

Kingbright

Application Notes

2005-2006

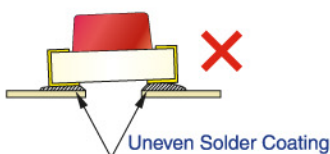
Soldering

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.



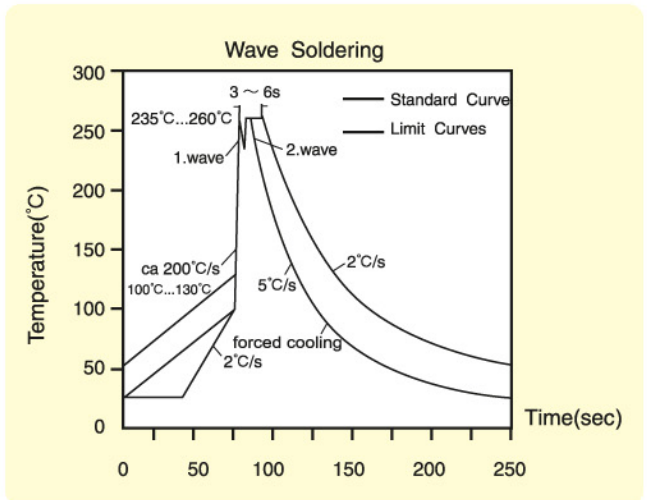
- The tip of the soldering iron should never touch the lens epoxy.
- Do not apply stress to the leads when the component is heated above 85 °C, otherwise internal wire bonds may be damaged.
- SMD products must be mounted according to specified soldering pad patterns. Refer to the product datasheet for details. Solder paste must be evenly applied to each soldering pad to insure proper bonding and positioning of the component.



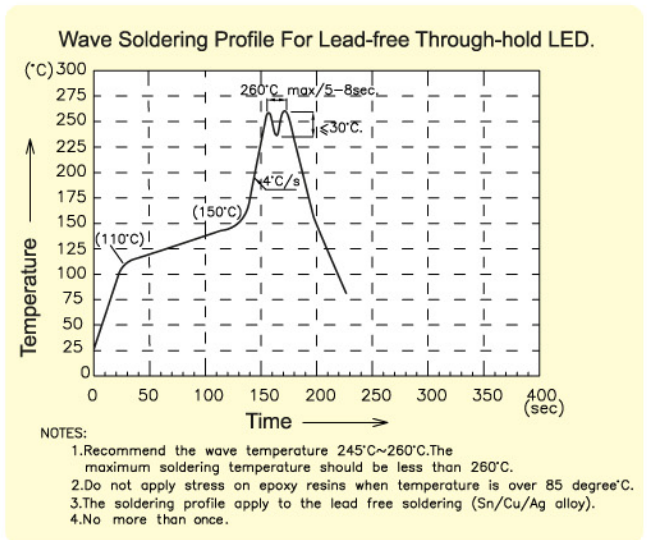
5. After soldering, allow at least three minutes for the component to cool to room temperature before further operations.

Recommended Wave Soldering Profiles For Kingbright Thru-Hole Products

1. Wave Soldering Profile With Pb-Sn Solder



2. Lead-Free Wave Soldering Profile

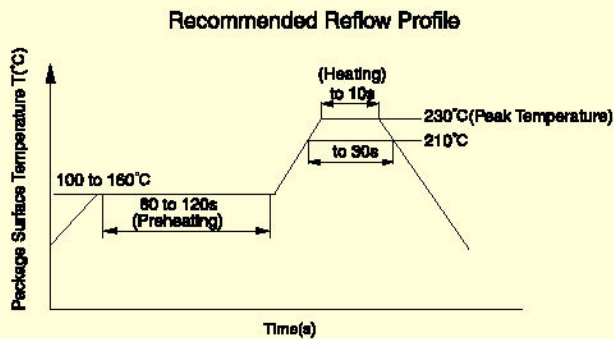




Recommended Reflow Soldering Profiles For Kingbright SMD Products

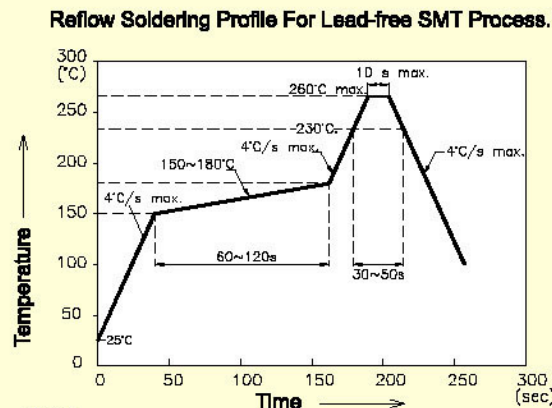
1. Reflow Soldering Profile With Pb-Sn Solder

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.

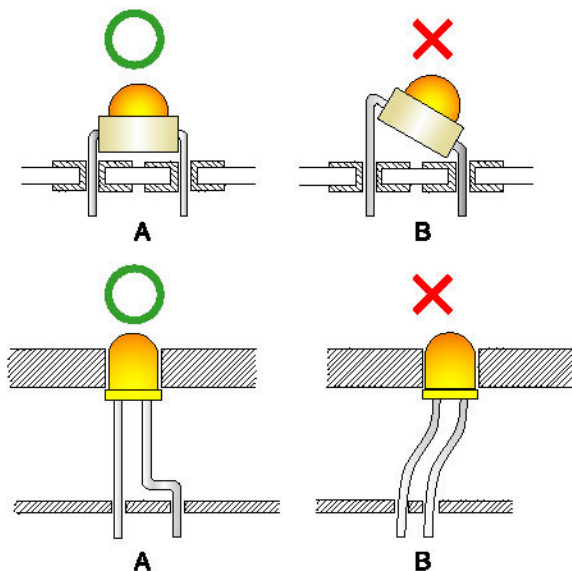
ESD Protection During Production

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:

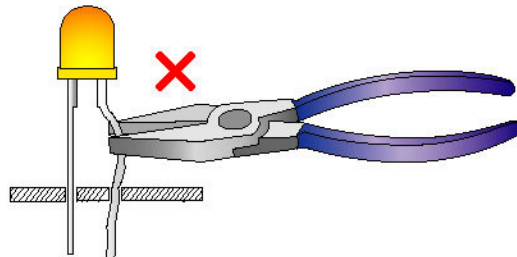
- a. Minimize friction between the product and surroundings to avoid static buildup.
- b. All production machinery and test instruments must be electrically grounded.
- c. Operators must wear anti-static bracelets.
- d. Wear anti-static suit when entering work areas with conductive machinery.
- e. Set 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.

Lead Forming

1. Any lead forming or bending must be done before soldering, never during or after soldering.
2. Avoid placing stress the LED lens in order to prevent fracture in the lens epoxy and to prevent damage to the internal wire bonding.
3. 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.
4. There must be a minimum of 2mm clearance between the base of the LED lens and the lead bend.
5. Avoid bending the leads at the same point more than once.
6. Assembly Precautions
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 matching pitches between the leads and the mounting holes. Refer to figure below for proper lead forming procedures.



7. Avoid lead forming once the component has been mounted onto the PCB.

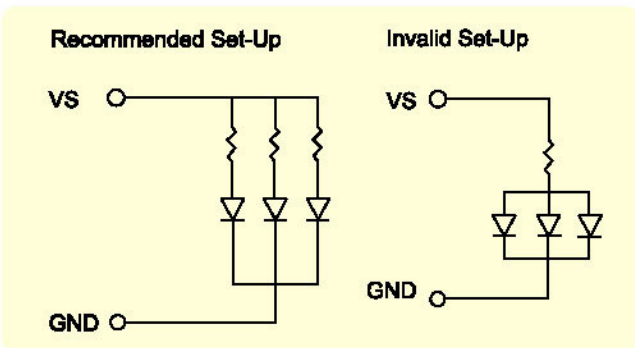


Cleaning

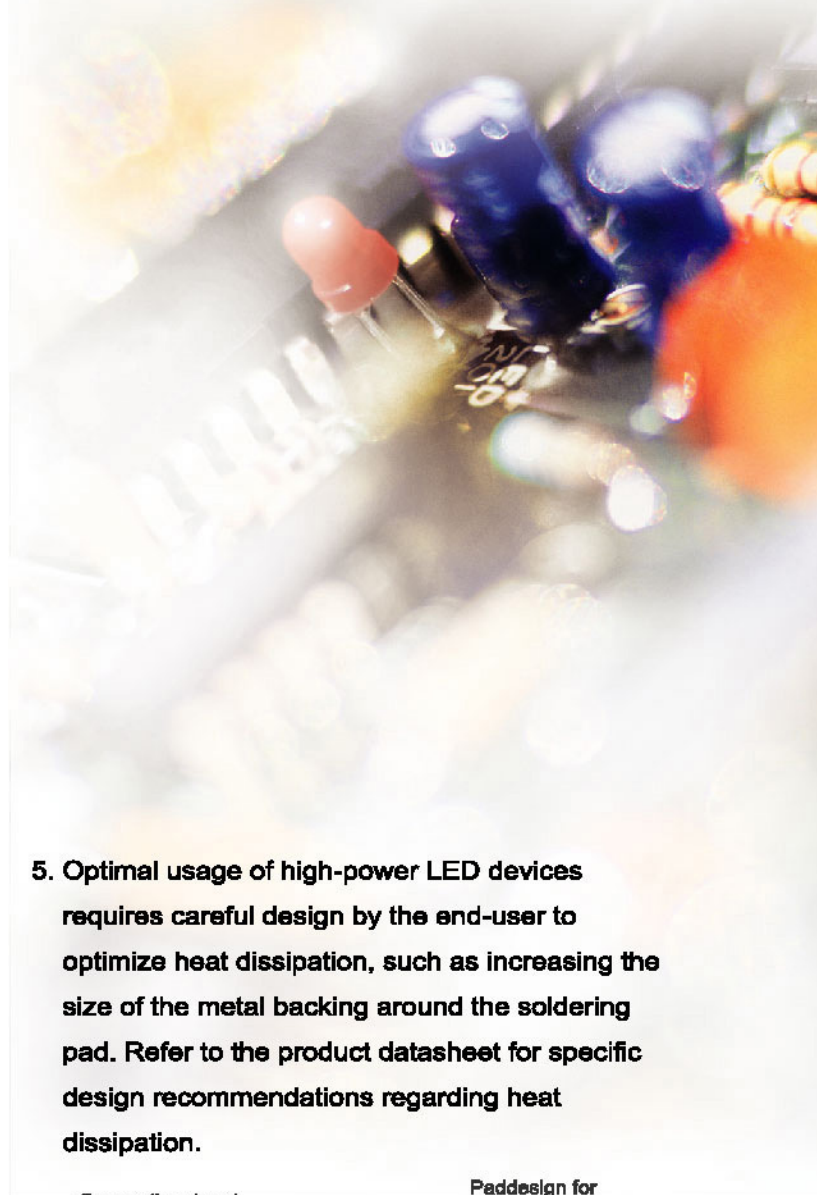
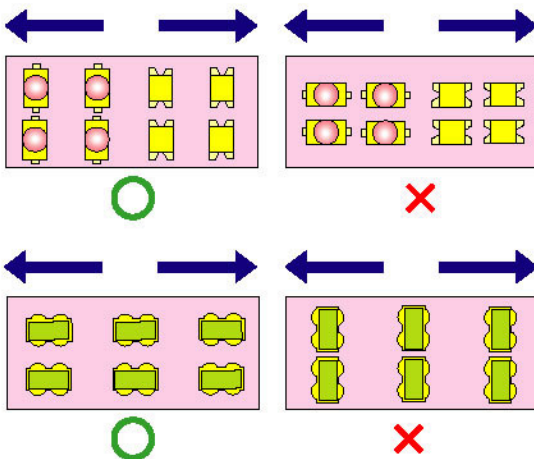
1. Do not use harsh organic solvents such as trichloroethylene, acetone, Chlorosen, and Diflon S3MC for cleaning because they may cloud or damage the LED lens.
2. Isopropyl alcohol or deionized water are recommended solvents for cleaning.
3. Special attention should be taken if other chemicals are used 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

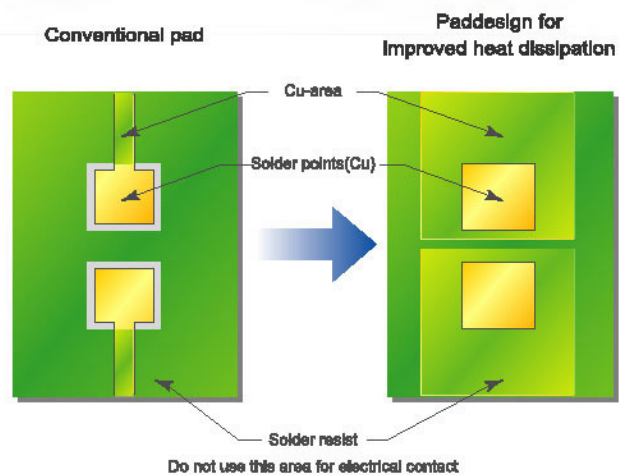
1. Protective current-limiting resistors may be necessary to operate the LEDs within the specified range.
2. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.



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.

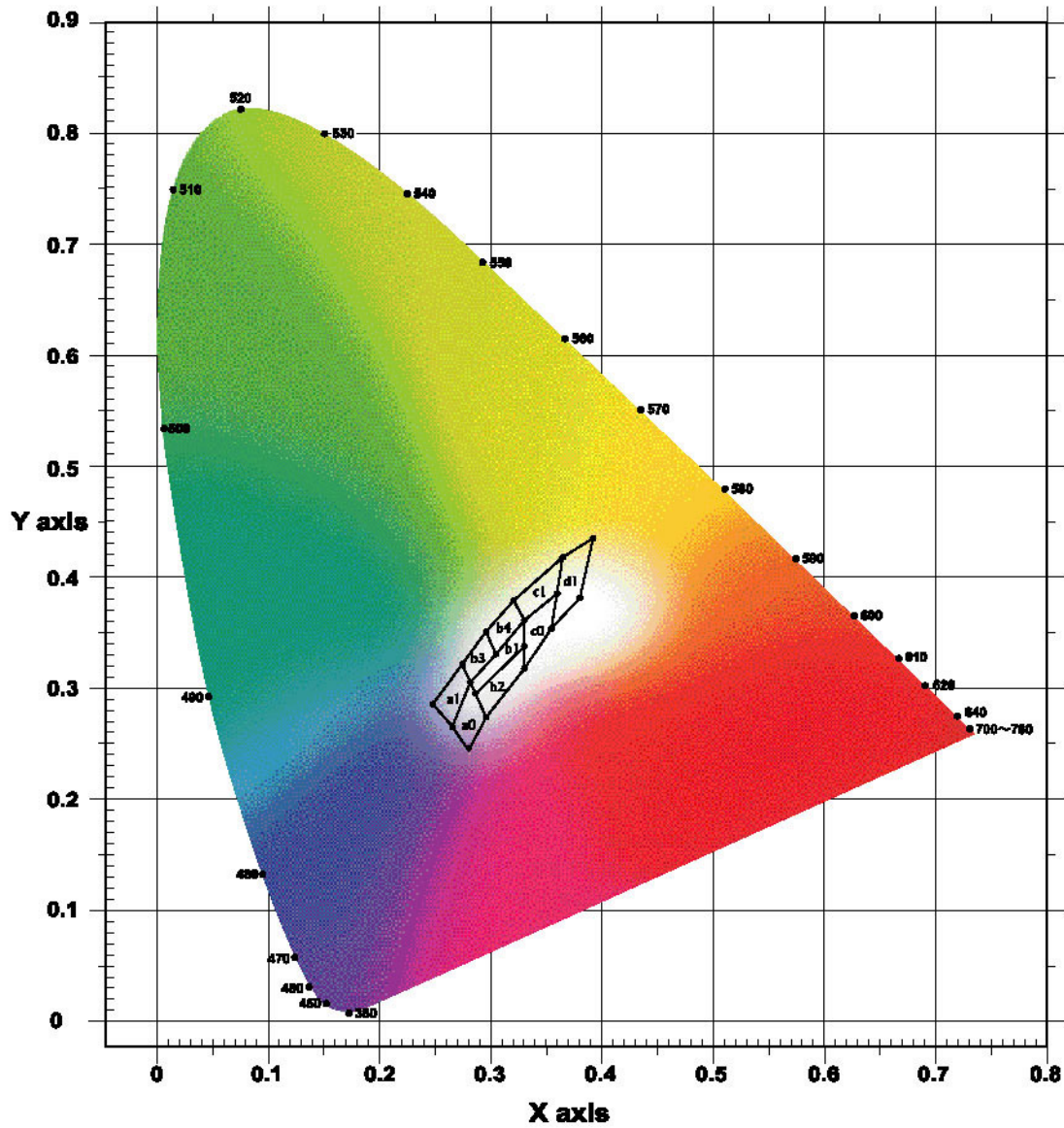


6. High temperatures can reduce device performance and reliability. Keep LED devices away from heat sources for best performance.

