Typ.	Viewing Angle 2θ1/2	Dimension
L-57IID	GaAsP/GaP	625	red diffused	7	20	60°	T-1 3/4 (5mm) Round
	GaAsP/GaP	625		7	20		
L-57GGD	GaP	568	green diffused	4	10	60°	
	GaP	568		4	10		
L-57YYD	GaAsP/GaP	588	yellow diffused	4	10	60°	
	GaAsP/GaP	588		4	10		
L-57SRSRD	GaAlAs	640	red diffused	70	150	60°	
	GaAlAs	640		70	150		
L-57EGW	GaAsP/GaP	625	white diffused	10	30	60°	
	GaP	568		10	20		
L-57EYW	GaAsP/GaP	625	white diffused	10	30	60°	
	GaAsP/GaP	588		4	10		
L-57GYW	GaP	568	white diffused	10	20	60°	
	GaAsP/GaP	588		4	10		
L-59EGW	GaAsP/GaP	625	white diffused	18	60	60°	T-1 3/4 (5mm) Round
	GaP	568		18	50		
L-59EGW-CA	GaAsP/GaP	625	white diffused	2.6	5	60°	
	GaP	568		1.6	5		
L-59EYW	GaAsP/GaP	625	white diffused	18	60	60°	
	GaAsP/GaP	588		18	40		
L-59GYW	GaP	568	white diffused	18	50	60°	
	GaAsP/GaP	588		18	40		
L-59SRSGW-CC	GaAlAs	640	white diffused	110	220	60°	
	GaP	568		18	50		
L-59SURKMGKW	InGaAlP	635	white diffused	280	700	60°	
	InGaAlP	570		50	170		
L-59EGC	GaAsP/GaP	625	water clear	70	150	24°	
	GaP	568		70	150		
L-59EYC	GaAsP/GaP	625	water clear	70	150	24°	
	GaAsP/GaP	588		18	60		
L-59GYC	GaP	568	water clear	70	150	24°	
	GaAsP/GaP	588		18	60		
L-59SRSGC-CC	GaAlAs	640	water clear	280	600	24°	
	GaP	568		70	200		
L-59SURKSGC	InGaAlP	635	water clear	480	1100	24°	
	GaP	568		70	200		
L-154A4SURKPBAVGAC	InGaAlP	635		380	700		T-1 3/4 (5mm) Full color
	InGaN	470	water clear	180	500	50°	
	InGaN	525		480	1200		
L-154A4SURKPBAVGAW	InGaAlP	635		280	500		
	InGaN	470	white diffused	70	300	60°	
	InGaN	525		180	500		
L-154A4SUREPBGVGEC	InGaAlP	630		650	1300		
	InGaN	470	water clear	280	800	50°	
	InGaN	525		480	1300		
L-154A4SUREPBGVGEW	InGaAlP	630		380	750		
	InGaN	470	white diffused	180	450	60°	
	InGaN	525		280	550		







NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-799	L-819	L-283A9	L-91A6
			

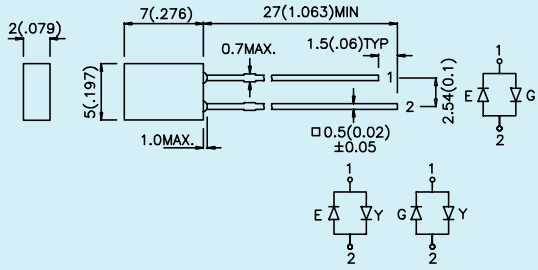
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-799EGW	GaAsP/GaP	625	white diffused	36	80	50°	8mm Round
	GaP	568		18	50		
L-799SRSGW-CC	GaAlAs	640	white diffused	110	200	50°	
	GaP	568		18	50		
L-799SURKMGKW	InGaAlP	635	white diffused	380	600	50°	
	InGaAlP	570		50	130		
L-819IID	GaAsP/GaP	625	red diffused	36	80	50°	10mm Round
	GaAsP/GaP	625		36	80		
L-819GGD	GaP	568	green diffused	10	40	50°	
	GaP	568		10	40		
L-819YYD	GaAsP/GaP	588	yellow diffused	10	30	50°	
	GaAsP/GaP	588		10	30		
L-819EGW	GaAsP/GaP	625	white diffused	36	80	50°	
	GaP	568		18	50		
L-819SRSGW-CC	GaAlAs	640	white diffused	110	300	50°	
	GaP	568		36	50		
L-819SURKMGKW	InGaAlP	635	white diffused	380	750	50°	
	InGaAlP	570		50	130		
L-283A9NGWT/TG	GaAsP/GaP	610	white diffused	7	15	120°	1.75mm x 3.5mm Rectangular
	GaP	568		4	10		
L-91A6GNWT	GaP	568	white diffused	1.6	4	110°	2mm x 3mm Rectangular
	GaAsP/GaP	610		4	10		
L-91A6YGWT	GaAsP/GaP	588	white diffused	1.6	4	110°	
	GaP	568		1.6	4		

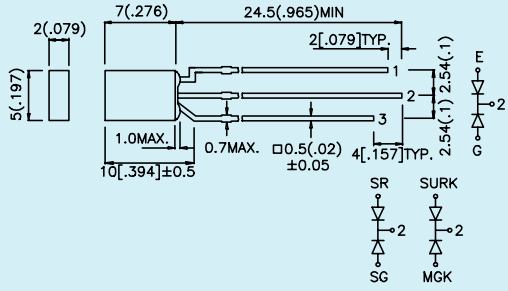
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-117

L-119

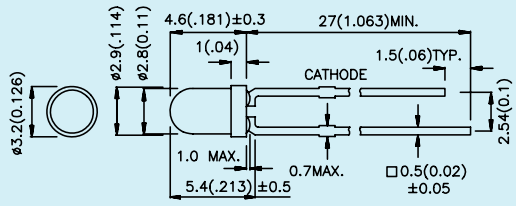
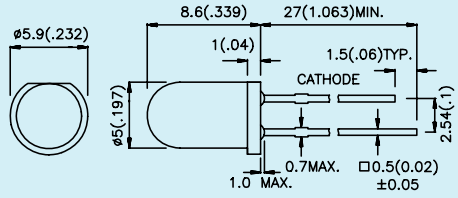
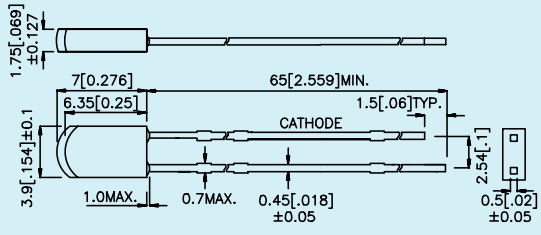
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-117EGWT	GaAsP/GaP	625	white diffused	4	10	110°	2mm x 5mm Rectangular
	GaP	568		4	8		
L-117EYWT	GaAsP/GaP	625	white diffused	4	10	110°	
	GaAsP/GaP	588		2.6	6		
L-117GYWT	GaP	568	white diffused	4	8	110°	
	GaAsP/GaP	588		2.6	6		
L-119EGWT	GaAsP/GaP	625	white diffused	7	20	110°	2mm x 5mm Rectangular
	GaP	568		4	12		
L-119SRSGWT-CC	GaAlAs	640	white diffused	18	60	110°	
	GaP	568		4	12		
L-119SURKMGKWT	InGaAlP	635	white diffused	70	170	110°	
	InGaAlP	570		10	30		

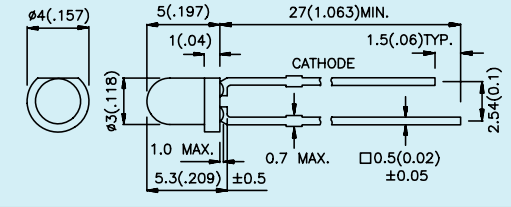
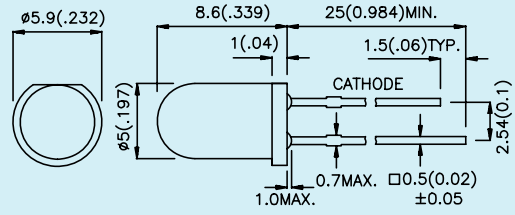




NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-7104L	L-7113L	L-277A7L	L-36B	L-56B
				

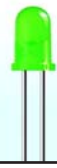
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 2mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-7104LID	GaAsP/GaP	625	red diffused	0.7	3	40°	T-1 (3mm) Round 
L-7104LSRD	GaAlAs	640	red diffused	8	20	40°	
L-7104LYD	GaAsP/GaP	588	yellow diffused	0.7	1.5	40°	
L-7104LGD	GaP	568	green diffused	0.7	2	40°	
L-7113LID	GaAsP/GaP	625	red diffused	0.7	5	30°	T-1 3/4 (5mm) Round 
L-7113LSRD	GaAlAs	640	red diffused	8	20	30°	
L-7113LYD	GaAsP/GaP	588	yellow diffused	0.7	2	30°	
L-7113LGD	GaP	568	green diffused	0.7	2	30°	
L-277A7LID	GaAsP/GaP	625	red diffused	0.4	2	60°	1.75mm x 3.9mm Rectangular 
L-277A7LYD	GaAsP/GaP	588	yellow diffused	0.2	0.5	60°	
L-277A7LGD	GaP	568	green diffused	0.3	0.8	60°	

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) V=9V		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-36BHD	GaP	660	red diffused	1	2	60°	T-1 (3mm) Round 
L-36BID	GaAsP/GaP	625	red diffused	12	20	60°	
L-36BSRD-B	GaAlAs	640	red diffused	110	200	60°	
L-36BYD	GaAsP/GaP	588	yellow diffused	5	10	60°	
L-36BGD	GaP	568	green diffused	5	15	60°	
L-56BHD	GaP	660	red diffused	1.8	5	60°	T-1 3/4 (5mm) Round 
L-56BID	GaAsP/GaP	625	red diffused	18	40	60°	
L-56BSRD-B	GaAlAs	640	red diffused	110	200	60°	
L-56BYD	GaAsP/GaP	588	yellow diffused	5	20	60°	
L-56BGD	GaP	568	green diffused	5	20	60°	

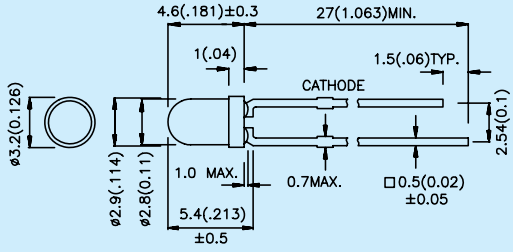
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

L-7104-5V/12V/14V

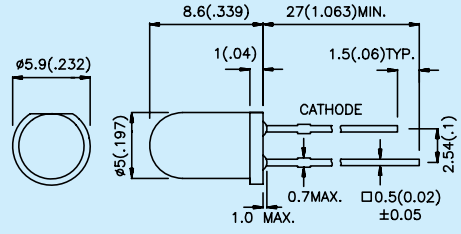
L-7113-5V/12V/14V



	Material	λ D (nm)	Lens Type	Iv (mcd) V=5V *V=12V **V=14V		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
L-7104ID-5V	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Round
L-7104ID-12V	GaAsP/GaP	625	red diffused	*8	*20	40°	
L-7104ID-14V	GaAsP/GaP	625	red diffused	**8	**20	40°	
L-7104SRD-5V	GaAlAs	640	red diffused	70	150	40°	
L-7104SRD-12V	GaAlAs	640	red diffused	*40	*100	40°	
L-7104SRD-14V	GaAlAs	640	red diffused	**28	**90	40°	
L-7104YD-5V	GaAsP/GaP	588	yellow diffused	8	15	40°	
L-7104YD-12V	GaAsP/GaP	588	yellow diffused	*3	*11	40°	
L-7104YD-14V	GaAsP/GaP	588	yellow diffused	**3	**11	40°	
L-7104GD-5V	GaP	568	green diffused	8	20	40°	
L-7104GD-12V	GaP	568	green diffused	*8	*20	40°	
L-7104GD-14V	GaP	568	green diffused	**8	**20	40°	
L-7104SGD-5V	GaP	568	green diffused	8	20	40°	
L-7104SGD-12V	GaP	568	green diffused	*8	*20	40°	
L-7104SGD-14V	GaP	568	green diffused	**8	**20	40°	

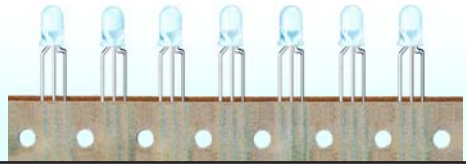


L-7113ID-5V	GaAsP/GaP	625	red diffused	12	30	30°	T-1 3/4 (5mm) Round
L-7113ID-12V	GaAsP/GaP	625	red diffused	*12	*30	30°	
L-7113ID-14V	GaAsP/GaP	625	red diffused	**12	**30	30°	
L-7113SRD-5V	GaAlAs	640	red diffused	110	180	30°	
L-7113SRD-12V	GaAlAs	640	red diffused	*110	*180	30°	
L-7113SRD-14V	GaAlAs	640	red diffused	**70	**160	30°	
L-7113YD-5V	GaAsP/GaP	588	yellow diffused	5	20	30°	
L-7113YD-12V	GaAsP/GaP	588	yellow diffused	*5	*20	30°	
L-7113YD-14V	GaAsP/GaP	588	yellow diffused	**5	**16	30°	
L-7113GD-5V	GaP	568	green diffused	8	20	30°	
L-7113GD-12V	GaP	568	green diffused	*8	*20	30°	
L-7113GD-14V	GaP	568	green diffused	**5	**18	30°	
L-7113SGD-5V	GaP	568	green diffused	8	20	30°	
L-7113SGD-12V	GaP	568	green diffused	*8	*20	30°	
L-7113SGD-14V	GaP	568	green diffused	**5	**18	30°	

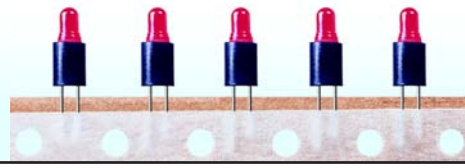


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

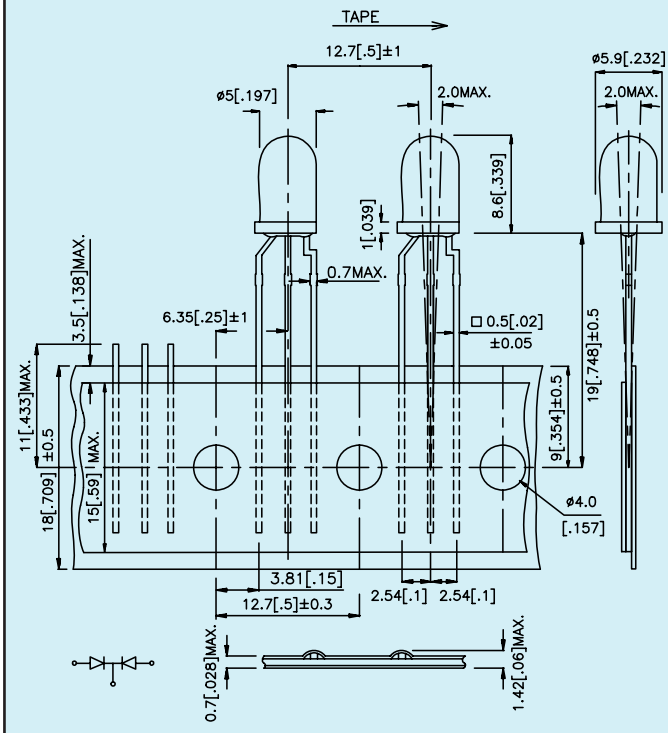
L-59-TNR2.54



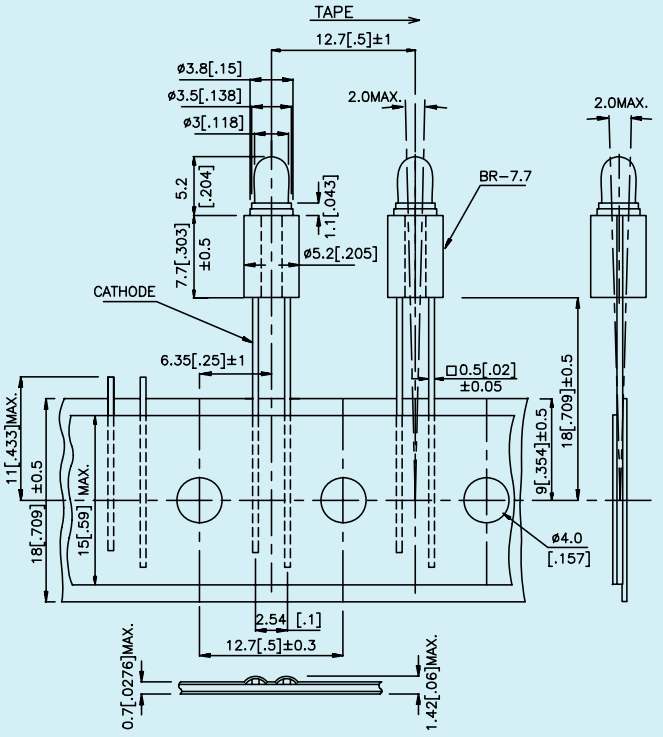
L-132XBR-7.7/xx-TNR2.54



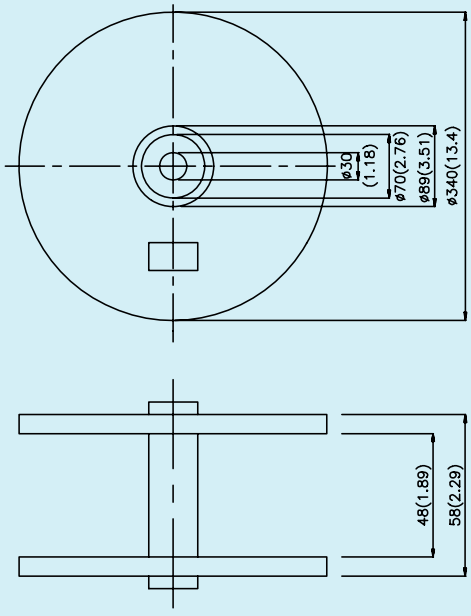
L-59-TNR2.54



L-132XBR-7.7/xx-TNR2.54



REEL DIMENSIONS



NOTES:
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2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

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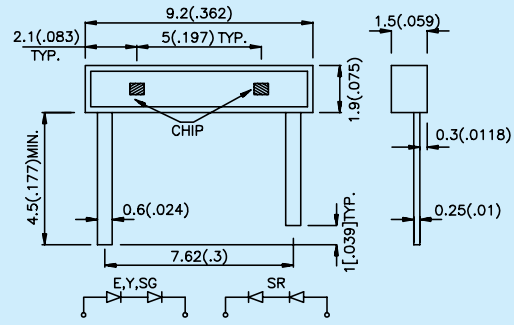
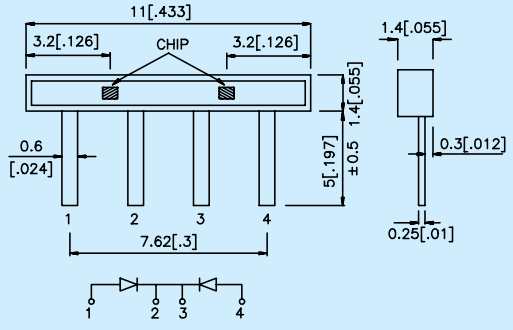
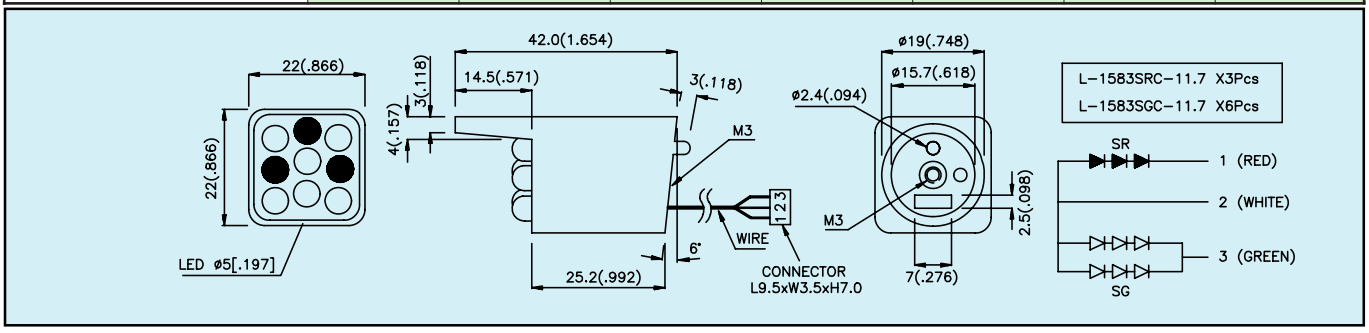
KA-9219/2	KA-1114/2-CC-L5
	

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KA-9219/2EC	GaAsP/GaP	625	water clear	18	50	100°	9.2mm x 1.9mm 
KA-9219/2SRC	GaAlAs	640	water clear	70	200	100°	
KA-9219/2YC	GaAsP/GaP	588	water clear	10	20	100°	
KA-9219/2SGC	GaP	568	water clear	7	40	100°	
KA-1114/2EC-CC-L5	GaAsP/GaP	625	water clear	4	9	120°	11mm x 1.4mm 
KA-1114/2YC-CC-L5	GaAsP/GaP	588	water clear	4	10	120°	
KA-1114/2SYC-CC-L5	InGaAlP	588	water clear	50	100	120°	
KA-1114/2SGC-CC-L5	GaP	568	water clear	7	16	120°	
KA-1114/2QBC-D-CC-L5	GaN	470	water clear	70	130	120°	
KA-1114/2PBC-A-CC-L5	InGaN	470	water clear	36	100	120°	

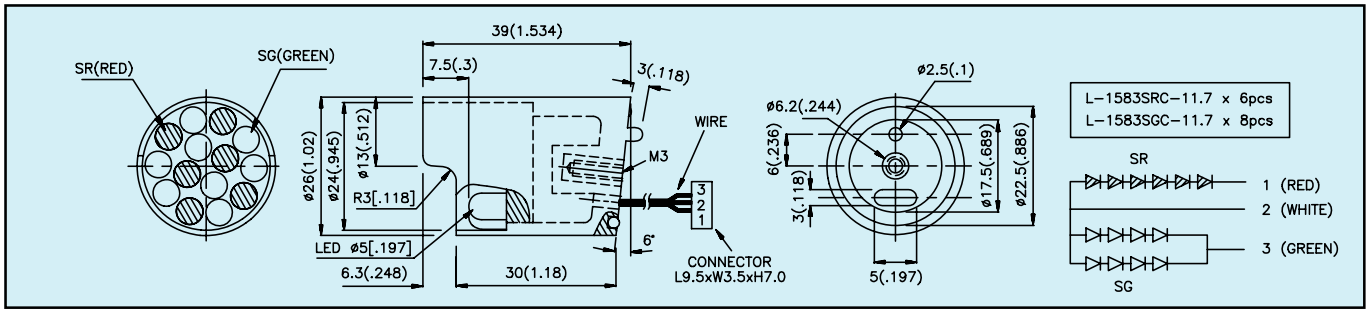
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

BL0508-09-73	BL0102-14-34	BL0307-50-44
		

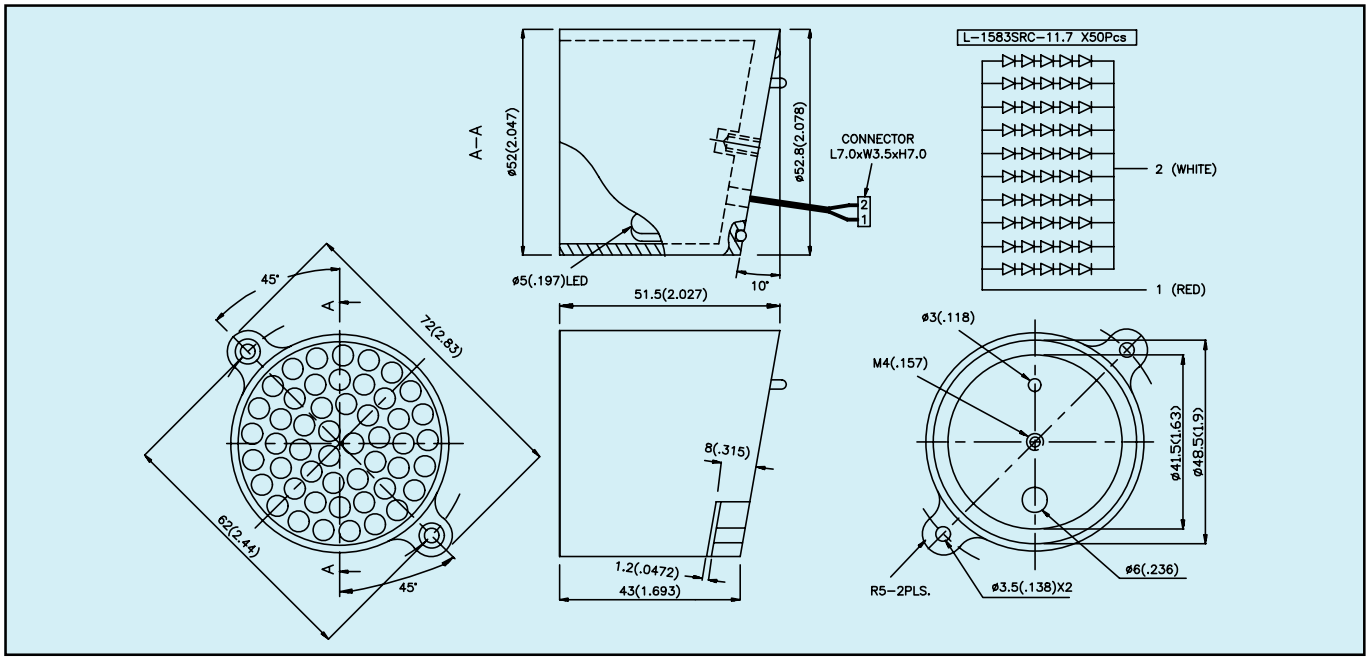
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd)		Viewing Angle	IF(mA)
				Min.	Typ.	2θ1/2	
BL0508-09-73	GaAlAs	640	water clear	480	1200	40°	20
	GaP	568	water clear	380	800	40°	40



BL0102-14-34	GaAlAs	640	water clear	1500	2800	40°	20
	GaP	568	water clear	650	1600	40°	40



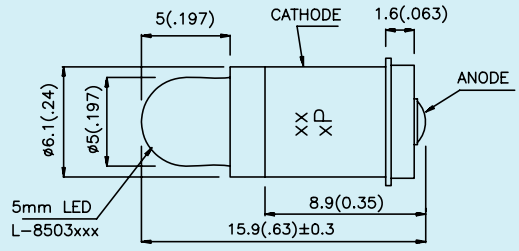
BL0307-50-44	GaAlAs	640	water clear	12000	21000	40°	200

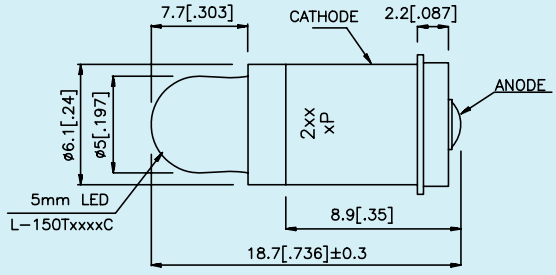


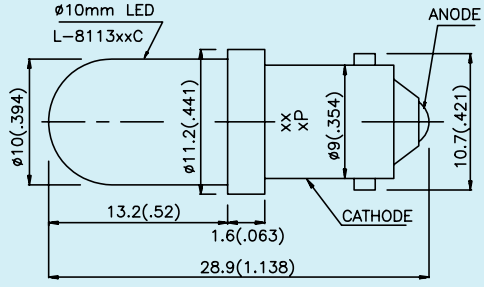
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

BLF051xxx-xV-P	BLF052xxx-xV-P	BLB101xxx-xV-P
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) *V=12V **V=28V		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
BLF051SURC-E-6V-P	InGaAlP	630	water clear	650	1500	30°	5mm Flange Base
BLF051SURC-E-12V-P	InGaAlP	630	water clear	*480	*1200	30°	
BLF051SURC-E-28V-P	InGaAlP	630	water clear	**380	**1000	30°	
BLF051SYC-6V-P	InGaAlP	588	water clear	280	500	30°	
BLF051SYC-12V-P	InGaAlP	588	water clear	*180	*400	30°	
BLF051SYC-28V-P	InGaAlP	588	water clear	**110	**230	30°	
BLF051MGC-6V-P	InGaAlP	568	water clear	280	400	30°	
BLF051MGC-12V-P	InGaAlP	568	water clear	*180	*300	30°	
BLF051MGC-28V-P	InGaAlP	568	water clear	**110	**220	30°	
BLF052SURC-E-6V-P	InGaAlP	630	water clear	900	1200	45°	5mm Flange Base
BLF052SURC-E-12V-P	InGaAlP	630	water clear	*650	*1000	45°	
BLF052SURC-E-28V-P	InGaAlP	630	water clear	**480	**800	45°	
BLF052SYC-6V-P	InGaAlP	588	water clear	280	400	45°	
BLF052SYC-12V-P	InGaAlP	588	water clear	*180	*300	45°	
BLF052SYC-28V-P	InGaAlP	588	water clear	**110	**250	45°	
BLF052MGC-6V-P	InGaAlP	568	water clear	180	400	45°	
BLF052MGC-12V-P	InGaAlP	568	water clear	*110	*300	45°	
BLF052MGC-28V-P	InGaAlP	568	water clear	**70	**200	45°	
BLB101SURC-E-6V-P	InGaAlP	630	water clear	900	2200	20°	10mm Bayonet Base
BLB101SURC-E-12V-P	InGaAlP	630	water clear	*650	*1800	20°	
BLB101SURC-E-28V-P	InGaAlP	630	water clear	**480	**930	20°	
BLB101SYC-6V-P	InGaAlP	588	water clear	650	1300	20°	
BLB101SYC-12V-P	InGaAlP	588	water clear	*480	*1200	20°	
BLB101SYC-28V-P	InGaAlP	588	water clear	**180	**380	20°	
BLB101MGC-6V-P	InGaAlP	568	water clear	380	900	20°	
BLB101MGC-12V-P	InGaAlP	568	water clear	*280	*800	20°	
BLB101MGC-28V-P	InGaAlP	568	water clear	**110	**300	20°	







NOTES:
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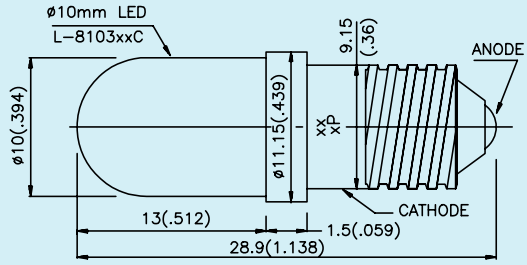
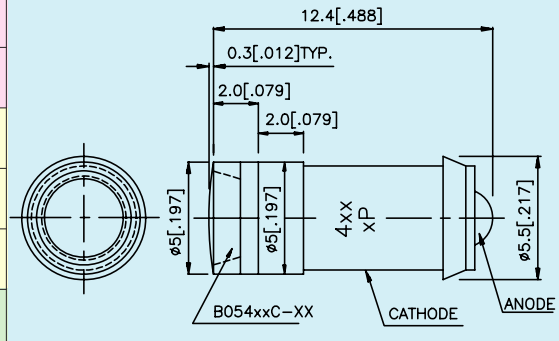
BLS101xxx-xV-P

BLFA054xxx-xV-P

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) V=6V *V=12V **V=28V		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
BLS101SURC-E-6V-P	InGaAlP	630	water clear	900	2200	20°	10mm Screw Base
BLS101SURC-E-12V-P	InGaAlP	630	water clear	*650	*1800	20°	
BLS101SURC-E-28V-P	InGaAlP	630	water clear	**480	**900	20°	
BLS101SYC-6V-P	InGaAlP	588	water clear	650	1300	20°	
BLS101SYC-12V-P	InGaAlP	588	water clear	*480	*1200	20°	
BLS101SYC-28V-P	InGaAlP	588	water clear	**280	**350	20°	
BLS101MGC-6V-P	InGaAlP	568	water clear	380	900	20°	
BLS101MGC-12V-P	InGaAlP	568	water clear	*280	*800	20°	
BLS101MGC-28V-P	InGaAlP	568	water clear	**110	**350	20°	



BLFA054SURCK-6V-P	InGaAlP	635	water clear	280	510	110°	5mm Flange Base
BLFA054SURCK-12V-P	InGaAlP	635	water clear	*280	*510	110°	
BLFA054SURCK-28V-P	InGaAlP	635	water clear	**280	**510	110°	
BLFA054SECK-6V-P	InGaAlP	601	water clear	380	760	110°	
BLFA054SECK-12V-P	InGaAlP	601	water clear	*380	*760	110°	
BLFA054SECK-28V-P	InGaAlP	601	water clear	**380	**760	110°	
BLFA054SYCK-6V-P	InGaAlP	590	water clear	36	130	110°	
BLFA054SYCK-12V-P	InGaAlP	590	water clear	*36	*130	110°	
BLFA054SYCK-28V-P	InGaAlP	590	water clear	**36	**130	110°	
BLFA054MGCK-6V-P	InGaAlP	570	water clear	180	460	110°	
BLFA054MGCK-12V-P	InGaAlP	570	water clear	*180	*460	110°	
BLFA054MGCK-28V-P	InGaAlP	570	water clear	**180	**460	110°	
BLFA054PBC-A-6V-P	InGaN	470	water clear	70	200	110°	
BLFA054PBC-A-12V-P	InGaN	470	water clear	*70	*180	110°	
BLFA054PBC-A-28V-P	InGaN	470	water clear	**28	**60	110°	



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

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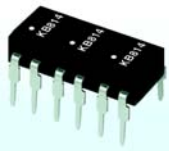
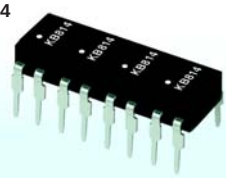
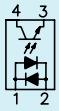
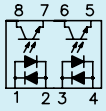
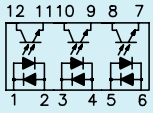
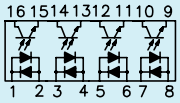
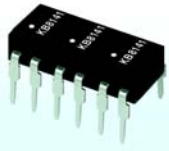
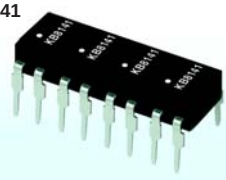
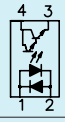
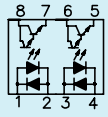
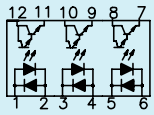
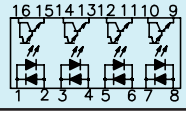
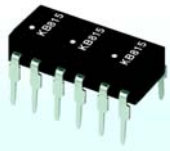
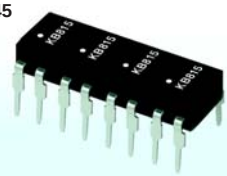
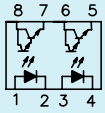
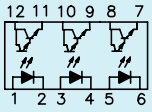
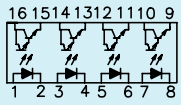
KB814	KB824	KB834	KB844
			