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.

a1	
X	0.248 0.275 0.283 0.264
Y	0.286 0.321 0.305 0.287
b1	
X	0.283 0.330 0.330 0.287
Y	0.305 0.360 0.339 0.295
c1	
X	0.321 0.366 0.361 0.330
Y	0.379 0.419 0.385 0.360

a0	
X	0.264 0.283 0.296 0.280
Y	0.267 0.305 0.276 0.248
b2	
X	0.287 0.330 0.330 0.296
Y	0.295 0.339 0.318 0.276
c0	
X	0.330 0.361 0.356 0.330
Y	0.360 0.385 0.351 0.318

b3	
X	0.275 0.298 0.306 0.283
Y	0.321 0.350 0.332 0.305
b4	
X	0.298 0.321 0.330 0.306
Y	0.350 0.379 0.360 0.332
d1	
X	0.366 0.391 0.380 0.356
Y	0.419 0.436 0.381 0.351

● Ta=25°C, If=20mA

● Measurement Uncertainty of the Color Coordinates:±0.01

Absolute maximum ratings (T _A =25°C)		E Hi.Eff.Red Orange (GaAsP/GaP)	H Bright Red (GaP)	I Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	SUR Hyper Red (InGaAlP)	SUR-E Hyper Red (InGaAlP)	Unit
Reverse voltage	V _R	5	5	5	5	5	5	V
Forward current	I _F	30	25	30	30	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	160	130	160	155	185	200	mA
Power dissipation	P _T	105	120	105	100	170	150	mW
LED LAMPS:								
Operating temperature	T _A	- 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	°C
LED DISPLAYS:								
Operating temperature	T _A	- 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	°C

Operating characteristics		E Hi.Eff.Red Orange (GaAsP/GaP)	H Bright Red (GaP)	I Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	SUR Hyper Red (InGaAlP)	SUR-E Hyper Red (InGaAlP)	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	2.0 1.9 1.7	1.85 1.8 1.65	1.9 1.85 1.7	1.9 1.8 1.7	V
Forward voltage (max.) I _F =20mA, 10mA, 2mA	V _F	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	µA
Peak Emission Wavelength I _F =20mA, 10mA, 2mA	λ _P	627	700	627	660	640	640	nm
Dominant Wavelength I _F =20mA, 10mA, 2mA	λ _D	625	660	625	640	628	630	nm
Spectral line half-width I _F =20mA, 10mA, 2mA	Δλ _{1/2}	45	45	45	20	27	25	nm
Capacitance V _F =0V, f=1MHZ	C	15	40	15	45	45	45	pF

Absolute maximum ratings (T _A =25°C)		SURK Hyper Red (InGaAlP)	N Pure Orange (GaAsP/GaP)	SE Super Bright Orange (InGaAlP)	SE-E Hyper Orange (InGaAlP)	SE-G Hyper Orange (InGaAlP)	Unit
Reverse voltage	V _R	5	5	5	5	5	V
Forward current	I _F	30	25	30	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	185	145	195	195	200	mA
Power dissipation	P _T	170	105	75	150	125	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		SURK Hyper Red (InGaAlP)	N Pure Orange (GaAsP/GaP)	SE Super Bright Orange (InGaAlP)	SE-E Hyper Orange (InGaAlP)	SE-G Hyper Orange (InGaAlP)	Unit
Forward voltage (typ.) I _F =20mA I _F =10mA I _F =2mA	V _F	1.95 1.85 1.75	2.05 1.95 1.85	2.0 1.9 1.8	2.0 1.9 1.8	1.9 1.85 1.75	V
Forward voltage (max.) I _F =20mA, 10mA, 2mA	V _F	2.5	2.5	2.5	2.5	2.5	V
Reverse current V _R =5V	I _R	10	10	10	10	10	μA
Peak Emission Wavelength I _F =20mA, 10mA, 2mA	λ _P	650	607	610	630	630	nm
Dominant Wavelength I _F =20mA, 10mA, 2mA	λ _D	635	610	601	621	625	nm
Spectral line half-width I _F =20mA, 10mA, 2mA	Δλ 1/2	28	35	29	20	20	nm
Capacitance V _F =0V, f=1MHZ	C	35	15	30	25	20	pF

Absolute maximum ratings (T _A =25°C)		SE-H Hyper Orange	SEK Super Bright Orange	SY Super Bright Yellow	SY-H Super Bright Yellow	SYK Super Bright Yellow	Y Yellow	Unit
		(InGaAlP)	(InGaAlP)	(InGaAlP)	(InGaAlP)	(InGaAlP)	(GaAsP/GaP)	
Reverse voltage	V _R	5	5	5	5	5	5	V
Forward current	I _F	30	30	30	30	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	150	195	150	140	175	140	mA
Power dissipation	P _T	120	75	125	120	125	105	mW
LED LAMPS:								
Operating temperature	T _A	- 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	°C
LED DISPLAYS:								
Operating temperature	T _A	- 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	°C

Operating characteristics		SE-H Hyper Orange	SEK Super Bright Orange	SY Super Bright Yellow	SY-H Super Bright Yellow	SYK Super Bright Yellow	Y Yellow	Unit
		(InGaAlP)	(InGaAlP)	(InGaAlP)	(InGaAlP)	(InGaAlP)	(GaAsP/GaP)	
Forward voltage (typ.) I _F =20mA I _F =10mA I _F =2mA	V _F	2.2 2.05 1.85	2.1 2.0 1.85	2.0 1.95 1.8	2.3 2.2 2.0	2.0 1.95 1.85	2.1 1.95 1.85	V
Forward voltage (max.) I _F =20mA, 10mA, 2mA	V _F	2.8	2.5	2.5	2.8	2.5	2.5	V
Reverse current V _R =5V	I _R	10	10	10	10	10	10	µA
Peak Emission Wavelength I _F =20mA, 10mA, 2mA	λ _P	640	610	590	590	590	590	nm
Dominant Wavelength I _F =20mA, 10mA, 2mA	λ _D	630	601	588	589	590	588	nm
Spectral line half-width I _F =20mA, 10mA, 2mA	Δλ 1/2	25	29	28	20	20	35	nm
Capacitance V _F =0V, f=1MHZ	C	27	15	25	45	20	20	pF

Absolute maximum ratings (T _A =25°C)		CGK Green (InGaAlP)	G Green (GaP)	MG Mega Green (InGaAlP)	MGK Mega Green (InGaAlP)	PG Pure Green (GaP)	SG Super Bright Green (GaP)	Unit
Reverse voltage	V _R	5	5	5	5	5	5	V
Forward current	I _F	30	25	30	30	25	25	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	150	140	150	150	135	140	mA
Power dissipation	P _T	105	105	105	105	105	105	mW
LED LAMPS:								
Operating temperature	T _A	- 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	°C
LED DISPLAYS:								
Operating temperature	T _A	- 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	°C

Operating characteristics		CGK Green (InGaAlP)	G Green (GaP)	MG Mega Green (InGaAlP)	MGK Mega Green (InGaAlP)	PG Pure Green (GaP)	SG Super Bright Green (GaP)	Unit
Forward voltage (typ.) I _F =20mA I _F =10mA I _F =2mA	V _F	2.1 2.0 1.9	2.2 2.0 1.9	2.1 2.0 1.9	2.1 2.0 1.9	2.25 2.1 1.9	2.2 2.0 1.9	V
Forward voltage (max.) I _F =20mA, 10mA, 2mA	V _F	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	uA
Peak Emission Wavelength I _F =20mA, 10mA, 2mA	λ _P	574	565	574	574	555	565	nm
Dominant Wavelength I _F =20mA, 10mA, 2mA	λ _D	570	568	568	570	555	568	nm
Spectral line half-width I _F =20mA, 10mA, 2mA	Δλ 1/2	20	30	26	20	30	30	nm
Capacitance V _F =0V, f=1MHZ	C	15	15	20	15	45	15	pF

Absolute maximum ratings (T _A =25°C)		VG Green (InGaN)	VG-E Green (InGaN)	VG-H Green (InGaN)	ZG Green (AlInGaN)	Unit
Reverse voltage	V _R	5	5	5	5	V
Forward current	I _F	30	30	30	25	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	150	150	150	150	mA
Power dissipation	P _T	105	120	120	105	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		VG Green (InGaN)	VG-E Green (InGaN)	VG-H Green (InGaN)	ZG Green (AlInGaN)	Unit
Forward voltage (typ.) I _F =20mA I _F =10mA I _F =2mA	V _F	3.5 3.2 2.7	3.5 3.2 2.7	3.7 3.3 2.7	3.3 3.0 2.65	V
Forward voltage (max.) I _F =20mA, 10mA, 2mA	V _F	4.5	4.5	4.1	4.1	V
Reverse current V _R =5V	I _R	10	10	10	10	μA
Peak Emission Wavelength I _F =20mA, 10mA, 2mA	λ _P	520	518	520	515	nm
Dominant Wavelength I _F =20mA, 10mA, 2mA	λ _D	525	525	525	525	nm
Spectral line half-width I _F =20mA, 10mA, 2mA	Δλ _{1/2}	38	36	35	30	nm
Capacitance V _F =0V, f=1MHZ	C	45	50	45	45	pF

Absolute maximum ratings (T _A =25°C)		PB Blue (InGaN)	PB-E Blue (InGaN)	PB-G Blue (InGaN)	PB-H Blue (InGaN)	QB-C Blue (GaN)	UV Ultraviolet (InGaN)	Unit
Reverse voltage	V _R	5	5	5	5	5	5	V
Forward current	I _F	30	30	30	30	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i _{FS}	160	160	150	100	150	100	mA
Power dissipation	P _T	102	120	102	108	105	100	mW
LED LAMPS:								
Operating temperature	T _A	- 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	°C
LED DISPLAYS:								
Operating temperature	T _A	- 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	°C
Chromaticity Coordinates (Typ.)	X	-	-	-	-	-	-	
	Y	-	-	-	-	-	-	

Operating characteristics		PB Blue (InGaN)	PB-E Blue (InGaN)	PB-G Blue (InGaN)	PB-H Blue (InGaN)	QB-C Blue (GaN)	UV Ultraviolet (InGaN)	Unit
Forward voltage (typ.) I _F =20mA I _F =10mA I _F = 2 mA	V _F	3.65 3.3 3.0	3.7 3.5 3.1	3.6 3.3 3.0	3.7 3.3 2.9	3.3 3.0 2.65	3.8 3.65 3.4	V
Forward voltage (max.) I _F =20mA	V _F	4.2	4.3	4.3	4.3	4.0	4.2	V
Reverse current V _R =5V	I _R	10	10	10	10	10	10	uA
Peak Emission Wavelength I _F =20mA, 10mA, 2mA	λ _P	468	465	468	467	470	400	nm
Dominant Wavelength I _F =20mA, 10mA, 2mA	λ _D	470	470	470	470	470	395	nm
Spectral line half-width I _F =20mA, 10mA, 2mA	Δλ 1/2	25	25	26	30	25	26	nm
Capacitance V _F =0V, f=1MHZ	C	65	110	110	110	105	30	pF

Absolute maximum ratings (T _A =25°C)		I Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Y Yellow (GaAsP/GaP)	G Green (GaP)	SG Super Bright Green (GaP)	Unit
Reverse voltage	V _R	5	5	5	5	5	V
Forward voltage (Max.) for 5V	V _F	6	6	6	6	6	V
Forward voltage (Max.) for 12V	V _F	14	14	14	14	14	V
Forward voltage (Max.) for 14V	V _F	16	16	16	16	16	V
Power dissipation for 5V	P _T	85	85	85	85	85	mW
Power dissipation for 12V	P _T	120	120	120	120	120	mW
Power dissipation for 14V	P _T	160	160	160	160	160	mW
LED LAMPS:							
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
LED DISPLAYS:							
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		I Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Y Yellow (GaAsP/GaP)	G Green (GaP)	SG Super Bright Green (GaP)	Unit
Forward current (typ.) V _F =5V	I _F	13	13	13	11.5	11.5	mA
Forward current (typ.) V _F =12V	I _F	8.5	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	10.5	mA
Forward current (max.) V _F =5V	I _F	17.5	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	11.5	mA
Forward current (max.) V _F =14V	I _F	13.5	13.5	13.5	13.5	13.5	mA
Reverse current V _R =5V	I _R	10	10	10	10	10	uA
Peak Emission Wavelength V _F =5V,12V,14V	λ _P	627	660	590	565	565	nm
Dominant Wavelength V _F =5V,12V,14V	λ _D	625	640	588	568	568	nm
Spectral line half-width V _F =5V,12V,14V	Δλ 1/2	45	20	35	30	30	nm

Absolute maximum ratings ($T_A=25^{\circ}\text{C}$)		H Bright Red (GaP)	I Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Y Yellow (GaAsP/GaP)	G Green (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	$^{\circ}\text{C}$
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	$^{\circ}\text{C}$

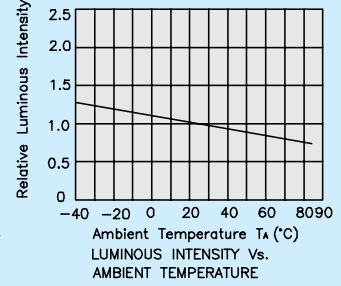
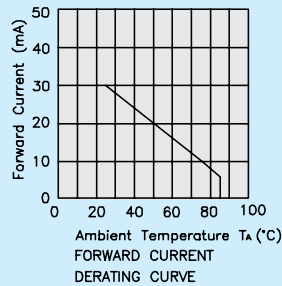
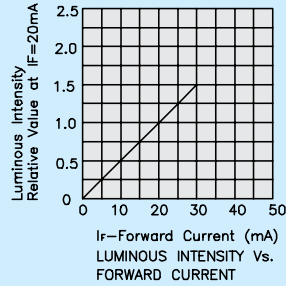
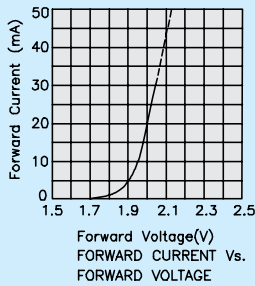
Operating characteristics		H Bright Red (GaP)	I Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	Y Yellow (GaAsP/GaP)	G Green (GaP)	Unit
Forward current (min.) $V_F=3.5\text{V}$	I_F	8	8	8	8	8	mA
Forward current (typ.) $V_F=5\text{V}$	I_F	22	22	22	22	22	mA
Supply current $V_F=3.5\text{V} \sim 14\text{V}$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

Absolute maximum ratings ($T_A=25^\circ\text{C}$)		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	100	100	100	100	mW
LED LAMPS:						
Operating temperature	T_A	-40~+85	-40~+85	-40~+85	-40~+85	$^\circ\text{C}$
Storage temperature	T_{STG}	-40~+85	-40~+85	-40~+85	-40~+85	$^\circ\text{C}$
LED DISPLAYS:						
Operating temperature	T_A	-40~+85	-40~+85	-40~+85	-40~+85	$^\circ\text{C}$
Storage temperature	T_{STG}	-40~+85	-40~+85	-40~+85	-40~+85	$^\circ\text{C}$

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

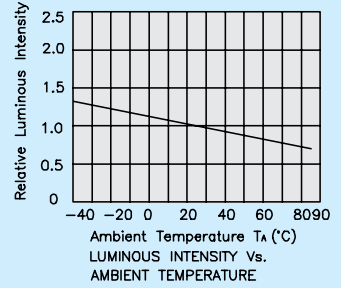
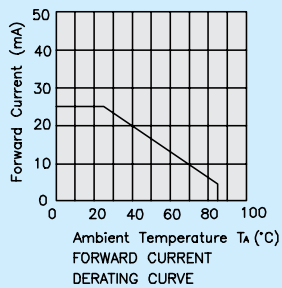
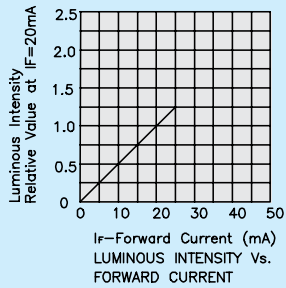
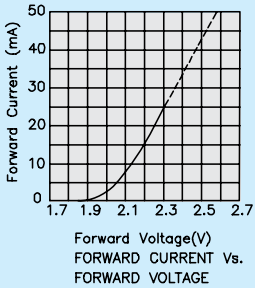
High Efficiency Red,Orange

E : GaAsP/GaP



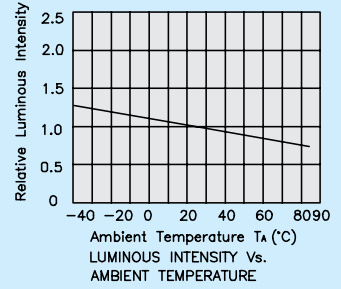
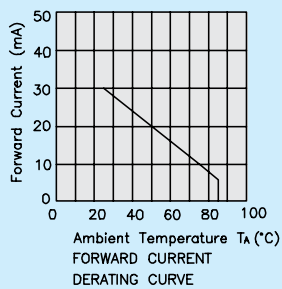
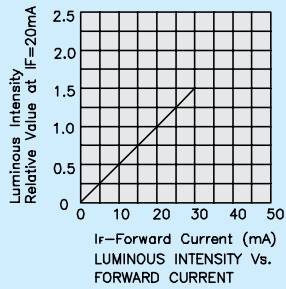
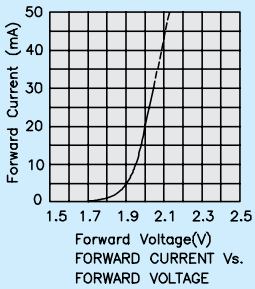
Bright Red

H : GaP



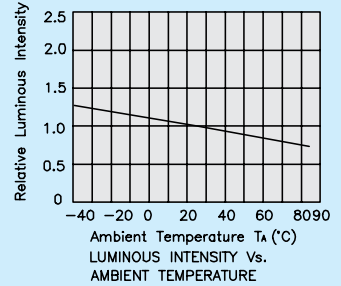
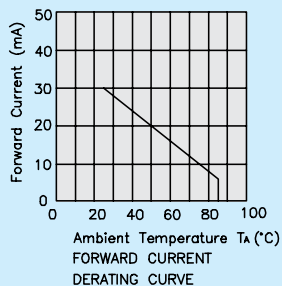
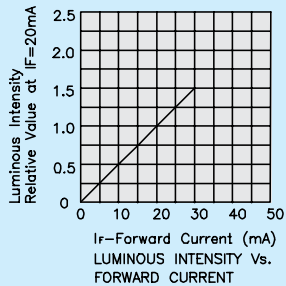
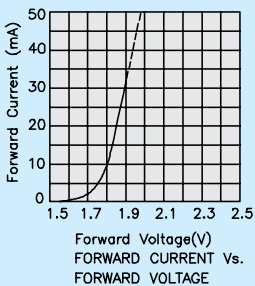
High Efficiency Red

I : GaAsP/GaP



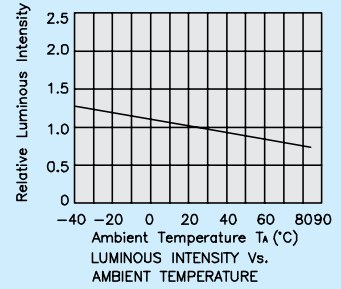
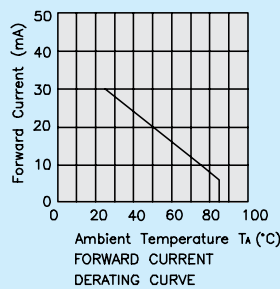
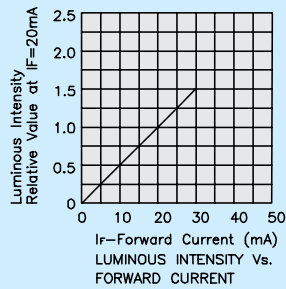
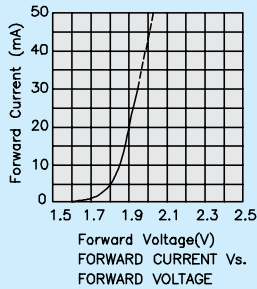
Super Bright Red

SR : GaAlAs



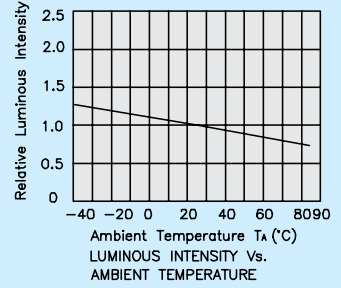
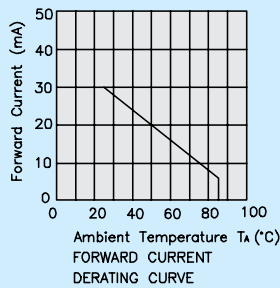
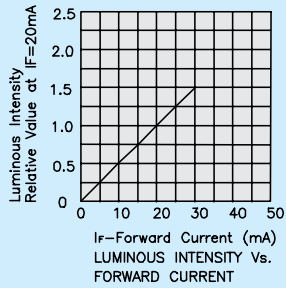
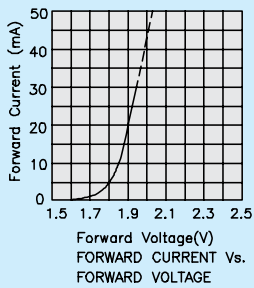
Hyper Red

SUR : InGaAlP



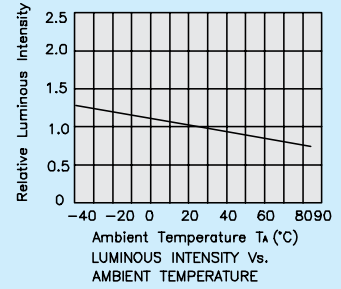
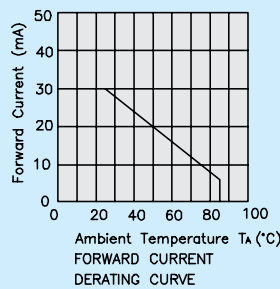
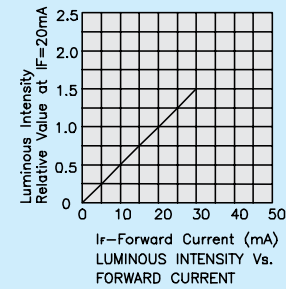
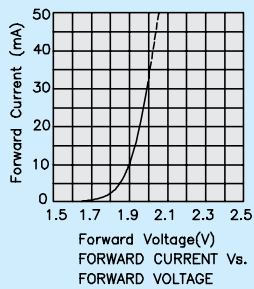
Hyper Red

SUR-E : InGaAlP



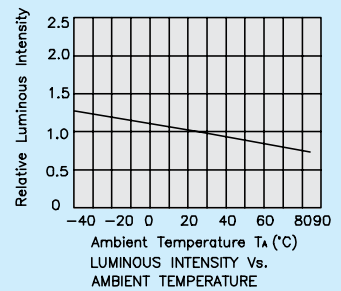
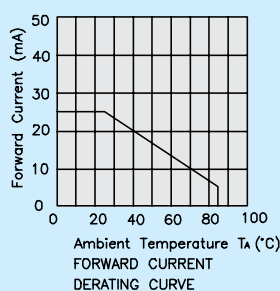
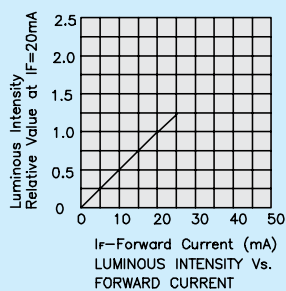
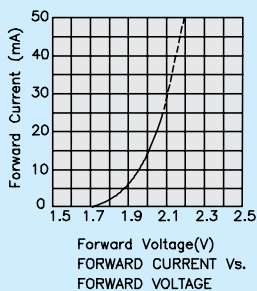
Hyper Red

SURK : InGaAlP



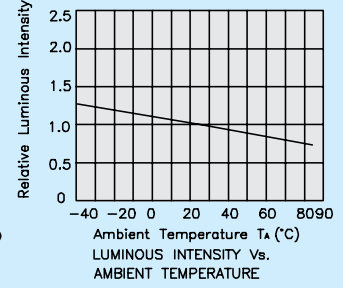
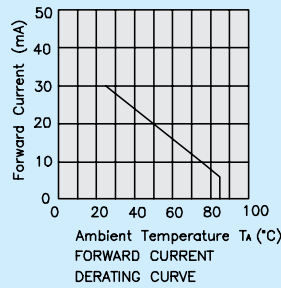
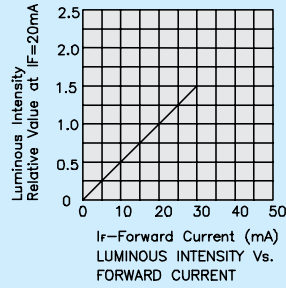
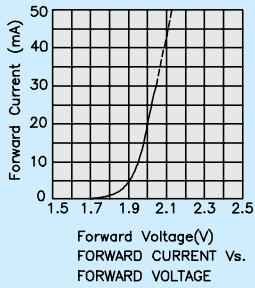
Pure Orange

N : GaAsP/GaP



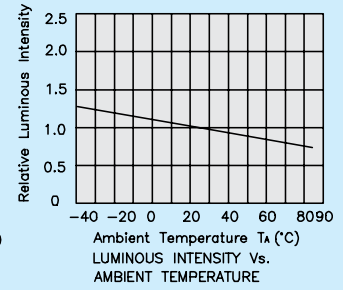
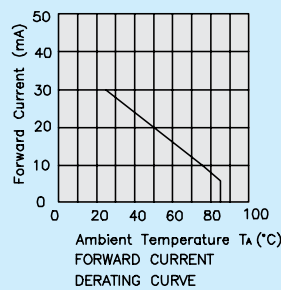
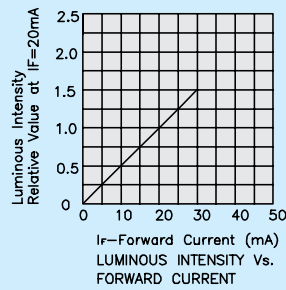
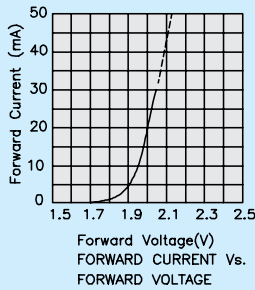
Super Bright Orange

SE : InGaAlP



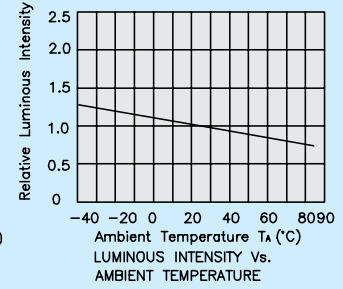
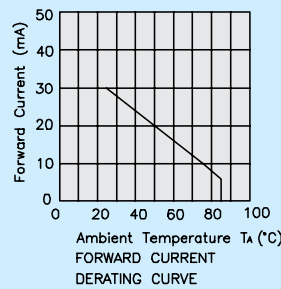
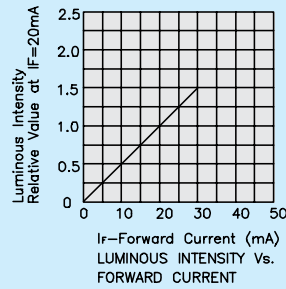
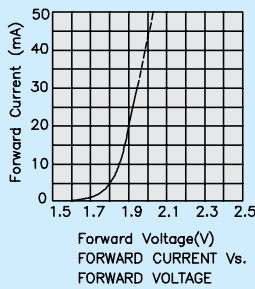
Hyper Orange

SE-E : InGaAlP



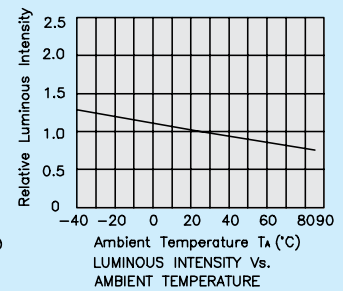
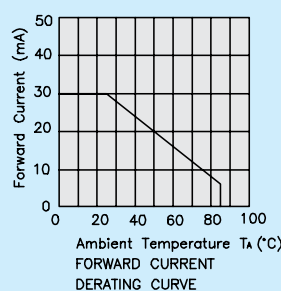
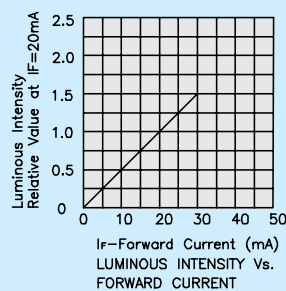
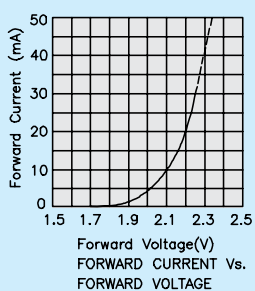
Hyper Orange

SE-G : InGaAlP



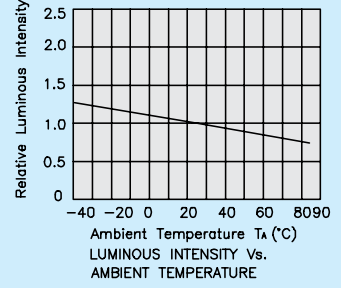
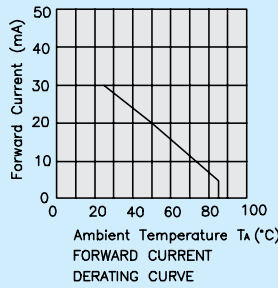
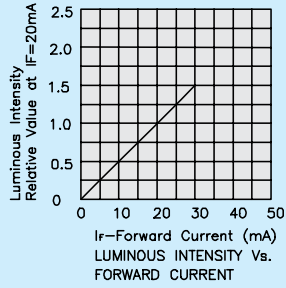
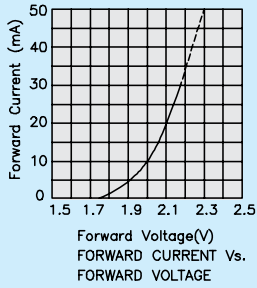
Hyper Orange

SE-H : InGaAlP



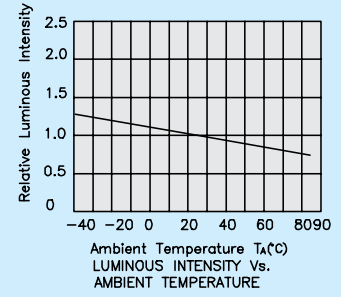
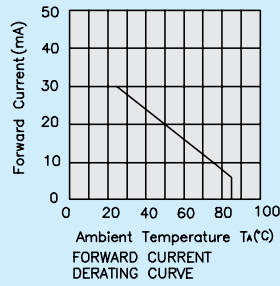
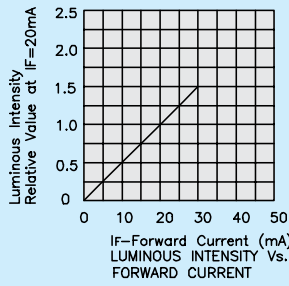
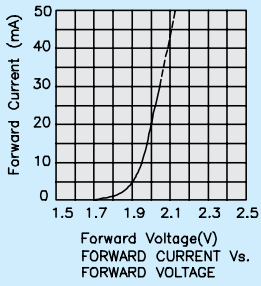
Super Bright Orange

SEK : InGaAlP



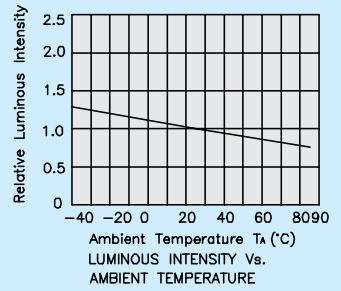
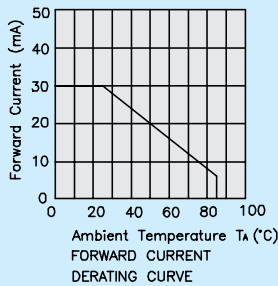
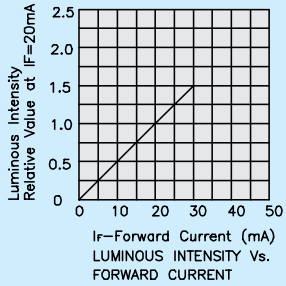
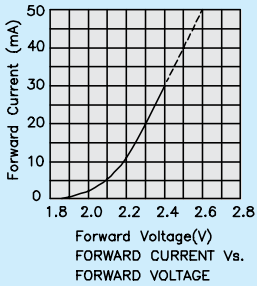
Super Bright Yellow