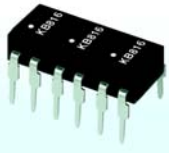
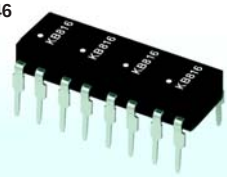
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=±1mA,V_{CE}=5V		I_F=±20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB814		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage AC input response	5000	35	20	300	0.1	0.2	4	3	1
KB824												2
KB834												3
KB844												4

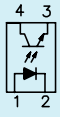
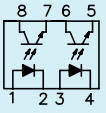
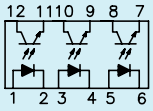
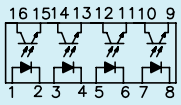
KB8141	KB8241	KB8341	KB8441
			

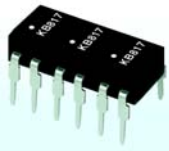
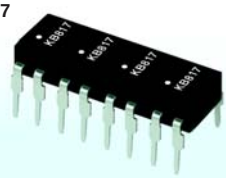
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=±1mA,V_{CE}=2V		I_F=±20mA,I_C=5mA		V_{CE}=2V,I_C=10mA,R_L=100W		
						Min.	Max.	Typ.	Max.	tr	tf	
KB8141		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High sensitivity AC input response	5000	35	600	7500	0.8	1	60	53	1
KB8241												2
KB8341												3
KB8441												4

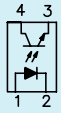
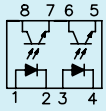
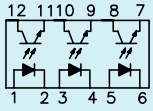
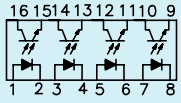
KB815	KB825	KB835	KB845
			

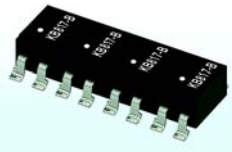
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=1mA,V_{CE}=2V		I_F=20mA,I_C=5mA		V_{CE}=2V,I_C=10mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB815		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High sensitivity	5000	35	600	7500	0.8	1	60	53	1
KB825												2
KB835												3
KB845												4

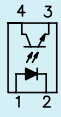
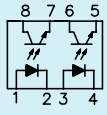
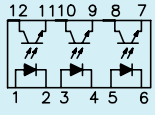
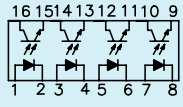
KB816	KB826	KB836	KB846
			

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=5mA,V_{CE}=5V		I_F=20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB816		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High collector-emitter voltage	5000	70	50	600	0.1	0.2	4	3	1
KB826												2
KB836												3
KB846												4

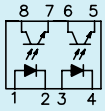
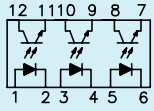
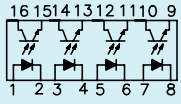
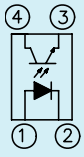
KB817	KB827	KB837	KB847
			

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=5mA,V_{CE}=5V		I_F=20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB817		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage	5000	35	50	600	0.1	0.2	4	3	1
KB827												2
KB837												3
KB847												4

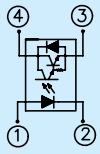
KB817-B	KB827-B	KB837-B	KB847-B
			

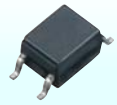
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=5mA,V_{CE}=5V		I_F=20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB817-B		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage SMD Type	5000	35	50	600	0.1	0.2	4	3	5
KB827-B												6
KB837-B												7
KB847-B												8

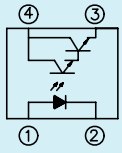
KB817-M	KB827-M	KB837-M	KB847-M	KB851
				

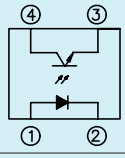
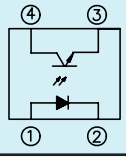
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=5mA,V_{CE}=5V		I_F=20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB817-M		UL NO.E225308 & VDE0884. NO.400063-64	High isolation voltage	5000	35	50	600	0.1	0.2	4	3	9
KB827-M												10
KB837-M												11
KB847-M												12
KB851		VDE0884. NO.400063-64	High collector-emitter Voltage	5000	350	-	-	0.1	0.3	4	3	1

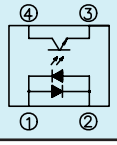
KB852

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=1mA,V_{CE}=2V		I_F=20mA,I_C=100mA		V_{CE}=2V,I_C=20mA,R_L=1000Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB852		VDE0884. NO.400063-64	High collector-emitter voltage High sensitivity	5000	350	1000	15000	-	1.2	100	20	1

KB355NT	KB356NT	KB357NT	KB354NT	KB3541NT
				

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=1mA,V_{CE}=2V		I_F=20mA, I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB355NT		UL NO.E225308 & VDE0884. NO:40017614	High current transfer ratio Small package size	3750	35	600	7500	0.8	1.0	60	53	13

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=5mA,V_{CE}=5V		I_F=20mA, I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB356NT		UL NO.E225308 & VDE0884. NO:40017614	High collector-emitter Voltage Small package size	3750	80	50	600	0.1	0.2	6	8	13
KB357NT			Small package size	3750	35	50	600	-	0.2	4	3	13

Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=±1mA,V_{CE}=5V		I_F=±20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB354NT		UL NO.E225308 & VDE0884. NO:40017614	AC.input response Small package size	3750	35	20	400	0.1	0.2	4	3	13

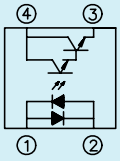
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage V_{CEO}(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						I_F=±1mA,V_{CE}=2V		I_F=±20mA,I_C=1mA		V_{CE}=2V,I_C=2mA,R_L=100Ω		
						Min.	Max.	Typ.	Max.	tr	tf	
KB3541NT		UL NO.E225308 & VDE0884. NO:40017614	AC.input response High sensitivity Small package size	3750	35	450	7400	0.8	1.0	60	53	13

Fig.1

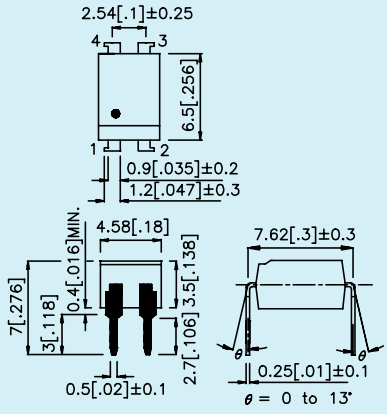


Fig.2

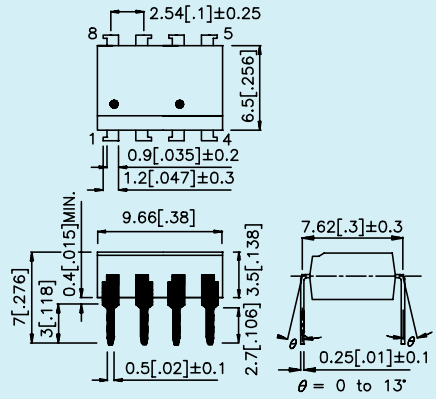


Fig.3

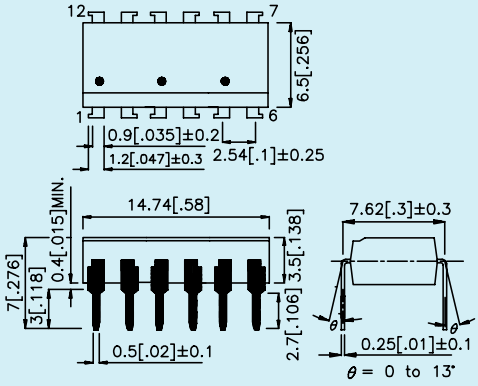


Fig.4

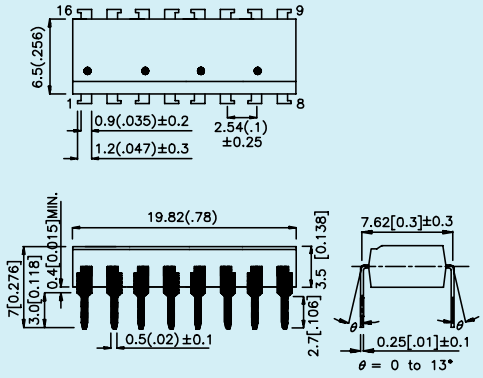


Fig.5

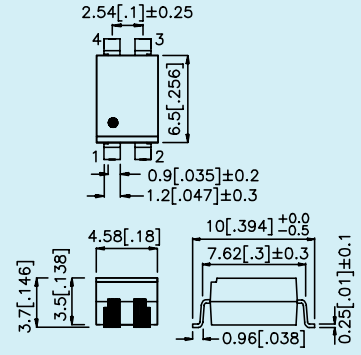


Fig.6

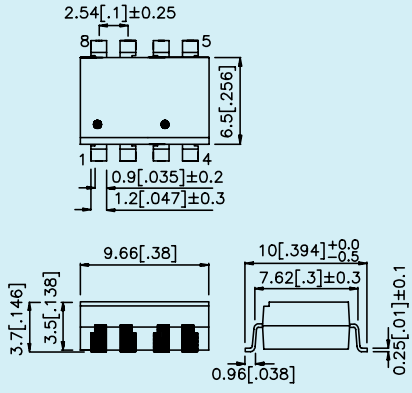


Fig.7

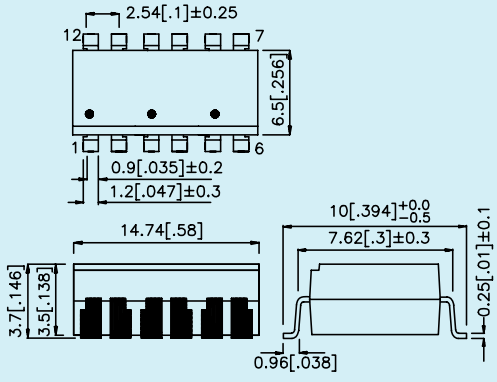
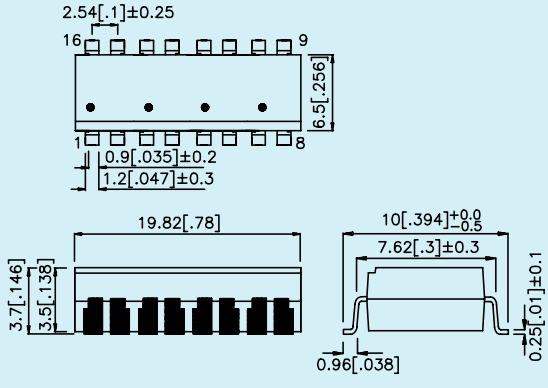


Fig.8



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.5mm(0.02") unless otherwise noted.

Fig.9

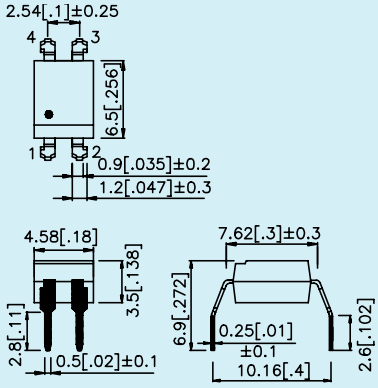


Fig.10

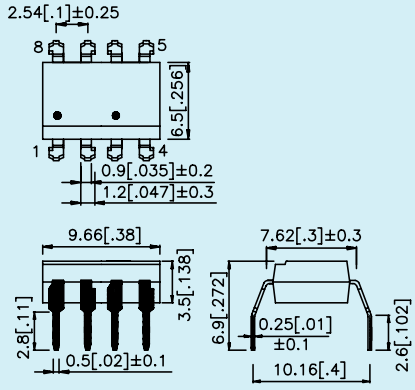


Fig.11

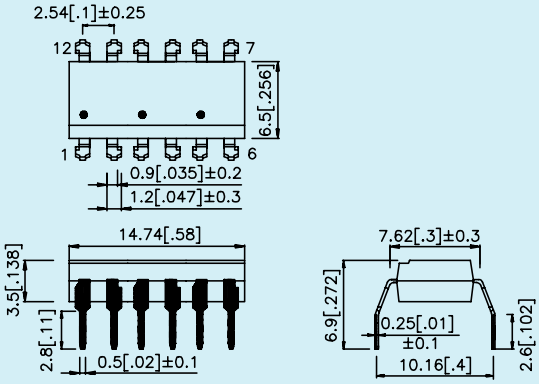


Fig.12

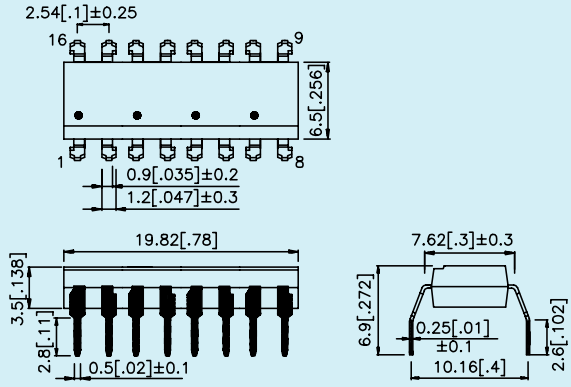
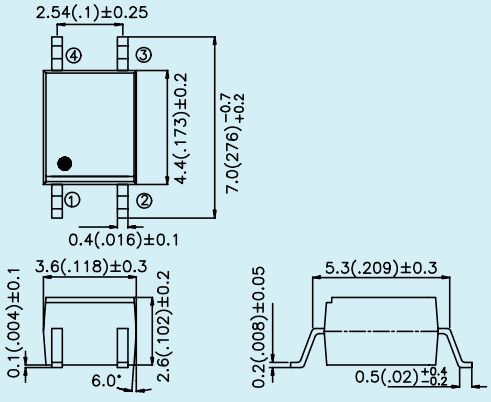
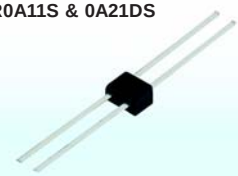
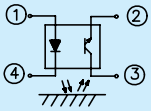
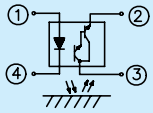
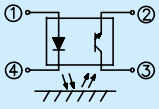
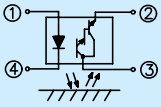
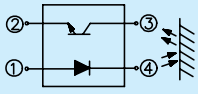
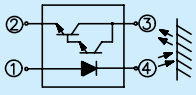


Fig.13



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.5mm(0.02") unless otherwise noted.

KTIR0711S & 0721DS	KTIR0811S & 0821DS	KTIR0A11S & 0A21DS	KRC011
			

Part No.	Pin Configuration	Material	λ P (nm)	I_C (μA) V_{CE}=2V, I_F=4mA			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				Min.	Typ.	Max.	IF(mA)	IC(mA)	Max.(V)			
KTIR0711S		GaAs/SiC	940	10	-	400	-	-	-	20	20	1
KTIR0721DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70	
KTIR0811S		GaAs/SiC	940	10	-	400	-	-	-	20	20	2
KTIR0821DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70	
KTIR0A11S		GaAs/SiC	940	10	-	400	-	-	-	20	20	3
KTIR0A21DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70	

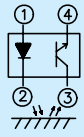
Part No.	Pin Configuration	Material	λ P (nm)	I_C (μA) V_{CE}=5V, I_F=20mA			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				Min.	Typ.	Max.	IF(mA)	IC(mA)	Max.(V)			
KRC011		GaAs/SiC	940	10	-	300	-	-	-	20	20	4

Fig.1

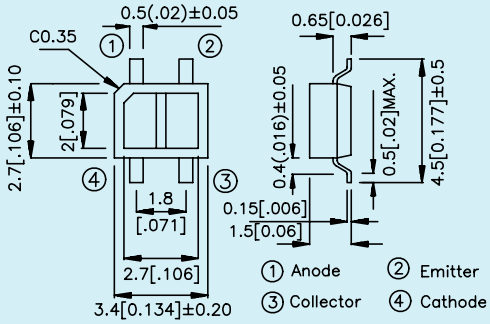


Fig.2

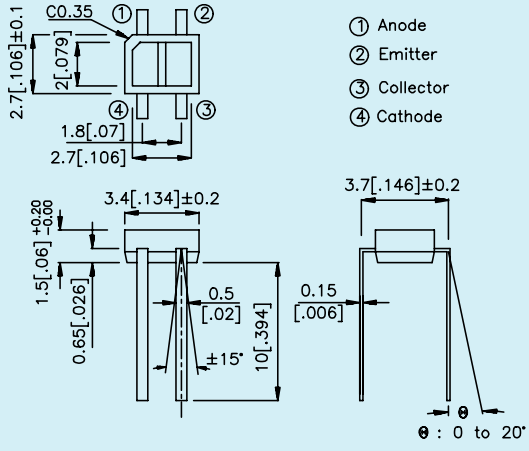


Fig.3

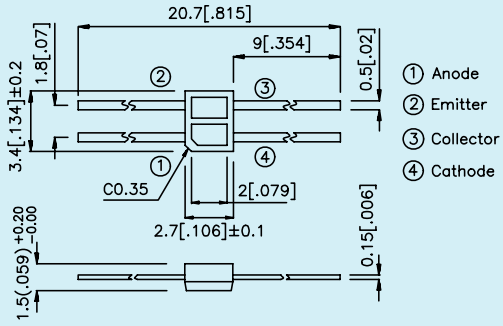
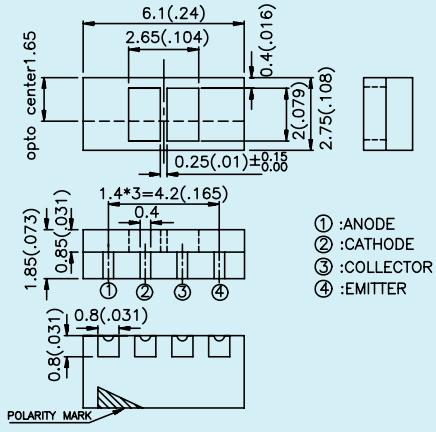
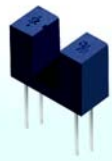
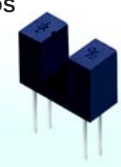
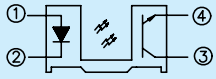
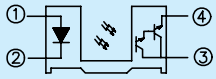
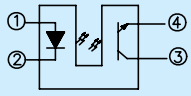
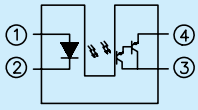


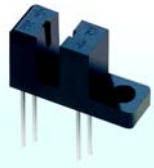
Fig.4

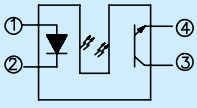
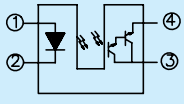
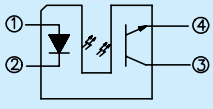
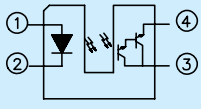


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KTIR0511S	KTIR0521DS	KTIR0611S	KTIR0621DS
			

Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
KTIR0511S		GaAs/SiC	940	20	5	10	40	1	0.4	5	4	6
KTIR0521DS		GaAs/SiC	940	1	2	180	2	1	1	90	80	7
KTIR0611S		GaAs/SiC	940	20	5	14	40	1	0.4	5	4	8
KTIR0621DS		GaAs/SiC	940	1	2	200	2	1	1	90	80	9

KTIR0311S	KTIR0321DS	KTIR0411S	KTIR0421DS
			

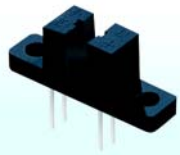
Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
KTIR0311S		GaAs/SiC	940	20	5	38	40	1	0.4	5	4	10
KTIR0321DS		GaAs/SiC	940	1	2	650	2	1	1	90	80	11
KTIR0411S		GaAs/SiC	940	20	5	38	40	1	0.4	5	4	12
KTIR0421DS		GaAs/SiC	940	1	2	650	2	1	1	90	80	13

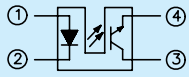
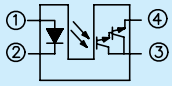
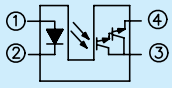
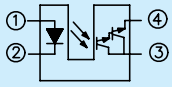
KTIR0911S

KTIR0921DS

KTIR0121DS

KTIR0221DS



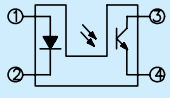
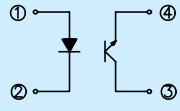
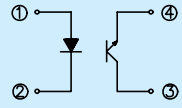
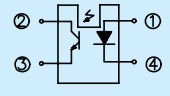
Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
KTIR0911S		GaAs/SiC	940	20	5	9.5	40	1	0.4	5	4	14
KTIR0921DS		GaAs/SiC	940	1	2	120	2	1	1	90	80	15
KTIR0121DS		GaAs/SiC	940	1	2	600	2	1	1	90	80	16
KTIR0221DS		GaAs/SiC	940	1	2	600	2	1	1	90	80	17

KRA011

KRA021

KRA031

KRA041

Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
KRA011		GaAs/SiC	940	5	5	8	10	0.04	0.4	50	50	18
KRA021		GaAs/SiC	940	10	2	18	20	0.25	0.4	15	15	19
KRA031		GaAs/SiC	940	5	2	10	10	0.15	0.4	15	15	20
KRA041		GaAs/SiC	940	5	2	6	10	0.4	0.4	15	15	21

KRB011	KRB021	KRB031
		

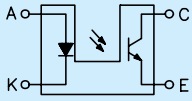
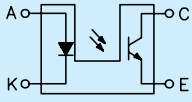
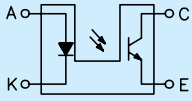
Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				IF(mA)	V_{CE}(V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
KRB011		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	22
KRB021		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	23
KRB031		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	24

Fig.6

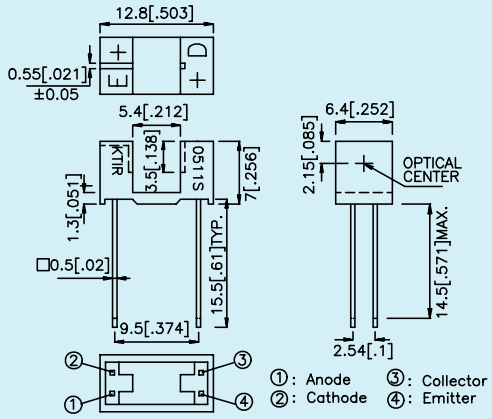


Fig.7

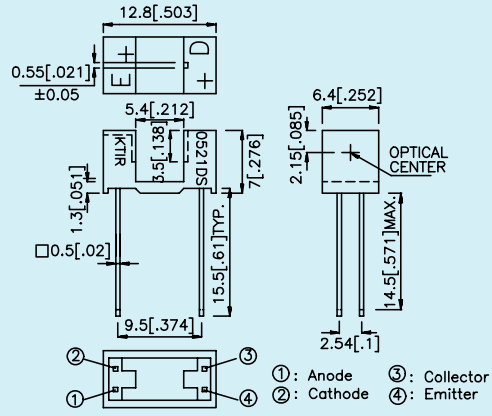


Fig.8

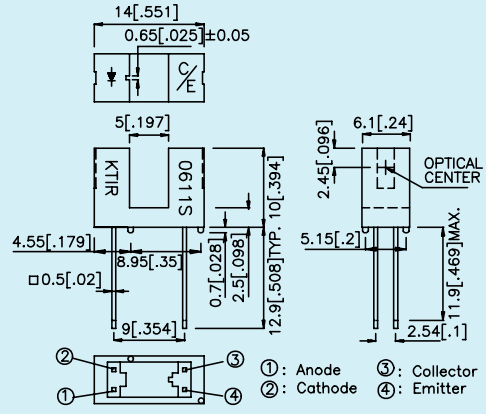


Fig.9

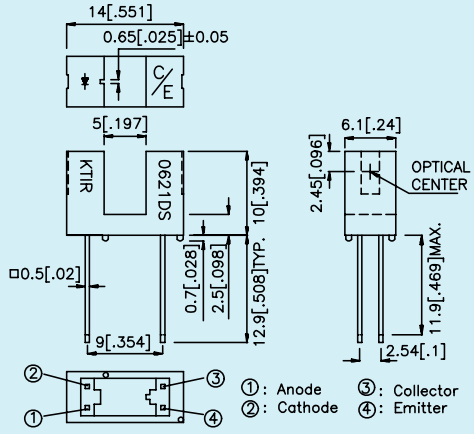


Fig.10

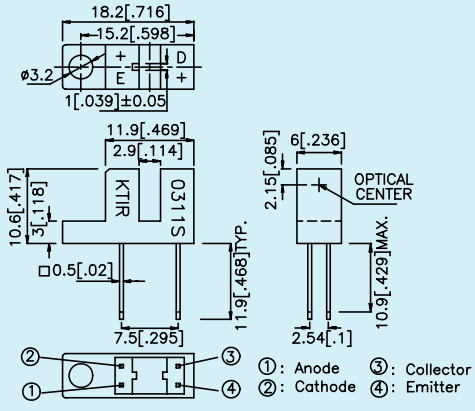


Fig.11

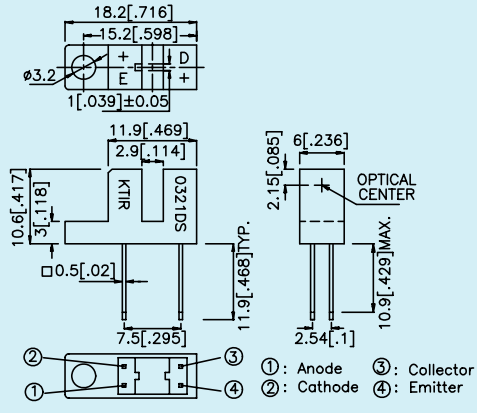


Fig.12

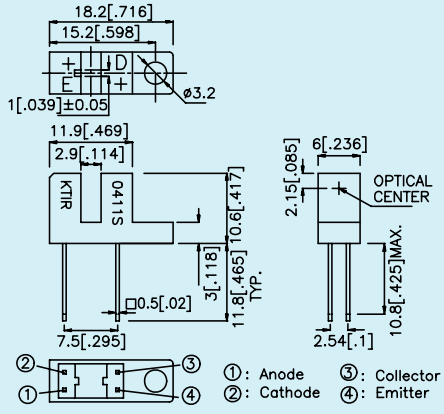
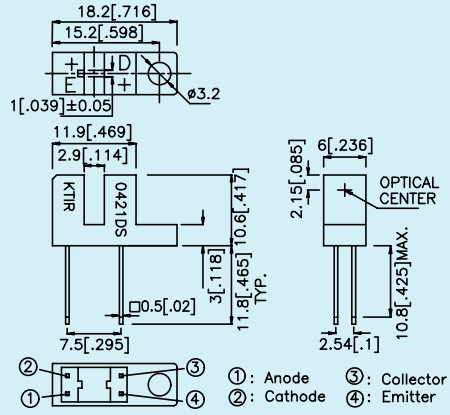


Fig.13



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Fig.14

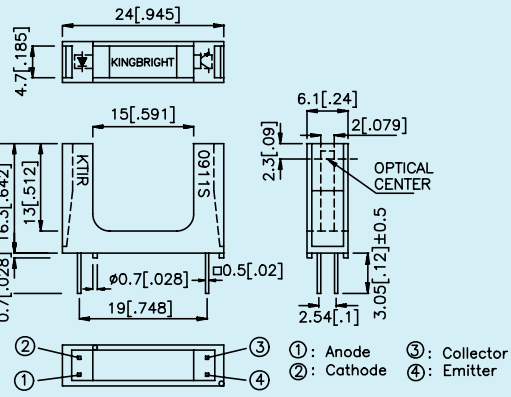


Fig.15

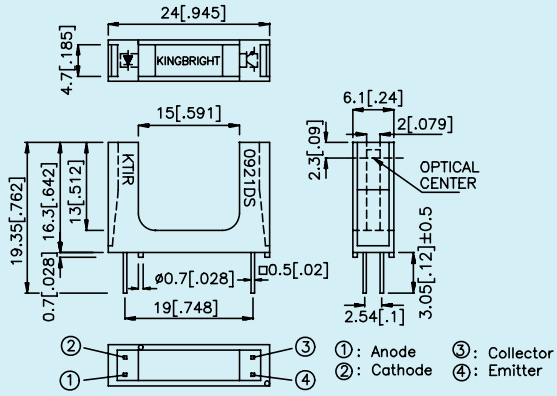


Fig.16

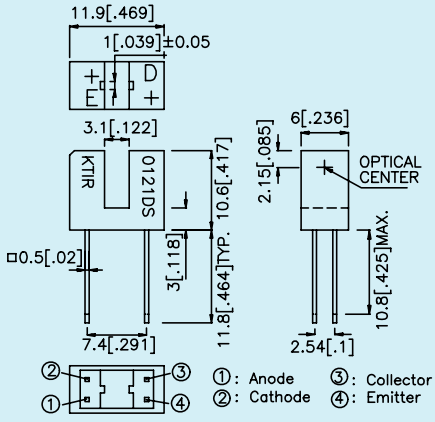


Fig.17

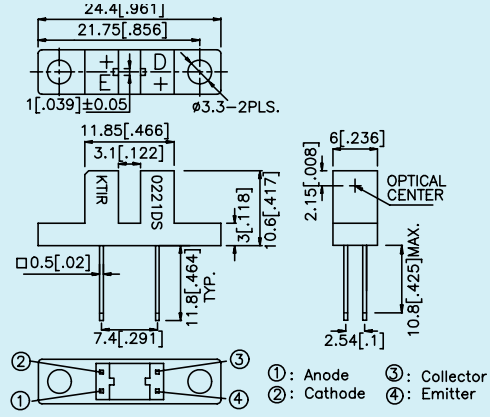


Fig.18

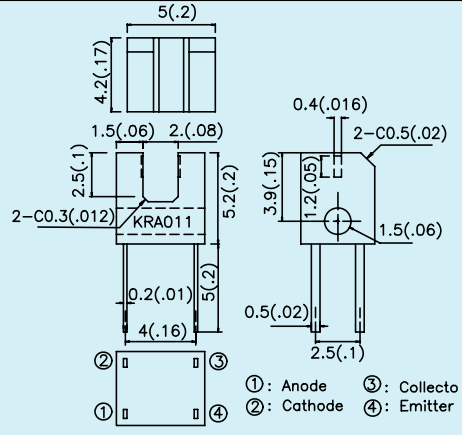


Fig.19

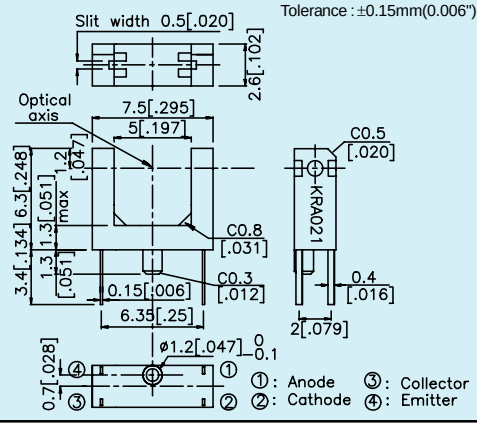


Fig.20

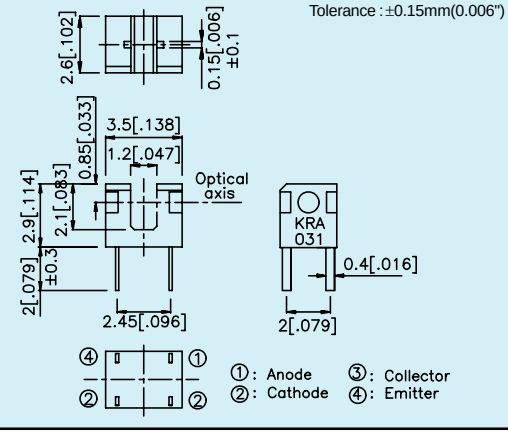
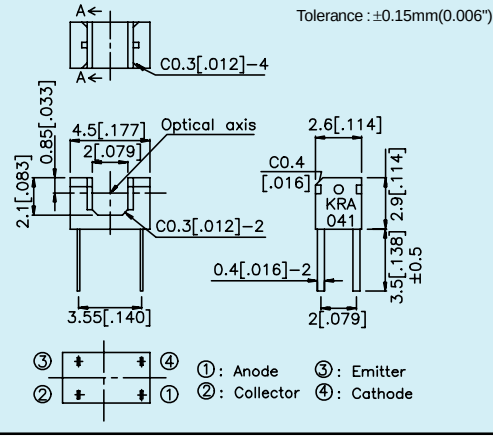


Fig.21



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Fig.22

Tolerance : ±0.15mm(0.006")

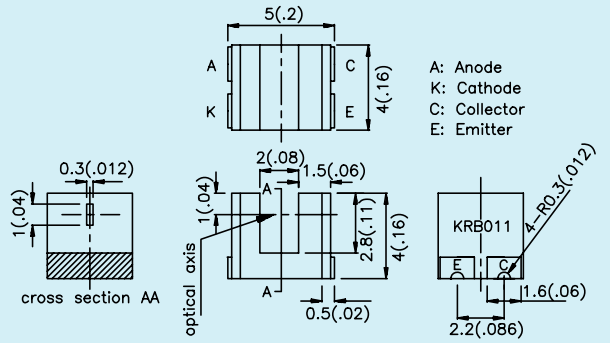


Fig.23

Tolerance : ±0.15mm(0.006")

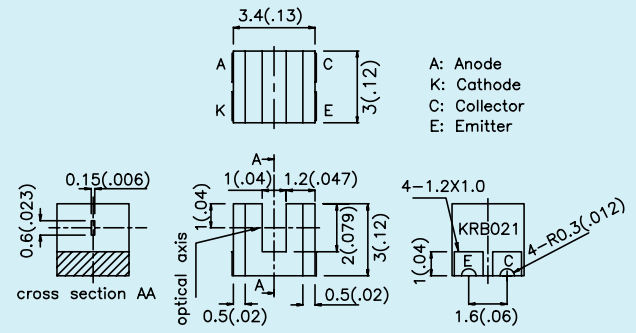


Fig.24

Tolerance : ±0.15mm(0.006")