SY : InGaAlP



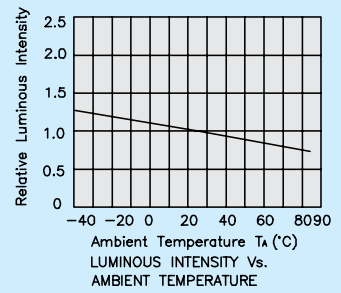
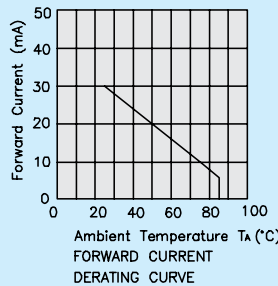
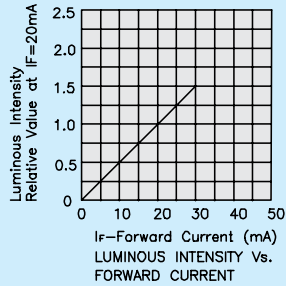
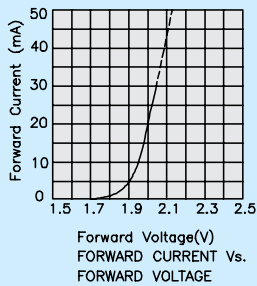
Super Bright Yellow

SY-H : InGaAlP



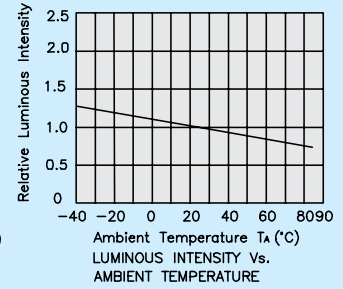
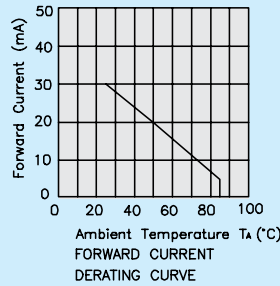
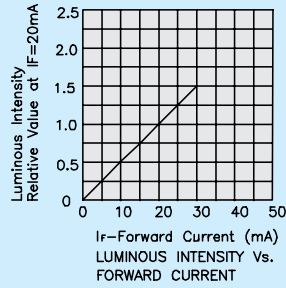
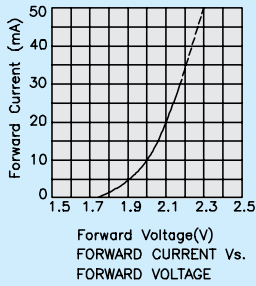
Super Bright Yellow

SYK : InGaAlP



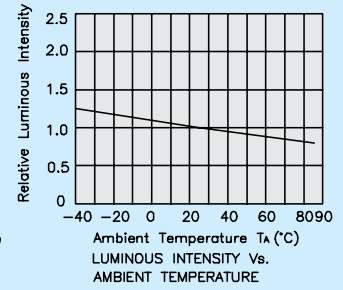
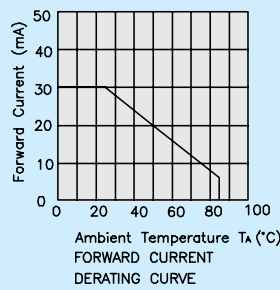
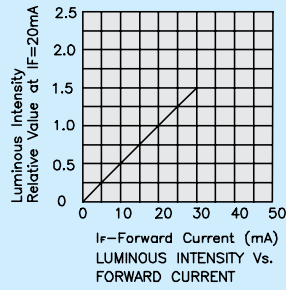
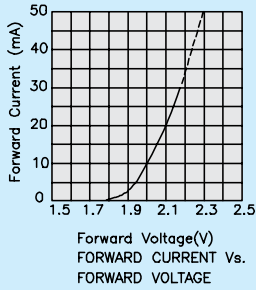
Yellow

Y : GaAsP/GaP



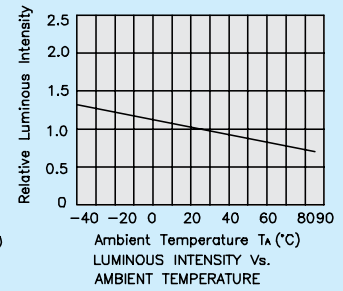
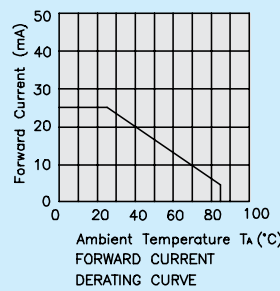
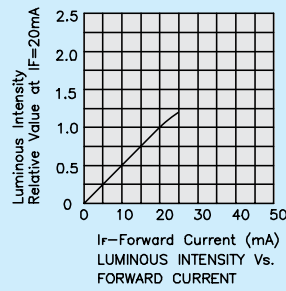
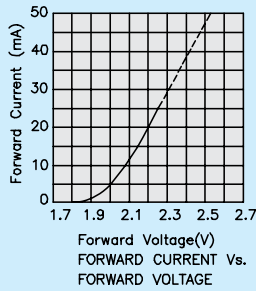
Green

CGK : InGaAlP



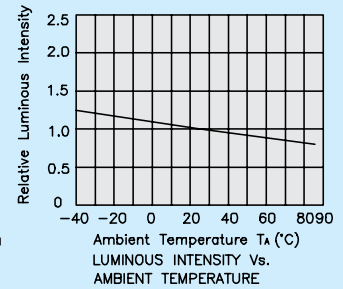
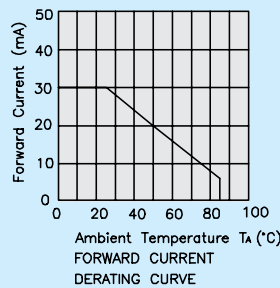
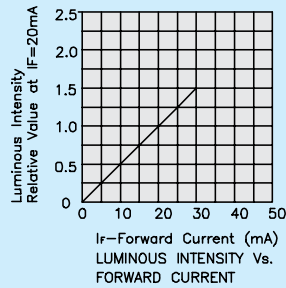
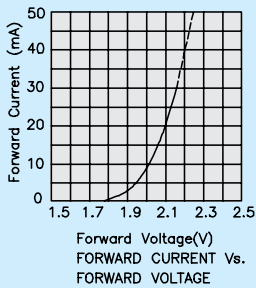
Green

G : GaP



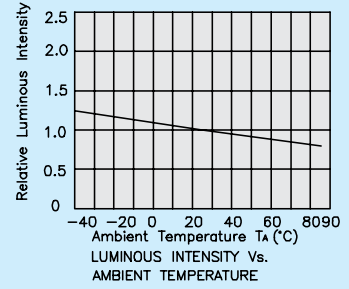
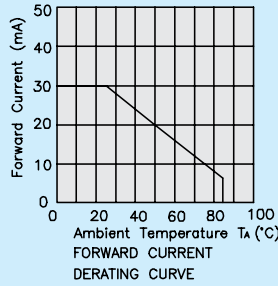
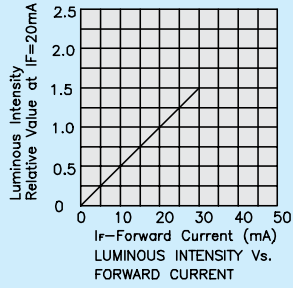
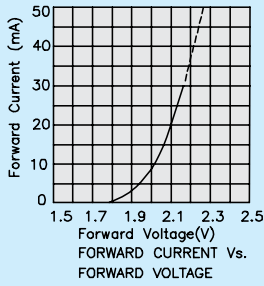
Mega Green

MG : InGaAlP



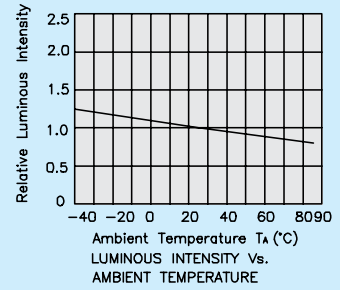
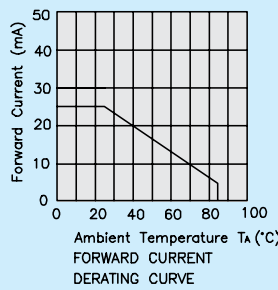
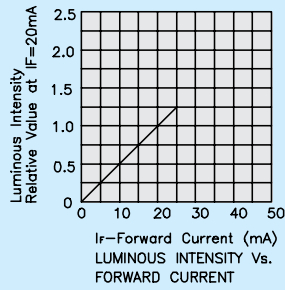
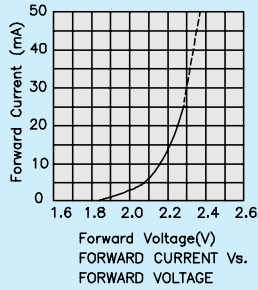
Mega Green

MGK : InGaAlP



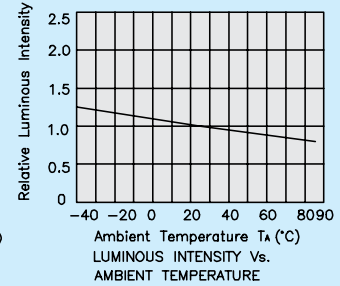
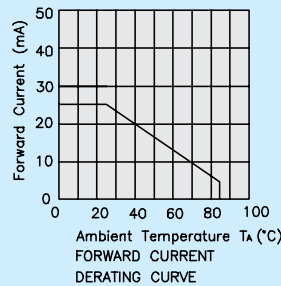
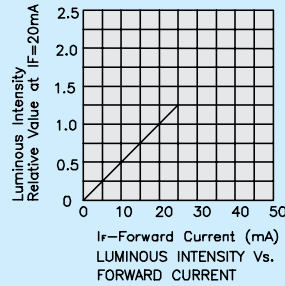
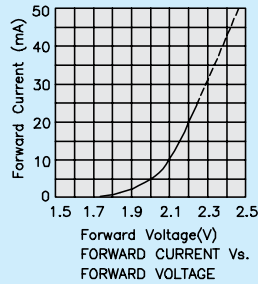
Pure Green

PG : GaP



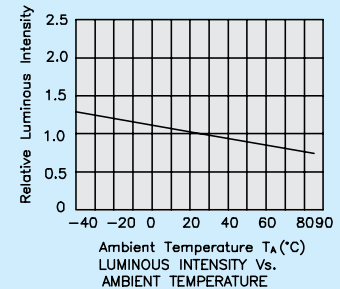
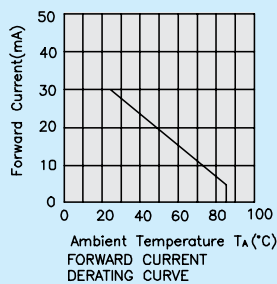
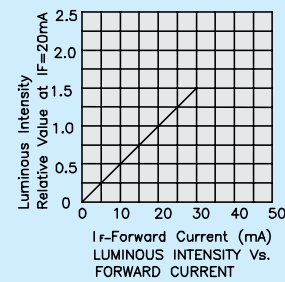
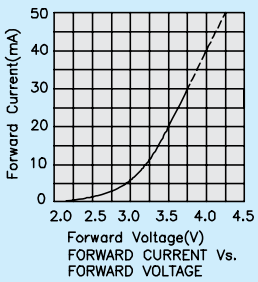
Super Bright Green

SG : GaP



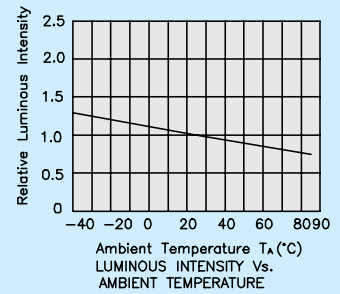
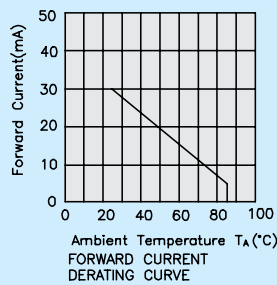
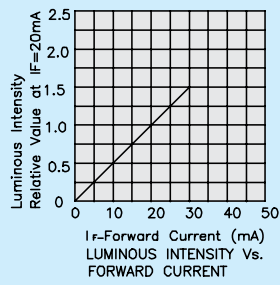
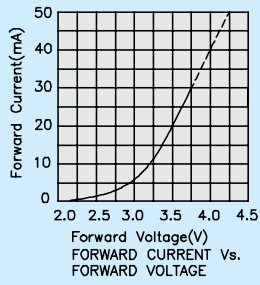
Green

VG : InGaN



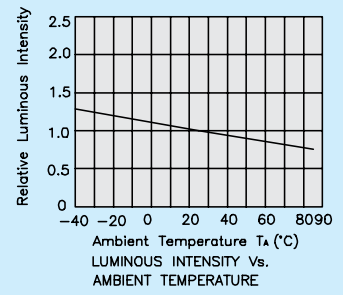
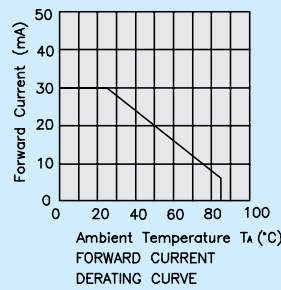
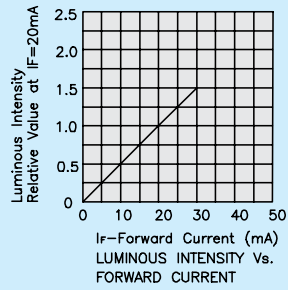
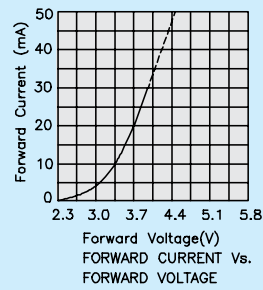
Green

VG-E : InGaN



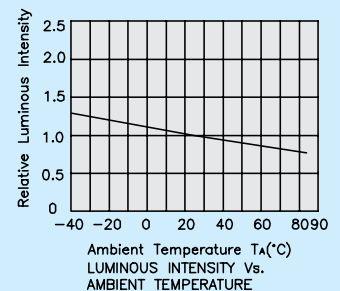
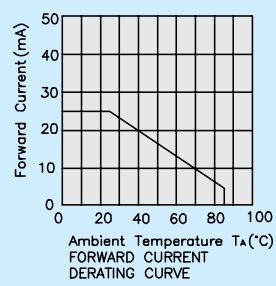
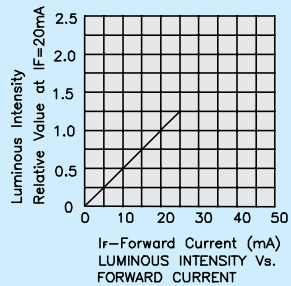
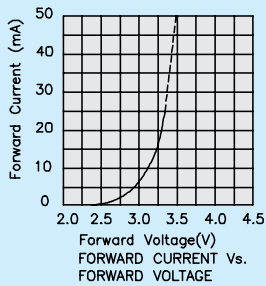
Green

VG-H : InGaN



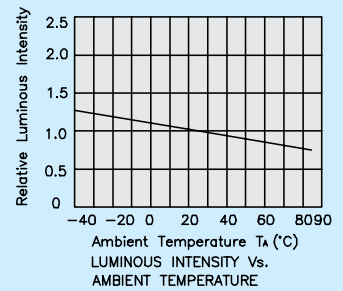
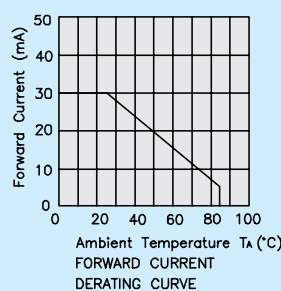
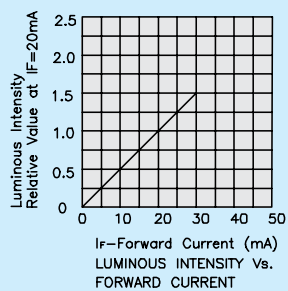
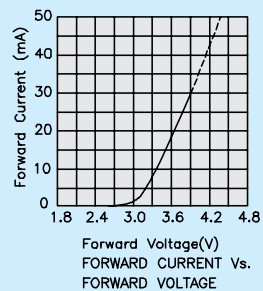
Green

ZG : AlInGaN



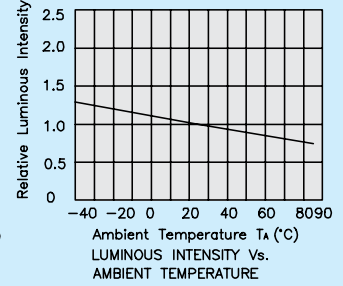
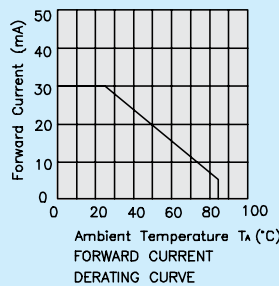
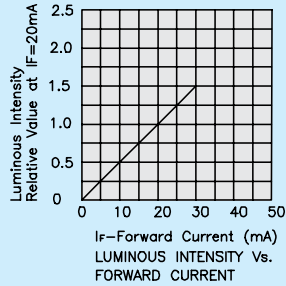
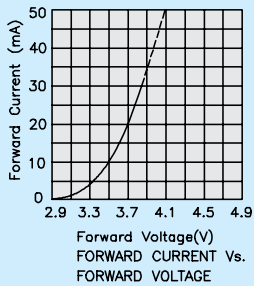
Blue

PB : InGaN



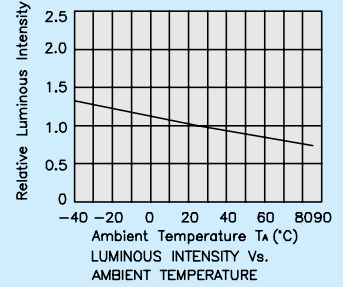
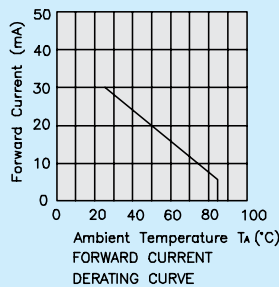
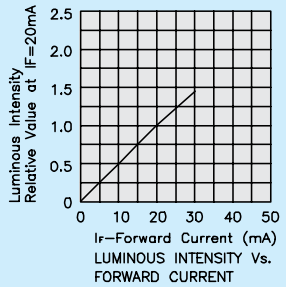
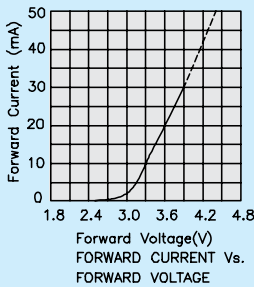
Blue

PB-E : InGaN



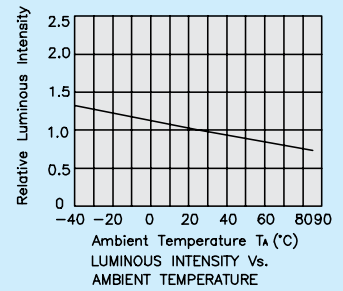
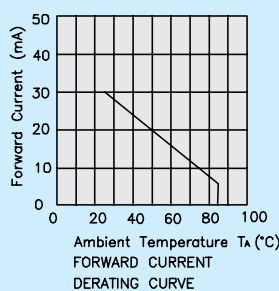
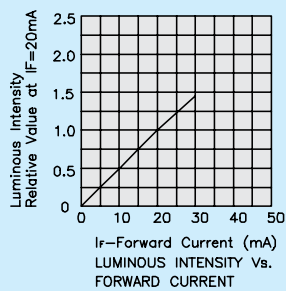
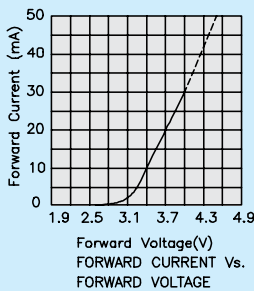
Blue

PB-G : InGaN



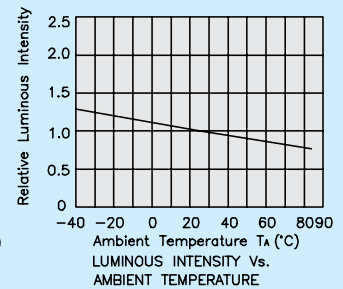
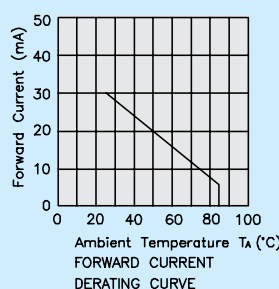
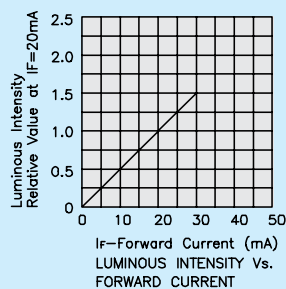
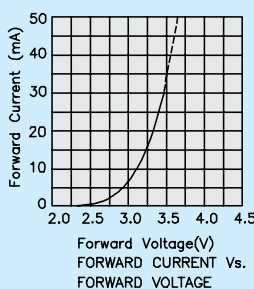
Blue

PB-H : InGaN



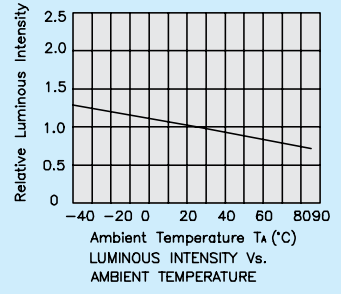
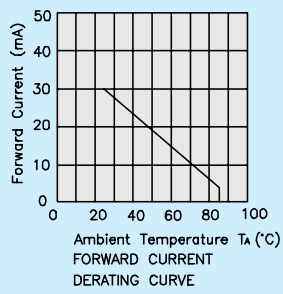
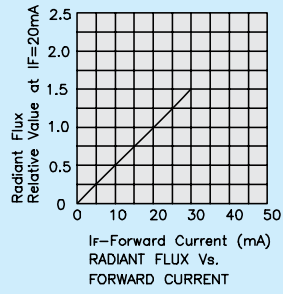
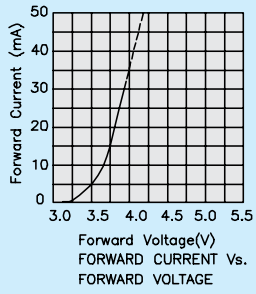
Blue

QB-C : GaN



Ultraviolet

UV : InGaN



SELECTION CODE FOR STANDARD LEDS					
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 SUPER BRIGHT LEDS					
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	60000	100000
W	1500	2100	ZW	80000	120000
X	1800	2500	ZX	100000	160000
Y	2200	3000	ZY	120000	200000
Z	2500	3300	ZZ	160000	240000

SELECTION CODE FOR DISPLAYS					
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					
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 INFRARED EMITTING DIODES					
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

COLOR CODE FOR BLUE LEDS + DISPLAYS						COLOR CODE FOR LEDS + DISPLAYS				
Group	Dom. WaveLength (nm)		Group	Dom. WaveLength (nm)		Group	Dom. WaveLength (nm)			
	min.	max.		min.	max.		Green		Yellow	
						min.	max.	min.	max.	
1	443	452	3A	469	475	0	556	559		
2	448	457	3B	471	477	1	559	561	581	584
3	453	462	4A	473	479	2	561	563	584	586
1A	458	465	4B	475	481	3	563	565	586	588
1B	461	468	5A	477	483	4	565	567	588	590
2A	464	471	5B	479	485	5	567	569	590	592
2B	467	473	5C	481	488	6	569	571	592	594
						7	571	573	594	597
						8	573	575	597	600

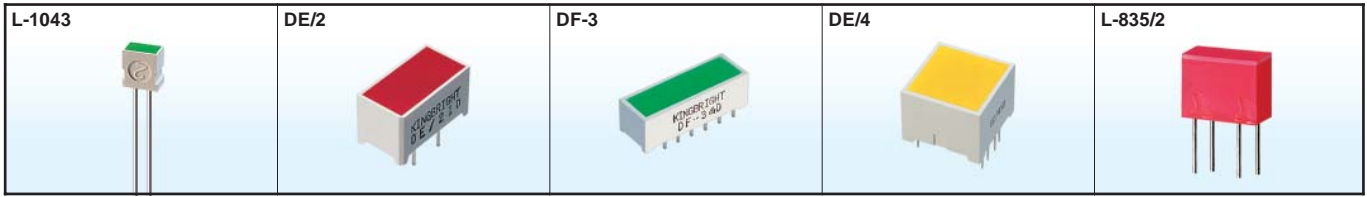
SOLDERING INSTRUCTIONS						
Types	Dip and wave soldering			Iron soldering (with 1.5mm iron tip)		
	Temperature of the soldering bath	Maximum soldering time	Distance from solder joint to package	Temperature of soldering iron	Maximum soldering time	Distance from solder joint to package
LEDS	<=260°C	3s	>=2mm	<=350°C	3s	>2mm
	<=260°C	5s	>=5mm	<=350°C	5s	>5mm
SMDS	/	/	/	<=230°C	10s	/
DISPLAYS	<=260°C	3s	>2mm	<=350°C	3s	>2mm
PHOTOCOUPLER	<=260°C	3s	>2mm	<=310°C	3s	/
	/	/	/	<=260°C	10s	/

Kingbright Catalog

2005-2006

P 2-4 LIGHT BAR

P 5 BAR GRAPH ARRAYS



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
L-1043ID	GaAsP/GaP	625	red diffused	1.8	10	100°	3.65mm x 6.15mm
L-1043SRD	GaAlAs	640	red diffused	*36	*90	100°	
L-1043YD	GaAsP/GaP	588	yellow diffused	1	4	100°	
L-1043GD	GaP	568	green diffused	1	4	100°	
L-1043SGD	GaP	568	green diffused	*4	*10	100°	
DE/2ID	GaAsP/GaP	625	red diffused	8	31	120°	7.5mm x 14mm
DE/2SRD	GaAlAs	640	red diffused	*70	*300	120°	
DE/2YD	GaAsP/GaP	588	yellow diffused	8	31	120°	
DE/2GD	GaP	568	green diffused	12	52	120°	
DE/2SGD	GaP	568	green diffused	*18	*80	120°	
DF-3ID	GaAsP/GaP	625	red diffused	8	31	120°	6.8mm x 19.9mm
DF-3SRD	GaAlAs	640	red diffused	*70	*300	120°	
DF-3YD	GaAsP/GaP	588	yellow diffused	8	31	120°	
DF-3GD	GaP	568	green diffused	12	52	120°	
DF-3SGD	GaP	568	green diffused	*36	*100	120°	
DE/4ID	GaAsP/GaP	625	red diffused	8	31	120°	15mm x 15mm
DE/4SRD	GaAlAs	640	red diffused	*70	*300	120°	
DE/4YD	GaAsP/GaP	588	yellow diffused	8	31	120°	
DE/4GD	GaP	568	green diffused	12	52	120°	
DE/4SGD	GaP	568	green diffused	*18	*80	120°	
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	5	10	120°	
L-835/2GDT	GaP	568	green diffused	1.8	5	120°	

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



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 GaAIAs	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	

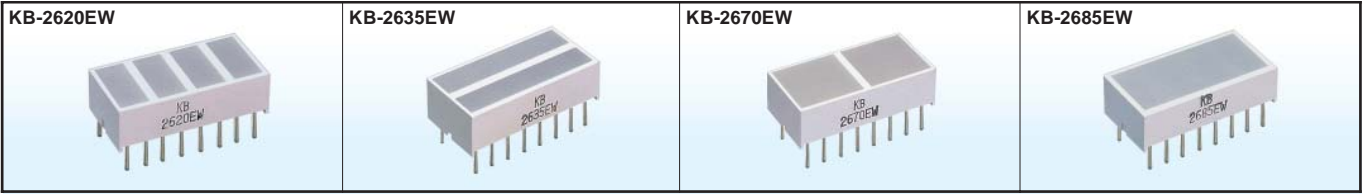
KB-2350EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	19.05mm x 3.81mm Size of Light Emitting Areas
KB-B100SRW	Super Bright Red GaAIAs	640	white diffused	50	200	
KB-2450YW	Yellow GaAsP/GaP	588	white diffused	10	50	
KB-2550SGD	Super Bright Green GaP	568	green diffused	18	70	

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 GaAIAs	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 GaAIAs	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.



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	<p>8.89mm x 3.81mm Size of Light Emitting Areas</p>
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	

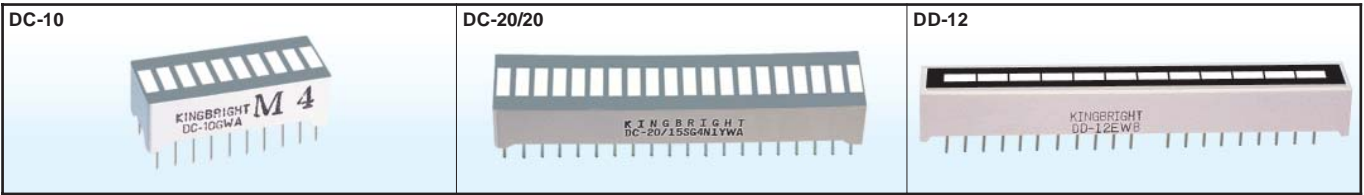
KB-2635EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	60	<p>3.81mm x 19.05mm Size of Light Emitting Areas</p>
KB-F100SRW	Super Bright Red GaAlAs	640	white diffused	50	200	
KB-2735YW	Yellow GaAsP/GaP	588	white diffused	7	40	
KB-2835SGD	Super Bright Green GaP	568	green diffused	36	100	

KB-2670EW	Hi.Eff.Red GaAsP/GaP	625	white diffused	10	50	<p>8.89mm x 8.89mm Size of Light Emitting Areas</p>
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	<p>8.89mm x 19.05mm Size of Light Emitting Areas</p>
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.



Part No.	Emitting Color + λ D (nm) + Material	Iv (ucd) @10mA		Description	Dimension
		Min.	Typ.		

DC-10EWA	Hi.Eff.Red 625 GaAsP/GaP	1900	9000	10 Segments Bargraph-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	1900	9500		
DC-7G3HWA	Green 568 GaP Bright Red 660 GaP	1900 480	9500 2200		

DC-20/20EWA	Hi.Eff.Red 625 GaAsP/GaP	1900	9000	20 Segments Bargraph-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-12HWP	Bright Red 660 GaP	300	1400	12 Segments Bargraph-Display Black Face White Segment	
DD-12YWP	Yellow 588 GaAsP/GaP	800	3600		
DD-12GWP	Green 568 GaP	1200	5600		

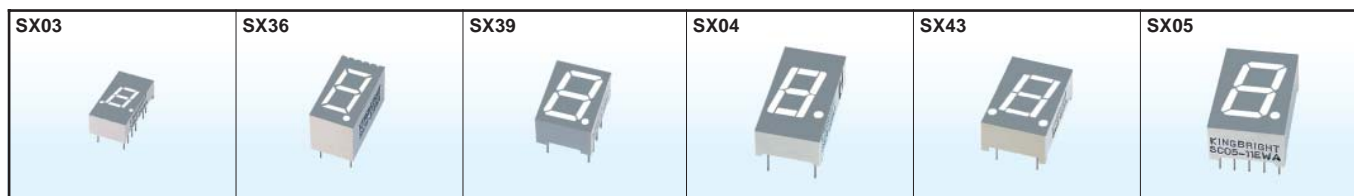
NOTES:
 1. All dimensions are in millimeters(inches).
 2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Kingbright Catalog

2005-2006

P 2-4 SINGLE DIGIT NUMERIC DISPLAYS
P 4-5 DUAL DIGIT NUMERIC DISPLAYS
P 5 THREE DIGIT NUMERIC DISPLAYS
P 5-6 FOUR DIGIT NUMERIC DISPLAYS

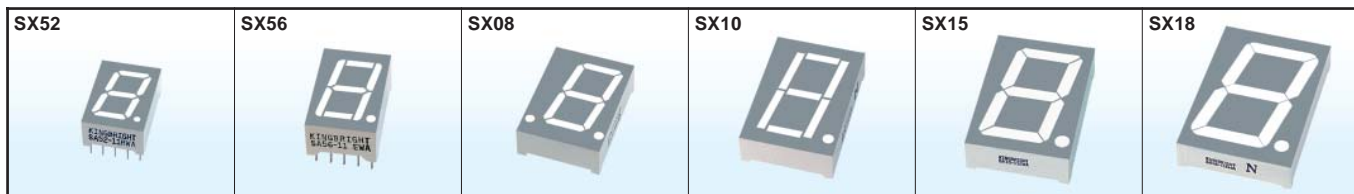
P 6-7 ALPHANUMERIC DISPLAYS
P 7-9 DOT MATRIX
P 10-27 PACKAGE DIMENSION



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	1200	6400	11
SA03-11SRWA	SC03-12SRWA		GaAlAs	640	8000	26000	
SA03-11YWA	SC03-12YWA		GaAsP/GaP	588	800	3000	
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	1200	6400	
SA36-11YWA	SC36-11YWA		GaAsP/GaP	588	300	1200	
SA36-11GWA	SC36-11GWA		GaP	568	480	1900	
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	3000	16000	
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	4700	18000	
SA43-11YWA SA43-13YWA	SC43-11YWA SC43-13YWA		GaAsP/GaP	588	800	3000	
SA43-11GWA SA43-13GWA	SC43-11GWA SC43-13GWA		GaP	568	1200	6400	
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	4700	24000	
SA05-11YWA	SC05-11YWA		GaAsP/GaP	588	1200	4700	
SA05-11GWA	SC05-11GWA		GaP	568	1900	10500	