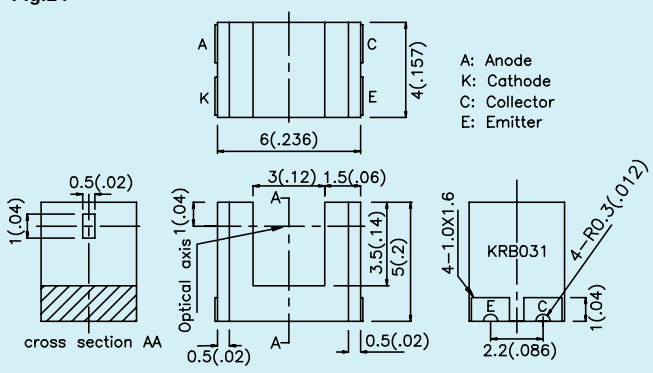


Fig.27

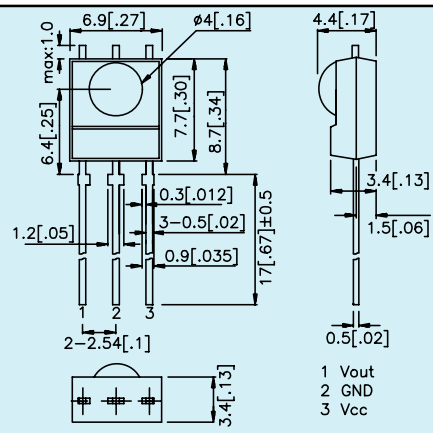


Fig.28

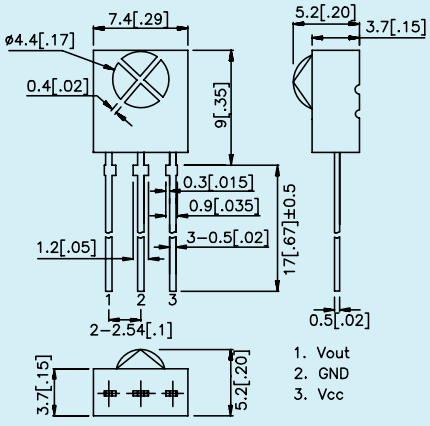


Fig.29

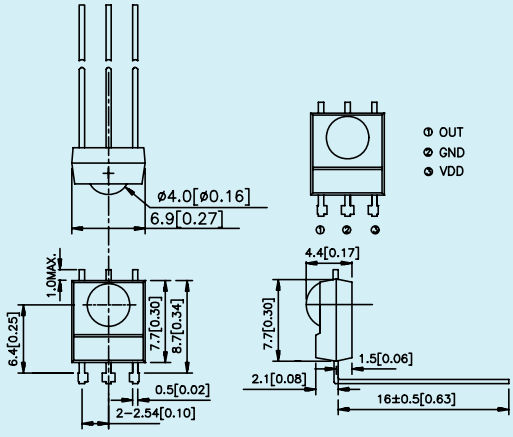
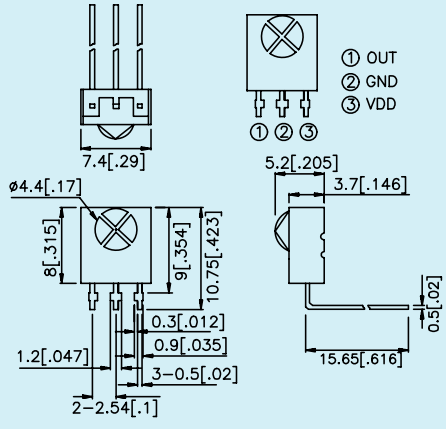


Fig.30



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KIRMA01138	KIRMA02138	KIRMA01138-01	KIRMA02138-01
			

Part No.	Center Frequency	Supply Voltage		Supply Current	Reception Distance		Half Angle	Fig.
	Fc (kHz) Typ.	V_{CC}(V)		Icc(mA) Typ.	L_0(m) Min.	L_{45}(m) Min.	θ (°) Typ.	
		Min.	Max.					
KIRMA01138	38	2.5	5.5	0.8	14	6	+/-45	27
KIRMA02138	38	2.5	5.5	0.8	14	6	+/-45	28
KIRMA01138-01	38	2.5	5.5	0.8	14	6	+/-45	29
KIRMA02138-01	38	2.5	5.5	0.8	14	6	+/-45	30

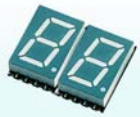
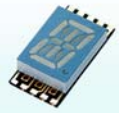
Kingbright

2007-2009

KCSX02	KCDX02	KCSX03	KCDX03
			

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
KCSA02-101 KCDA02-101	KCSC02-101 KCDC02-101	0.2 inch (5.08mm) Gray Face White Segment	GaAsP/GaP	625	1200	5800	1,2
KCSA02-105 KCDA02-105	KCSC02-105 KCDC02-105		InGaAlP	635	8000	30400	
KCSA02-106 KCDA02-106	KCSC02-106 KCDC02-106		InGaAlP	601	8000	37200	
KPSA02-103 KPDA02-103	KCSC02-103 KCDC02-103		GaAsP/GaP	588	480	1900	
KCSA02-107 KCDA02-107	KCSC02-107 KCDC02-107		InGaAlP	590	8000	34000	
KCSA02-102 KCDA02-102	KCSC02-102 KCDC02-102		GaP	568	1900	10000	
KCSA02-138 KCDA02-138	KCSC02-138 KCDC02-138		InGaN	525	8000	30000	
KCSA02-123 KCDA02-123	KCSC02-123 KCDC02-123		InGaAlP	570	4700	26000	
KCSA02-109 KCDA02-109	KCSC02-109 KCDC02-109		GaN	466	800	3700	
KCSA02-136 KCDA02-136	KCSC02-136 KCDC02-136		InGaN	470	1200	5000	
KCSA03-101 KCDA03-101	KCSC03-101 KCDC03-101	0.3 inch (7.62mm) Gray Face White Segment	GaAsP/GaP	625	1200	4210	3,4
KCSA03-104 KCDA03-104	KCSC03-104 KCDC03-104		GaAlAs	640	4700	19000	
KPSA03-105 KPDA03-105	KCSC03-105 KCDC03-105		InGaAlP	635	8000	27000	
KCSA03-106 KCDA03-106	KCSC03-106 KCDC03-106		InGaAlP	601	12000	46000	
KCSA03-103 KCDA03-103	KCSC03-103 KCDC03-103		GaAsP/GaP	588	480	2290	
KCSA03-107 KCDA03-107	KCSC03-107 KCDC03-107		InGaAlP	590	8000	35400	
KCSA03-102 KCDA03-102	KCSC03-102 KCDC03-102		GaP	568	1200	5600	
KCSA03-138 KCDA03-138	KCSC03-138 KCDC03-138		InGaN	525	18000	54000	
KCSA03-123 KCDA03-123	KCSC03-123 KCDC03-123		InGaAlP	570	1900	11000	
KCSA03-109 KCDA03-109	KCSC03-109 KCDC03-109		GaN	466	1200	5000	
KCSA03-136 KCDA03-136	KCSC03-136 KCDC03-136		InGaN	470	1200	6000	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

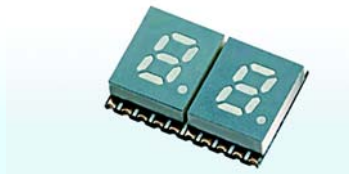
KCSX04	KCDX04	KCPSX04	KCPDX04
			

Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
KCSA04-101 KCDA04-101	KCSC04-101 KCDC04-101	0.4 inch (10.16mm) Gray Face White Segment	GaAsP/GaP	625	1200	5000	5,6
KCSA04-104 KCDA04-104	KCSC04-104 KCDC04-104		GaAlAs	640	4700	18000	
KCSA04-105 KCDA04-105	KCSC04-105 KCDC04-105		InGaAlP	635	8000	26000	
KCSA04-106 KCDA04-106	KCSC04-106 KCDC04-106		InGaAlP	601	12000	41200	
KCSA04-103 KCDA04-103	KCSC04-103 KCDC04-103		GaAsP/GaP	588	480	2500	
KCSA04-107 KCDA04-107	KCSC04-107 KCDC04-107		InGaAlP	590	12000	49000	
KCSA04-102 KCDA04-102	KCSC04-102 KCDC04-102		GaP	568	1900	7000	
KCSA04-138 KCDA04-138	KCSC04-138 KCDC04-138		InGaN	525	18000	55000	
KCSA04-123 KCDA04-123	KCSC04-123 KCDC04-123		InGaAlP	570	4700	17400	
KCSA04-109 KCDA04-109	KCSC04-109 KCDC04-109		GaN	466	800	3600	
KCSA04-136 KCDA04-136	KCSC04-136 KCDC04-136		InGaN	470	1200	4700	
KCPSA04-101 KCPDA04-101	KCPSC04-101 KCPDC04-101	0.4 inch (10.16mm) Gray Face White Segment	GaAsP/GaP	625	800	3200	7,8
KCPSA04-104 KCPDA04-104	KCPSC04-104 KCPDC04-104		GaAlAs	640	4700	16200	
KCPSA04-105 KCPDA04-105	KCPSC04-105 KCPDC04-105		InGaAlP	635	4700	22800	
KCPSA04-106 KCPDA04-106	KCPSC04-106 KCPDC04-106		InGaAlP	601	12000	44000	
KCPSA04-103 KCPDA04-103	KCPSC04-103 KCPDC04-103		GaAsP/GaP	588	800	3400	
KCPSA04-107 KCPDA04-107	KCPSC04-107 KCPDC04-107		InGaAlP	590	12000	45500	
KCPSA04-102 KCPDA04-102	KCPSC04-102 KCPDC04-102		GaP	568	1900	7500	
KCPSA04-138 KCPDA04-138	KCPSC04-138 KCPDC04-138		InGaN	525	18000	70000	
KCPSA04-123 KCPDA04-123	KCPSC04-123 KCPDC04-123		InGaAlP	570	4700	18500	
KCPSA04-109 KCPDA04-109	KCPSC04-109 KCPDC04-109		GaN	466	800	3800	
KCPSA04-136 KCPDA04-136	KCPSC04-136 KCPDC04-136		InGaN	470	800	2900	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KCSX56

KCDX56

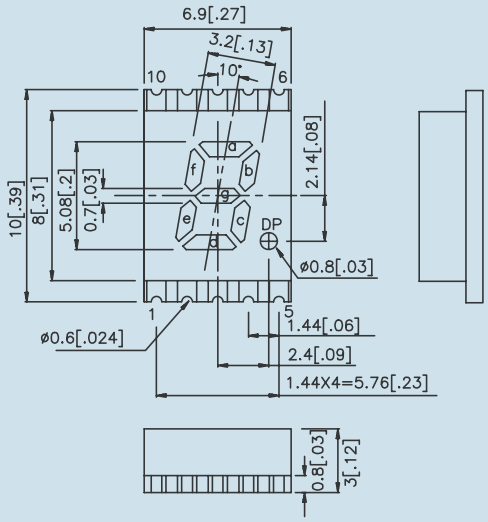


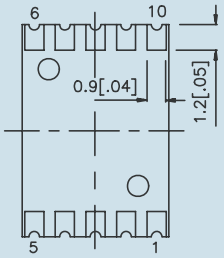
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
KCSA56-101 KCDA56-101	KCSC56-101 KCDC56-101	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	1200	7400	9,10
KCSA56-104 KCDA56-104	KCSC56-104 KCDC56-104		GaAlAs	640	8000	26000	
KCSA56-105 KCDA56-105	KCSC56-105 KCDC56-105		InGaAlP	635	4700	30000	
KCSA56-106 KCDA56-106	KCSC56-106 KCDC56-106		InGaAlP	601	12000	50000	
KCSA56-103 KCDA56-103	KCSC56-103 KCDC56-103		GaAsP/GaP	588	1200	5000	
KCSA56-107 KCDA56-107	KCSC56-107 KCDC56-107		InGaAlP	590	18000	76000	
KCSA56-102 KCDA56-102	KCSC56-102 KCDC56-102		GaP	568	3000	13200	
KCSA56-138 KCDA56-138	KCSC56-138 KCDC56-138		InGaN	525	26000	120000	
KCSA56-123 KCDA56-123	KCSC56-123 KCDC56-123		InGaAlP	570	8000	35500	
KCSA56-109 KCDA56-109	KCSC56-109 KCDC56-109		GaN	466	1200	5200	
KCSA56-136 KCDA56-136	KCSC56-136 KCDC56-136		InGaN	470	1900	9000	

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

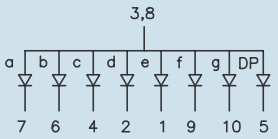
KCSA/KCSC02 Series

1

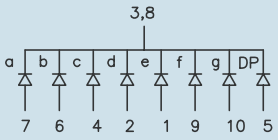




KCSA02

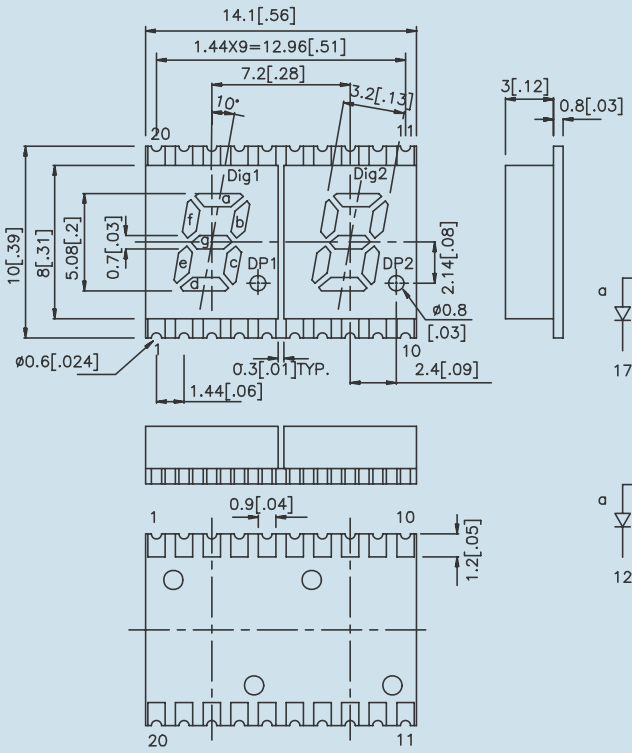


KCSC02

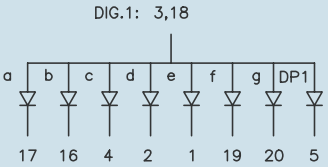


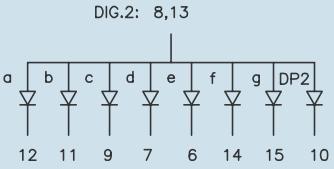
KCDA/KCDC02 Series

2

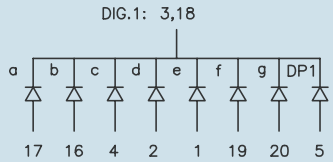


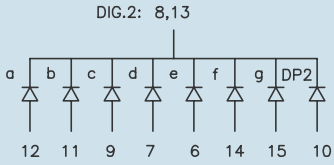
KCDA02





KCDC02

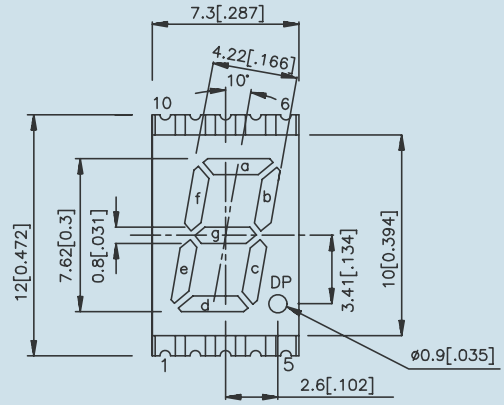


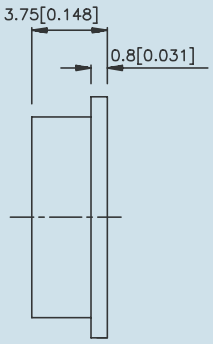


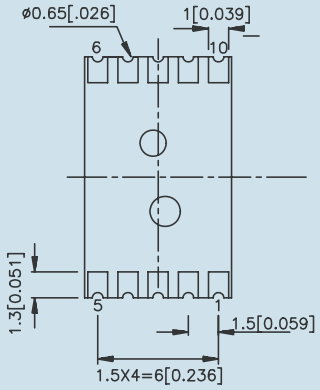
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

KCSA/KCSC03 Series

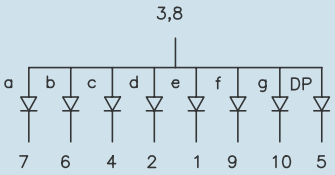
3



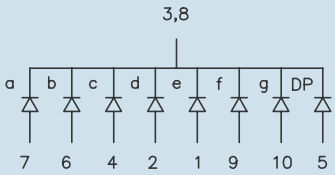




KCSA03

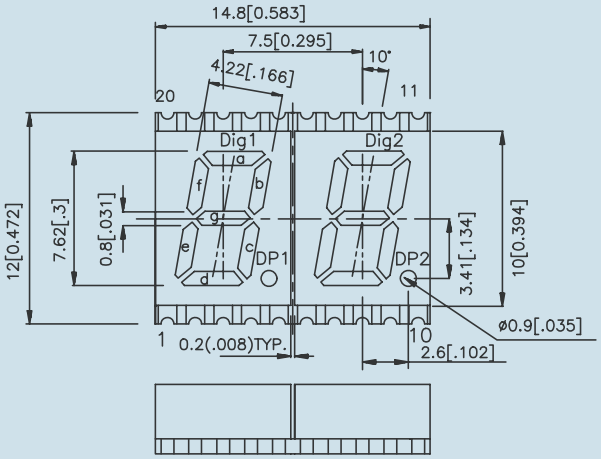


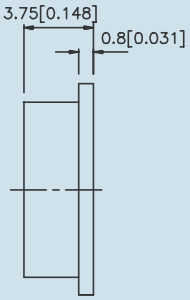
KCSC03

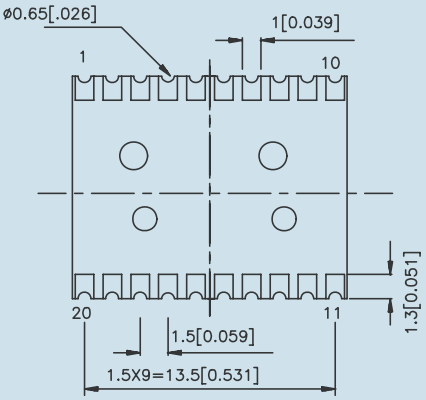


KCDA/KCDC03 Series

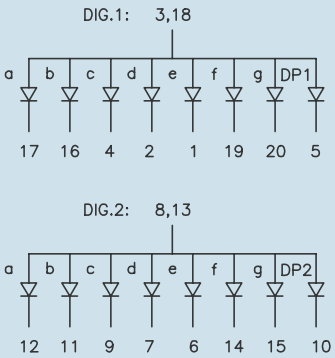
4



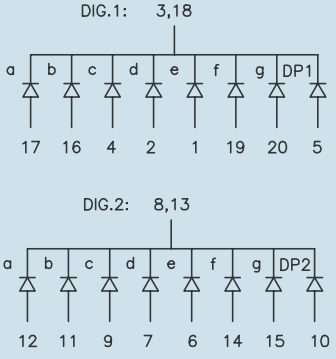




KCDA03



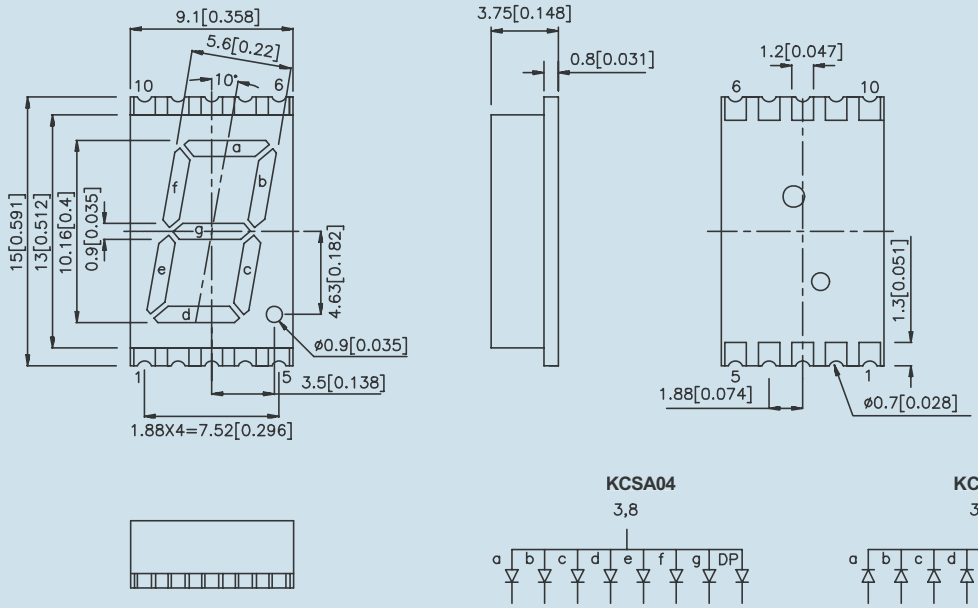
KCDC03



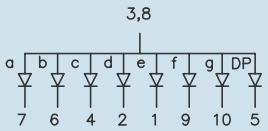
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

KCSA/KCSC04 Series

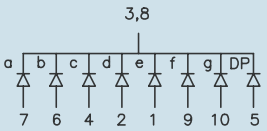
5



KCSA04

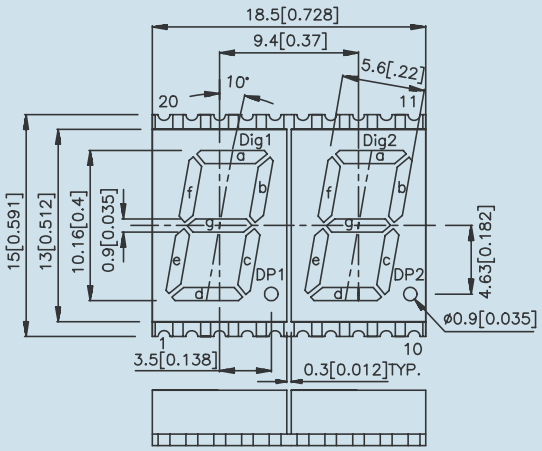


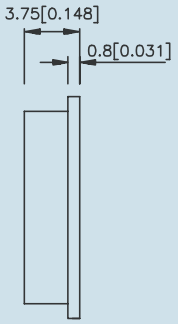
KCSC04



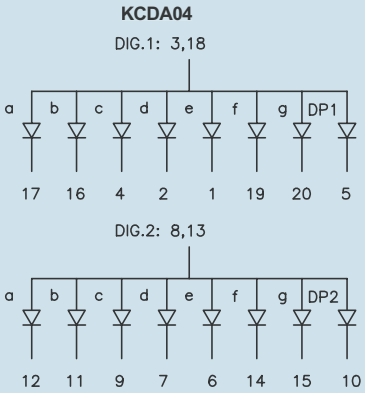
KCDA/KCDC04 Series

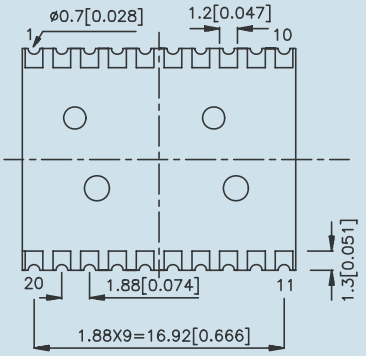
6





KCDA04





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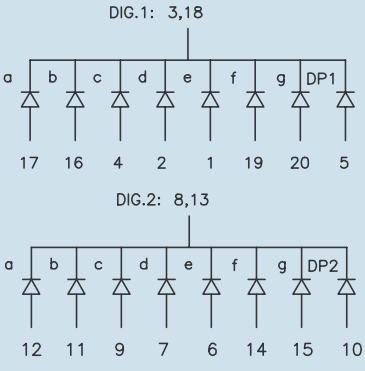
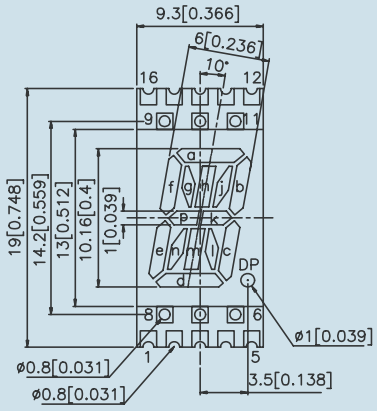
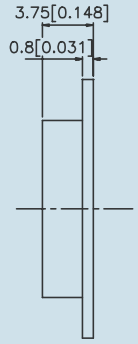


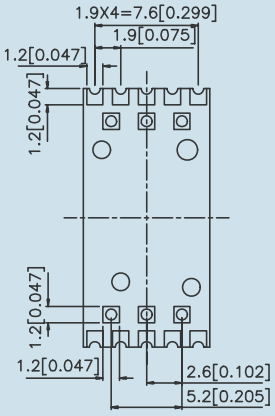
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

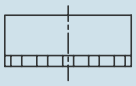
KCPSA/KCPSC04 Series

7

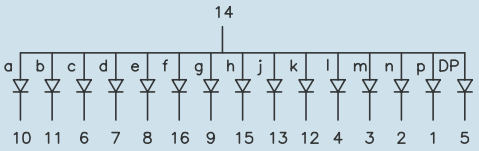




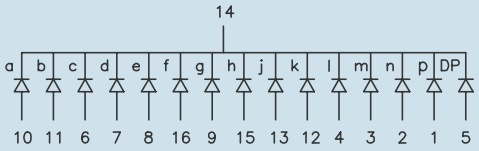




KCPSA04

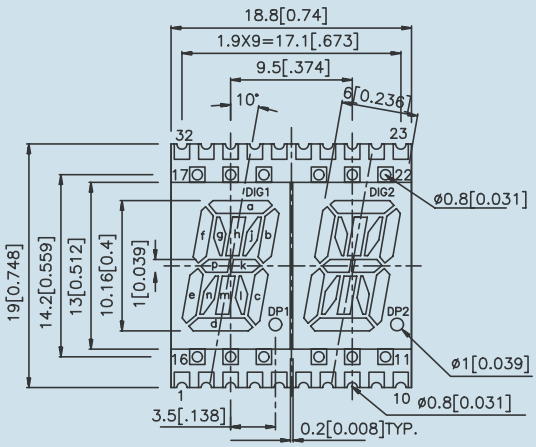


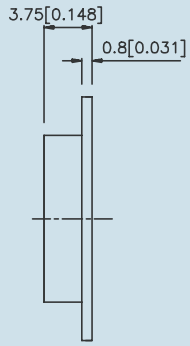
KCPSC04

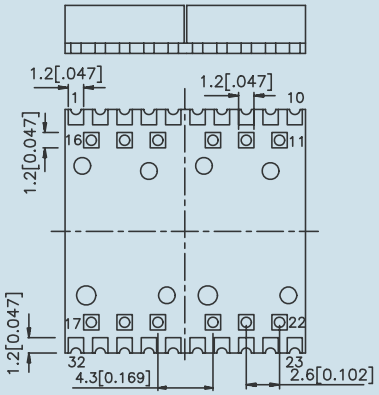


KCPDA/KCPDC04 Series

8







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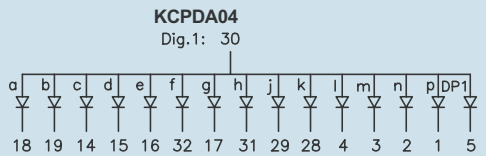
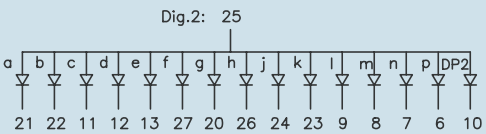
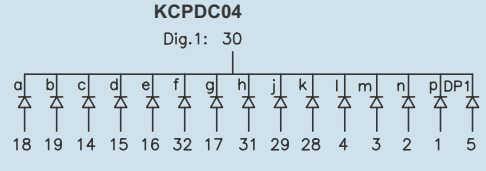
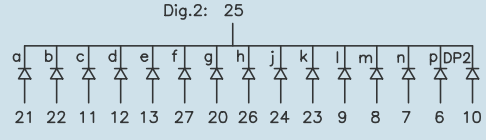




KCPDC04

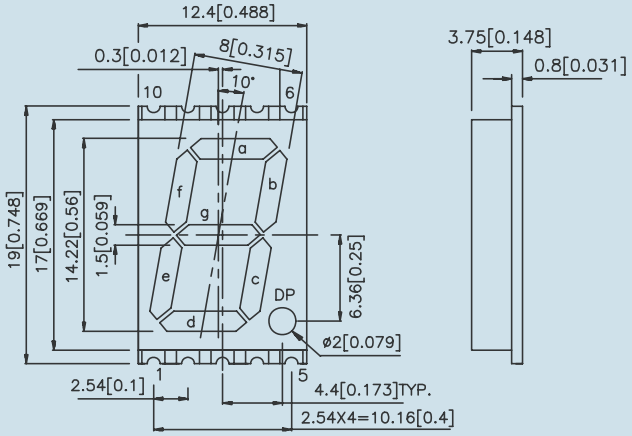


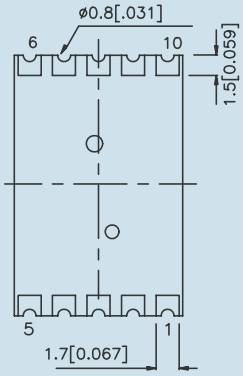


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

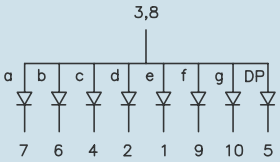
KCSA/KCSC56 Series

9

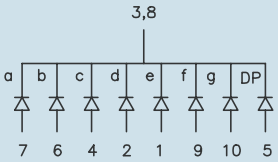




KCSA56

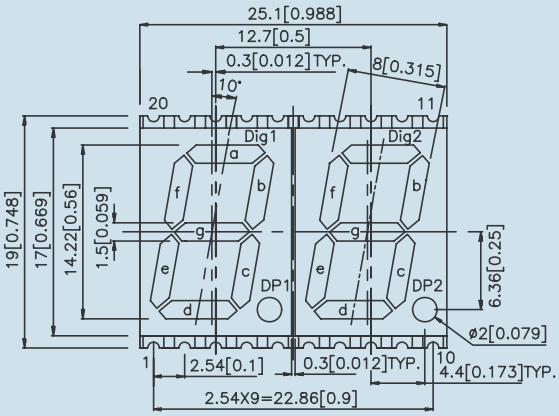


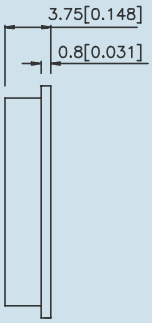
KCSC56



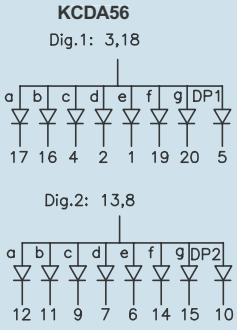
KCDA/KCDC56 Series

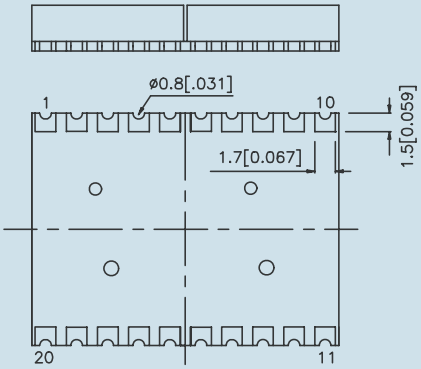
10



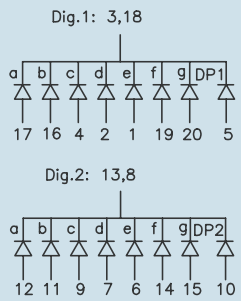


KCDA56



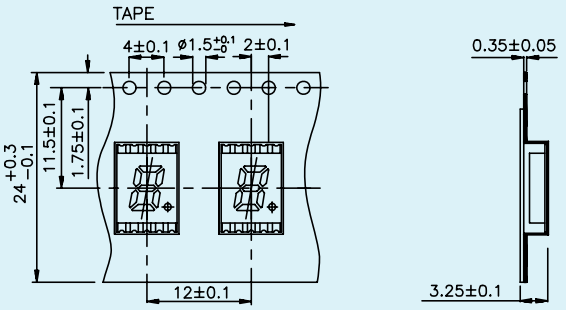


KCDC56



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is 0.25mm(0.01") unless otherwise noted.

KCSX02 PACKAGE: 650PCS / REEL



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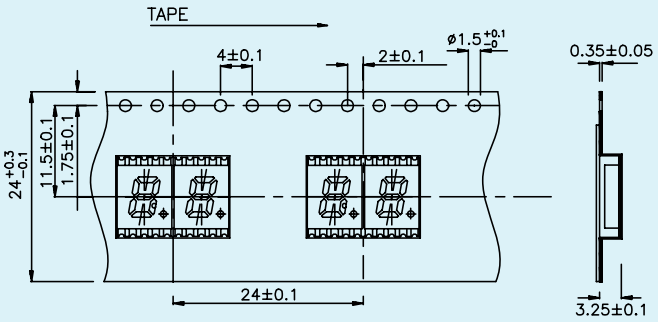
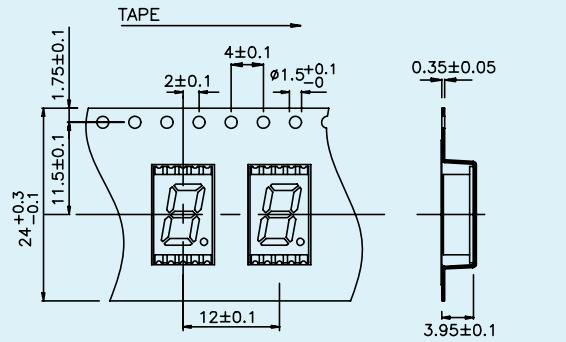


KCSX03 PACKAGE: 550PCS / REEL



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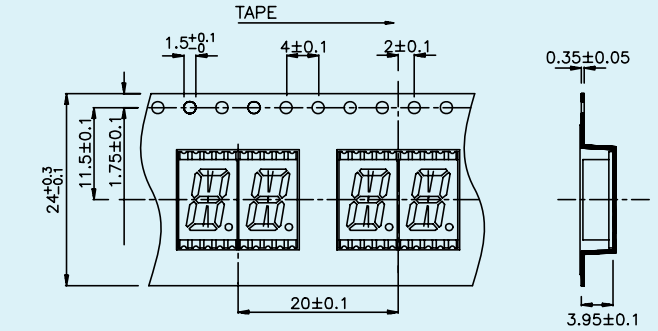

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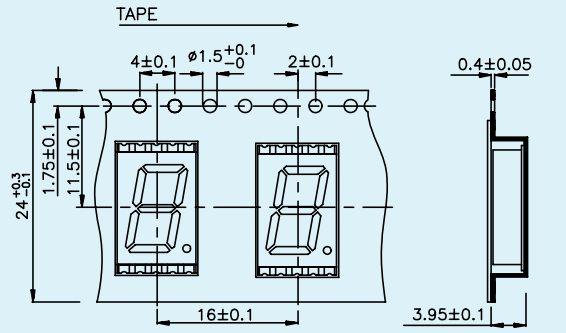

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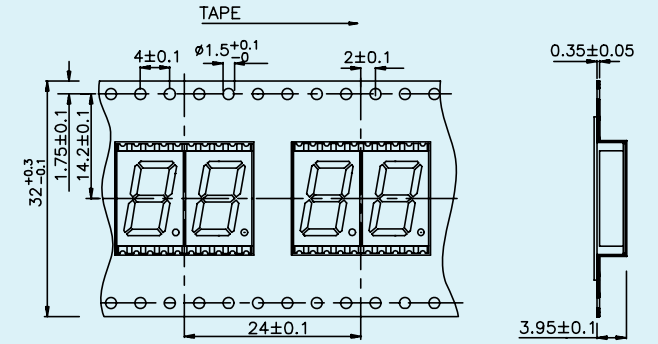

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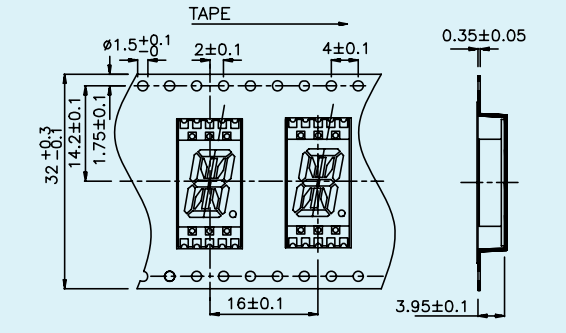

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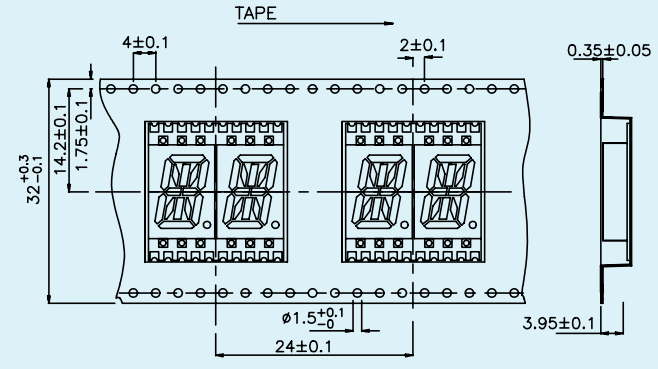
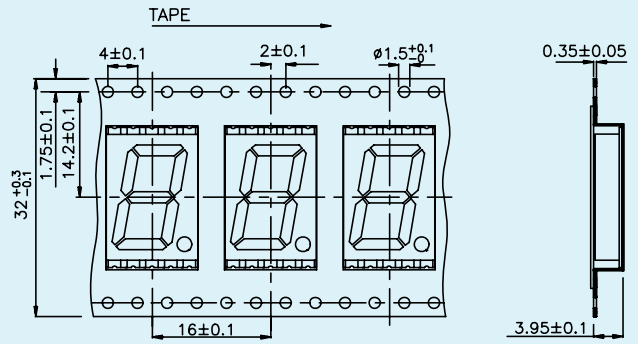
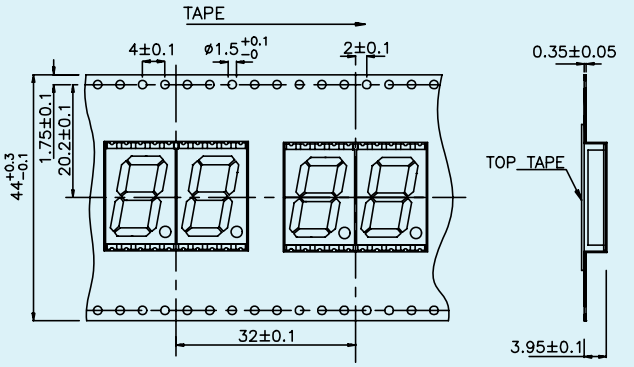


NOTE:
1. All dimensions are in millimeters

KCSX56 **PACKAGE: 400PCS / REEL**

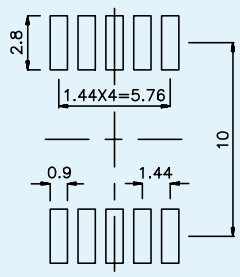


KCDX56 **PACKAGE: 200PCS / REEL**

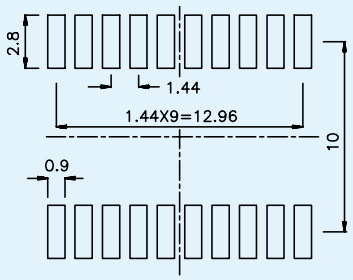


NOTE:
1. All dimensions are in millimeters.