NOTES:

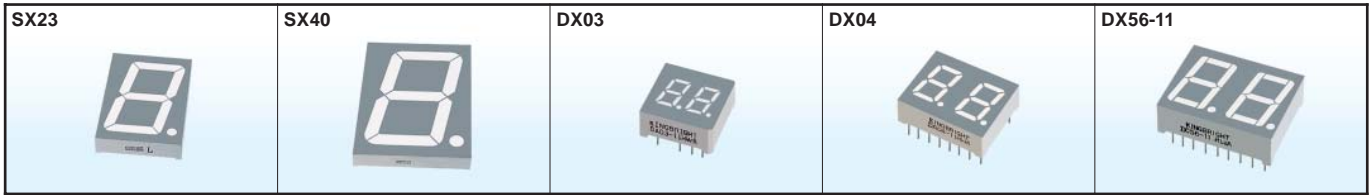
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



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	4700	24000	
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	1200	6400	19
SA08-11SRWA SA08-12SRWA SA08-13SRWA SA08-21SRWA	SC08-11SRWA SC08-12SRWA SC08-13SRWA SC08-21SRWA		GaAlAs	640	4700	24000	
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	1900	10500	
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	1900	10500	
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	8000	26000	
SBA18-11EGWA	SBC18-11EGWA		GaAsP/GaP	625	4700	18000	
			GaP	568	8000	26000	

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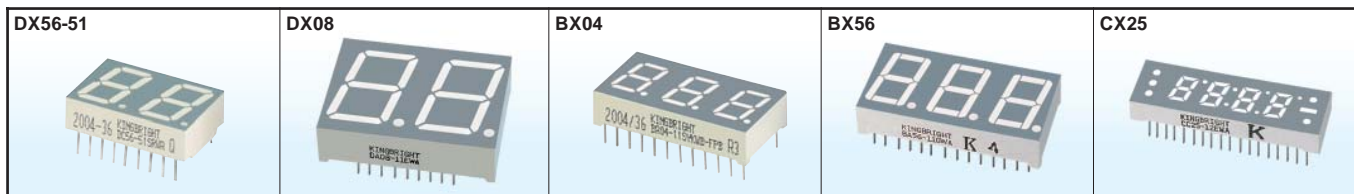
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



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	4700	18000	23
SA23-11SRWA SA23-12SRWA	SC23-11SRWA SC23-12SRWA		GaAlAs	640	18000	75000	
SA23-11YWA SA23-12YWA	SC23-11YWA SC23-12YWA		GaAsP/GaP	588	1900	8000	
SA23-11GWA SA23-12GWA	SC23-11GWA SC23-12GWA		GaP	568	4700	24000	
SBA23-11EGWA	SBC23-11EGWA		GaAsP/GaP	625	4700	18000	
			GaP	568	4700	24000	
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	480	1900	25
DA03-11SRWA	DC03-11SRWA		GaAlAs	640	1900	8000	
DA03-11YWA	DC03-11YWA		GaAsP/GaP	588	300	1200	
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	800	3000	
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	4700	24000	
DA56-11YWA	DC56-11YWA		GaAsP/GaP	588	1200	4700	
DA56-11GWA	DC56-11GWA		GaP	568	1900	10500	

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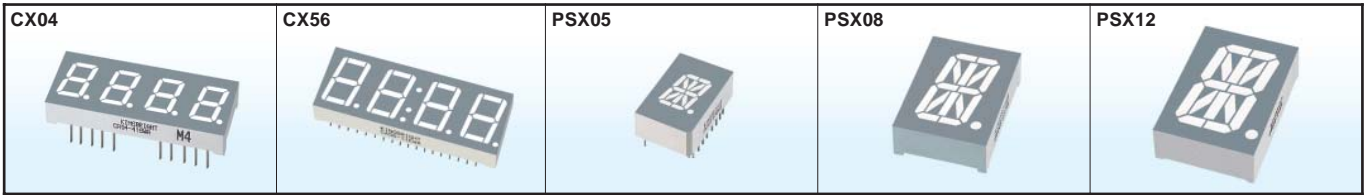
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



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	4700	24000	
DA08-11YWA	DC08-11YWA		GaAsP/GaP	588	1200	4700	
DA08-11GWA	DC08-11GWA		GaP	568	1900	10500	
BA04-11EWA	BC04-11EWA	0.4 inch (10.2mm) Gray Face White Segment	GaAsP/GaP	625	800	4000	30
BA04-11SRWA	BC04-11SRWA		GaAlAs	640	4700	16600	
BA04-11YWA	BC04-11YWA		GaAsP/GaP	588	800	2909	
BA04-11GWA	BC04-11GWA		GaP	568	1200	6100	
BA56-11EWA BA56-12EWA BA56-13EWA	BC56-11EWA BC56-12EWA BC56-13EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	31
BA56-11SRWA BA56-12SRWA BA56-13SRWA	BC56-11SRWA BC56-12SRWA BC56-13SRWA		GaAlAs	640	4700	24000	
BA56-11YWA BA56-12YWA BA56-13YWA	BC56-11YWA BC56-12YWA BC56-13YWA		GaAsP/GaP	588	1200	4700	
BA56-11GWA BA56-12GWA BA56-13GWA	BC56-11GWA BC56-12GWA BC56-13GWA		GaP	568	1900	10500	
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	800	3000	
CA25-11GWA CA25-12GWA	CC25-11GWA CC25-12GWA		GaP	568	1900	10500	

NOTES:

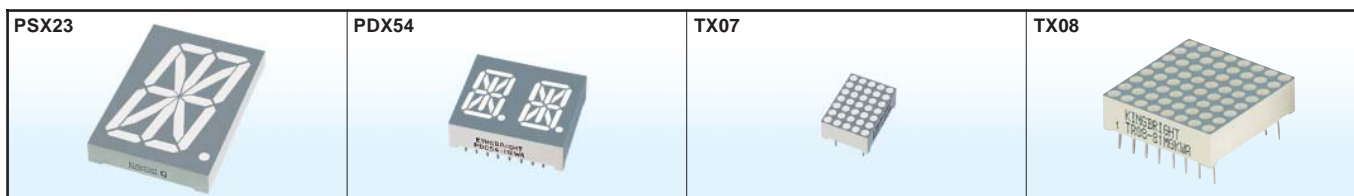
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



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	1200	6400	
CA56-11EWA CA56-12EWA CA56-21EWA	CC56-11EWA CC56-12EWA CC56-21EWA	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	1200	6400	34
CA56-11SRWA CA56-12SRWA CA56-21SRWA	CC56-11SRWA CC56-12SRWA CC56-21SRWA		GaAlAs	640	4700	24000	
CA56-11YWA CA56-12YWA CA56-21YWA	CC56-11YWA CC56-12YWA CC56-21YWA		GaAsP/GaP	588	1200	4700	
CA56-11GWA CA56-12GWA CA56-21GWA	CC56-11GWA CC56-12GWA CC56-21GWA		GaP	568	1900	10500	
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	800	3000	
PSA08-11GWA PSA08-12GWA	PSC08-11GWA PSC08-12GWA		GaP	568	1200	4700	
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.



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	4700	24000	
TA07-11YWA	TC07-11YWA		GaAsP/GaP	588	1200	4700	
TA07-11GWA	TC07-11GWA		GaP	568	1900	8000	
TA08-81EWA	TC08-81EWA	0.8 inch (20mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	800	3600	41
TA08-81SRWA	TC08-81SRWA		GaAlAs	640	4700	23600	
TA08-81YWA	TC08-81YWA		GaAsP/GaP	588	800	3195	
TA08-81GWA	TC08-81GWA		GaP	568	1200	5600	

NOTES:

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



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	1900	8000	42
TA12-11SRWA	TC12-11SRWA		GaAlAs	640	4700	24000	
TA12-11YWA	TC12-11YWA		GaAsP/GaP	588	1200	4700	
TA12-11GWA	TC12-11GWA		GaP	568	1900	10500	
TA12-22EWA	TC12-22EWA		GaAsP/GaP	625	1900	8000	
TA12-22SRWA	TC12-22SRWA		GaAlAs	640	12000	37800	
TA12-22YWA	TC12-22YWA		GaAsP/GaP	588	1200	5400	
TA12-22GWA	TC12-22GWA		GaP	568	3000	15033	
TBA12-11EGWA	TBC12-11EGWA		GaAsP/GaP	625	1900	8000	
			GaP	568	1900	10500	
TBA12-12EGWA	TBC12-12EGWA		GaAsP/GaP	625	1900	8000	
			GaP	568	1900	10500	
TBA12-22EGWA	TBC12-22EGWA	GaAsP/GaP	625	1900	8000		
		GaP	568	1900	10500		
TA16-11EWA	TC16-11EWA	1.4 inch (37mm) 5x8 Gray Face White Dot	GaAsP/GaP	625	1900	8000	43
TA16-11SRWA	TC16-11SRWA		GaAlAs	640	4700	24000	
TA16-11YWA	TC16-11YWA		GaAsP/GaP	588	1200	4700	
TA16-11GWA	TC16-11GWA		GaP	568	3000	12000	
TA15-11EWA	TC15-11EWA	1.5 inch (38mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	1900	10500	44
TA15-11SRWA	TC15-11SRWA		GaAlAs	640	8000	26000	
TA15-11YWA	TC15-11YWA		GaAsP/GaP	588	1900	8000	
TA15-11GWA	TC15-11GWA		GaP	568	3000	16000	
TBA15-11EGWA	TBC15-11EGWA		GaAsP/GaP	625	1900	10500	
		GaP	568	3000	16000		
TA18-81EWA	TC18-81EWA	1.85 inch (47mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	4700	19650	45
TA18-81SRWA	TC18-81SRWA		GaAlAs	640	12000	44000	
TA18-81YWA	TC18-81YWA		GaAsP/GaP	588	3000	14850	
TA18-81GWA	TC18-81GWA		GaP	568	8000	29200	

NOTES:

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



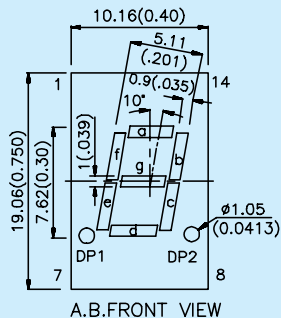
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Column Anode	Column Cathode				Min.	Typ.	
TA20-11EWA	TC20-11EWA	2.0 inch (50mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	3000	12000	46
TA20-11SRWA	TC20-11SRWA		GaAlAs	640	8000	26000	
TA20-11YWA	TC20-11YWA		GaAsP/GaP	588	1900	8000	
TA20-11GWA	TC20-11GWA		GaP	568	3000	16000	
TBA20-11EGWA	TBC20-11EGWA		GaAsP/GaP	625	3000	12000	
TBA20-12EGWA	TBC20-12EGWA		GaP	568	3000	16000	
TBA20-22EGWA	TBC20-22EGWA		GaAsP/GaP	625	3000	12000	
TBA20-22EGWA	TBC20-22EGWA		GaP	568	3000	16000	
TA23-11EWA	TC23-11EWA	2.3 inch (58mm) 8x8 Gray Face White Dot	GaAsP/GaP	625	1900	8000	47
TA23-11SRWA	TC23-11SRWA		GaAlAs	640	12000	44000	
TA23-11YWA	TC23-11YWA		GaAsP/GaP	588	1900	8000	
TA23-11GWA	TC23-11GWA		GaP	568	1900	10500	
TBA23-11EGWA	TBC23-11EGWA		GaAsP/GaP	625	1900	8000	
TBA23-12EGWA	TBC23-12EGWA		GaP	568	1900	10500	
TBA23-12EGWA	TBC23-12EGWA		GaAsP/GaP	625	1900	8000	
TBA23-12EGWA	TBC23-12EGWA		GaP	568	1900	10500	
TA24-11EWA	TC24-11EWA	2.4 inch (60.8mm) 5x8 Gray Face White Dot	GaAsP/GaP	625	1900	8000	48
TA24-11SRWA	TC24-11SRWA		GaAlAs	640	8000	26000	
TA24-11YWA	TC24-11YWA		GaAsP/GaP	588	1900	8000	
TA24-11GWA	TC24-11GWA		GaP	568	3000	12000	
TBA24-11EGWA	TBC24-11EGWA		GaAsP/GaP	625	1900	8000	
TBA24-12EGWA	TBC24-12EGWA		GaP	568	3000	12000	
TBA24-22EGWA	TBC24-22EGWA		GaAsP/GaP	625	1900	8000	
TBA24-22EGWA	TBC24-22EGWA		GaP	568	3000	12000	
TA30-11EWA	TC30-11EWA	3.0 inch (76.2mm) 5x7 Gray Face White Dot	GaAsP/GaP	625	8000	32000	49
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	3000	16000	50
TA40-11SRWA	TC40-11SRWA		GaAlAs	640	12000	44000	
TA40-11YWA	TC40-11YWA		GaAsP/GaP	588	1900	8000	
TA40-11GWA	TC40-11GWA		GaP	568	4700	24000	
TBA40-11EGWA	TBC40-11EGWA		GaAsP/GaP	625	3000	16000	
TBA40-12EGWA	TBC40-12EGWA		GaP	568	8000	24000	
TBA40-12EGWA	TBC40-12EGWA		GaAsP/GaP	625	3000	16000	
TBA40-12EGWA	TBC40-12EGWA		GaP	568	4700	24000	

NOTES:

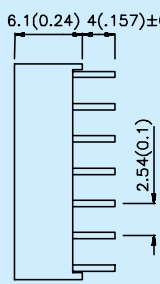
1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01\text{'})$ unless otherwise noted.

SA/SC03 Series

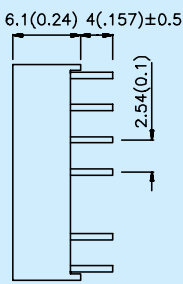
A: SA03-11
B: SC03-12



A.B.FRONT VIEW

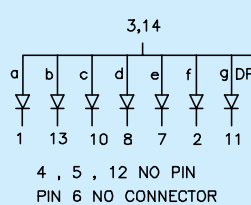


A SIDE VIEW

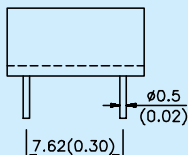
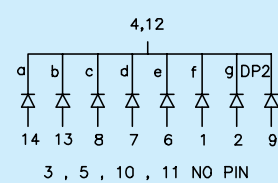


B SIDE VIEW

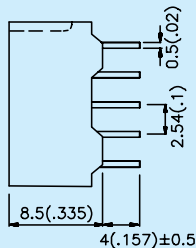
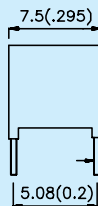
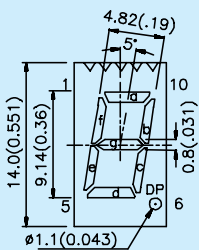
SA03-11



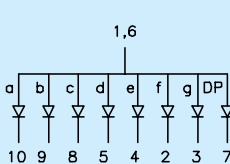
SC03-12



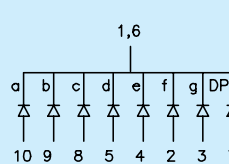
SA/SC36 Series



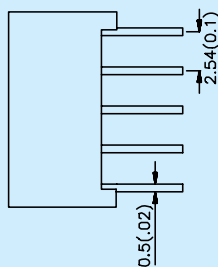
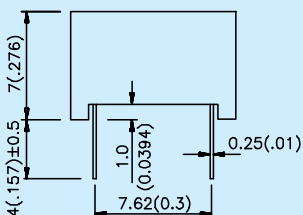
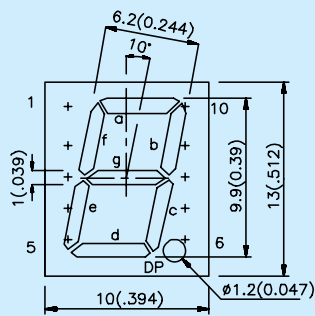
SA36-11



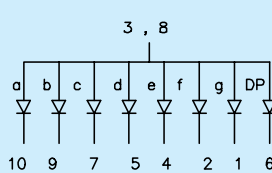
SC36-11



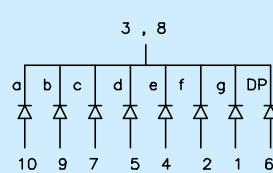
SA/SC39 Series



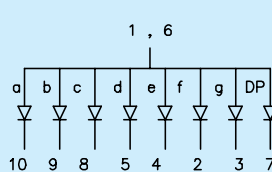
SA39-11



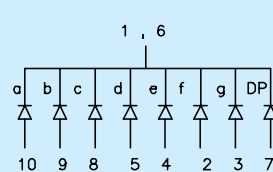
SC39-11



SA39-12



SC39-12

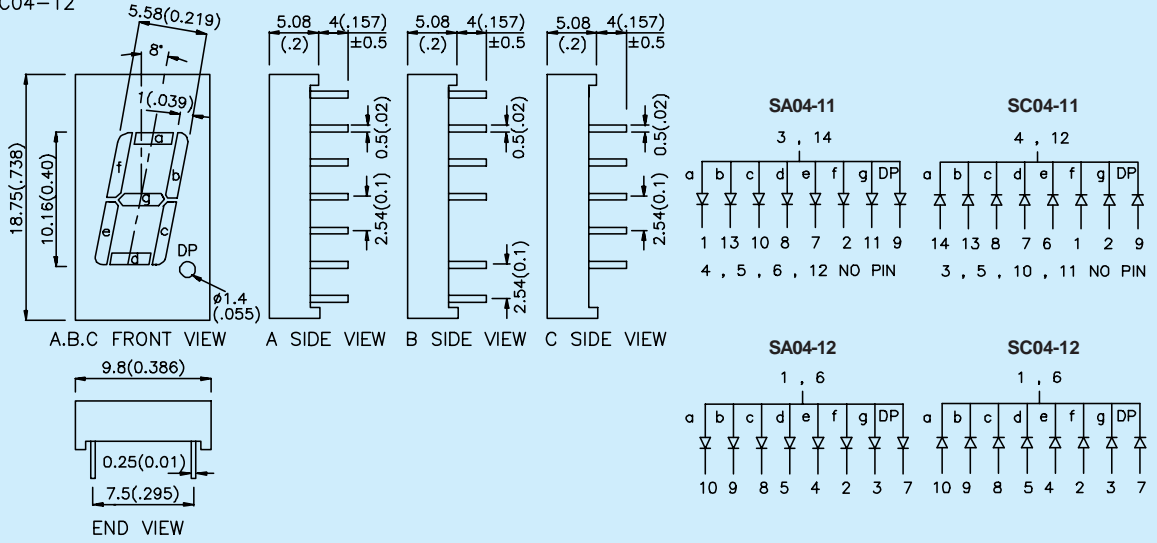


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SA/SC04 Series

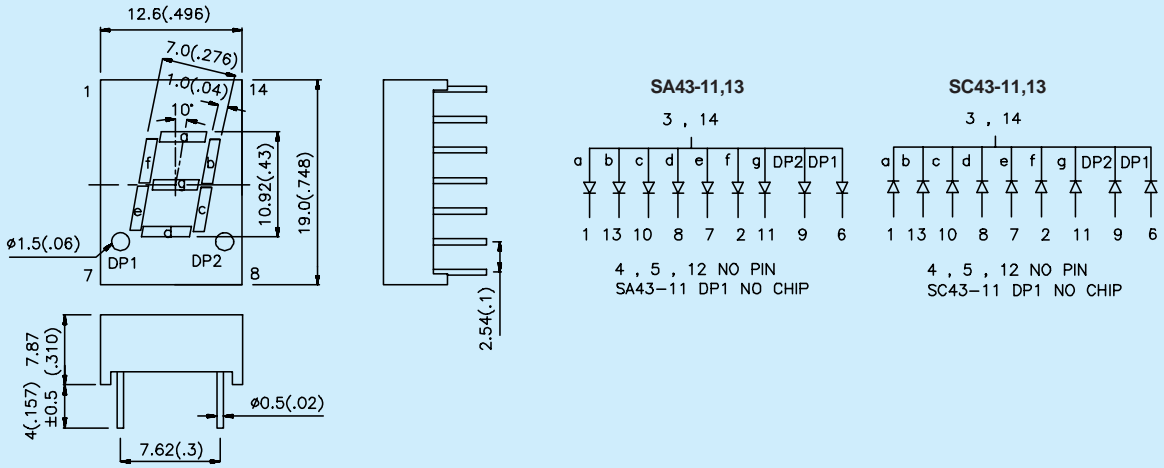
14

- A: SA04-11
- B: SC04-11
- C: SA/SC04-12



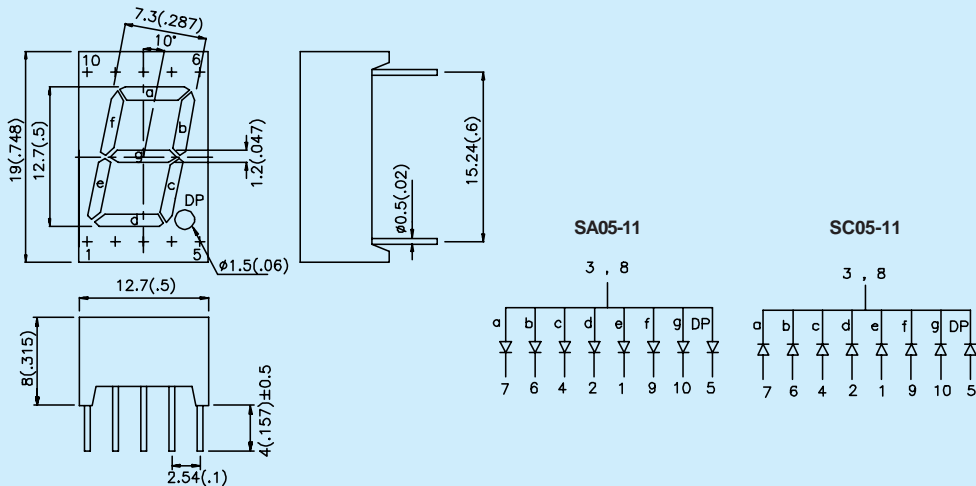
SA/SC43 Series

15



SA/SC05 Series

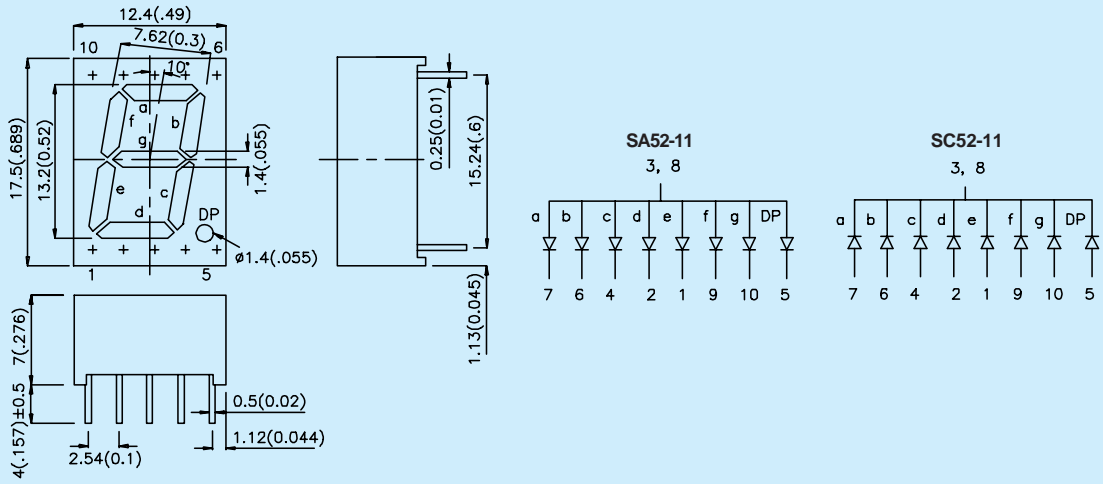
16



- NOTES:
 1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.