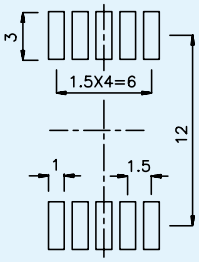
KCSX02



KCDX02



KCSX03



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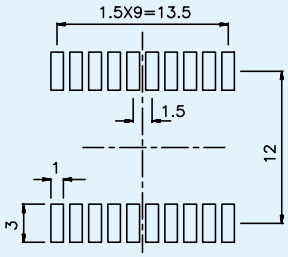
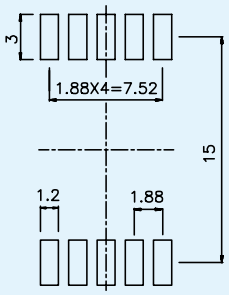
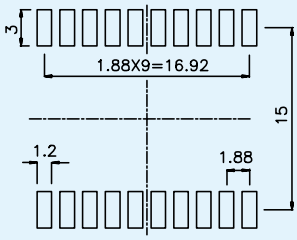


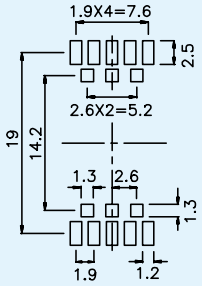
KCSX04



KCDX04



KCPSX04



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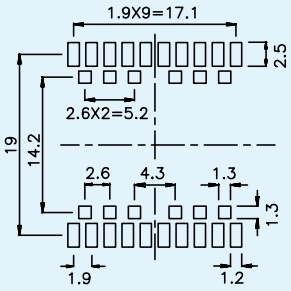

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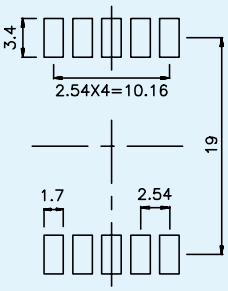

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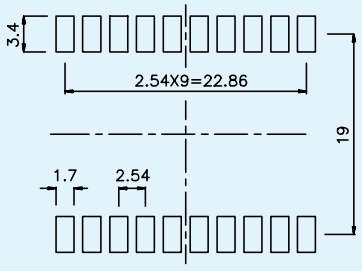


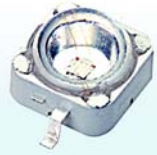
NOTES:
1. All dimensions are in millimeters.
2. Tolerance is ±0.15mm unless otherwise noted.

Kingbright

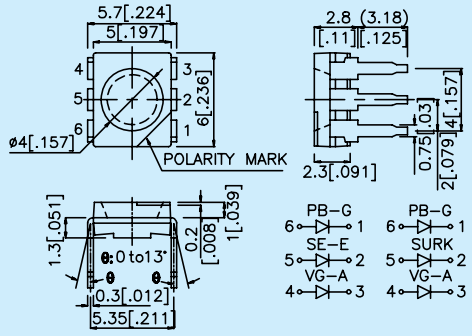
2007-2009

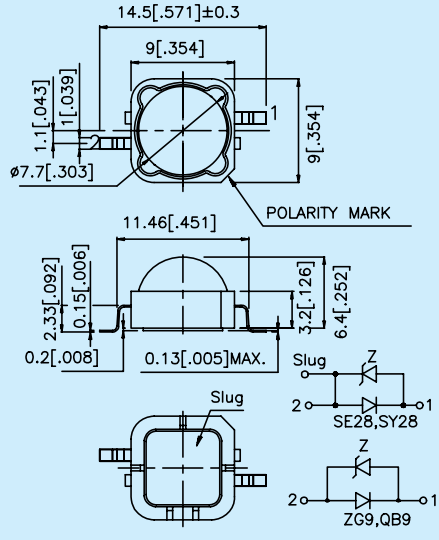
KAF-5060

KAD1-9090

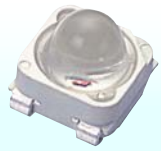


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @350mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KAF-5060PBGSEEVGAC	InGaN	470		180	300		5.0mm x 6.0mm
	InGaAlP	621	water clear	**650	**1000	100°	
	InGaN	525		180	350		
KAF-5060PBGSURKVGAC	InGaN	470		180	300		
	InGaAlP	635	water clear	180	350	100°	
	InGaN	525		180	350		
KAD1-9090SE28ZC	InGaAlP	625	water clear	*8000	*12000	100°	9mm x 9mm (XPower)
KAD1-9090SY28ZC	InGaAlP	588	water clear	*8000	*11500	100°	
KAD1-9090ZG9ZC	AlInGaN	530	water clear	*12000	*18000	100°	
KAD1-9090QB9ZC	AlInGaN	466	water clear	*1800	*3500	100°	

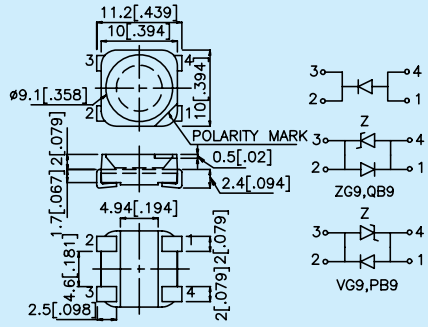




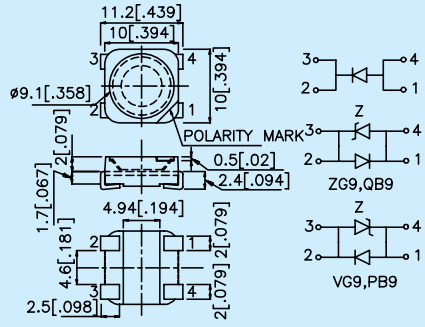
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KA-1010	KA-1011	KAD1-1010
		

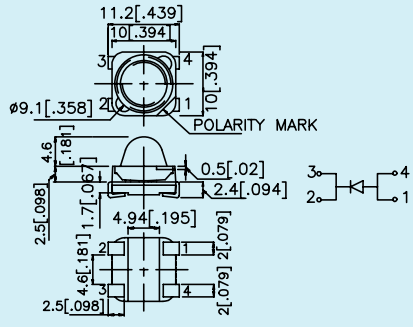
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @30mA**50mA *350mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KA-1010SEC28	InGaAlP	625	water clear	16000	32000	120°	10mm x 10mm (XPower)
KA-1010SYC28	InGaAlP	588	water clear	5700	9000	120°	
KA-1010ZG9ZC	AlInGaN	530	water clear	5000	6000	120°	
KA-1010VG9ZC	InGaN	527	water clear	4700	6500	120°	
KA-1010QB9ZC	AlInGaN	466	water clear	900	1400	120°	
KA-1010PB9ZC	InGaN	470	water clear	1500	2500	120°	



KA-1011SEC28	InGaAlP	625	water clear	24000	40000	60°	10mm x 10mm (XPower)
KA-1011SYC28	InGaAlP	588	water clear	8000	12000	60°	
KA-1011ZG9ZC	AlInGaN	530	water clear	10000	16000	60°	
KA-1011VG9ZC	AlInGaN	527	water clear	8000	13000	60°	
KA-1011QB9ZC	AlInGaN	466	water clear	1500	2500	60°	
KA-1011PB9ZC	InGaN	470	water clear	1500	2800	60°	



KAD1-1010SEC28	InGaAlP	625	water clear	160000	300000	20°	10mm x 10mm (XPower)
KAD1-1010SYC28	InGaAlP	588	water clear	40000	80000	20°	

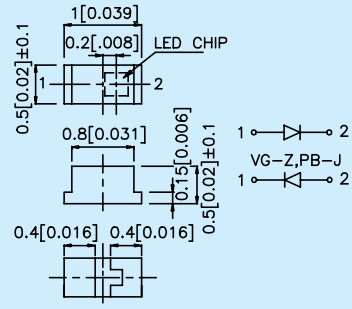


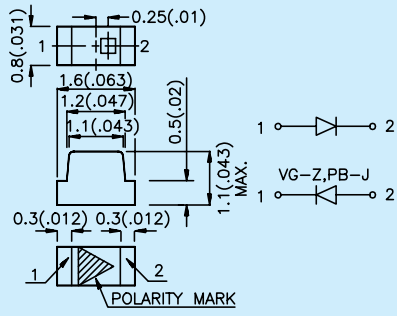
1.KA-1010 , KA-1011 & KAD1-1010 series results from mounting on PC board FR4(pad size>=100mm^2 per pad).

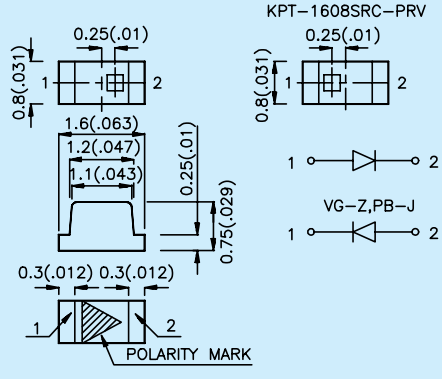
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KPHHS-1005	KP-1608	KPT-1608
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPHHS-1005SURCK	InGaAlP	635	water clear	50	150	120°	1.0mm x 0.5mm x 0.5mm (0402)
KPHHS-1005SECK	InGaAlP	601	water clear	50	160	120°	
KPHHS-1005SYCK	InGaAlP	590	water clear	36	120	120°	
KPHHS-1005CGCK	InGaAlP	570	water clear	10	40	120°	
KPHHS-1005VGC-A	InGaN	525	water clear	50	180	120°	
KPHHS-1005VGC-Z	InGaN	535	water clear	380	800	120°	
KPHHS-1005PBC-A	InGaN	470	water clear	18	60	120°	
KPHHS-1005PBC-J	InGaN	470	water clear	50	160	120°	
KP-1608SURC	InGaAlP	628	water clear	70	200	120°	1.6mm x 0.8mm x 1.1mm (0603)
KP-1608SURCK	InGaAlP	635	water clear	50	150	120°	
KP-1608SEC	InGaAlP	601	water clear	70	200	120°	
KP-1608SECK	InGaAlP	601	water clear	50	160	120°	
KP-1608SYC	InGaAlP	588	water clear	50	150	120°	
KP-1608SYCK	InGaAlP	590	water clear	36	120	120°	
KP-1608MGC	InGaAlP	568	water clear	18	70	120°	
KP-1608CGCK	InGaAlP	570	water clea	10	40	120°	
KP-1608ZGC	AlInGaN	525	water clear	110	300	120°	
KP-1608VGC-A	InGaN	525	water clear	50	180	120°	
KP-1608VGC-Z	InGaN	535	water clear	380	800	120°	
KP-1608QBC-D	AlInGaN	470	water clear	50	100	120°	
KP-1608PBC-A	InGaN	470	water clear	18	60	120°	
KP-1608PBC-J	InGaN	470	water clear	50	160	120°	
KPT-1608EC	GaAsP/GaP	625	water clear	4	12	120°	1.6mm x 0.8mm x 0.75mm (0603 Super Thin)
KPT-1608SRC-PRV	GaAlAs	640	water clear	36	100	120°	
KPT-1608SURC	InGaAlP	628	water clear	70	200	120°	
KPT-1608SURCK	InGaAlP	635	water clear	50	150	120°	
KPT-1608SEC	InGaAlP	601	water clear	70	200	120°	
KPT-1608SECK	InGaAlP	601	water clear	50	160	120°	
KPT-1608YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KPT-1608SYC	InGaAlP	588	water clear	50	150	120°	
KPT-1608SYCK	InGaAlP	590	water clear	36	120	120°	
KPT-1608SGC	GaP	568	water clear	4	15	120°	
KPT-1608MGC	InGaAlP	568	water clear	18	70	120°	
KPT-1608CGCK	InGaAlP	570	water clea	10	40	120°	
KPT-1608ZGC	AlInGaN	525	water clear	110	300	120°	
KPT-1608VGC-A	InGaN	525	water clear	50	180	120°	
KPT-1608VGC-Z	InGaN	535	water clear	380	800	120°	
KPT-1608QBC-D	AlInGaN	470	water clear	50	100	120°	
KPT-1608PBC-A	InGaN	470	water clear	18	60	120°	
KPT-1608PBC-J	InGaN	470	water clear	50	160	120°	



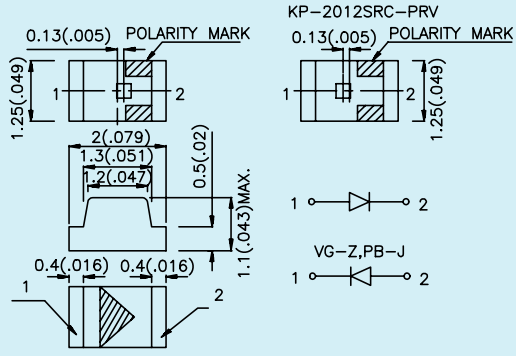




NOTE:
1.KP series custom-made is available upon request.

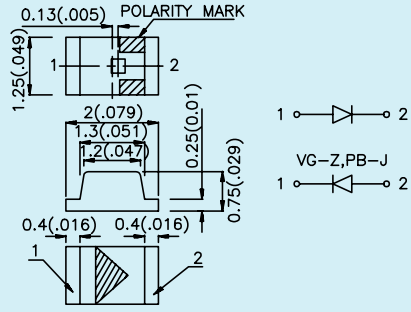
KP-2012	KPT-2012	KPTC-2012
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KP-2012EC	GaAsP/GaP	625	water clear	4	12	120°	2.0mm x 1.25mm x 1.1mm (0805)
KP-2012SRC-PRV	GaAlAs	640	water clear	36	100	120°	
KP-2012SURC	InGaAlP	628	water clear	70	200	120°	
KP-2012SURCK	InGaAlP	635	water clear	50	150	120°	
KP-2012SEC	InGaAlP	601	water clear	70	200	120°	
KP-2012SECK	InGaAlP	601	water clear	50	160	120°	
KP-2012YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KP-2012SYC	InGaAlP	588	water clear	50	150	120°	
KP-2012SYCK	InGaAlP	590	water clear	36	120	120°	
KP-2012SGC	GaP	568	water clear	4	15	120°	
KP-2012MGC	InGaAlP	568	water clear	18	70	120°	
KP-2012CGCK	InGaAlP	570	water clear	10	40	120°	
KP-2012ZGC	AlInGaN	525	water clear	110	300	120°	
KP-2012VGC-A	InGaN	525	water clear	50	180	120°	
KP-2012VGC-Z	InGaN	535	water clear	380	800	120°	
KP-2012QBC-D	AlInGaN	470	water clear	50	100	120°	
KP-2012PBC-A	InGaN	470	water clear	18	60	120°	
KP-2012PBC-J	InGaN	470	water clear	50	160	120°	



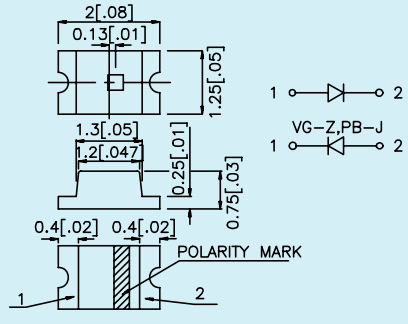
Units : mm(inch)
Tolerance : ±0.1(0.004)

KPT-2012SURC	InGaAlP	628	water clear	70	200	120°	2.0mm x 1.25mm x 0.75mm (0805 Super Thin)
KPT-2012SURCK	InGaAlP	635	water clear	50	150	120°	
KPT-2012SEC	InGaAlP	601	water clear	70	200	120°	
KPT-2012SECK	InGaAlP	601	water clear	50	160	120°	
KPT-2012SYC	InGaAlP	588	water clear	50	150	120°	
KPT-2012SYCK	InGaAlP	590	water clear	36	120	120°	
KPT-2012MGC	InGaAlP	568	water clear	18	70	120°	
KPT-2012CGCK	InGaAlP	570	water clear	10	40	120°	
KPT-2012ZGC	AlInGaN	525	water clear	110	300	120°	
KPT-2012VGC-A	InGaN	525	water clear	50	180	120°	
KPT-2012VGC-Z	InGaN	535	water clear	380	800	120°	
KPT-2012QBC-D	AlInGaN	470	water clear	50	100	120°	
KPT-2012PBC-A	InGaN	470	water clear	18	60	120°	
KPT-2012PBC-J	InGaN	470	water clear	50	160	120°	



Units : mm(inch)
Tolerance : ±0.1(0.004)

KPTC-2012SURC	InGaAlP	628	water clear	70	200	120°	2.0mm x 1.25mm x 0.75mm (0805 Super Thin)
KPTC-2012SURCK	InGaAlP	635	water clear	50	150	120°	
KPTC-2012SEC	InGaAlP	601	water clear	70	200	120°	
KPTC-2012SECK	InGaAlP	601	water clear	50	160	120°	
KPTC-2012SYC	InGaAlP	588	water clear	50	150	120°	
KPTC-2012SYCK	InGaAlP	590	water clear	36	120	120°	
KPTC-2012MGC	InGaAlP	568	water clear	18	70	120°	
KPTC-2012CGCK	InGaAlP	570	water clear	10	40	120°	
KPTC-2012ZGC	AlInGaN	525	water clear	110	300	120°	
KPTC-2012VGC-A	InGaN	525	water clear	50	180	120°	
KPTC-2012VGC-Z	InGaN	535	water clear	380	800	120°	
KPTC-2012QBC-D	AlInGaN	470	water clear	50	100	120°	
KPTC-2012PBC-A	InGaN	470	water clear	18	60	120°	
KPTC-2012PBC-J	InGaN	470	water clear	50	160	120°	

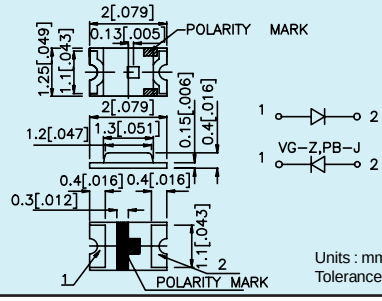


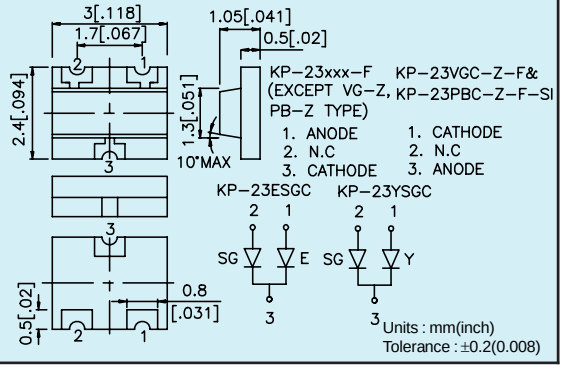
Units : mm(inch)
Tolerance : ±0.1(0.004)

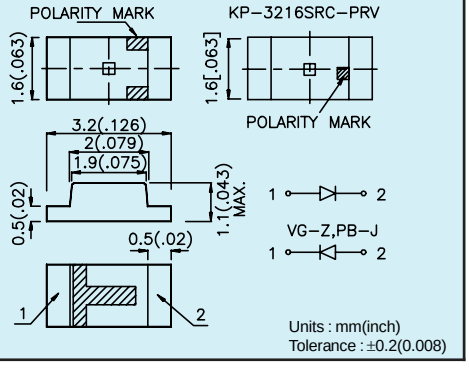
NOTE:
1.KP series custom-made is available upon request.

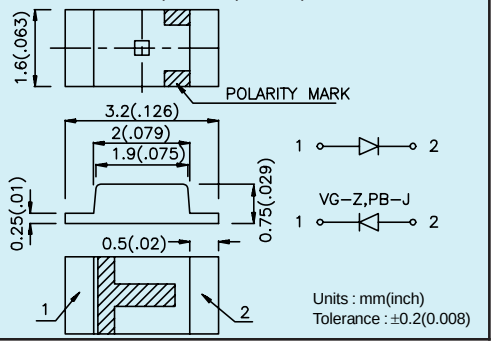
KPHCM-2012	KP-23xxx-F	KP-3216	KPT-3216
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPHCM-2012SURCK	InGaAlP	635	water clear	50	150	110°	2.0mm x 1.25mm x 0.4mm
KPHCM-2012SECK	InGaAlP	601	water clear	50	160	110°	
KPHCM-2012SYCK	InGaAlP	590	water clear	36	120	110°	
KPHCM-2012ZGC	AlInGaN	525	water clear	110	300	110°	
KPHCM-2012CGCK	InGaAlP	570	water clear	10	40	110°	
KPHCM-2012VGC-A	InGaN	525	water clear	50	180	110°	
KPHCM-2012VGC-Z	InGaN	535	water clear	380	800	110°	
KPHCM-2012QBC-D	AlInGaN	470	water clear	50	100	110°	
KPHCM-2012PBC-A	InGaN	470	water clear	18	60	110°	
KPHCM-2012PBC-J	InGaN	470	water clear	50	160	110°	
KP-23SURC-F	InGaAlP	628	water clear	110	250	120°	3.0mm x 2.4mm x 1.05mm
KP-23SURCK-F	InGaAlP	635	water clear	50	150	120°	
KP-23SEC-F	InGaAlP	601	water clear	70	200	120°	
KP-23SECK-F	InGaAlP	601	water clear	50	160	120°	
KP-23SYC-F	InGaAlP	588	water clear	50	150	120°	
KP-23SYCK-F	InGaAlP	590	water clear	36	120	120°	
KP-23MGC-F	InGaAlP	568	water clear	36	70	120°	
KP-23CGCK-F	InGaAlP	570	water clear	18	60	120°	
KP-23ZGC-F	AlInGaN	525	water clear	110	380	120°	
KP-23VGC-A-F	InGaN	525	water clear	50	180	120°	
KP-23VGC-Z-F	InGaN	535	water clear	380	900	120°	
KP-23QBC-D-F	AlInGaN	470	water clear	50	100	120°	
KP-23PBC-A-F	InGaN	470	water clear	18	50	120°	
KP-23PBC-Z-F-SI	InGaN	465	water clear	110	250	120°	
KP-23ESGC	GaAsP/GaP	625	water clear	7	20	120°	
	GaP	568		7	20		
KP-23YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
	GaP	568		7	20		
KP-3216EC	GaAsP/GaP	625	water clear	4	12	120°	3.2mm x 1.6mm x 1.1mm (1206)
KP-3216SRC-PRV	GaAlAs	640	water clear	36	80	120°	
KP-3216SURC	InGaAlP	628	water clear	70	200	120°	
KP-3216SURCK	InGaAlP	635	water clear	50	150	120°	
KP-3216SEC	InGaAlP	601	water clear	70	200	120°	
KP-3216SECK	InGaAlP	601	water clear	50	160	120°	
KP-3216YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KP-3216SYC	InGaAlP	588	water clear	50	150	120°	
KP-3216SYCK	InGaAlP	590	water clear	36	120	120°	
KP-3216SGC	GaP	568	water clear	4	15	120°	
KP-3216MGC	InGaAlP	568	water clear	18	70	120°	
KP-3216CGCK	InGaAlP	570	water clear	10	40	120°	
KP-3216ZGC	AlInGaN	525	water clear	110	300	120°	
KP-3216VGC-A	InGaN	525	water clear	50	180	120°	
KP-3216VGC-Z	InGaN	535	water clear	380	800	120°	
KP-3216QBC-D	AlInGaN	470	water clear	50	100	120°	
KP-3216PBC-A	InGaN	470	water clear	18	60	120°	
KP-3216PBC-J	InGaN	470	water clear	50	160	120°	
KPT-3216SURC	InGaAlP	628	water clear	70	200	120°	3.2mm x 1.6mm x 0.75mm (1206 Super Thin)
KPT-3216SURCK	InGaAlP	635	water clear	50	150	120°	
KPT-3216SEC	InGaAlP	601	water clear	70	200	120°	
KPT-3216SECK	InGaAlP	601	water clear	50	160	120°	
KPT-3216SYC	InGaAlP	588	water clear	50	150	120°	
KPT-3216SYCK	InGaAlP	590	water clear	36	120	120°	
KPT-3216MGC	InGaAlP	568	water clear	18	70	120°	
KPT-3216CGCK	InGaAlP	570	water clear	10	40	120°	
KPT-3216ZGC	AlInGaN	525	water clear	110	300	120°	
KPT-3216VGC-A	InGaN	525	water clear	50	180	120°	
KPT-3216VGC-Z	InGaN	535	water clear	380	800	120°	
KPT-3216QBC-D	AlInGaN	470	water clear	50	100	120°	
KPT-3216PBC-A	InGaN	470	water clear	18	60	120°	
KPT-3216PBC-J	InGaN	470	water clear	50	160	120°	

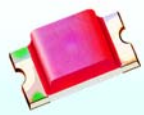




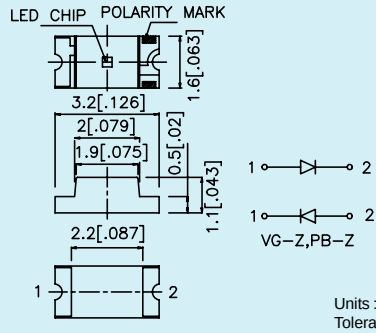


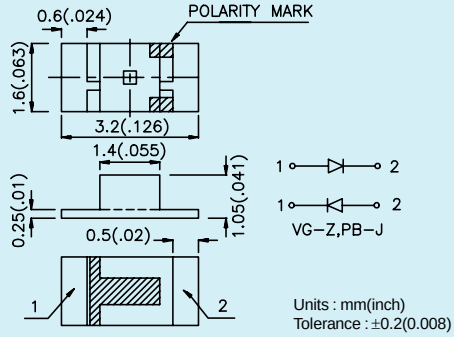


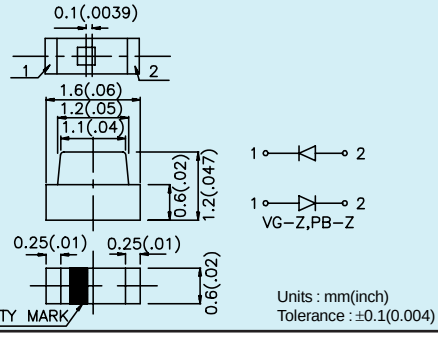
NOTE:
1.KP series custom-made is available upon request.

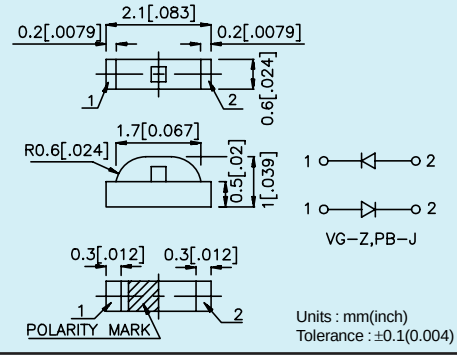
KPC-3216	KPTR-3216	KPA-1606	KPA-2106
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPC-3216SURC	InGaAlP	628	water clear	70	200	120°	3.2mm x 1.6mm x 1.1mm (1206)
KPC-3216SURCK	InGaAlP	635	water clear	50	150	120°	
KPC-3216SEC	InGaAlP	601	water clear	70	200	120°	
KPC-3216SECK	InGaAlP	601	water clear	50	160	120°	
KPC-3216SYC	InGaAlP	588	water clear	50	150	120°	
KPC-3216SYCK	InGaAlP	590	water clear	36	120	120°	
KPC-3216MGC	InGaAlP	568	water clear	18	70	120°	
KPC-3216CGCK	InGaAlP	570	water clear	10	40	120°	
KPC-3216ZGC	AlInGaN	525	water clear	110	300	120°	
KPC-3216VGC-A	InGaN	525	water clear	50	180	120°	
KPC-3216VGC-Z	InGaN	535	water clear	380	800	120°	
KPC-3216QBC-D	AlInGaN	470	water clear	50	100	120°	
KPC-3216PBC-A	InGaN	470	water clear	18	60	120°	
KPC-3216PBC-Z-SI	InGaN	465	water clear	110	250	150°	
KPTR-3216SURC	InGaAlP	628	water clear	70	200	120°	3.2mm x 1.6mm x 1.05mm (1206 Reverse Mount)
KPTR-3216SURCK	InGaAlP	635	water clear	50	150	120°	
KPTR-3216SEC	InGaAlP	601	water clear	70	200	120°	
KPTR-3216SECK	InGaAlP	601	water clear	50	160	120°	
KPTR-3216SYC	InGaAlP	588	water clear	50	150	120°	
KPTR-3216SYCK	InGaAlP	590	water clear	36	120	120°	
KPTR-3216MGC	InGaAlP	568	water clear	18	70	120°	
KPTR-3216CGCK	InGaAlP	570	water clear	10	40	120°	
KPTR-3216ZGC	AlInGaN	525	water clear	110	300	120°	
KPTR-3216VGC-A	InGaN	525	water clear	50	180	120°	
KPTR-3216VGC-Z	InGaN	535	water clear	380	800	120°	
KPTR-3216QBC-D	AlInGaN	470	water clear	50	100	120°	
KPTR-3216PBC-A	InGaN	470	water clear	18	60	120°	
KPTR-3216PBC-J	InGaN	470	water clear	50	160	120°	
KPA-1606SURCK	InGaAlP	635	water clear	110	250	110°	1.6mm x 0.6mm x 1.2mm (0602 Right Angle)
KPA-1606SECK	InGaAlP	601	water clear	70	250	110°	
KPA-1606SYCK	InGaAlP	590	water clear	50	150	110°	
KPA-1606ZGC	AlInGaN	525	water clear	70	250	110°	
KPA-1606CGCK	InGaAlP	570	water clear	18	60	110°	
KPA-1606VGC-A	InGaN	525	water clear	70	180	110°	
KPA-1606VGC-Z	InGaN	535	water clear	380	800	110°	
KPA-1606QBC-D	AlInGaN	470	water clear	36	90	110°	
KPA-1606PBC-A	InGaN	470	water clear	18	60	110°	
KPA-1606PBC-Z-SI	InGaN	465	water clear	110	230	110°	
KPA-2106SURC	InGaAlP	628	water clear	110	300	120°	2.1mm x 0.6mm x 1.0mm (0802 Right Angle)
KPA-2106SURCK	InGaAlP	635	water clear	110	250	120°	
KPA-2106SEC	InGaAlP	601	water clear	70	300	120°	
KPA-2106SECK	InGaAlP	601	water clear	70	250	120°	
KPA-2106SYC	InGaAlP	588	water clear	70	180	120°	
KPA-2106SYCK	InGaAlP	590	water clear	50	150	120°	
KPA-2106MGC	InGaAlP	568	water clear	36	80	120°	
KPA-2106CGCK	InGaAlP	570	water clear	18	60	120°	
KPA-2106ZGC	AlInGaN	525	water clear	70	250	120°	
KPA-2106VGC-A	InGaN	525	water clear	70	180	120°	
KPA-2106VGC-Z	InGaN	535	water clear	380	800	120°	
KPA-2106QBC-D	AlInGaN	470	water clear	36	90	120°	
KPA-2106PBC-A	InGaN	470	water clear	18	60	120°	
KPA-2106PBC-J	InGaN	470	water clear	50	150	120°	





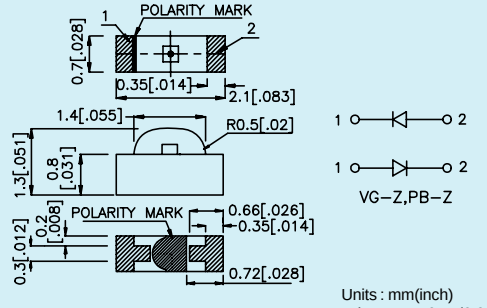


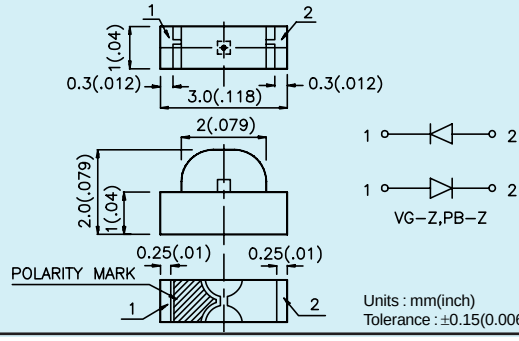


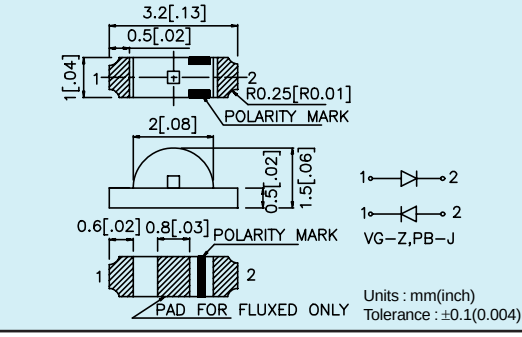
NOTE:
1.KP series custom-made is available upon request.

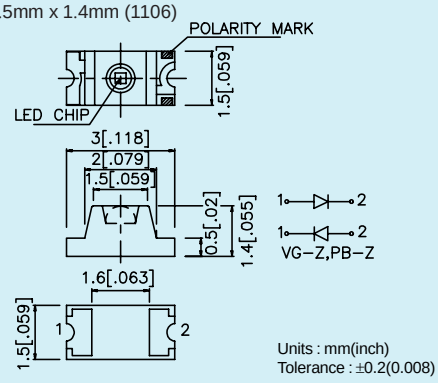
KPJA-2107	KPA-3010	KPA-3210	KPL-3015
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPJA-2107SURC	InGaAlP	628	water clear	110	300	120°	2.1mm x 0.7mm x 1.3mm (0802 Right Angle)
KPJA-2107SURCK	InGaAlP	635	water clear	110	250	120°	
KPJA-2107SEC	InGaAlP	601	water clear	70	300	120°	
KPJA-2107SECK	InGaAlP	601	water clear	70	250	120°	
KPJA-2107SYC	InGaAlP	588	water clear	70	180	120°	
KPJA-2107SYCK	InGaAlP	590	water clear	50	150	120°	
KPJA-2107MGC	InGaAlP	568	water clear	36	80	120°	
KPJA-2107CGCK	InGaAlP	570	water clear	18	60	120°	
KPJA-2107ZGC	AlInGaN	525	water clear	70	250	120°	
KPJA-2107VGC-A	InGaN	525	water clear	70	180	120°	
KPJA-2107VGC-Z	InGaN	535	water clear	380	800	120°	
KPJA-2107QBC-D	AlInGaN	470	water clear	36	90	120°	
KPJA-2107PBC-A	InGaN	470	water clear	18	60	120°	
KPJA-2107PBC-Z-SI	InGaN	465	water clear	110	230	150°	
KPA-3010SURC	InGaAlP	628	water clear	110	300	120°	3.0mm x 1.0mm x 2.0mm (1104 Right Angle)
KPA-3010SURCK	InGaAlP	635	water clear	110	250	120°	
KPA-3010SEC	InGaAlP	601	water clear	70	300	120°	
KPA-3010SECK	InGaAlP	601	water clear	70	250	120°	
KPA-3010SYC	InGaAlP	588	water clear	70	180	120°	
KPA-3010SYCK	InGaAlP	590	water clear	50	150	120°	
KPA-3010MGC	InGaAlP	568	water clear	36	80	120°	
KPA-3010CGCK	InGaAlP	570	water clear	18	60	120°	
KPA-3010ZGC	AlInGaN	525	water clear	70	250	120°	
KPA-3010VGC-A	InGaN	525	water clear	70	180	120°	
KPA-3010VGC-Z	InGaN	535	water clear	380	800	120°	
KPA-3010QBC-D	AlInGaN	470	water clear	36	90	120°	
KPA-3010PBC-A	InGaN	470	water clear	18	60	120°	
KPA-3010PBC-Z-SI	InGaN	465	water clear	110	230	120°	
KPA-3210SURC	InGaAlP	628	water clear	110	300	120°	3.2mm x 1.0mm x 1.5mm (1304 Right Angle)
KPA-3210SURCK	InGaAlP	635	water clear	110	250	120°	
KPA-3210SEC	InGaAlP	601	water clear	70	300	120°	
KPA-3210SECK	InGaAlP	601	water clear	70	250	120°	
KPA-3210SYC	InGaAlP	588	water clear	70	180	120°	
KPA-3210SYCK	InGaAlP	590	water clear	50	150	120°	
KPA-3210MGC	InGaAlP	568	water clear	36	80	120°	
KPA-3210CGCK	InGaAlP	570	water clear	18	60	120°	
KPA-3210ZGC	AlInGaN	525	water clear	70	250	120°	
KPA-3210VGC-A	InGaN	525	water clear	70	180	120°	
KPA-3210VGC-Z	InGaN	535	water clear	380	800	120°	
KPA-3210QBC-D	AlInGaN	470	water clear	36	90	120°	
KPA-3210PBC-A	InGaN	470	water clear	18	60	120°	
KPA-3210PBC-J	InGaN	470	water clear	50	150	120°	
KPL-3015SURC	InGaAlP	628	water clear	110	280	70°	3.0mm x 1.5mm x 1.4mm (1106)
KPL-3015SURCK	InGaAlP	635	water clear	70	240	70°	
KPL-3015SEC	InGaAlP	601	water clear	180	500	70°	
KPL-3015SECK	InGaAlP	601	water clear	70	300	70°	
KPL-3015SYC	InGaAlP	588	water clear	50	200	70°	
KPL-3015SYCK	InGaAlP	590	water clear	36	150	70°	
KPL-3015MGC	InGaAlP	568	water clear	70	140	70°	
KPL-3015CGCK	InGaAlP	570	water clear	36	90	70°	
KPL-3015ZGC	AlInGaN	525	water clear	380	850	70°	
KPL-3015VGC-A	InGaN	525	water clear	110	300	70°	
KPL-3015VGC-Z	InGaN	535	water clear	1200	1800	70°	
KPL-3015QBC-D	AlInGaN	470	water clear	70	180	70°	
KPL-3015PBC-A	InGaN	470	water clear	50	120	70°	
KPL-3015PBC-Z-SI	InGaN	465	water clear	480	850	70°	

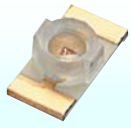
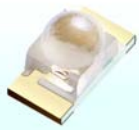
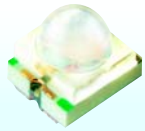
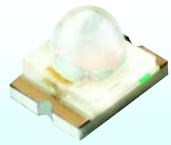




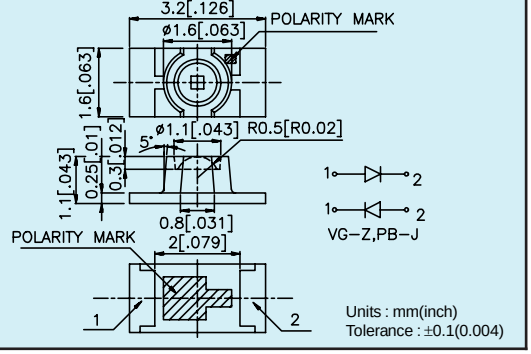


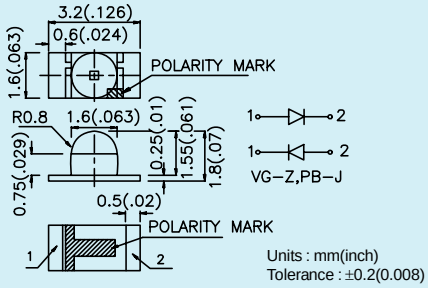


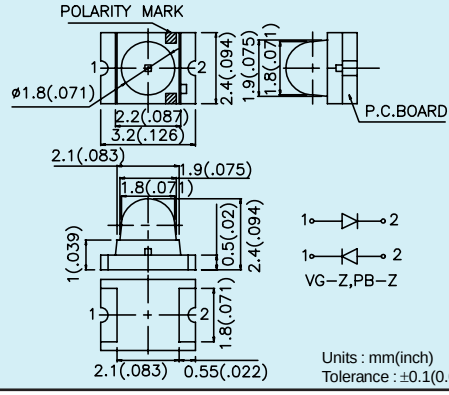
NOTE:
1.KP series custom-made is available upon request.

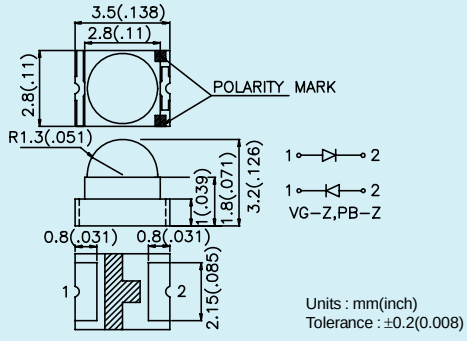
KPTL-3216	KPTD-3216	KPD-3224	KPED-3528
			

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPTL-3216SURCK	InGaAlP	635	water clear	280	550	70°	3.2mm x 1.6mm x 1.1mm (1206)
KPTL-3216SECK	InGaAlP	601	water clear	380	550	70°	
KPTL-3216SYCK	InGaAlP	590	water clear	110	350	70°	
KPTL-3216ZGC	AlInGaN	525	water clear	650	1100	70°	
KPTL-3216CGCK	InGaAlP	570	water clear	70	200	70°	
KPTL-3216VGC-A	InGaN	525	water clear	280	450	70°	
KPTL-3216VGC-Z	InGaN	535	water clear	1500	2200	70°	
KPTL-3216QBC-D	AlInGaN	470	water clear	180	340	70°	
KPTL-3216PBC-A	InGaN	470	water clear	50	200	70°	
KPTL-3216PBC-J	InGaN	470	water clear	180	400	70°	
KPTD-3216SURC	InGaAlP	628	water clear	280	600	50°	3.2mm x 1.6mm x 1.8mm (1206 Dome Lens)
KPTD-3216SURCK	InGaAlP	635	water clear	180	500	50°	
KPTD-3216SEC	InGaAlP	601	water clear	380	1200	50°	
KPTD-3216SECK	InGaAlP	601	water clear	280	700	50°	
KPTD-3216SYC	InGaAlP	588	water clear	110	300	50°	
KPTD-3216SYCK	InGaAlP	590	water clear	70	250	50°	
KPTD-3216MGC	InGaAlP	568	water clear	110	350	50°	
KPTD-3216CGCK	InGaAlP	570	water clear	70	200	50°	
KPTD-3216ZGC	AlInGaN	525	water clear	380	850	50°	
KPTD-3216VGC-A	InGaN	525	water clear	280	800	50°	
KPTD-3216VGC-Z	InGaN	535	water clear	2200	5000	50°	
KPTD-3216QBC-D	AlInGaN	470	water clear	280	500	40°	
KPTD-3216PBC-A	InGaN	470	water clear	70	220	50°	
KPTD-3216PBC-J	InGaN	470	water clear	650	1200	50°	
KPD-3224SURC	InGaAlP	628	water clear	650	1200	20°	3.2mm x 2.4mm x 2.4mm (Dome Lens)
KPD-3224SURCK	InGaAlP	635	water clear	480	1000	20°	
KPD-3224SEC	InGaAlP	601	water clear	650	2000	20°	
KPD-3224SECK	InGaAlP	601	water clear	650	1300	20°	
KPD-3224SYC	InGaAlP	588	water clear	180	700	20°	
KPD-3224SYCK	InGaAlP	590	water clear	110	600	20°	
KPD-3224MGC	InGaAlP	568	water clear	280	550	20°	
KPD-3224CGCK	InGaAlP	570	water clear	180	550	20°	
KPD-3224ZGC	AlInGaN	525	water clear	1200	2400	20°	
KPD-3224VGC-A	InGaN	525	water clear	480	1000	20°	
KPD-3224VGC-Z	InGaN	535	water clear	3800	6000	20°	
KPD-3224QBC-D	AlInGaN	470	water clear	480	900	20°	
KPD-3224PBC-A	InGaN	470	water clear	110	380	20°	
KPD-3224PBC-Z-SI	InGaN	465	water clear	1800	3000	20°	
KPED-3528SURC	InGaAlP	628	water clear	110	500	40°	3.5mm x 2.8mm x 3.2mm (Dome Lens)
KPED-3528SURCK	InGaAlP	635	water clear	110	450	40°	
KPED-3528SEC	InGaAlP	601	water clear	380	700	40°	
KPED-3528SECK	InGaAlP	601	water clear	280	550	40°	
KPED-3528SYC	InGaAlP	588	water clear	70	250	40°	
KPED-3528SYCK	InGaAlP	590	water clear	70	200	40°	
KPED-3528MGC	InGaAlP	568	water clear	70	250	40°	
KPED-3528CGCK	InGaAlP	570	water clear	70	170	40°	
KPED-3528ZGC	AlInGaN	525	water clear	480	1400	40°	
KPED-3528VGC-A	InGaN	525	water clear	110	300	40°	
KPED-3528VGC-Z	InGaN	535	water clear	1200	2500	40°	
KPED-3528QBC-D	AlInGaN	470	water clear	280	500	40°	
KPED-3528PBC-A	InGaN	470	water clear	50	150	40°	
KPED-3528PBC-Z-SI	InGaN	465	water clear	900	1500	40°	





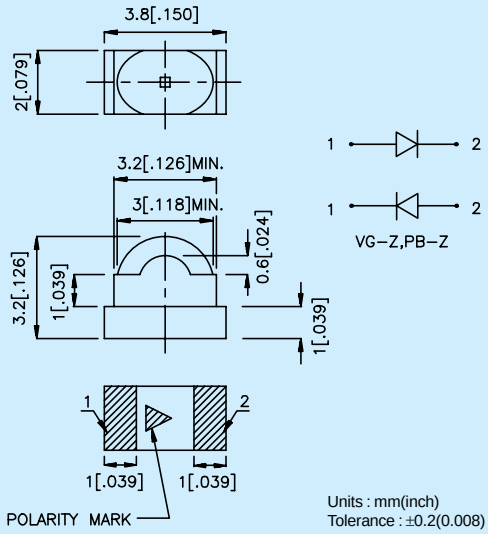


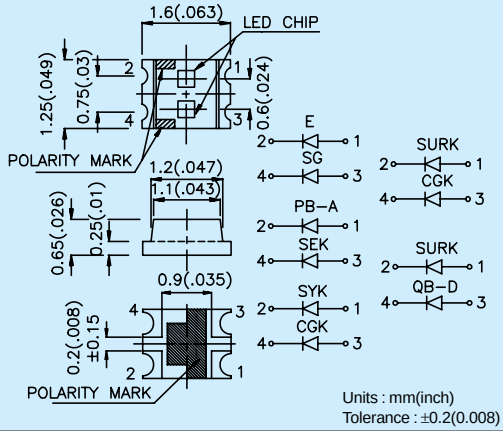


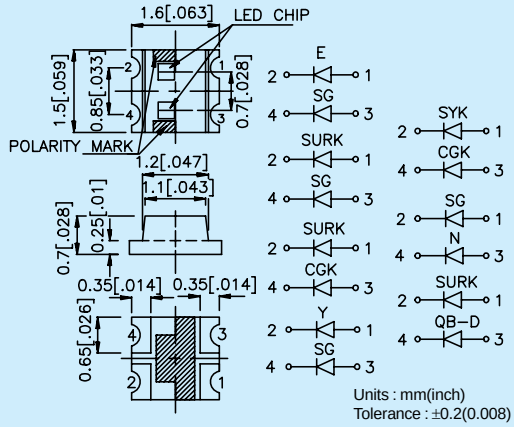
NOTE:
1.KP series custom-made is available upon request.

KPED-3820	KPTB-1612	KPTB-1615
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPED-3820SURC	InGaAlP	628	water clear	180	500	60°(H) 35°(V)	3.8mm x 2.0mm x 3.2mm (Dome Lens)
KPED-3820SURCK	InGaAlP	635	water clear	180	450	60°(H) 35°(V)	
KPED-3820SEC	InGaAlP	601	water clear	480	800	60°(H) 35°(V)	
KPED-3820SECK	InGaAlP	601	water clear	280	600	60°(H) 35°(V)	
KPED-3820SYC	InGaAlP	588	water clear	110	250	60°(H) 35°(V)	
KPED-3820SYCK	InGaAlP	590	water clear	70	200	60°(H) 35°(V)	
KPED-3820MGC	InGaAlP	568	water clear	70	250	60°(H) 35°(V)	
KPED-3820CGCK	InGaAlP	570	water clear	70	170	60°(H) 35°(V)	
KPED-3820ZGC	AlInGaN	525	water clear	480	1200	60°(H) 35°(V)	
KPED-3820VGC-A	InGaN	525	water clear	180	450	60°(H) 35°(V)	
KPED-3820VGC-Z	InGaN	535	water clear	2200	2800	60°(H) 35°(V)	
KPED-3820QBC-D	AlInGaN	470	water clear	110	300	60°(H) 35°(V)	
KPED-3820PBC-A	InGaN	470	water clear	50	150	60°(H) 35°(V)	
KPED-3820PBC-Z-SI	InGaN	465	water clear	480	1100	60°(H) 35°(V)	
KPTB-1612ESGC	GaAsP/GaP	625	water clear	4	12	120°	1.6mm x 1.25mm x 0.65mm (0605 Bi-Color)
	GaP	568		4	12		
KPTB-1612PBASEKC	InGaN	470	water clear	18	60	120°	
	InGaAlP	601		70	140		
KPTB-1612SYKCGKC	InGaAlP	590	water clear	36	100	120°	
	InGaAlP	570		18	50		
KPTB-1612SURKCGKC	InGaAlP	635	water clear	70	150	120°	
	InGaAlP	570		18	50		
KPTB-1612SURKQBDC	InGaAlP	635	water clear	70	150	120°	
	AlInGaN	470		50	90		
KPTB-1615ESGC	GaAsP/GaP	625	water clear	4	12	120°	1.6mm x 1.5mm x 0.7mm (0606 Bi-Color)
	GaP	568		4	12		
KPTB-1615SURKSGC	InGaAlP	635	water clear	70	150	120°	
	GaP	568		4	12		
KPTB-1615SURKCGKC	InGaAlP	635	water clear	70	150	120°	
	InGaAlP	570		18	50		
KPTB-1615YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
	GaP	568		4	12		
KPTB-1615SYKCGKC	InGaAlP	590	water clear	36	100	120°	
	InGaAlP	570		18	50		
KPTB-1615SGNC	GaP	568	water clear	4	12	120°	
	GaAsP/GaP	610		4	12		
KPTB-1615SURKQBDC	InGaAlP	635	water clear	70	150	120°	
	AlInGaN	470		50	90		



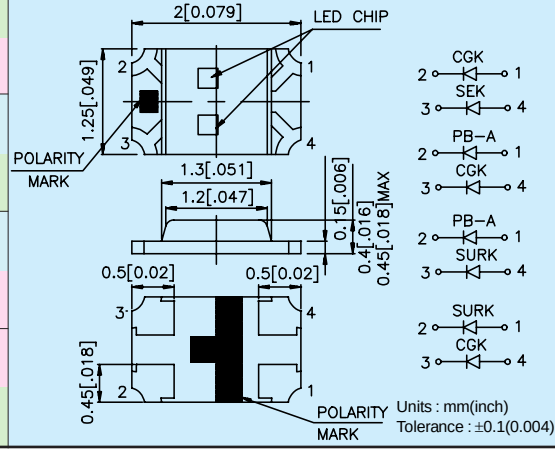


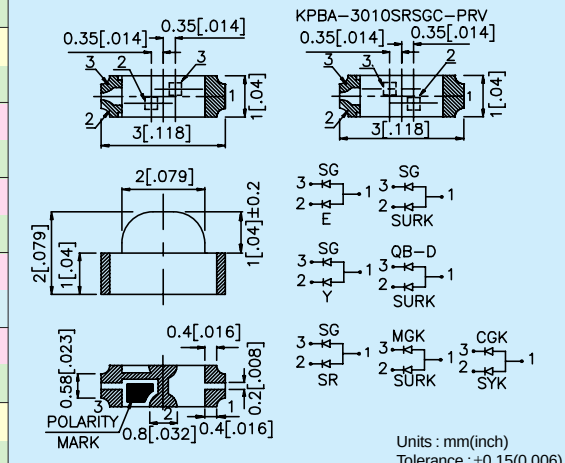


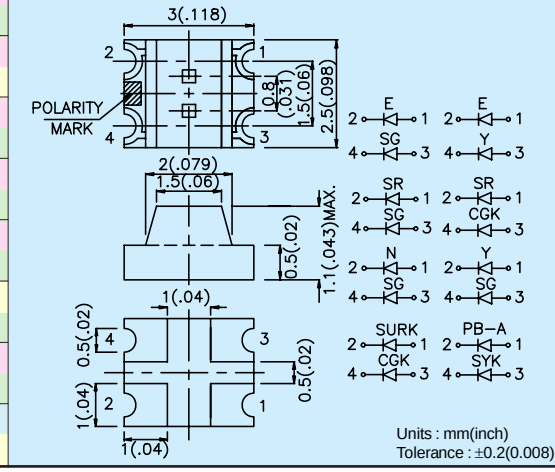
NOTE:
1.KP series custom-made is available upon request.

KPHBM-2012	KPBA-3010	KPB-3025
		

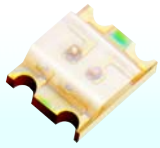
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPHBM-2012CGKSEKC	InGaAlP	570	water clear	36	80	120°	2.0mm x 1.25mm x 0.45mm (Bi-Color)
	InGaAlP	601		110	250		
KPHBM-2012PBACGKC	InGaN	470	water clear	18	50	120°	
	InGaAlP	570		36	80		
KPHBM-2012PBASURKC	InGaN	470	water clear	18	50	120°	
	InGaAlP	635		70	200		
KPHBM-2012SURKCGKC	InGaAlP	635	water clear	70	200	120°	
	InGaAlP	570		36	80		
KPBA-3010ESGC	GaAsP/GaP	625	water clear	4	12	140°	3.0mm x 1.0mm x 2mm (1104 Right Angle, Bi-Color)
	GaP	568		4	12		
KPBA-3010YSGC	GaAsP/GaP	588	water clear	2.6	6	140°	
	GaP	568		4	12		
KPBA-3010SRSGC-PRV	GaAlAs	640	water clear	50	80	140°	
	GaP	568		4	12		
KPBA-3010SURKSGC	InGaAlP	635	water clear	110	200	140°	
	GaP	568		4	12		
KPBA-3010SURKQBDC	InGaAlP	635	water clear	110	200	140°	
	AlInGaN	470		36	90		
KPBA-3010SURKMGKC	InGaAlP	635	water clear	110	200	140°	
	InGaAlP	570		36	80		
KPBA-3010SYKCGKC	InGaAlP	590	water clear	50	150	140°	
	InGaAlP	570		18	50		
KPB-3025ESGC	GaAsP/GaP	625	water clear	4	12	120°	3.0mm x 2.5mm x 1.1mm (1109 Bi-Color)
	GaP	568		4	12		
KPB-3025EYC	GaAsP/GaP	625	water clear	4	12	120°	
	GaAsP/GaP	588		2.6	8		
KPB-3025SRSGC-PRV	GaAlAs	640	water clear	36	100	120°	
	GaP	568		4	12		
KPB-3025SRCGKC-PRV	GaAlAs	640	water clear	36	100	120°	
	InGaAlP	570		18	50		
KPB-3025NSGC	GaAsP/GaP	610	water clear	4	12	120°	
	GaP	568		4	12		
KPB-3025YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
	GaP	568		4	12		
KPB-3025SURKCGKC	InGaAlP	635	water clear	50	160	120°	
	InGaAlP	570		18	50		
KPB-3025PBASYKC	InGaN	470	water clear	18	60	120°	
	InGaAlP	590		50	130		



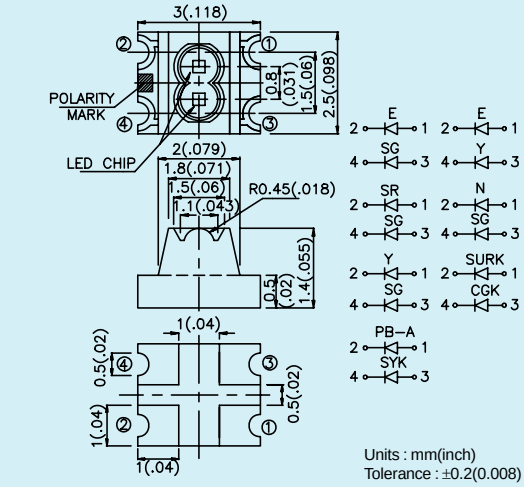


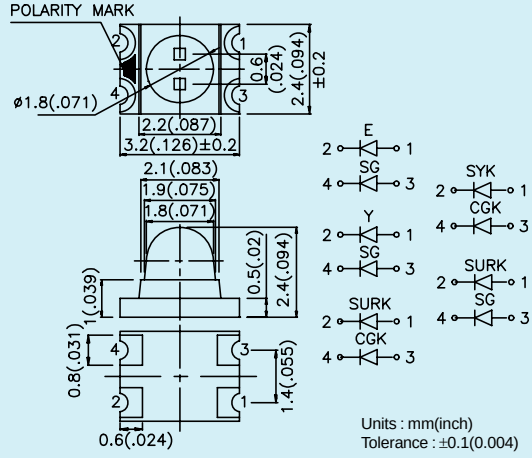


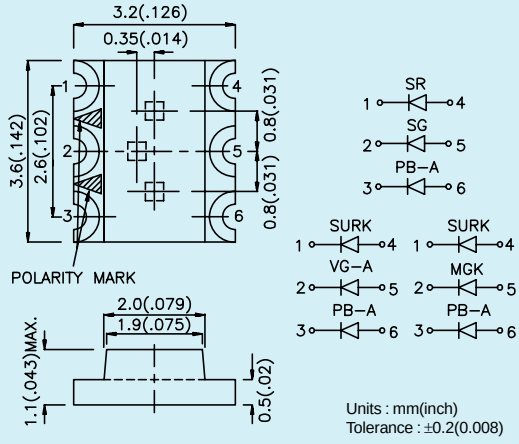
NOTE:
1.KP series custom-made is available upon request.

KPBL-3025	KPBD-3224	KPF-3236
		

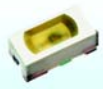
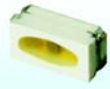
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPBL-3025ESGC	GaAsP/GaP	625	water clear	7	20	100°	3.0mm x 2.5mm x 1.4mm (1109 Bi-Color)
	GaP	568		7	20		
KPBL-3025EYC	GaAsP/GaP	625	water clear	7	20	100°	
	GaAsP/GaP	588		4	15		
KPBL-3025SRSGC-PRV	GaAlAs	640	water clear	36	100	100°	
	GaP	568		7	20		
KPBL-3025NSGC	GaAsP/GaP	610	water clear	7	20	100°	
	GaP	568		7	20		
KPBL-3025YSGC	GaAsP/GaP	588	water clear	4	15	100°	
	GaP	568		7	20		
KPBL-3025SURKCGKC	InGaAlP	635	water clear	110	300	100°	
	InGaAlP	570		36	80		
KPBL-3025PBASYKC	InGaN	470	water clear	70	150	100°	
	InGaAlP	590		70	150		
KPBD-3224ESGC	GaAsP/GaP	625	water clear	18	60	20°	3.2mm x 2.4mm x 2.4mm (Dome Lens)
	GaP	568		10	40		
KPBD-3224YSGC	GaAsP/GaP	588	water clear	4	15	20°	
	GaP	568		10	40		
KPBD-3224SURKCGKC	InGaAlP	635	water clear	380	800	20°	
	InGaAlP	570		110	300		
KPBD-3224SYKCGKC	InGaAlP	590	water clear	110	500	20°	
	InGaAlP	570		110	300		
KPBD-3224SURKSGC	InGaAlP	635	water clear	380	800	20°	
	GaP	568		18	60		
KPF-3236SRSGPBAC-PRV	GaAlAs	640		36	70		3.2mm x 3.6mm x 1.1mm (Full Color)
	GaP	568	water clear	4	12	120°	
	InGaN	470		18	60		
KPF-3236SURKVGAPBAC	InGaAlP	635		70	150		
	InGaN	525	water clear	50	150	120°	
	InGaN	470		18	60		
KPF-3236SURKMGKPBAC	InGaAlP	635		70	150		
	InGaAlP	570	water clear	18	60	120°	
	InGaN	470		18	60		



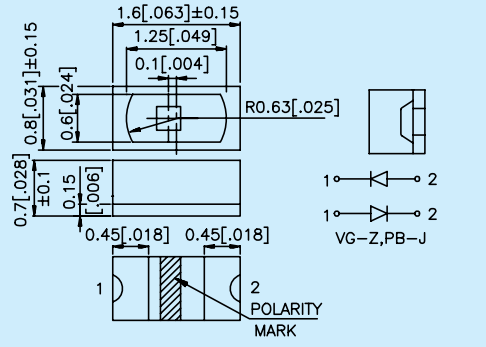


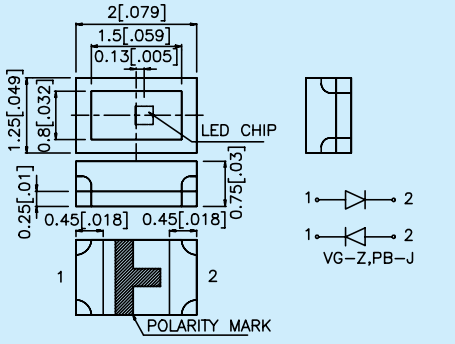


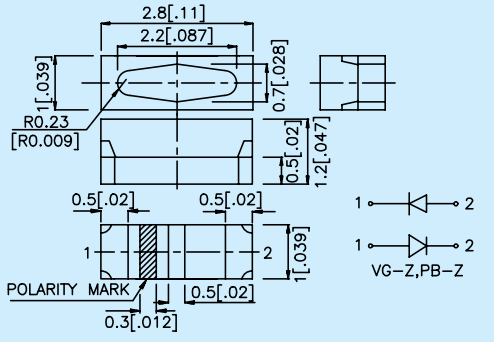
NOTE:
1.KP series custom-made is available upon request.

KPHK-1608	KPTK-2012	KPKA-2810
		

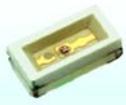
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPHK-1608SURC	InGaAlP	628	water clear	110	250	90°	1.6mm x 0.8mm x 0.7mm (0603)
KPHK-1608SURCK	InGaAlP	635	water clear	70	200	90°	
KPHK-1608SEC	InGaAlP	601	water clear	110	280	90°	
KPHK-1608SECK	InGaAlP	601	water clear	70	250	90°	
KPHK-1608SYC	InGaAlP	588	water clear	50	150	90°	
KPHK-1608SYCK	InGaAlP	590	water clear	36	120	90°	
KPHK-1608MGC	InGaAlP	568	water clear	36	90	90°	
KPHK-1608CGCK	InGaAlP	570	water clear	18	60	90°	
KPHK-1608TGC	InGaN	505	water clear	70	150	90°	
KPHK-1608ZGC	AlInGaN	525	water clear	110	300	90°	
KPHK-1608VGC-A	InGaN	525	water clear	70	200	90°	
KPHK-1608VGC-Z	InGaN	535	water clear	480	1000	90°	
KPHK-1608QBC-D	AlInGaN	470	water clear	50	120	90°	
KPHK-1608PBC-A	InGaN	470	water clear	36	70	90°	
KPHK-1608PBC-J	InGaN	470	water clear	70	250	90°	
KPTK-2012SURC	InGaAlP	628	water clear	110	250	100°	2.0mm x 1.25mm x 0.75mm (0805)
KPTK-2012SURCK	InGaAlP	635	water clear	70	200	100°	
KPTK-2012SEC	InGaAlP	601	water clear	110	280	100°	
KPTK-2012SECK	InGaAlP	601	water clear	70	250	100°	
KPTK-2012SYC	InGaAlP	588	water clear	50	150	100°	
KPTK-2012SYCK	InGaAlP	590	water clear	36	120	100°	
KPTK-2012MGC	InGaAlP	568	water clear	36	90	100°	
KPTK-2012CGCK	InGaAlP	570	water clear	18	60	100°	
KPTK-2012TGC	InGaN	505	water clear	70	150	100°	
KPTK-2012ZGC	AlInGaN	525	water clear	110	300	100°	
KPTK-2012VGC-A	InGaN	525	water clear	70	200	100°	
KPTK-2012VGC-Z	InGaN	535	water clear	480	1000	100°	
KPTK-2012QBC-D	AlInGaN	470	water clear	50	120	100°	
KPTK-2012PBC-A	InGaN	470	water clear	36	70	100°	
KPTK-2012PBC-J	InGaN	470	water clear	70	250	100°	
KPKA-2810SURC	InGaAlP	628	water clear	70	250	90°	2.8mm x 1.0mm x 1.2mm (1104 Right Angle)
KPKA-2810SURCK	InGaAlP	635	water clear	70	200	90°	
KPKA-2810SEC	InGaAlP	601	water clear	110	300	90°	
KPKA-2810SECK	InGaAlP	601	water clear	70	250	90°	
KPKA-2810SYC	InGaAlP	588	water clear	50	150	90°	
KPKA-2810SYCK	InGaAlP	590	water clear	36	120	90°	
KPKA-2810MGC	InGaAlP	568	water clear	36	90	90°	
KPKA-2810CGCK	InGaAlP	570	water clear	18	60	90°	
KPKA-2810TGC	InGaN	505	water clear	70	150	90°	
KPKA-2810ZGC	AlInGaN	525	water clear	110	300	90°	
KPKA-2810VGC-A	InGaN	525	water clear	70	200	90°	
KPKA-2810VGC-Z	InGaN	535	water clear	480	1000	90°	
KPKA-2810QBC-D	AlInGaN	470	water clear	50	120	90°	
KPKA-2810PBC-A	InGaN	470	water clear	36	70	90°	
KPKA-2810PBC-Z-SI	InGaN	465	water clear	110	250	110°	



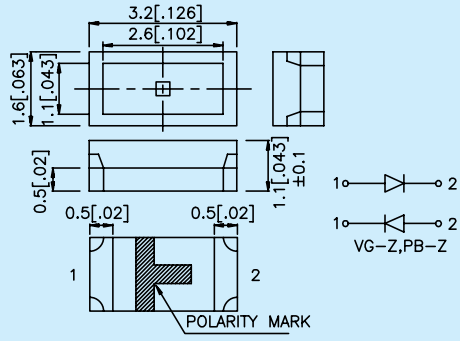




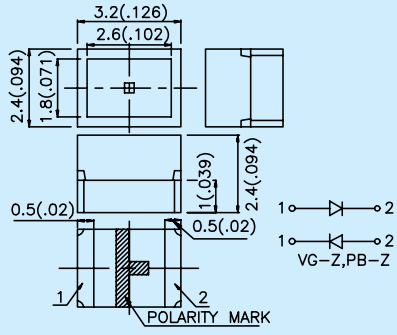
NOTE:
1.KP series custom-made is available upon request.

KPK-3216	KPEKA-3224	KPK-3520
		

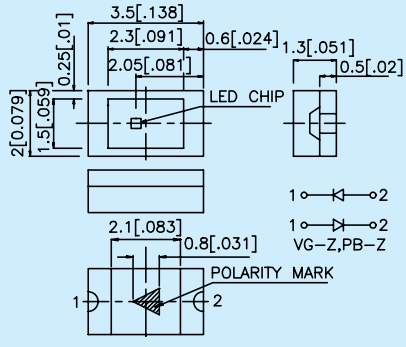
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPK-3216SURC	InGaAlP	628	water clear	110	250	90°	3.2mm x 1.6mm x 1.1mm(1206)
KPK-3216SURCK	InGaAlP	635	water clear	70	200	90°	
KPK-3216SEC	InGaAlP	601	water clear	110	300	90°	
KPK-3216SECK	InGaAlP	601	water clear	70	250	90°	
KPK-3216SYC	InGaAlP	588	water clear	50	150	90°	
KPK-3216SYCK	InGaAlP	590	water clear	36	120	90°	
KPK-3216MGC	InGaAlP	568	water clear	36	90	90°	
KPK-3216CGCK	InGaAlP	570	water clear	18	60	90°	
KPK-3216TGC	InGaN	505	water clear	70	150	90°	
KPK-3216ZGC	AlInGaN	525	water clear	110	300	90°	
KPK-3216VGC-A	InGaN	525	water clear	70	200	90°	
KPK-3216VGC-Z	InGaN	535	water clear	480	1000	90°	
KPK-3216QBC-D	AlInGaN	470	water clear	50	120	90°	
KPK-3216PBC-A	InGaN	470	water clear	36	70	90°	
KPK-3216PBC-Z-SI	InGaN	465	water clear	110	250	110°	
KPEKA-3224SURC	InGaAlP	628	water clear	110	280	90°	3.2mm x 2.4mm x 2.4mm (1209 Right Angle)
KPEKA-3224SURCK	InGaAlP	635	water clear	110	250	90°	
KPEKA-3224SEC	InGaAlP	601	water clear	110	300	90°	
KPEKA-3224SECK	InGaAlP	601	water clear	110	250	90°	
KPEKA-3224SYC	InGaAlP	588	water clear	50	150	90°	
KPEKA-3224SYCK	InGaAlP	590	water clear	50	120	90°	
KPEKA-3224MGC	InGaAlP	568	water clear	50	110	90°	
KPEKA-3224CGCK	InGaAlP	570	water clear	36	60	90°	
KPEKA-3224ZGC	AlInGaN	525	water clear	110	300	90°	
KPEKA-3224VGC-A	InGaN	525	water clear	70	250	90°	
KPEKA-3224VGC-Z	InGaN	535	water clear	480	1000	90°	
KPEKA-3224QBC-D	AlInGaN	470	water clear	50	120	90°	
KPEKA-3224PBC-A	InGaN	470	water clear	36	100	90°	
KPEKA-3224PBC-Z-SI	InGaN	465	water clear	110	250	110°	
KPK-3520SURC	InGaAlP	628	water clear	70	230	120°	3.5mm x 2.0mm x 1.3mm (1308)
KPK-3520SURCK	InGaAlP	635	water clear	50	200	120°	
KPK-3520SEC	InGaAlP	601	water clear	110	300	120°	
KPK-3520SECK	InGaAlP	601	water clear	70	250	120°	
KPK-3520SYC	InGaAlP	588	water clear	50	150	120°	
KPK-3520SYCK	InGaAlP	590	water clear	36	120	120°	
KPK-3520MGC	InGaAlP	568	water clear	36	90	120°	
KPK-3520CGCK	InGaAlP	570	water clear	18	50	120°	
KPK-3520TGC	InGaN	505	water clear	50	150	120°	
KPK-3520ZGC	AlInGaN	525	water clear	110	200	120°	
KPK-3520VGC-A	InGaN	525	water clear	70	200	120°	
KPK-3520VGC-Z	InGaN	535	water clear	480	1000	120°	
KPK-3520QBC-D	AlInGaN	470	water clear	70	130	120°	
KPK-3520PBC-A	InGaN	470	water clear	18	60	120°	
KPK-3520PBC-Z-SI	InGaN	465	water clear	110	250	110°	



Units : mm(inch)
Tolerance : ±0.2(0.008)



Units : mm(inch)
Tolerance : ±0.2(0.008)

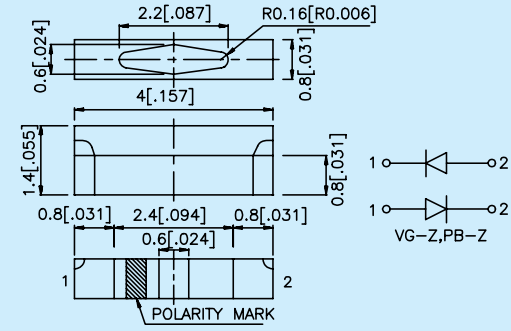


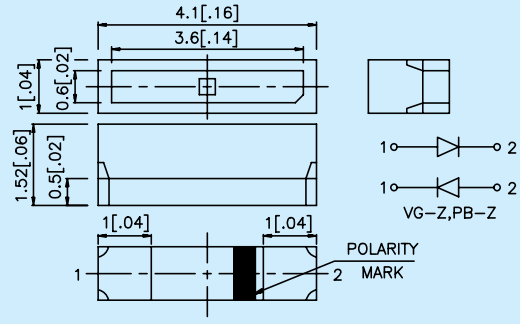
Units : mm(inch)
Tolerance : ±0.2(0.008)

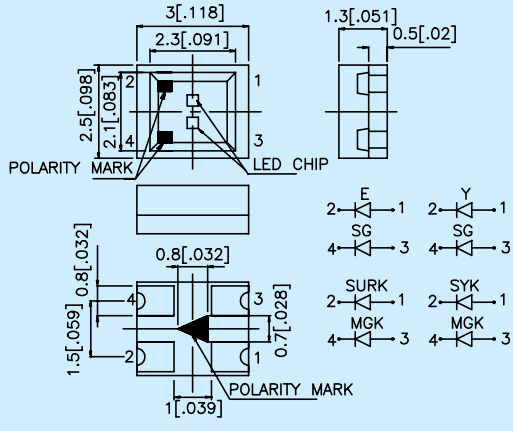
NOTE:
1.KP series custom-made is available upon request.

KPJKA-4008	KPKA-4110	KPKB-3025
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPJKA-4008SURC	InGaAlP	628	water clear	110	250	90°	4.0mm x 0.8mm x 1.4mm (1503 Right Angle)
KPJKA-4008SEC	InGaAlP	601	water clear	110	300	90°	
KPJKA-4008SYC	InGaAlP	588	water clear	50	150	90°	
KPJKA-4008MGC	InGaAlP	568	water clear	36	90	90°	
KPJKA-4008TGC	InGaN	505	water clear	70	150	90°	
KPJKA-4008ZGC	AlInGaN	525	water clear	110	300	90°	
KPJKA-4008VGC-A	InGaN	525	water clear	70	200	90°	
KPJKA-4008VGC-Z	InGaN	535	water clear	480	1000	90°	
KPJKA-4008QBC-D	AlInGaN	470	water clear	50	120	90°	
KPJKA-4008PBC-A	InGaN	470	water clear	36	70	90°	
KPJKA-4008PBC-Z-SI	InGaN	465	water clear	110	250	110°	
KPKA-4110SURC	InGaAlP	628	water clear	110	250	90°	4.1mm x 1.0mm x 1.52mm (1604 Right Angle)
KPKA-4110SEC	InGaAlP	601	water clear	110	300	90°	
KPKA-4110SYC	InGaAlP	588	water clear	50	150	90°	
KPKA-4110MGC	InGaAlP	568	water clear	36	90	90°	
KPKA-4110TGC	InGaN	505	water clear	70	150	90°	
KPKA-4110ZGC	AlInGaN	525	water clear	110	300	90°	
KPKA-4110VGC-A	InGaN	525	water clear	70	200	90°	
KPKA-4110VGC-Z	InGaN	535	water clear	480	1000	90°	
KPKA-4110QBC-D	AlInGaN	470	water clear	50	120	90°	
KPKA-4110PBC-A	InGaN	470	water clear	36	70	90°	
KPKA-4110PBC-Z-SI	InGaN	465	water clear	110	250	110°	
KPKB-3025ESGC	GaAsP/GaP	625	water clear	10	20	120°	3.0mm x 2.5mm x 1.3mm (1109 Bi-Color)
	GaP	568		10	20		
KPKB-3025YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
	GaP	568		10	20		
KPKB-3025SURKMGKC	InGaAlP	635	water clear	70	150	120°	
	InGaAlP	570		10	50		
KPKB-3025SYKMGKC	InGaAlP	590	water clear	36	120	120°	
	InGaAlP	570		10	50		



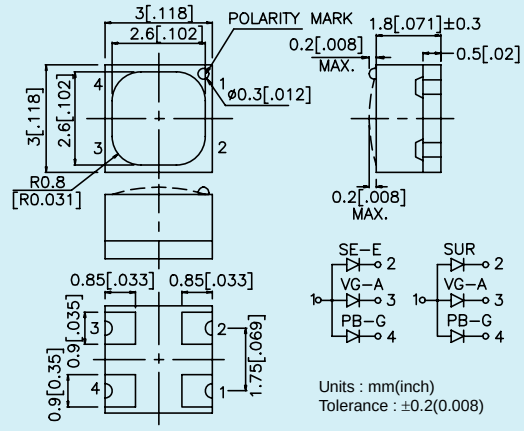




NOTE:
1.KP series custom-made is available upon request.

KPKF-3030	KA-3020A	KA-3022-4.5SF
		

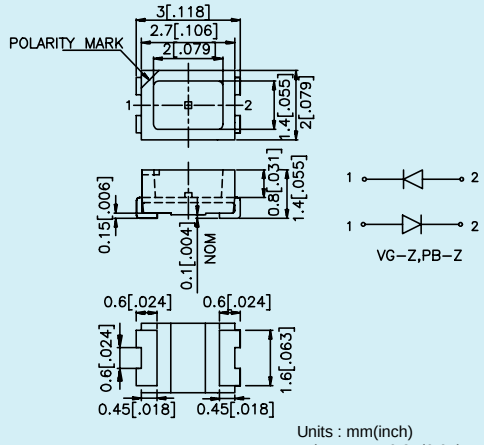
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPKF-3030SEEVGAPBGC	InGaAlP	621		180	400		3.0mm x 3.0mm x 1.8mm (Full Color)
	InGaN	525	water clear	110	250	100°	
	InGaN	470		70	160		
KPKF-3030SURVGAPBGC	InGaAlP	628		110	220		
	InGaN	525	water clear	110	250	100°	
	InGaN	470		70	160		



Units : mm(inch)
Tolerance : ±0.2(0.008)

KA-3020ASURC	InGaAlP	628	water clear	110	230	90°
KA-3020ASURCK	InGaAlP	635	water clear	70	200	90°
KA-3020ASEC	InGaAlP	601	water clear	110	300	90°
KA-3020ASECK	InGaAlP	601	water clear	70	150	90°
KA-3020ASYC	InGaAlP	588	water clear	50	120	90°
KA-3020ASYCK	InGaAlP	590	water clear	36	100	90°
KA-3020AMGC	InGaAlP	568	water clear	36	80	90°
KA-3020ACGCK	InGaAlP	570	water clear	18	60	90°
KA-3020AZGC	AlInGaN	525	water clear	110	250	90°
KA-3020AVGC-A	InGaN	525	water clear	70	150	90°
KA-3020AVGC-Z	InGaN	535	water clear	650	1000	90°
KA-3020APBC-A	InGaN	470	water clear	18	60	90°
KA-3020APBS-Z	InGaN	465	water clear	110	280	120°

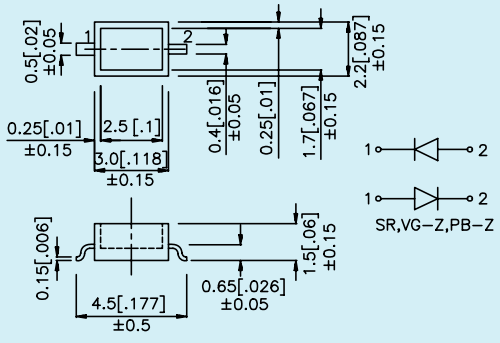
3.0mm x 2.0mm (1208)



Units : mm(inch)
Tolerance : ±0.25(0.01)

KA-3022EC-4.5SF	GaAsP/GaP	625	water clear	7	30	90°
KA-3022SRC-4.5SF	GaAlAs	640	water clear	36	150	90°
KA-3022YC-4.5SF	GaAsP/GaP	588	water clear	4	10	90°
KA-3022SGC-4.5SF	GaP	568	water clear	7	20	90°
KA-3022ZGC-4.5SF	AlInGaN	525	water clear	380	500	90°
KA-3022VGC-A-4.5SF	InGaN	525	water clear	70	150	90°
KA-3022VGC-Z-4.5SF	InGaN	535	water clear	650	1200	90°
KA-3022PBC-A-4.5SF	InGaN	470	water clear	36	70	90°
KA-3022PBS-Z-4.5SF	InGaN	465	water clear	110	250	120°

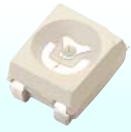
3.0mm x 2.2mm



Units : mm(inch)
Tolerance : ±0.25(0.01)

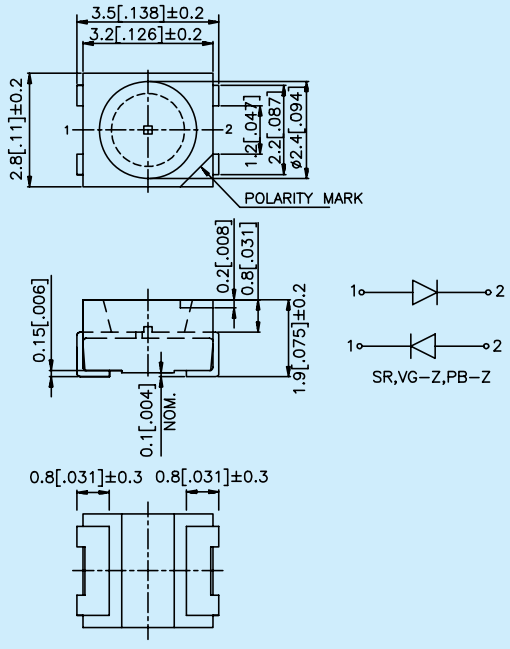
NOTE:
1.KP series custom-made is available upon request.

KA-3528A

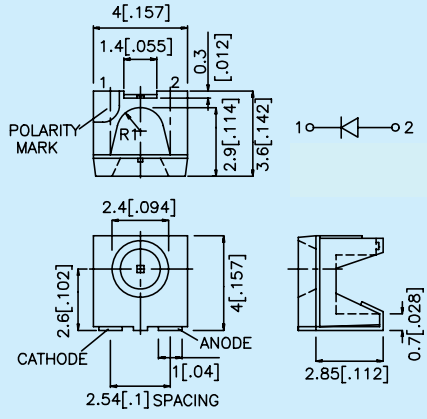


KA-4040

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KA-3528AEC	GaAsP/GaP	625	water clear	7	30	120°	3.5mm x 2.8mm
KA-3528ASRC	GaAlAs	640	water clear	50	150	120°	
KA-3528ASURC	InGaAlP	628	water clear	110	230	120°	
KA-3528ASURCK	InGaAlP	635	water clear	70	200	120°	
KA-3528ASEC	InGaAlP	601	water clear	180	350	120°	
KA-3528ASECK	InGaAlP	601	water clear	70	300	120°	
KA-3528AYC	GaAsP/GaP	588	water clear	4	15	120°	
KA-3528ASYC	InGaAlP	588	water clear	50	180	120°	
KA-3528ASYCK	InGaAlP	590	water clear	50	150	120°	
KA-3528ASGC	GaP	568	water clear	10	25	120°	
KA-3528AMGC	InGaAlP	568	water clear	70	150	120°	
KA-3528ACGCK	InGaAlP	570	water clear	18	60	120°	
KA-3528AZGC	AlInGaN	525	water clear	110	250	120°	
KA-3528AVGC-A	InGaN	525	water clear	110	220	120°	
KA-3528AVGC-E	InGaN	525	water clear	110	280	120°	
KA-3528AVGC-Z	InGaN	535	water clear	480	950	120°	
KA-3528APBC-A	InGaN	470	water clear	18	60	120°	
KA-3528APBS-Z	InGaN	465	water clear	180	350	120°	



KA-4040SURCK	InGaAlP	635	water clear	70	180	90°	4.0mm x 4.0mm Right Angle
KA-4040SEC	InGaAlP	601	water clear	180	350	90°	
KA-4040SECK	InGaAlP	601	water clear	70	200	90°	
KA-4040SYC	InGaAlP	588	water clear	50	150	90°	
KA-4040SYCK	InGaAlP	590	water clear	50	120	90°	
KA-4040MGC	InGaAlP	568	water clear	50	100	90°	
KA-4040CGCK	InGaAlP	570	water clear	36	70	90°	
KA-4040ZGC	AlInGaN	525	water clear	480	800	90°	
KA-4040VGC-A	InGaN	525	water clear	70	200	90°	
KA-4040VGC-Z	InGaN	535	water clear	650	1300	90°	
KA-4040PBC-A	InGaN	470	water clear	36	120	90°	
KA-4040PBS-Z	InGaN	465	water clear	110	280	120°	



NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KA-2735

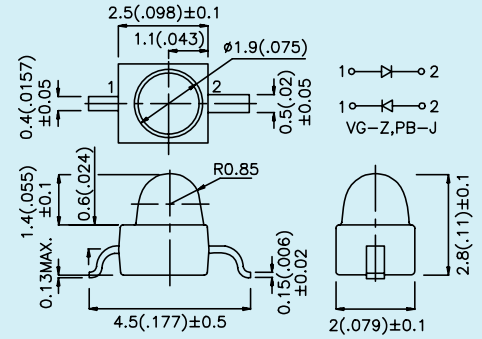
KM-23-F

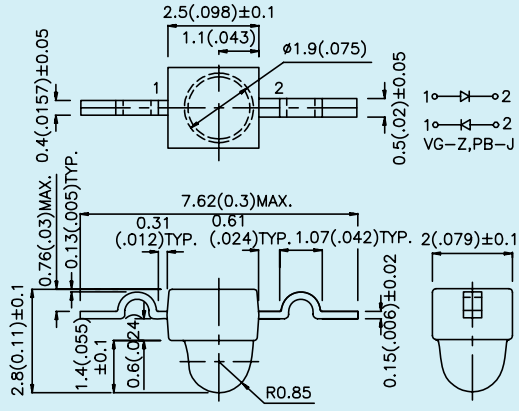
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KA-2735ESGC	GaAsP/GaP	625	water clear	7	30	120°	2.7mm x 3.5mm (Bi-Color)
	GaP	568		7	30		
KA-2735SURKMGC	InGaAlP	635	water clear	70	200	120°	
	InGaAlP	568		50	90		
KM-23ID-F	GaAsP/GaP	625	red diffused	4	15	140°	SOT-23 Surface Mount LED Lamp (3mm x 1.3mm)
KM-23EC-F	GaAsP/GaP	625	water clear	4	15	140°	
KM-23SRD-F	GaAlAs	640	red diffused	36	70	140°	
KM-23SRC-F	GaAlAs	640	water clear	36	70	140°	
KM-23YD-F	GaAsP/GaP	588	yellow diffused	1.6	5	140°	
KM-23YC-F	GaAsP/GaP	588	water clear	1.6	5	140°	
KM-23SGC-F	GaP	568	water clear	4	15	140°	
KM-23SYD-F	InGaAlP	588	yellow diffused	50	100	140°	
KM-23SYC-F	InGaAlP	588	water clear	50	150	140°	
KM-23CGCK-F	InGaAlP	570	water clear	18	40	140°	
KM-23ZGC-F	AlInGaN	525	water clear	110	380	140°	
KM-23VGC-A-F	InGaN	525	water clear	50	180	140°	
KM-23VGC-Z-F	InGaN	535	water clear	380	900	140°	
KM-23PBC-A-F	InGaN	470	water clear	18	60	140°	
KM-23PBC-J-F	InGaN	470	water clear	50	160	140°	
KM-23ESGW	GaAsP/GaP	625	white diffused	4	15	140°	
	GaP	568		4	15	140°	
KM-23ESGC	GaAsP/GaP	625	water clear	4	15	140°	
	GaP	568		4	15	140°	

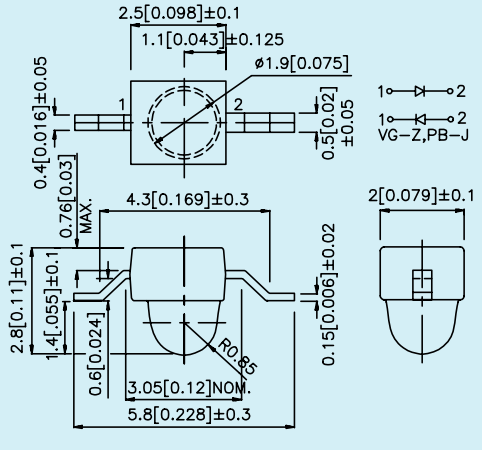
NOTE:
1.KP series custom-made is available upon request.

KM2520xxx03	KM2520xxx08	KM2520xxx09
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KM2520SURC03	InGaAlP	628	water clear	650	1600	20°	Subminiature Solid State Lamps Gull Wing Lead
KM2520SURCK03	InGaAlP	635	water clear	480	1400	20°	
KM2520SEC03	InGaAlP	601	water clear	1200	2000	20°	
KM2520SECK03	InGaAlP	601	water clear	900	1800	20°	
KM2520SYC03	InGaAlP	588	water clear	900	1500	20°	
KM2520SYCK03	InGaAlP	590	water clear	650	1300	20°	
KM2520MGC03	InGaAlP	568	water clear	280	600	20°	
KM2520CGCK03	InGaAlP	570	water clear	110	400	20°	
KM2520ZGC03	AlInGaN	525	water clear	1800	3300	20°	
KM2520VGC-A03	InGaN	525	water clear	380	800	20°	
KM2520VGC-Z03	InGaN	535	water clear	3300	6400	20°	
KM2520QBC-D03	AlInGaN	470	water clear	180	500	20°	
KM2520PBC-A03	InGaN	470	water clear	110	250	20°	
KM2520PBC-J03	InGaN	470	water clear	380	1000	20°	
KM2520SURC08	InGaAlP	628	water clear	650	1600	20°	Subminiature Solid State Lamps Yoke Lead
KM2520SURCK08	InGaAlP	635	water clear	480	1400	20°	
KM2520SEC08	InGaAlP	601	water clear	1200	2000	20°	
KM2520SECK08	InGaAlP	601	water clear	900	1800	20°	
KM2520SYC08	InGaAlP	588	water clear	900	1500	20°	
KM2520SYCK08	InGaAlP	590	water clear	650	1300	20°	
KM2520MGC08	InGaAlP	568	water clear	280	600	20°	
KM2520CGCK08	InGaAlP	570	water clear	110	400	20°	
KM2520ZGC08	AlInGaN	525	water clear	1800	3300	20°	
KM2520VGC-A08	InGaN	525	water clear	380	800	20°	
KM2520VGC-Z08	InGaN	535	water clear	3300	6400	20°	
KM2520QBC-D08	AlInGaN	470	water clear	180	500	20°	
KM2520PBC-A08	InGaN	470	water clear	110	250	20°	
KM2520PBC-J08	InGaN	470	water clear	380	1000	20°	
KM2520SURC09	InGaAlP	628	water clear	650	1600	20°	Subminiature Solid State Lamps Z-Bend Lead
KM2520SURCK09	InGaAlP	635	water clear	480	1400	20°	
KM2520SEC09	InGaAlP	601	water clear	1200	2000	20°	
KM2520SECK09	InGaAlP	601	water clear	900	1800	20°	
KM2520SYC09	InGaAlP	588	water clear	900	1500	20°	
KM2520SYCK09	InGaAlP	590	water clear	650	1300	20°	
KM2520MGC09	InGaAlP	568	water clear	280	600	20°	
KM2520CGCK09	InGaAlP	570	water clear	110	400	20°	
KM2520ZGC09	AlInGaN	525	water clear	1800	3300	20°	
KM2520VGC-A09	InGaN	525	water clear	380	800	20°	
KM2520VGC-Z09	InGaN	535	water clear	3300	6400	20°	
KM2520QBC-D09	AlInGaN	470	water clear	180	500	20°	
KM2520PBC-A09	InGaN	470	water clear	110	250	20°	
KM2520PBC-J09	InGaN	470	water clear	380	1000	20°	







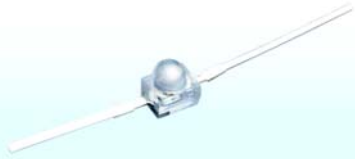
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KM-27xxx-03	KM-27xxx-08	KM-27xxx-09
		

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KM-27SURC-03	InGaAlP	628	water clear	650	1600	20°	Subminiature Solid State Lamps Gull Wing Lead
KM-27SURCK-03	InGaAlP	635	water clear	480	1400	20°	
KM-27SEC-03	InGaAlP	601	water clear	1200	2000	20°	
KM-27SECK-03	InGaAlP	601	water clear	900	1800	20°	
KM-27SYC-03	InGaAlP	588	water clear	900	1500	20°	
KM-27SYCK-03	InGaAlP	590	water clear	650	1300	20°	
KM-27MGC-03	InGaAlP	568	water clear	280	600	20°	
KM-27CGCK-03	InGaAlP	570	water clear	110	400	20°	
KM-27ZGC-03	AlInGaN	525	water clear	1800	3300	20°	
KM-27VGC-A-03	InGaN	525	water clear	380	800	20°	
KM-27VGC-Z-03	InGaN	535	water clear	3300	6400	20°	
KM-27QBC-D-03	AlInGaN	470	water clear	180	500	20°	
KM-27PBC-A-03	InGaN	470	water clear	110	250	20°	
KM-27PBC-J03	InGaN	470	water clear	380	1000	20°	
KM-27SURC08	InGaAlP	628	water clear	650	1600	20°	Subminiature Solid State Lamps Yoke Lead
KM-27SURCK-08	InGaAlP	635	water clear	480	1400	20°	
KM-27SEC-08	InGaAlP	601	water clear	1200	2000	20°	
KM-27SECK-08	InGaAlP	601	water clear	900	1800	20°	
KM-27SYC-08	InGaAlP	588	water clear	900	1500	20°	
KM-27SYCK-08	InGaAlP	590	water clear	650	1300	20°	
KM-27MGC-08	InGaAlP	568	water clear	280	600	20°	
KM-27CGCK-08	InGaAlP	570	water clear	110	400	20°	
KM-27ZGC-08	AlInGaN	525	water clear	1800	3300	20°	
KM-27VGC-A-08	InGaN	525	water clear	380	800	20°	
KM-27VGC-Z-08	InGaN	535	water clear	3300	6400	20°	
KM-27QBC-D-08	AlInGaN	470	water clear	180	500	20°	
KM-27PBC-A-08	InGaN	470	water clear	110	250	20°	
KM-27PBC-J-08	InGaN	470	water clear	380	1000	20°	
KM-27SURC-09	InGaAlP	628	water clear	650	1600	20°	Subminiature Solid State Lamps Z-Bend Lead
KM-27SURCK-09	InGaAlP	635	water clear	480	1400	20°	
KM-27SEC-09	InGaAlP	601	water clear	1200	2000	20°	
KM-27SECK-09	InGaAlP	601	water clear	900	1800	20°	
KM-27SYC-09	InGaAlP	588	water clear	900	1500	20°	
KM-27SYCK-09	InGaAlP	590	water clear	650	1300	20°	
KM-27MGC-09	InGaAlP	568	water clear	280	600	20°	
KM-27CGCK-09	InGaAlP	570	water clear	110	400	20°	
KM-27ZGC-09	AlInGaN	525	water clear	1800	3300	20°	
KM-27VGC-A-09	InGaN	525	water clear	380	800	20°	
KM-27VGC-Z-09	InGaN	535	water clear	3300	6400	20°	
KM-27QBC-D-09	AlInGaN	470	water clear	180	500	20°	
KM-27PBC-A-09	InGaN	470	water clear	110	250	20°	
KM-27PBC-J-09	InGaN	470	water clear	380	1000	20°	

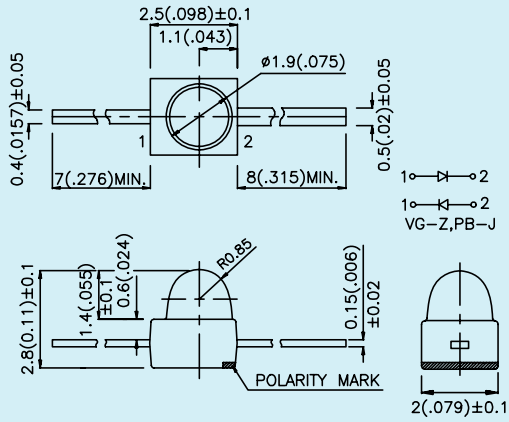
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

KM2520xxx01

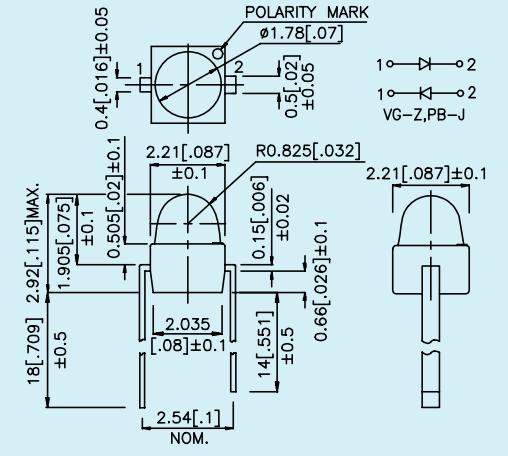


KM-27xxx-10

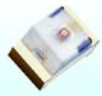
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KM2520SURC01	InGaAlP	628	water clear	650	1600	20°	Subminiature Solid State Lamps
KM2520SURCK01	InGaAlP	635	water clear	480	1400	20°	
KM2520SEC01	InGaAlP	601	water clear	1200	2000	20°	
KM2520SECK01	InGaAlP	601	water clear	900	1800	20°	
KM2520SYC01	InGaAlP	588	water clear	900	1500	20°	
KM2520SYCK01	InGaAlP	590	water clear	650	1300	20°	
KM2520MGC01	InGaAlP	568	water clear	280	600	20°	
KM2520CGCK01	InGaAlP	570	water clear	110	400	20°	
KM2520ZGC01	AlInGaN	525	water clear	1800	3300	20°	
KM2520VGC-A01	InGaN	525	water clear	380	800	20°	
KM2520VGC-Z01	InGaN	535	water clear	3300	6400	20°	
KM2520QBC-D01	AlInGaN	470	water clear	180	500	20°	
KM2520PBC-A01	InGaN	470	water clear	110	250	20°	
KM2520PBC-J01	InGaN	470	water clear	380	1000	20°	



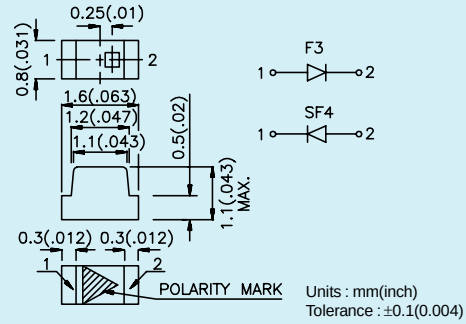
KM-27SURC-10	InGaAlP	628	water clear	650	1600	20°	Subminiature Solid State Lamps
KM-27SURCK-10	InGaAlP	635	water clear	480	1400	20°	
KM-27SEC-10	InGaAlP	601	water clear	1200	2000	20°	
KM-27SECK-10	InGaAlP	601	water clear	900	1800	20°	
KM-27SYC-10	InGaAlP	588	water clear	900	1500	20°	
KM-27SYCK-10	InGaAlP	590	water clear	650	1300	20°	
KM-27MGC-10	InGaAlP	568	water clear	280	600	20°	
KM-27CGCK-10	InGaAlP	570	water clear	110	400	20°	
KM-27ZGC-10	AlInGaN	525	water clear	1800	3300	20°	
KM-27VGC-A-10	InGaN	525	water clear	380	800	20°	
KM-27VGC-Z-10	InGaN	535	water clear	3300	6400	20°	
KM-27QBC-D-10	AlInGaN	470	water clear	180	500	20°	
KM-27PBC-A-10	InGaN	470	water clear	110	250	20°	
KM-27PBC-J-10	InGaN	470	water clear	380	1000	20°	

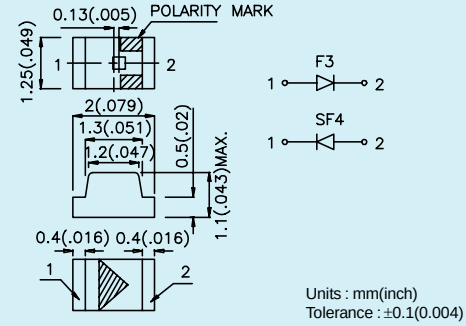


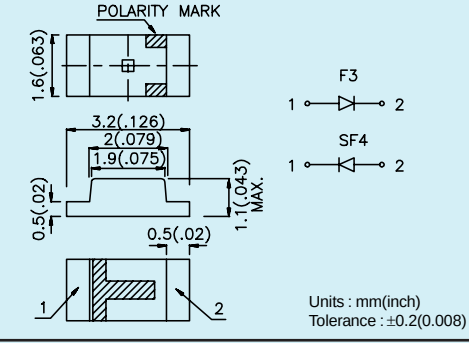
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

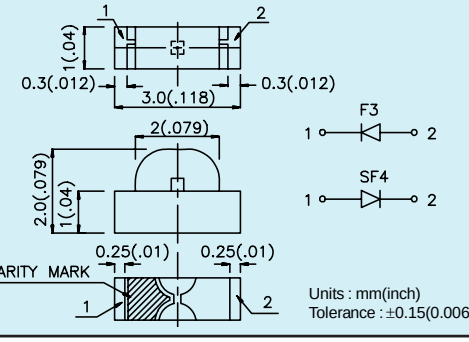
KP-1608F3C(0603)	KP-2012F3C(0805)	KP-3216F3C(1206)	KPA-3010F3C(1104)
			

Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KP-1608F3C	GaAs	940	water clear	0.4	1.2	120°	1.6mm x 0.8mm x 1.1mm (0603)
KP-1608SF4C	GaAlAs	880	water clear	0.4	1	120°	
KP-2012F3C	GaAs	940	water clear	0.4	1.2	120°	2.0mm x 1.25mm x 1.1mm (0805)
KP-2012SF4C	GaAlAs	880	water clear	0.4	1	120°	
KP-3216F3C	GaAs	940	water clear	0.4	1.2	120°	3.2mm x 1.6mm x 1.1mm (1206)
KP-3216SF4C	GaAlAs	880	water clear	0.4	1	120°	
KPA-3010F3C	GaAs	940	water clear	0.4	1.2	120°	3.0mm x 1.0mm x 2mm (1104 Right Angle)
KPA-3010SF4C	GaAlAs	880	water clear	0.4	1	120°	





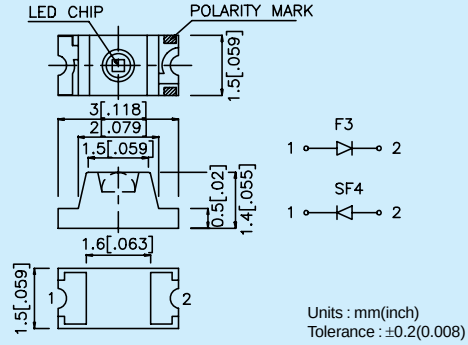


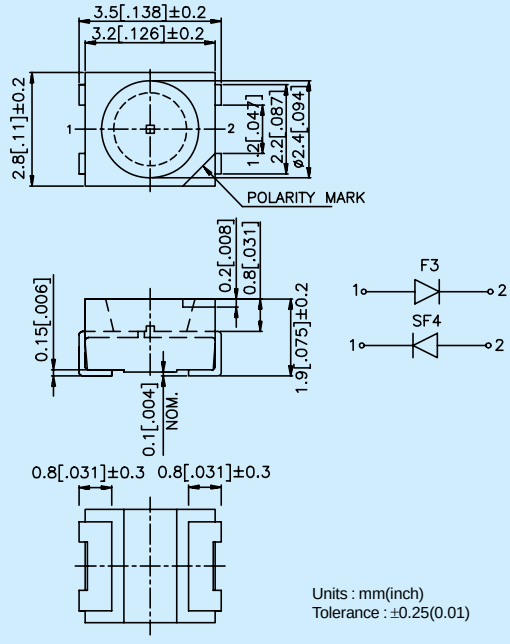


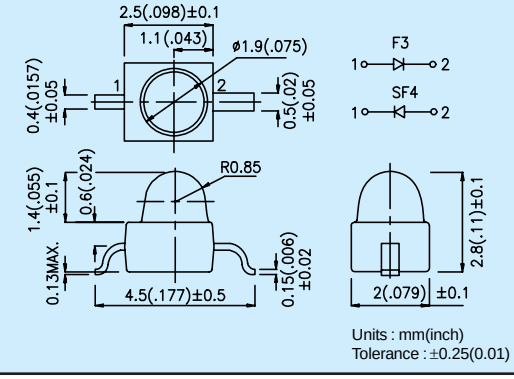
NOTE:
1.KP series custom-made is available upon request.

KPL-3015F3C(1106)	KA-3528AF3C	KM2520F3C03
		

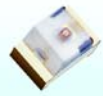
Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA *50mA		Viewing Angle	Dimension
				Min.	Typ.	2θ1/2	
KPL-3015F3C	GaAs	940	water clear	0.4	1.2	70°	3.0mm x 1.5mm x 1.4mm (1106)
KPL-3015SF4C	GaAlAs	880	water clear	0.4	1	70°	
KA-3528AF3C	GaAs	940	water clear	1.6	3	120°	3.5mm x 2.8mm
				*2.6	*8	120°	
KA-3528ASF4C	GaAlAs	880	water clear	0.4	3	120°	
				*4	*8	120°	
KM2520F3C03	GaAs	940	water clear	1.6	6	20°	2mm Subminiature IR Emitter
				*10	*15	20°	
KM2520SF4C03	GaAlAs	880	water clear	1.6	4	20°	
				*2.6	*8	20°	







NOTE:
1.KP series custom-made is available upon request.

KP-1608P1C(0603)	KP-2012P3C(0805)	KP-3216P3C(1206)	KPA-3010P3C(1104)
			

PHOTOTRANSISTORS

1.6mm x 0.8mm x 1.1mm (0603)

KP-1608P1C WATER CLEAR LENS

2.0mm x 1.25mm x 1.1mm (0805)

KP-2012P3C WATER CLEAR LENS

3.2mm x 1.6mm x 1.1mm (1206)

KP-3216P3C WATER CLEAR LENS

3.0mm x 1.0mm x 2.0mm (1104)

KPA-3010P3C WATER CLEAR LENS

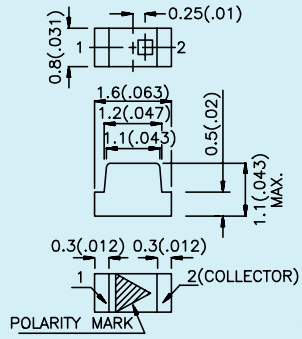
ABSOLUTE MAXIMUM RATING T_A=25°C

Parameter	Max. Ratings
Collector-to-Emittern Voltage	30V
Emitter-to-Collectorn Voltage	5V
Power Dissipation at (or below) 25°C Free Air Temperature	100mW
Operating Temperature Range	-40°C ~ +85°C
Storage Temperature Range	-40°C ~ +85°C

ELECTRICAL AND OPTICAL CHARACTERISTICS T_A=25°C

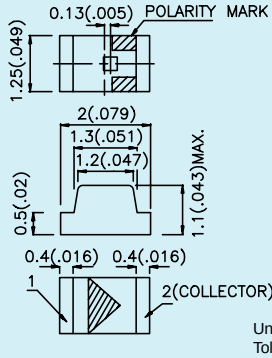
Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Condition
$V_{BR\ CEO}$	Collector-to-Emitter Breakdown Voltage	30	-	-	V	I_C =100μA Ee=0mW/cm²
$V_{BR\ ECO}$	Emitter-to-Collector Breakdown Voltage	5	-	-	V	I_E =100μA Ee=0mW/cm²
$V_{CE\ (SAT)}$	Collector-to-Emitter Saturation Voltage	-	-	0.8	V	I_C =2mA Ee=20mW/cm²
I_{CEO}	Collector Dark Current	-	-	100	nA	V_{CE} =10V Ee=0mW/cm²
T_R	Rise Time (10% to 90%)	-	15	-	μs	V_{CE} =5V I_C =1mA R_L =1KΩ
T_F	Fall Time (90% to 10%)	-	15	-	μs	
$I_{(ON)}$	On State Collector Current	0.1	0.3	-	mA	V_{CE} =5V, Ee=1mW/cm², λ=940nm

KP-1608P1C 1.6mm x 0.8mm x 1.1mm (0603)



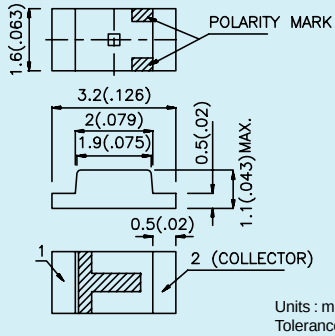
Units : mm(inch)
Tolerance : ±0.1(0.004)

KP-2012P3C 2.0mm x 1.25mm x 1.1mm (0805)



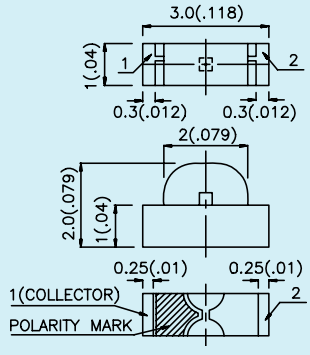
Units : mm(inch)
Tolerance : ±0.1(0.004)

KP-3216P3C 3.2mm x 1.6mm x 1.1mm (1206)



Units : mm(inch)
Tolerance : ±0.2(0.008)

KPA-3010P3C 3.0mm x 1.0mm x 2.0mm (1104)



Units : mm(inch)
Tolerance : ±0.15(0.006)

KPS-3227SP1C

KPS-5130PD7C

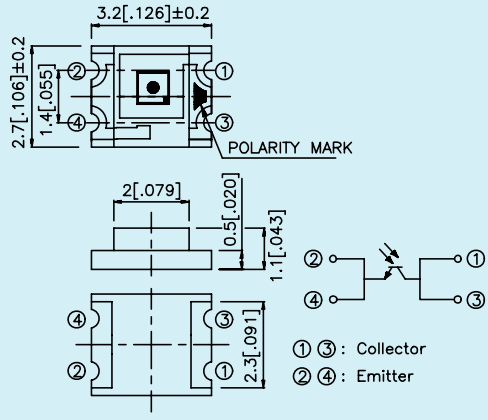
ELECTRICAL AND OPTICAL CHARACTERISTICS (T_A=25°C UNLESS OTHERWISE SPECIFIED)

Parameter	Symbol	Typ.	Max.	Unit	Test Condition
Collector-to-Emitter Breakdown Voltage	V_{CEO}	60	-	V	I_{CEO} =100μA
Emitter-to-Collector Breakdown Voltage	V_{ECO}	4	-	V	I_{ECO}=100μA
Collector Dark Current	I_D	10	-	nA	V_{CE} =5V Lux=0
Angle Of half Sensitivity	2θ1/2	120	-	°	-
Collector light Current	I_{L1}	20	-	μA	E_V = 20Lux[1]
	I_{L2}	100	-	μA	E_V = 100Lux[1]
Wavelength Of peak Sensitivity	λ P	580	-	nm	-
Collector Emitter Saturation Voltage	$V_{CE\ sat}$	0.4	-	V	I_C =10mA, I_B =1mA

Note:
1.Illuminance by CIE standard light source (incandescet lamp).

AMBIENT LIGHT SENSOR

KPS-3227SP1C 3.2mm x 2.7mm x 1.1mm



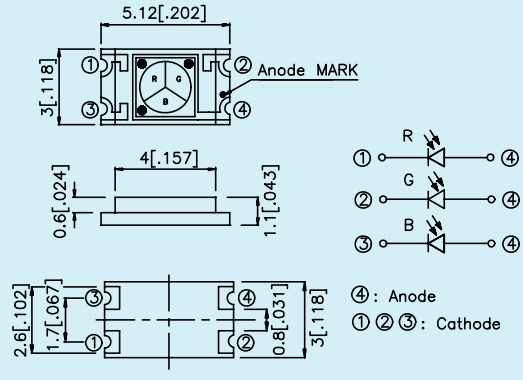
Units : mm(inch)
Tolerance : ±0.1(0.004)

ELECTRICAL AND OPTICAL CHARACTERISTICS (T_A=25°C UNLESS OTHERWISE SPECIFIED)

Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Peak Sensitivity Wavelength	λ P	Red		-	630	-	nm
		Green		-	560	-	
		Blue		-	470	-	
Light Current	I_L	E_V =100Lux V_R =5V	Red	-	0.35	-	μA
			Green	-	0.05	-	
			Blue	-	0.30	-	
Forward Voltage	V_F	I_F =10mA, E_V =0Lux	Red	0.5	-	1.3	V
			Green	0.5	-	1.3	
			Blue	0.5	-	1.3	
Reverse Dark Current	I_D	V_R =5V		-	-	10	nA

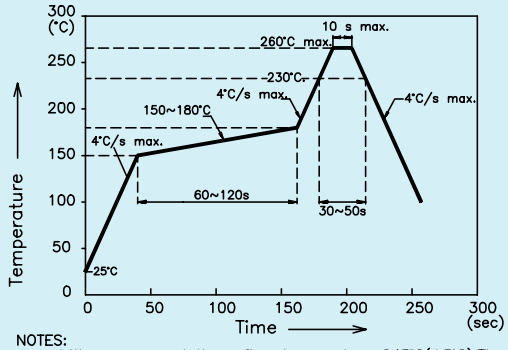
RGB COLOR SENSOR

KPS-5130PD7C 5.12mm x 3mm x 1.1mm



Units : mm(inch)
Tolerance : ±0.1(0.004)

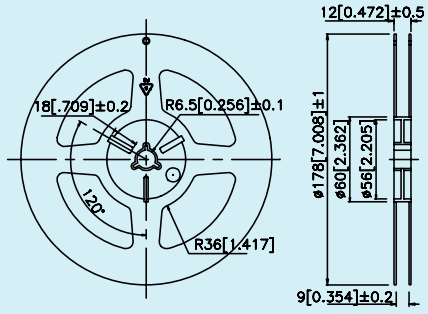
Reflow Soldering Profile For Lead-free SMT Process.



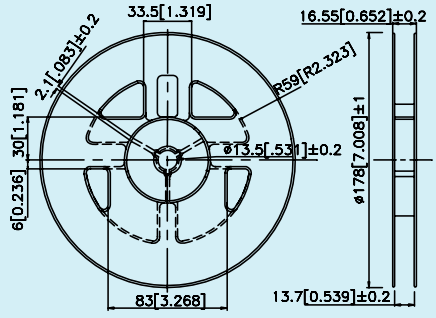
NOTES:
1.We recommend the reflow temperature 245°C(±5°C).The maximum soldering temperature should be limited to 260°C.
2.Don't cause stress to the epoxy resin while it is exposed to high temperature.
3.Number of reflow process shall be 2 times or less.

PART NO.	REEL DIMENSION
KPHHS-1005,KP-1608,KPT-1608,KP-2012,KPT-2012, KPTC-2012,KPHCM-2012,KP-23-F,KP-3216,KPT-3216, KPC-3216,KPTR-3216,KPA-1606,KPA-2106,KPJA-2107, KPA-3010,KPA-3210,KPL-3015,KPTL-3216,KPTD-3216, KPD-3224,KPTB-1612,KPTB-1615,KPBA-3010,KPB-3025, KPBL-3025,KPBD-3224,KPHK-1608,KPTK-2012, KPKA-2810,KPK-3216,KPEKA-3224,KPKB-3025, KPKF-3030,KA-3020A,KM-23-F,KPHBM-2012	7"(for 8mm width tape)
KCDX04,KCPDX04,KCPSX04,KCSX56.	13"(for 32mm width tape)
KPED-3528,KPED-3820,KPF-3236,KPK-3520,KPJKA-4008, KPKA-4110,KA-3022-4.5SF,KA-3528A,KA-4040,KA-2735, KM2520xxx03,KM2520xxx08,KM2520xxx09,KM-27xxx-03, KM-27xxx-08,KM-27xxx-09,	7"(for 12mm width tape)
KA-1010,KA-1011,KAD1-1010,KAD1-9090,KCSX02, KCDX02,KCSX03,KCDX03,KCSX04.	13"(for 24mm width tape)
KCDX56.	13"(for 44mm width tape)

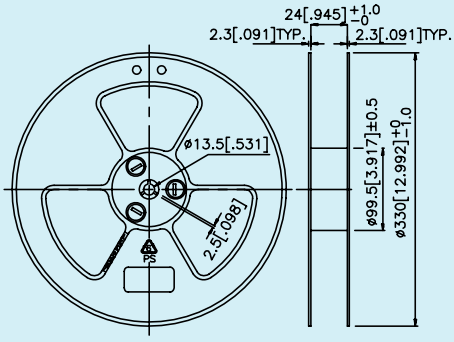
7"(for 8mm width tape)



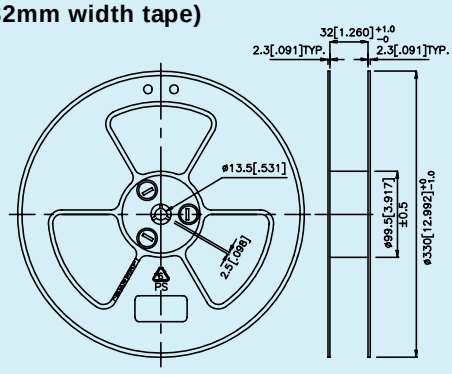
7"(for 12mm width tape)



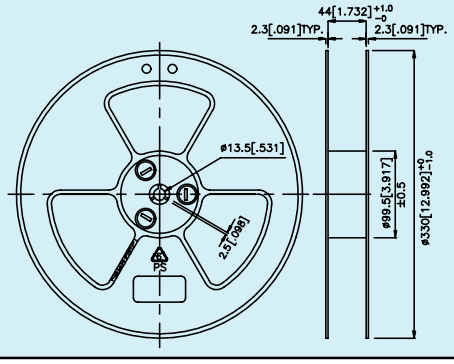
13"(for 24mm width tape)



13"(for 32mm width tape)



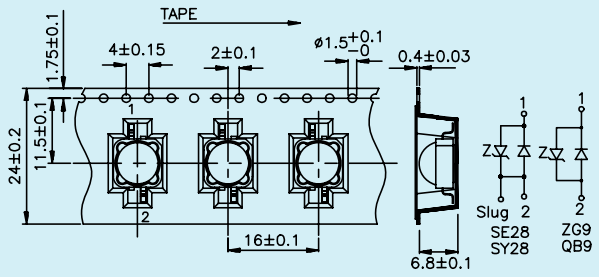
13"(for 44mm width tape)



NOTE:
1. All dimensions are in millimeters(inches).

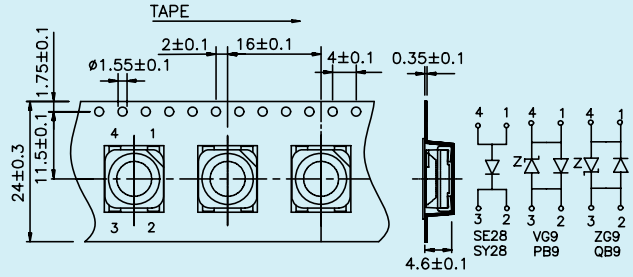
KAD1-9090

PACKAGE: 500PCS / REEL



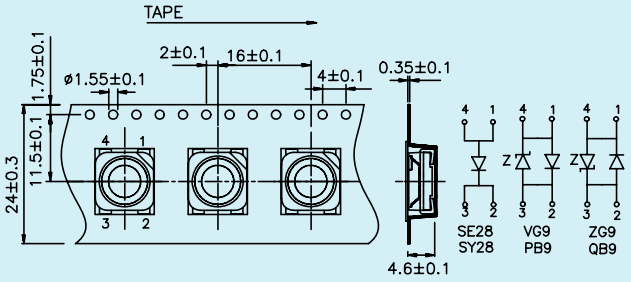
KA-1010

PACKAGE: 500PCS / REEL



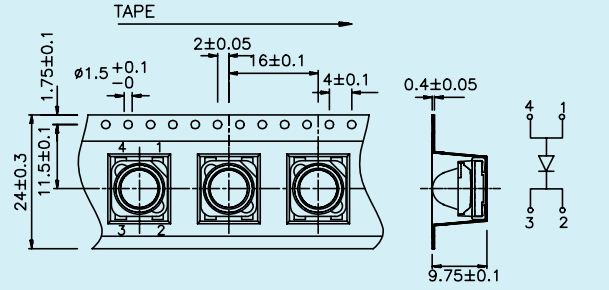
KA-1011

PACKAGE: 500PCS / REEL



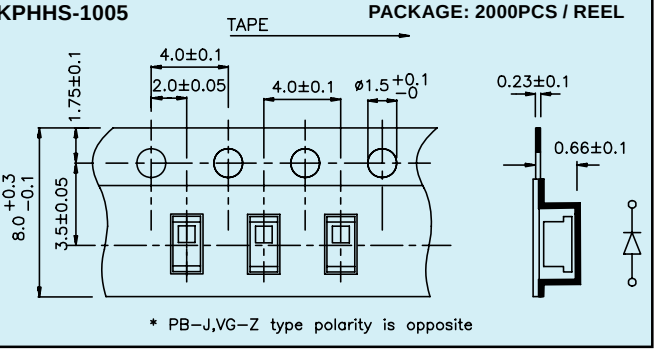
KAD1-1010

PACKAGE: 300PCS / REEL



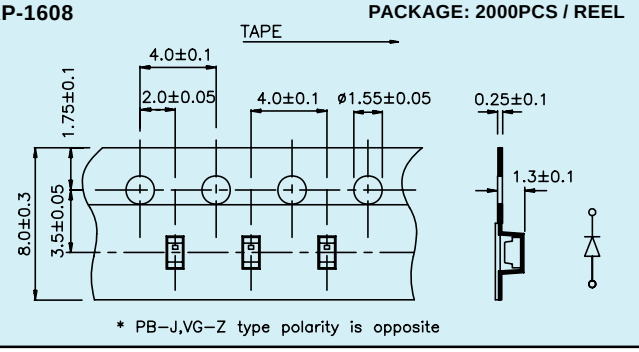
KPHHS-1005

PACKAGE: 2000PCS / REEL



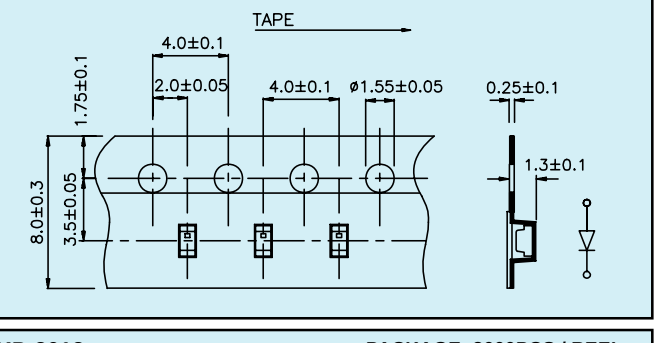
KP-1608

PACKAGE: 2000PCS / REEL



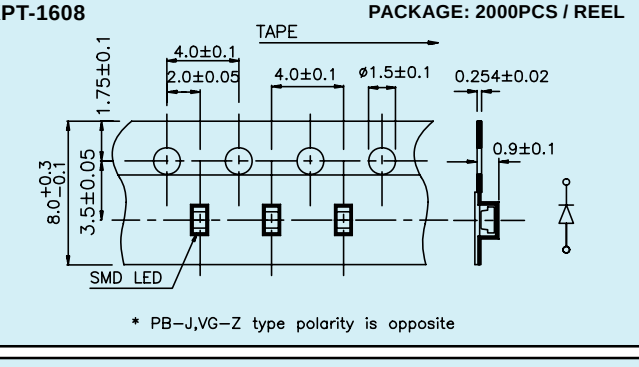
KP-1608SF4C

PACKAGE: 2000PCS / REEL



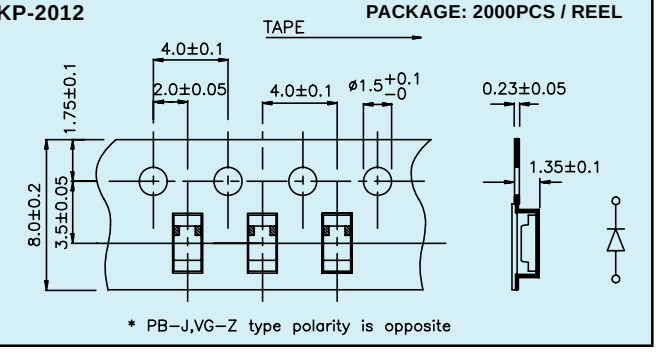
KPT-1608

PACKAGE: 2000PCS / REEL



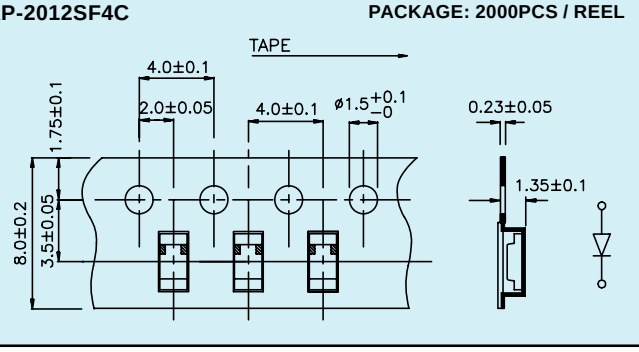
KP-2012

PACKAGE: 2000PCS / REEL



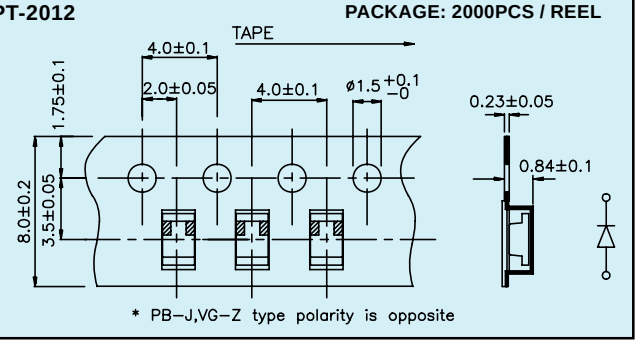
KP-2012SF4C

PACKAGE: 2000PCS / REEL

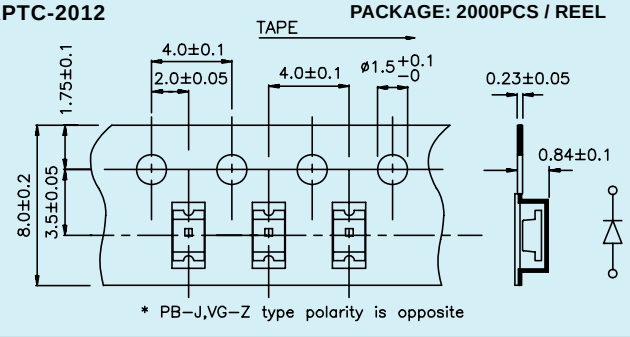


NOTE:
1. All dimensions are in millimeters.

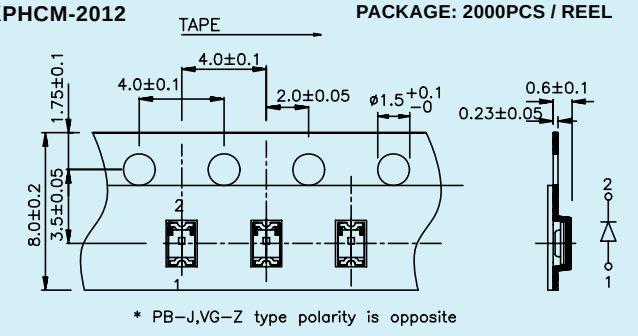
KPT-2012 PACKAGE: 2000PCS / REEL



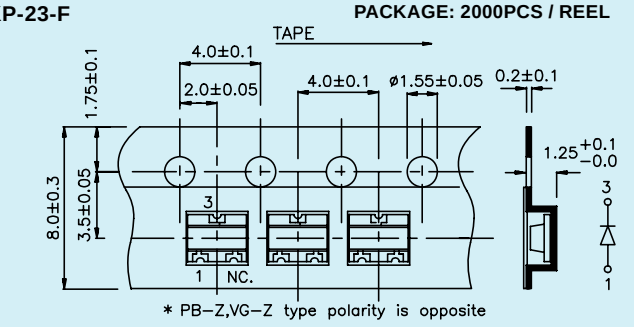
KPTC-2012 PACKAGE: 2000PCS / REEL



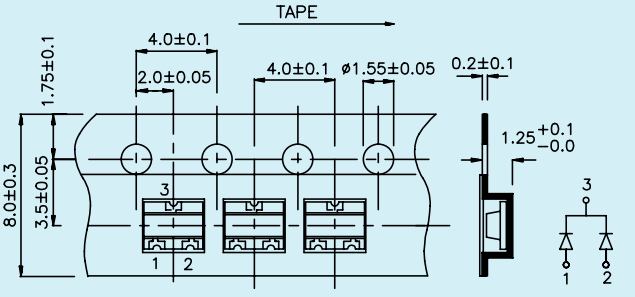
KPHCM-2012 PACKAGE: 2000PCS / REEL



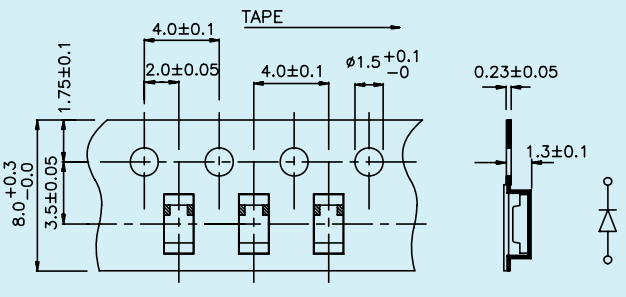
KP-23-F PACKAGE: 2000PCS / REEL



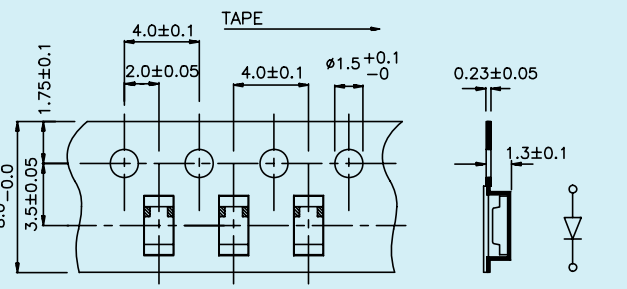
KP-23xxxx PACKAGE: 2000PCS / REEL



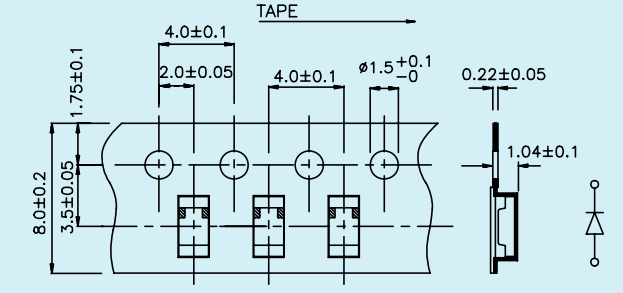
KP-3216 PACKAGE: 2000PCS / REEL



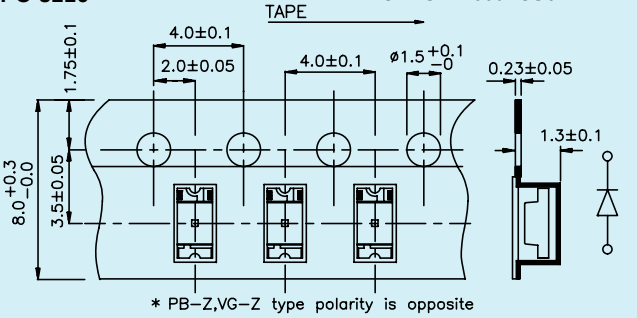
KP-3216SF4C PACKAGE: 2000PCS / REEL



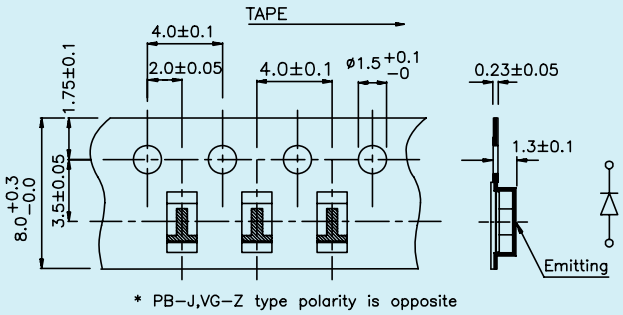
KPT-3216 PACKAGE: 2000PCS / REEL



KPC-3216 PACKAGE: 2000PCS / REEL

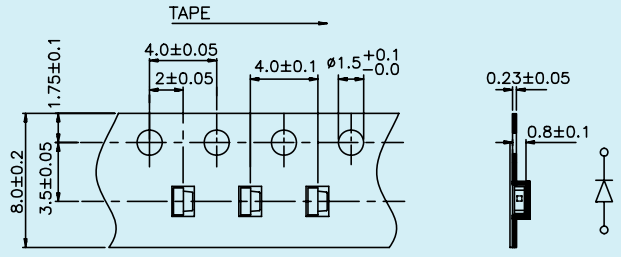


KPTR-3216 PACKAGE: 2000PCS / REEL



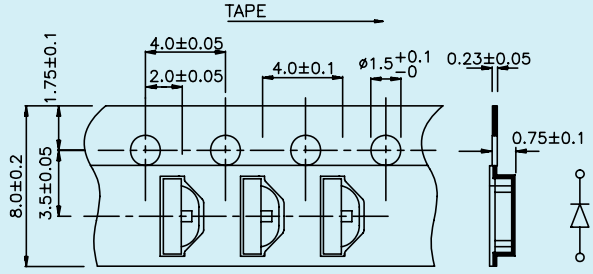
NOTE:
1. All dimensions are in millimeters.

KPA-1606 PACKAGE: 2000PCS / REEL



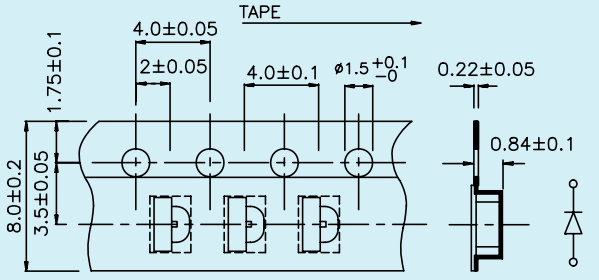
* PB−Z,VG−Z type polarity is opposite

KPA-2106 PACKAGE: 2000PCS / REEL



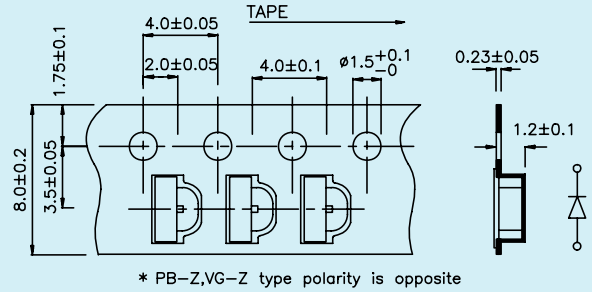
* PB−J,VG−Z type polarity is opposite

KPJA-2107 PACKAGE: 2000PCS / REEL



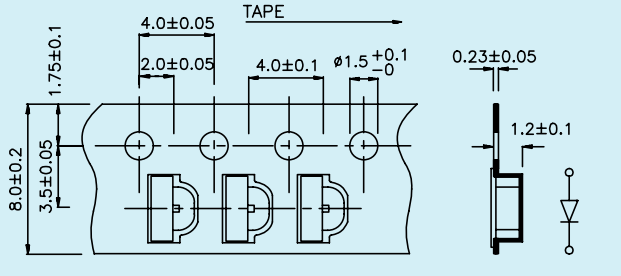
* PB−Z,VG−Z type polarity is opposite

KPA-3010 PACKAGE: 2000PCS / REEL

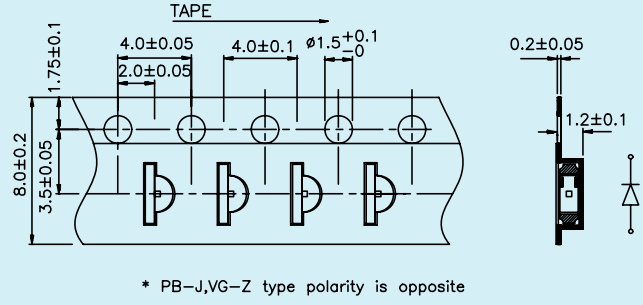


* PB−Z,VG−Z type polarity is opposite

KPA-3010SF4C PACKAGE: 2000PCS / REEL

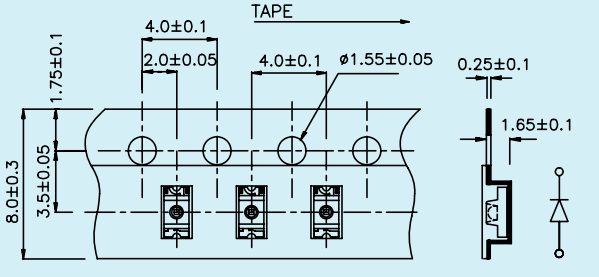


KPA-3210 PACKAGE: 2000PCS / REEL



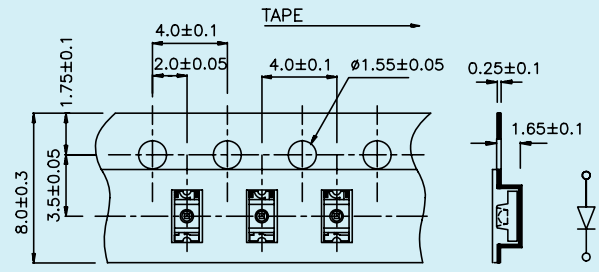
* PB−J,VG−Z type polarity is opposite

KPL-3015 PACKAGE: 2000PCS / REEL

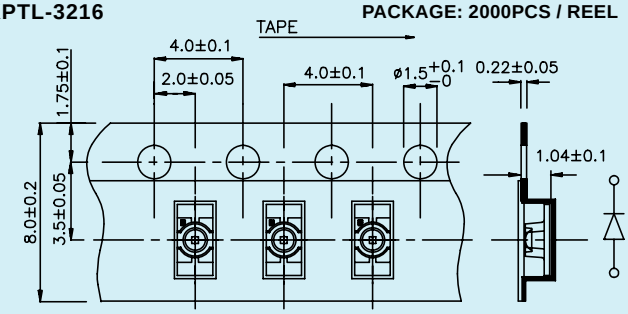


* PB−Z,VG−Z type polarity is opposite

KPL-3015SF4C PACKAGE: 2000PCS / REEL

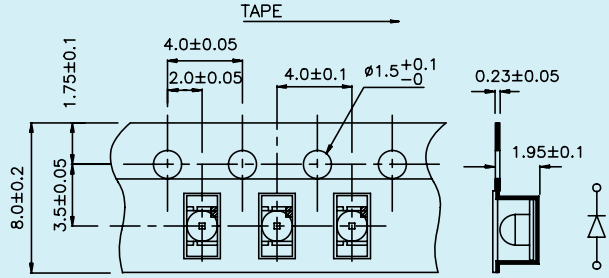


KPTL-3216 PACKAGE: 2000PCS / REEL



* PB−J,VG−Z type polarity is opposite

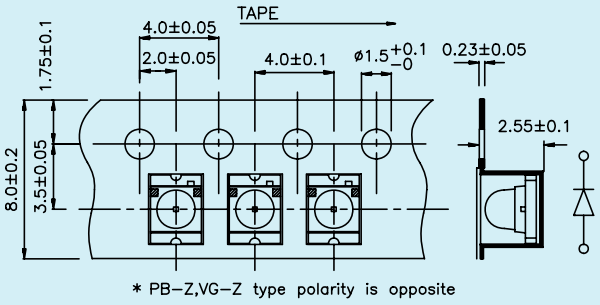
KPTD-3216 PACKAGE: 2000PCS / REEL



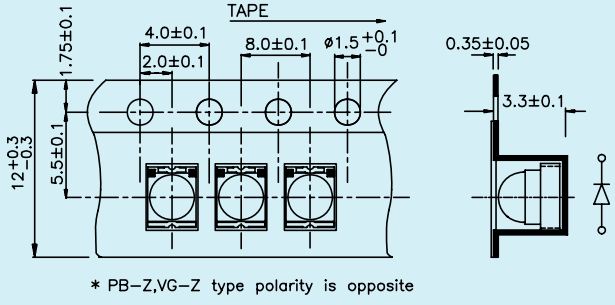
* PB−J,VG−Z type polarity is opposite

NOTE:
1. All dimensions are in millimeters.

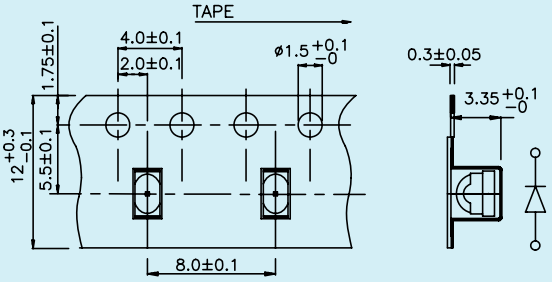
KPD-3224 PACKAGE: 1500PCS / REEL



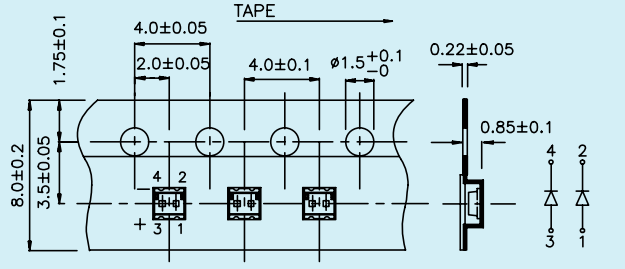
KPED-3528 PACKAGE: 500PCS / REEL



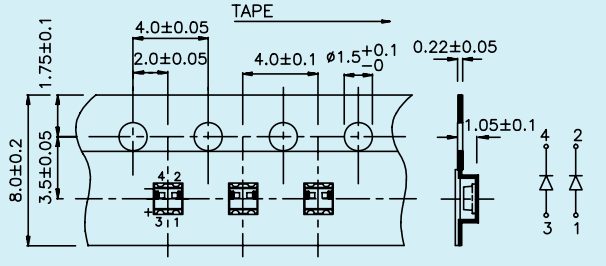
KPED-3820 PACKAGE: 500PCS / REEL



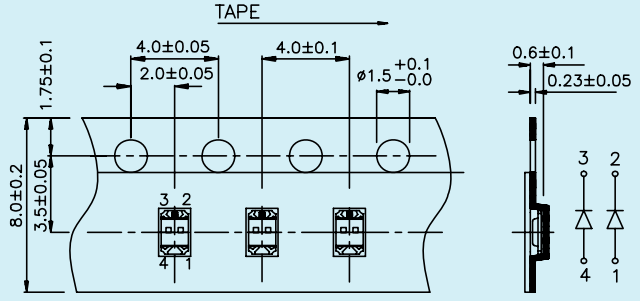
KPTB-1612 PACKAGE: 2000PCS / REEL



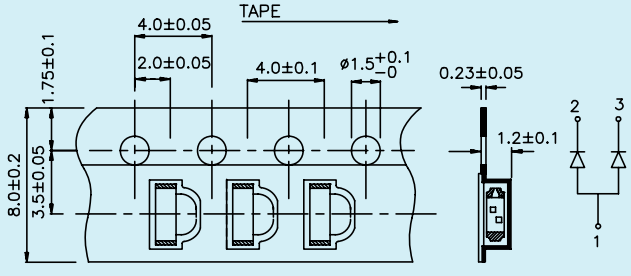
KPTB-1615 PACKAGE: 2000PCS / REEL



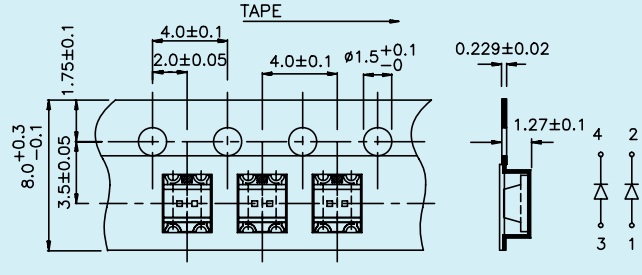
KPHBM-2012 PACKAGE: 2000PCS / REEL



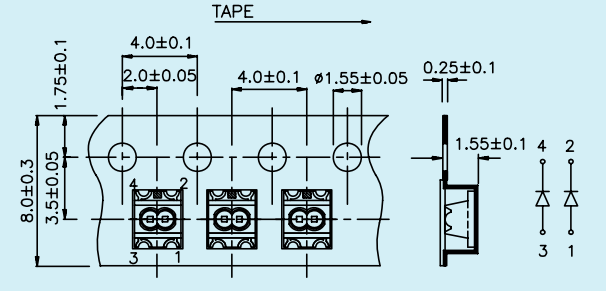
KPBA-3010 PACKAGE: 2000PCS / REEL



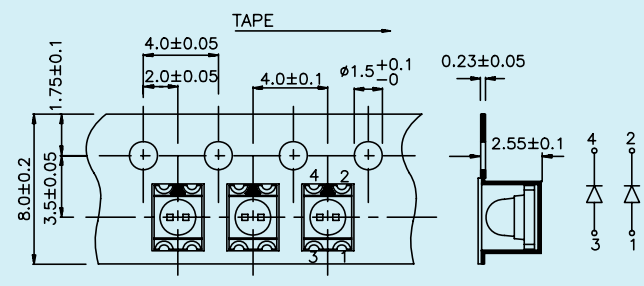
KPB-3025 PACKAGE: 2000PCS / REEL



KPBL-3025 PACKAGE: 2000PCS / REEL

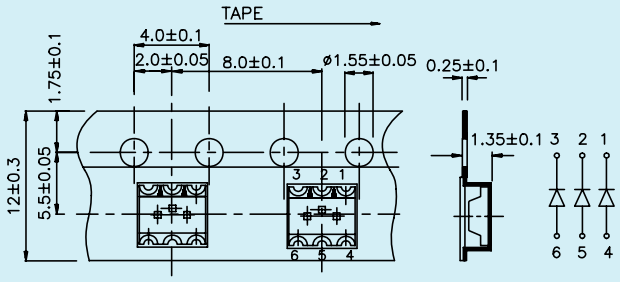


KPBD-3224 PACKAGE: 1500PCS / REEL

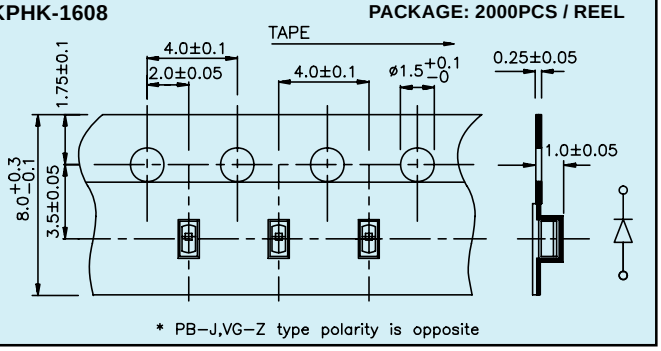


NOTE:
1. All dimensions are in millimeters.

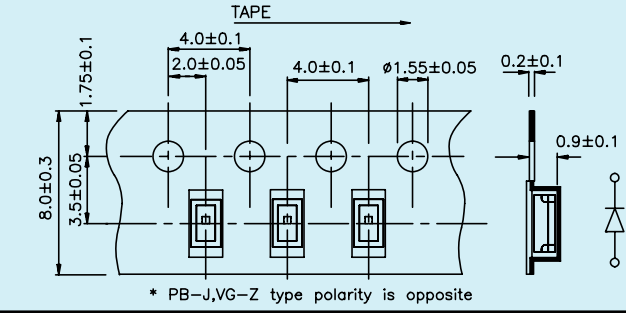
KPF-3236 PACKAGE: 1000PCS / REEL



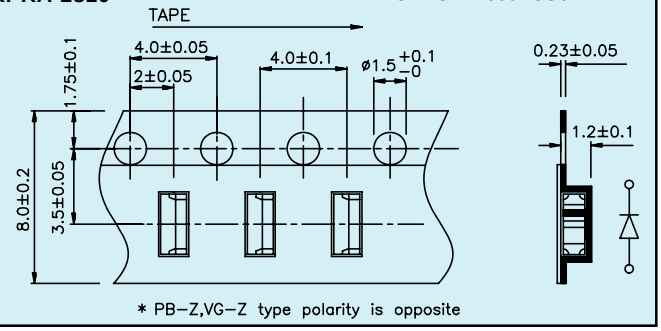
KPHK-1608 PACKAGE: 2000PCS / REEL



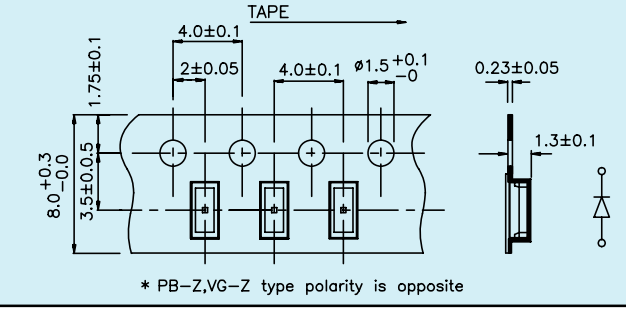
KPTK-2012 PACKAGE: 2000PCS / REEL



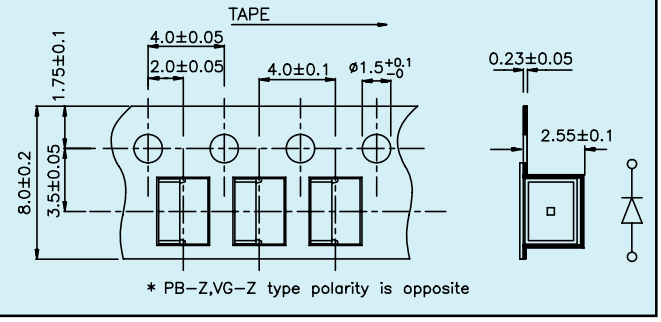
KPKA-2810 PACKAGE: 2000PCS / REEL



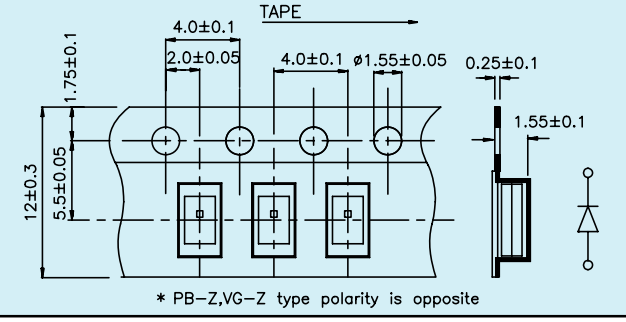
KPK-3216 PACKAGE: 2000PCS / REEL



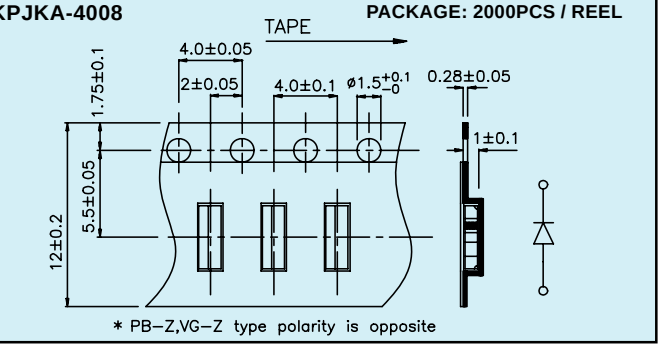
KPEKA-3224 PACKAGE: 1500PCS / REEL



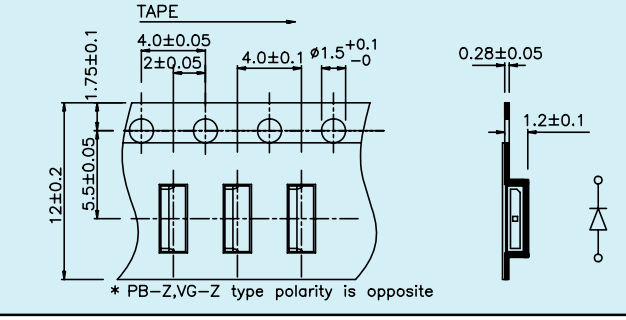
KPK-3520 PACKAGE: 2000PCS / REEL



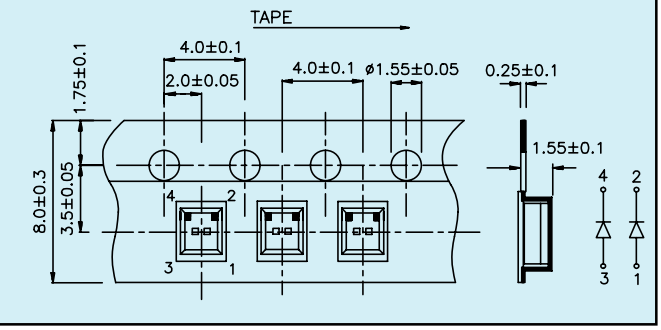
KPJKA-4008 PACKAGE: 2000PCS / REEL



KPKA-4110 PACKAGE: 2000PCS / REEL

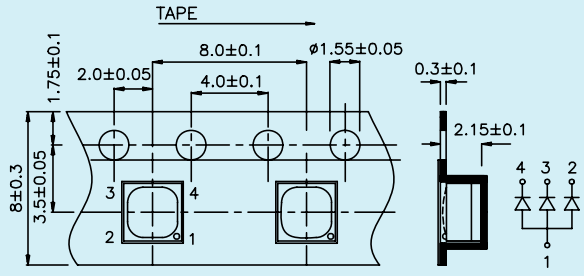


KPKB-3025 PACKAGE: 2000PCS / REEL

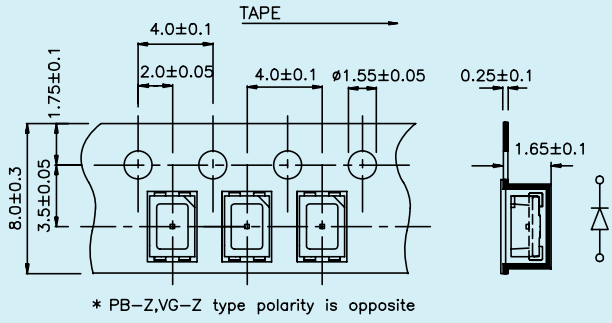


NOTE:
1. All dimensions are in millimeters.

KPKF-3030 Full-Color PACKAGE: 1000PCS / REEL

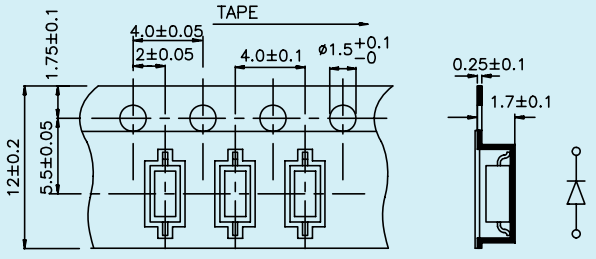


KA-3020A PACKAGE: 2000PCS / REEL



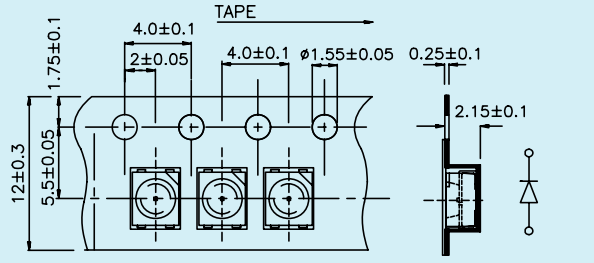
* PB–Z,VG–Z type polarity is opposite

KA-3022-4.5SF PACKAGE: 1500PCS / REEL

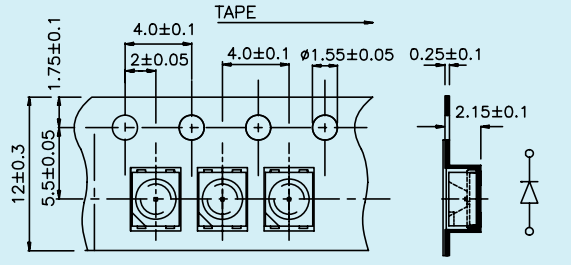


* SR, PB–Z,VG–Z type polarity is opposite

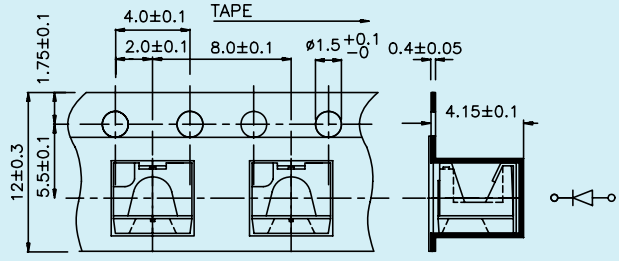
KA-3528A PACKAGE: 1500PCS / REEL



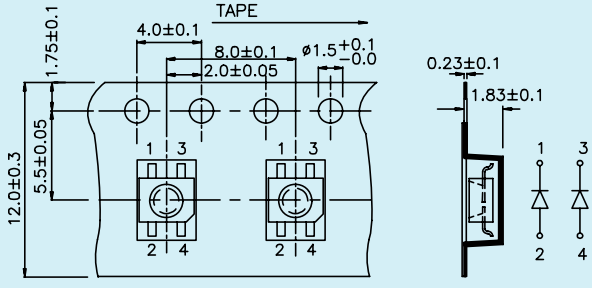
KA-3528ASR,PB-Z,VG-Z,SF4 PACKAGE: 1500PCS / REEL



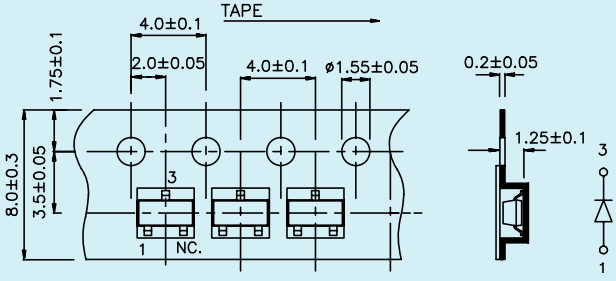
KA-4040 PACKAGE: 500PCS / REEL



KA-2735 PACKAGE: 1000PCS / REEL

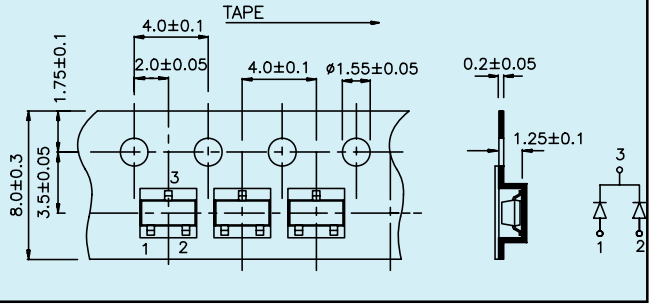


KM-23-F PACKAGE: 2000PCS / REEL

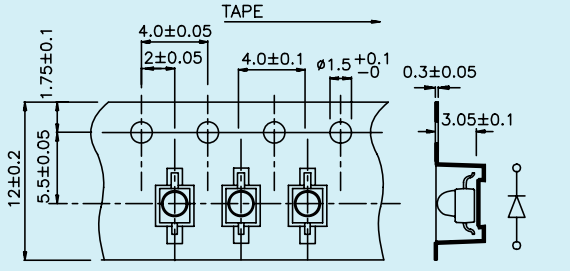


* SR,PB–J,VG–Z type polarity is opposite

KM-23ESG PACKAGE: 2000PCS / REEL



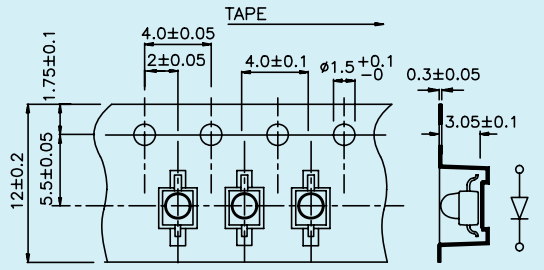
KM2520xxx03 PACKAGE: 1000PCS / REEL



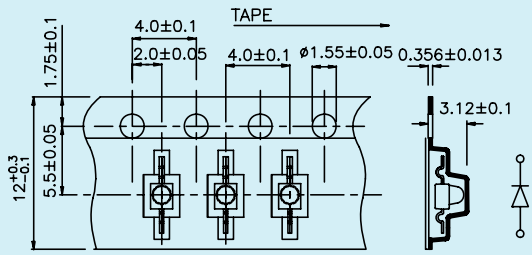
* PB–J,VG–Z type polarity is opposite

NOTE:
1. All dimensions are in millimeters.

KM2520SF4C03 — **PACKAGE: 1000PCS / REEL**

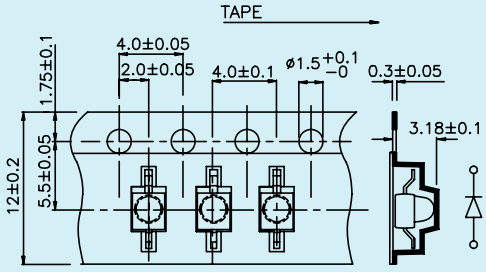


KM2520xxx08 — **PACKAGE: 1000PCS / REEL**



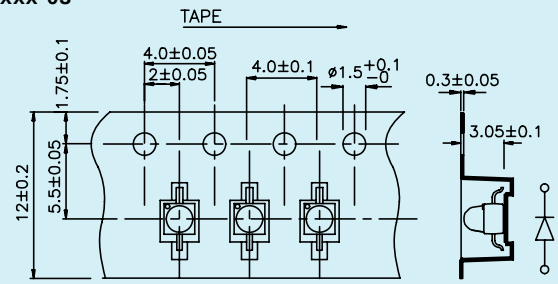
* PB−J,VG−Z type polarity is opposite

KM2520xxx09 — **PACKAGE: 1000PCS / REEL**



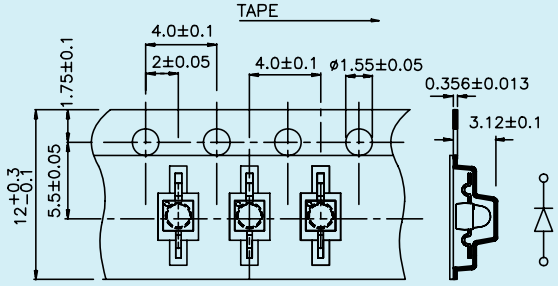
* PB−J,VG−Z type polarity is opposite

KM-27xxx-03 — **PACKAGE: 1000PCS / REEL**



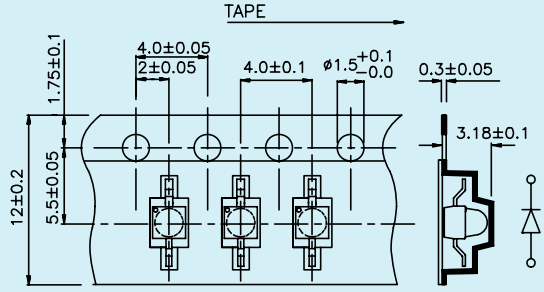
* PB−J,VG−Z type polarity is opposite

KM-27xxx-08 — **PACKAGE: 1000PCS / REEL**



* PB−J,VG−Z type polarity is opposite

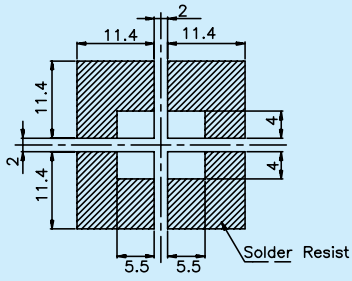
KM-27xxx-09 — **PACKAGE: 1000PCS / REEL**



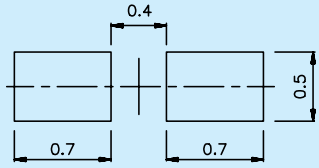
* PB−J,VG−Z type polarity is opposite

NOTE:
1. All dimensions are in millimeters.

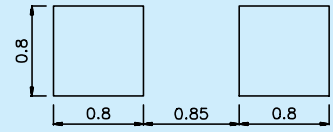
KA-1010,KA-1011,KAD1-1010



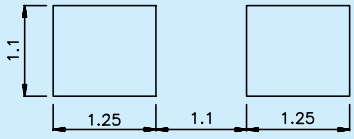
KPHHS-1005



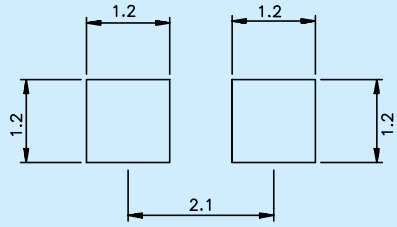
KP-1608, KPT-1608



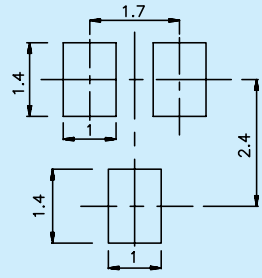
KP-2012, KPT-2012,KPTK-2012 KPTC-2012



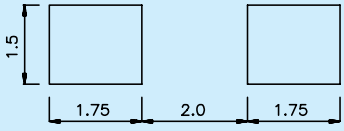
KPHCM-2012



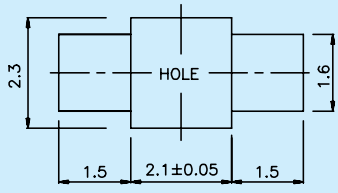
KP-23



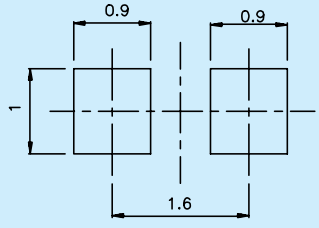
KP-3216, KPT-3216, KPC-3216, KPTD-3216,KPK-3216



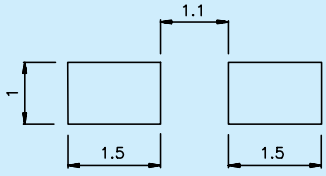
KPTR-3216



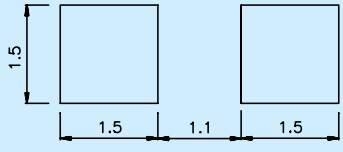
KPA-1606



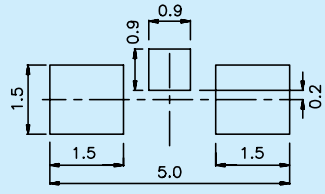
KPA-2106



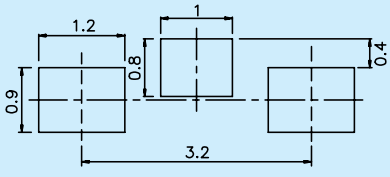
KPJA-2107



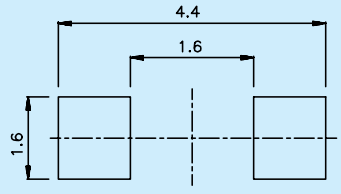
KPA-3010, KPBA-3010



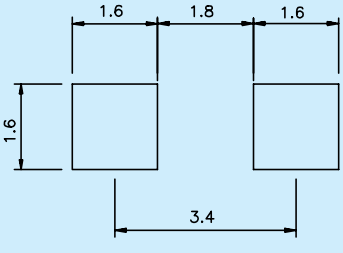
KPA-3210, KPBA-3210



KPL-3015

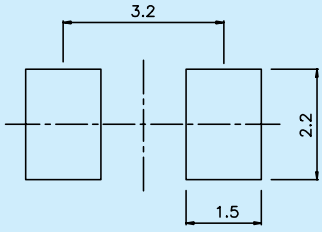


KPTL-3216

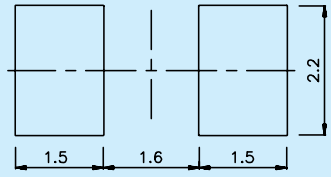


NOTES:
1. All dimensions are in millimeters.
2. Tolerance is ±0.1mm unless otherwise noted.

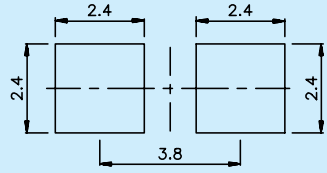
KPD-3224



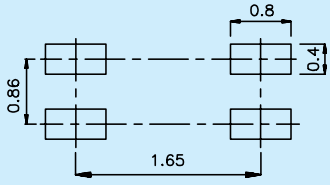
KPED-3528,KA-3528A



KPED-3820



KPTB-1612



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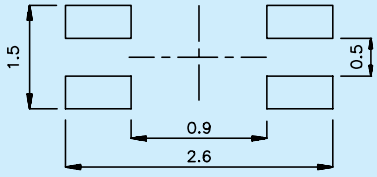
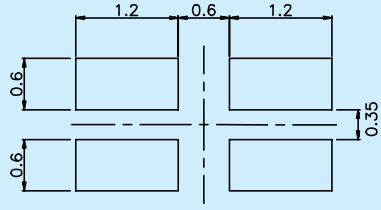
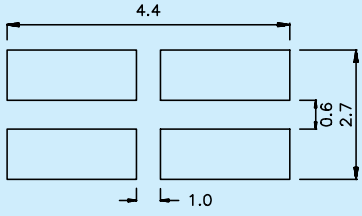


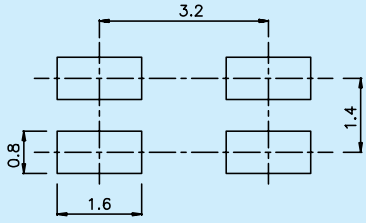
KPHBM-2012



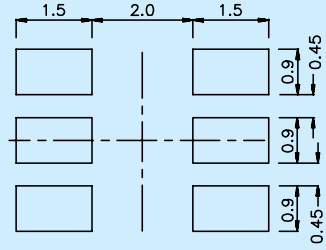
KPB-3025, KPBL-3025, KPKB-3025



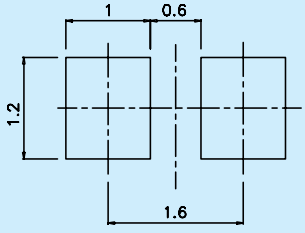
KPBD-3224



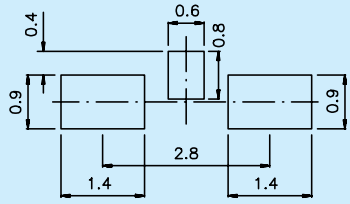
KPF-3236



KPHK-1608



KPKA-2810



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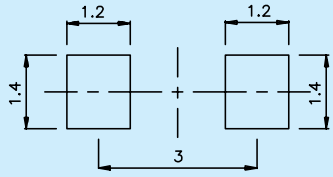
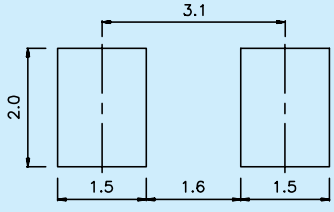
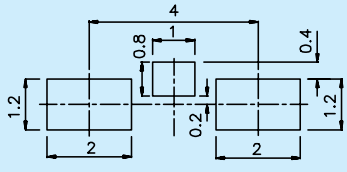


KPK-3520



KPJKA-4008



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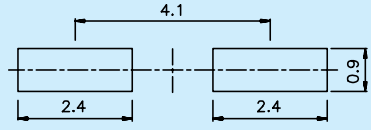
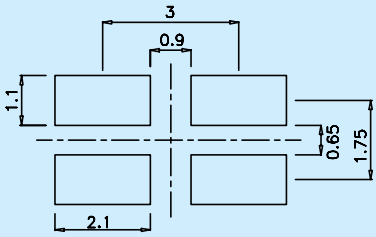
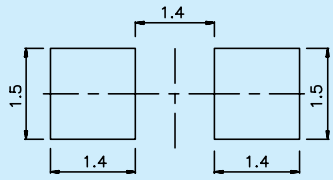


NOTES:
1. All dimensions are in millimeters.
2. Tolerance is ±0.1mm unless otherwise noted.

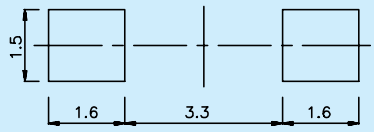
KPKF-3030



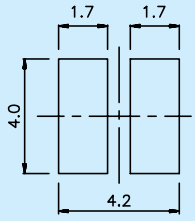
KA-3020A



KA-3022-4.5SF



KA-4040



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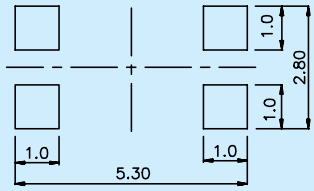
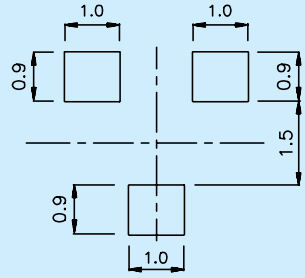


KM-23-F



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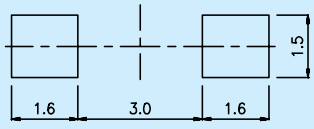

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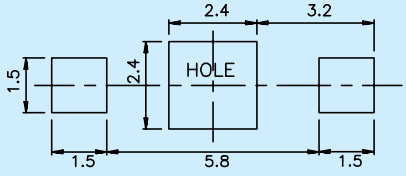

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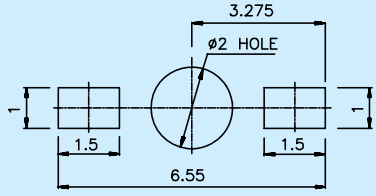

NOTES:
1. All dimensions are in millimeters.
2. Tolerance is ±0.1mm unless otherwise noted.