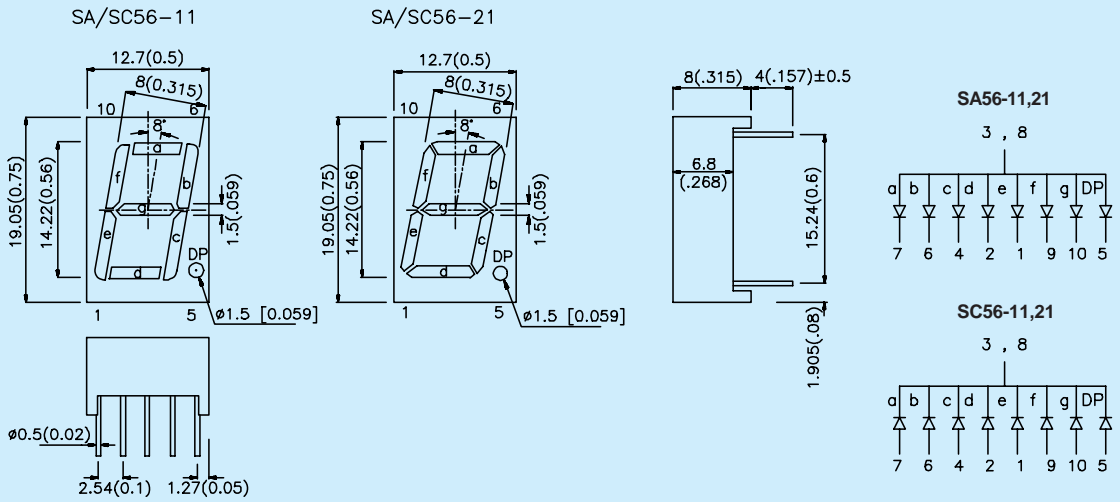
SA/SC52 Series

17



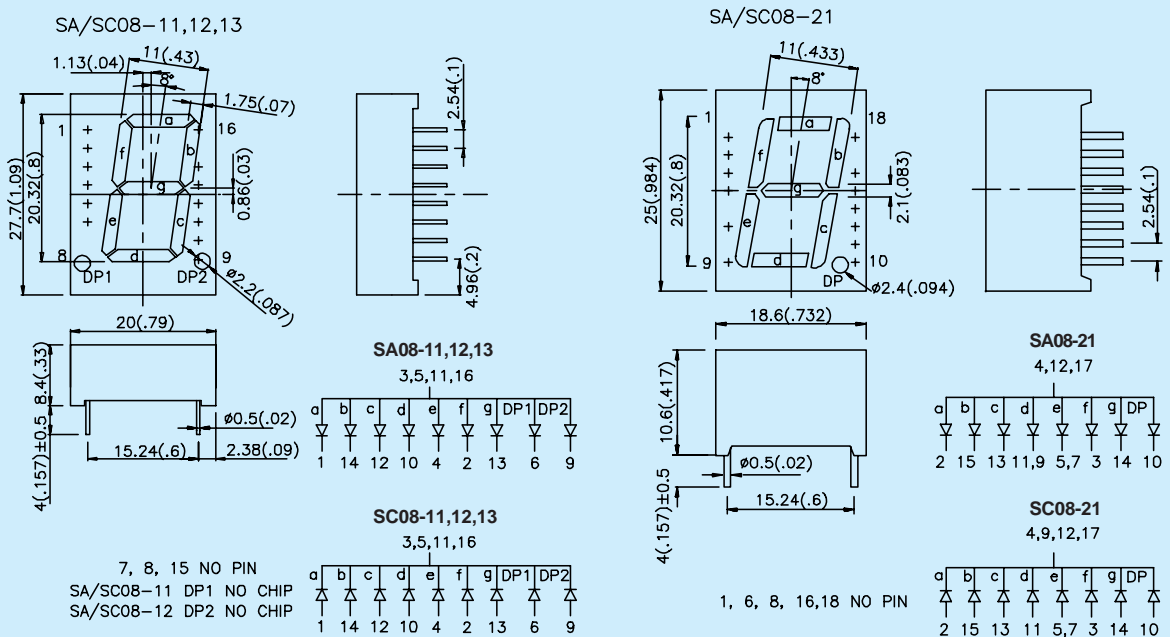
SA/SC56 Series

18



SA/SC08 Series

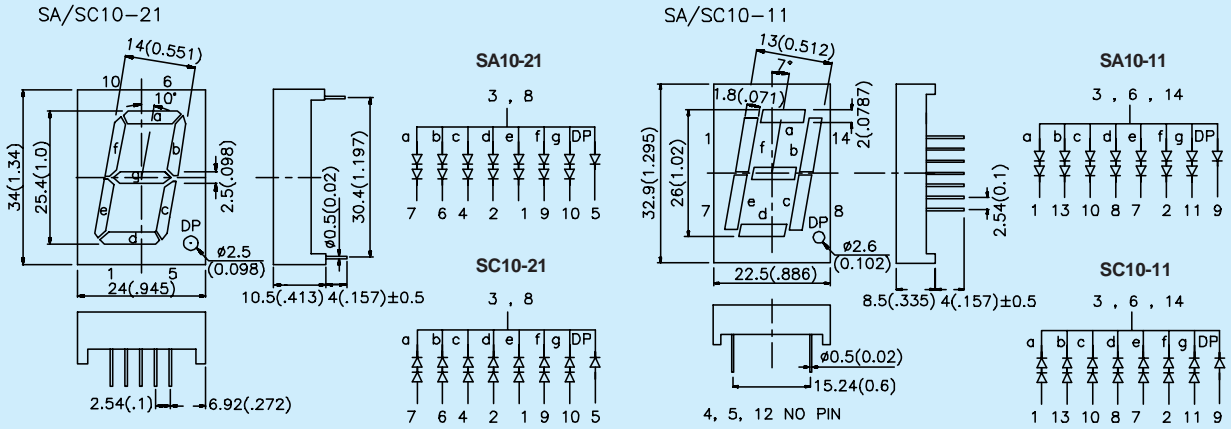
19



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

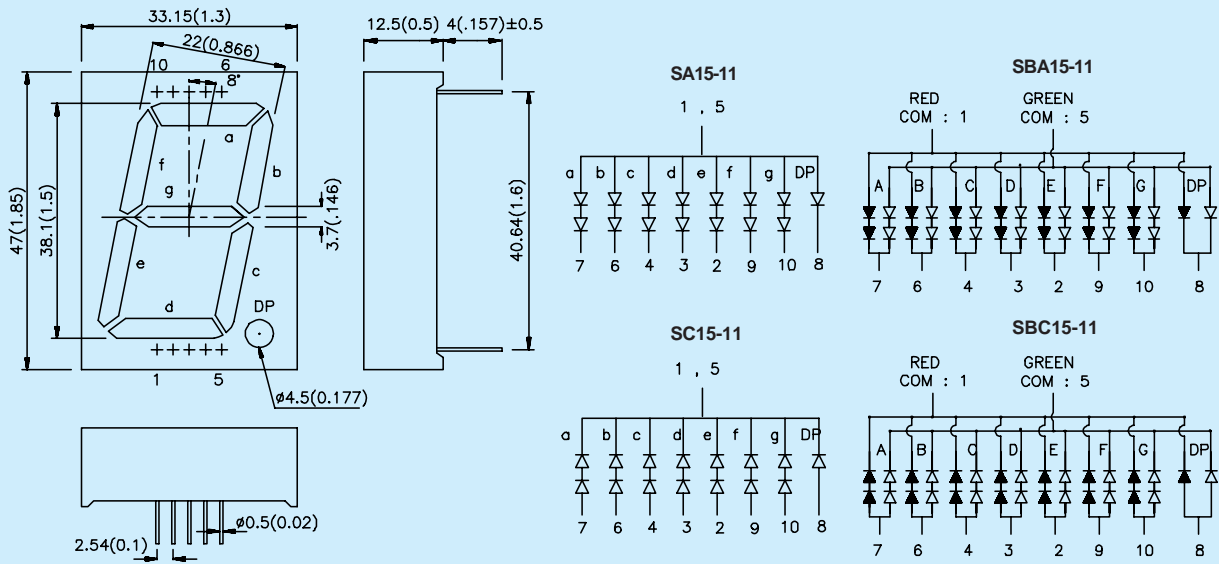
SA/SC10 Series

20



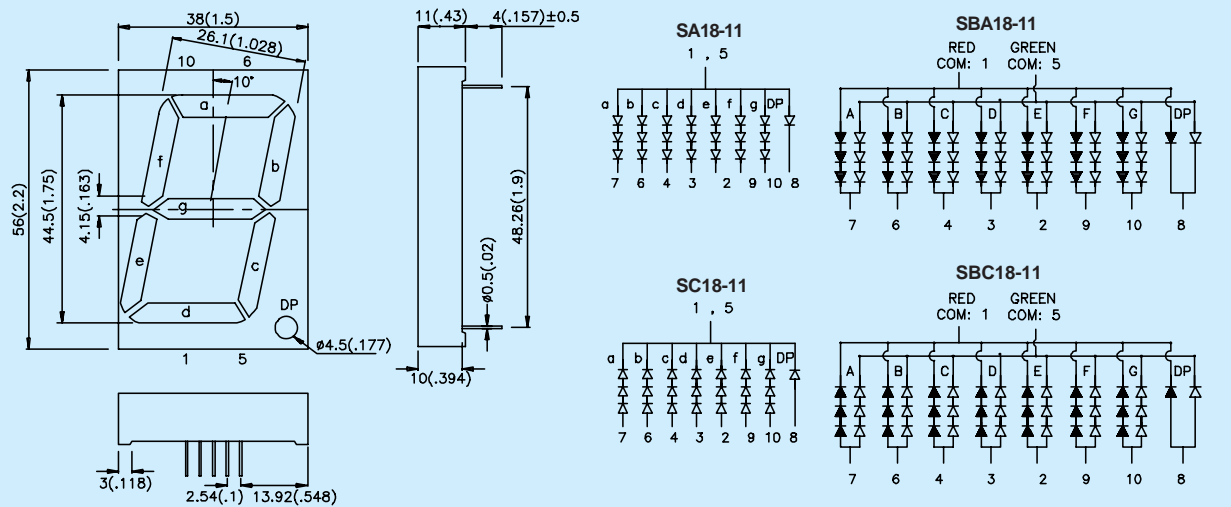
SA/SC15, SBA/SBC15 Series

21



SA/SC18, SBA/SBC18 Series

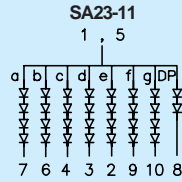
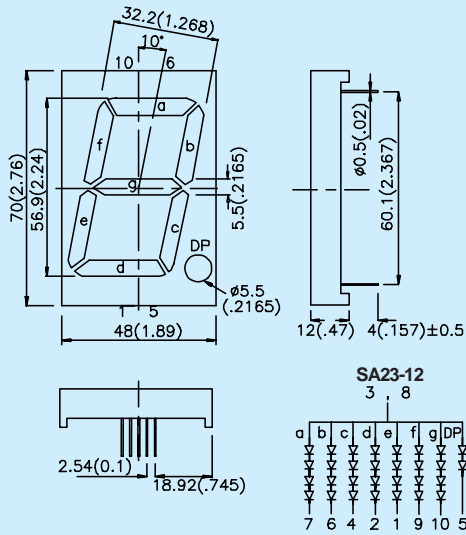
22



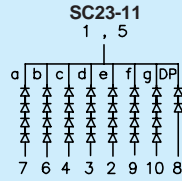
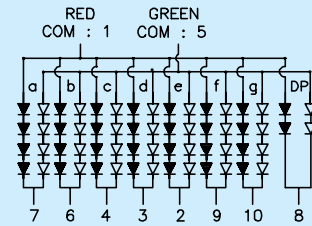
- NOTES:
 1. All dimensions are in millimeters(inches).
 2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SA/SC23,SBA/SBC23 Series

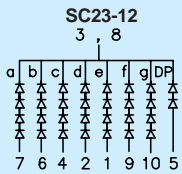
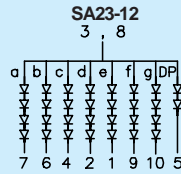
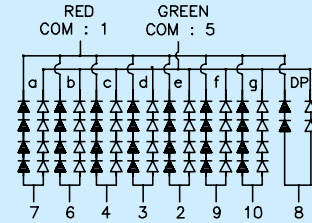
23



SBA23-11

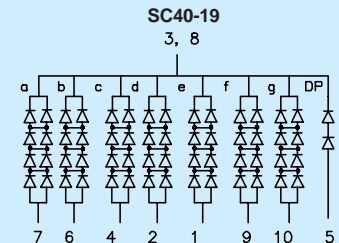
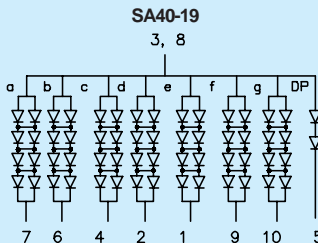
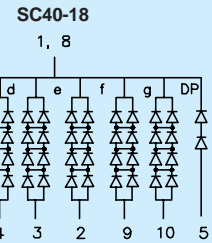
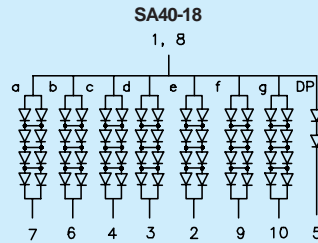
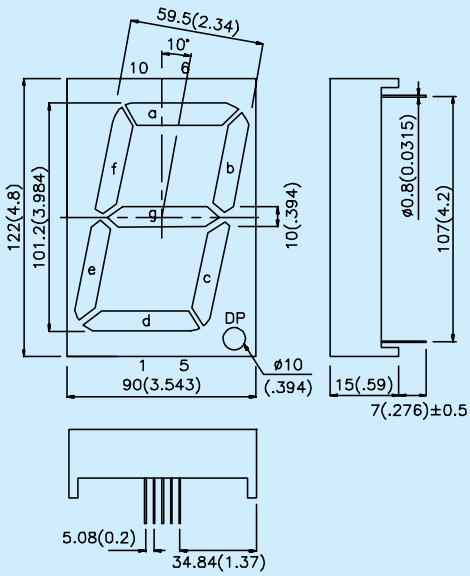


SBC23-11



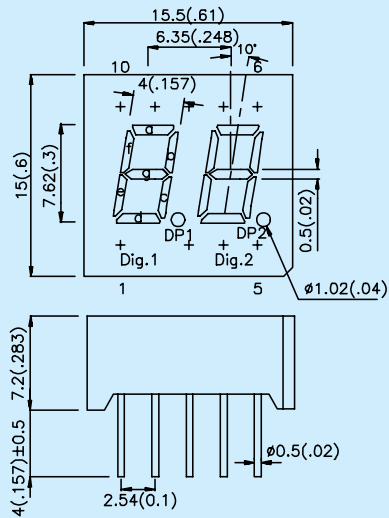
SA/SC40 Series

24

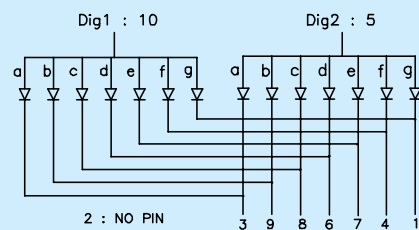


DA/DC03 Series

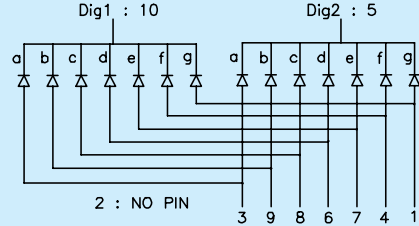
25



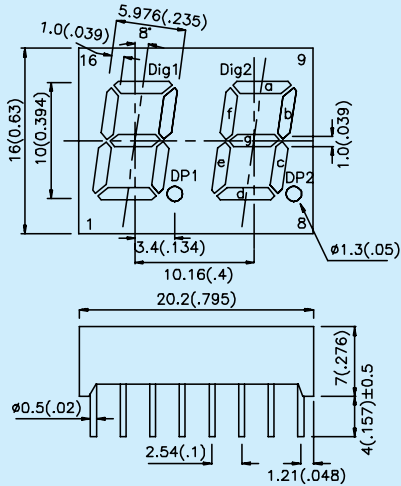
DA03-11



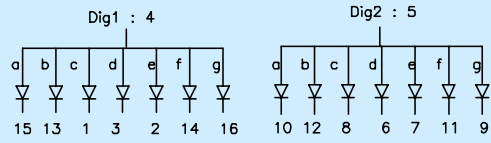
DC03-11



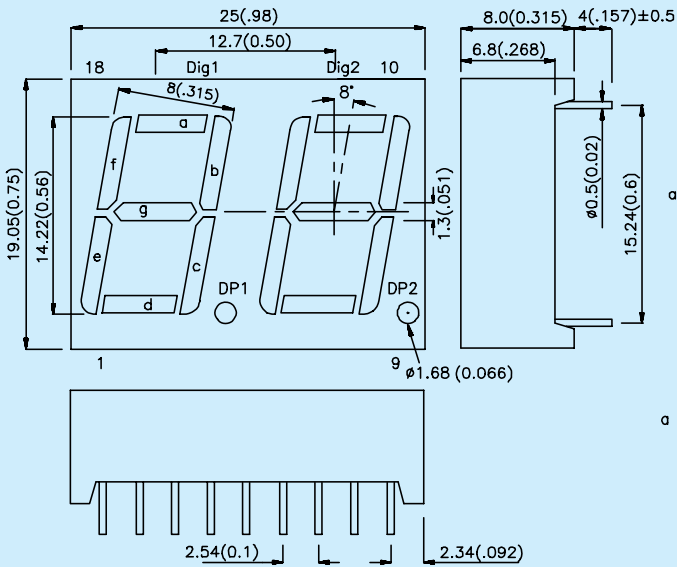
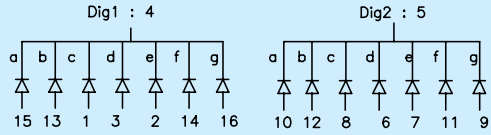
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



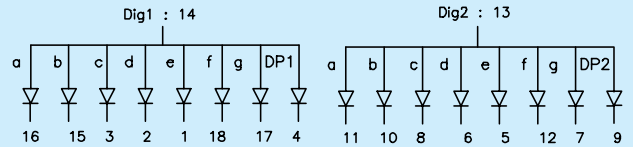
DA04-11



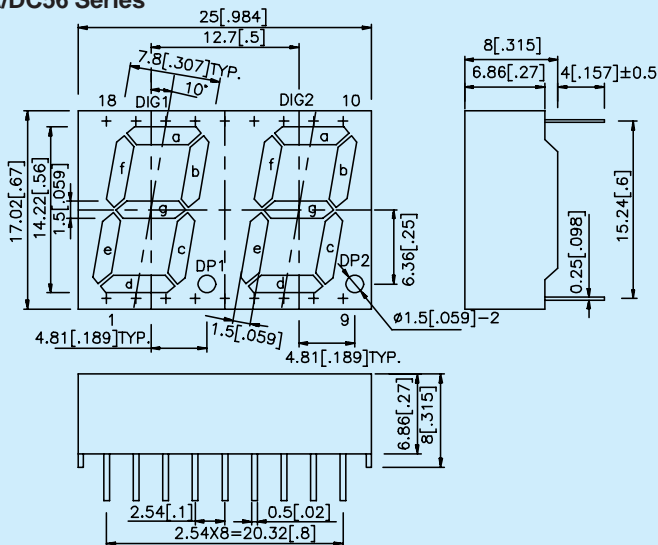
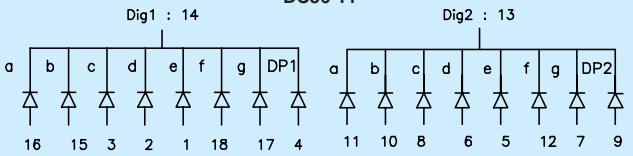
DC04-11



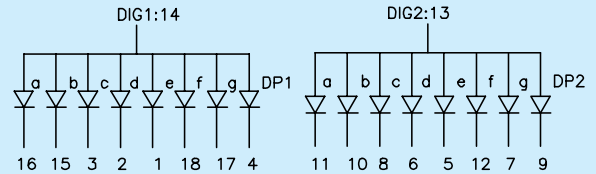
DA56-11



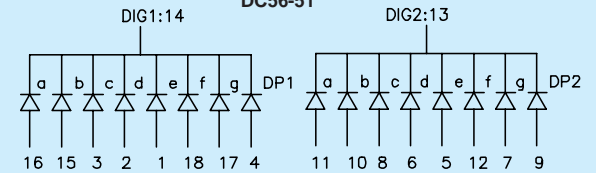
DC56-11



DA56-51

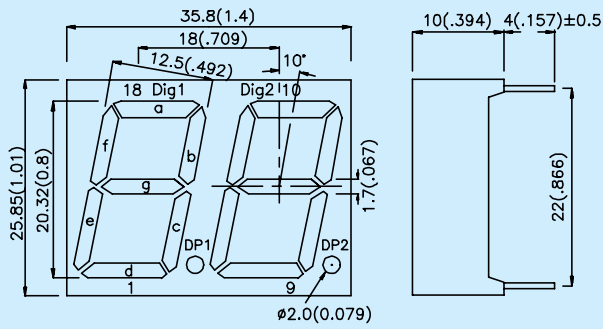


DC56-51

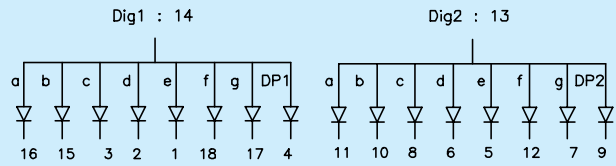


NOTES:

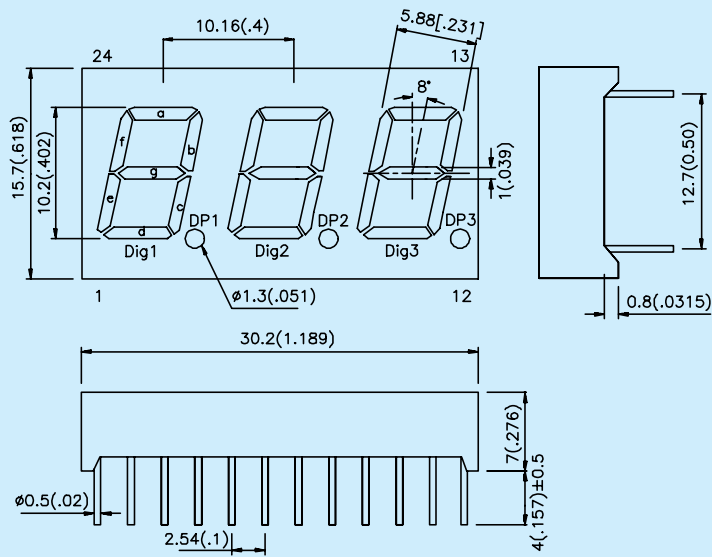
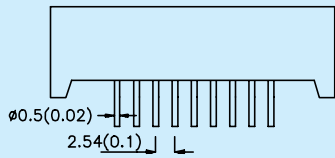
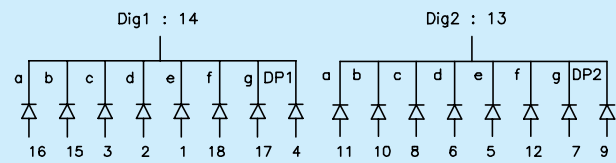
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



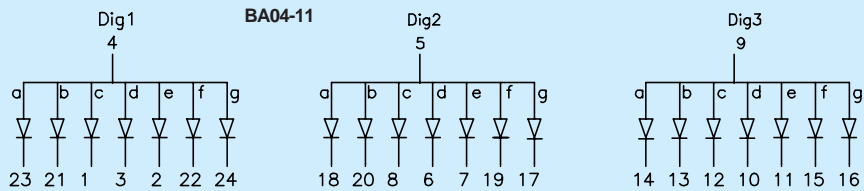
DA08-11



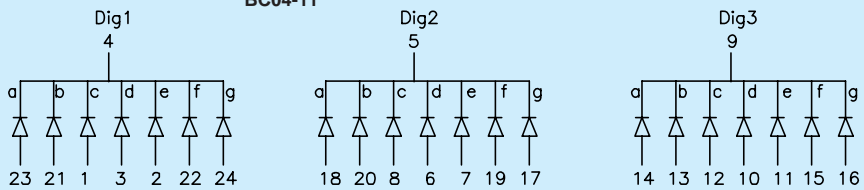
DC08-11



BA04-11



BC04-11

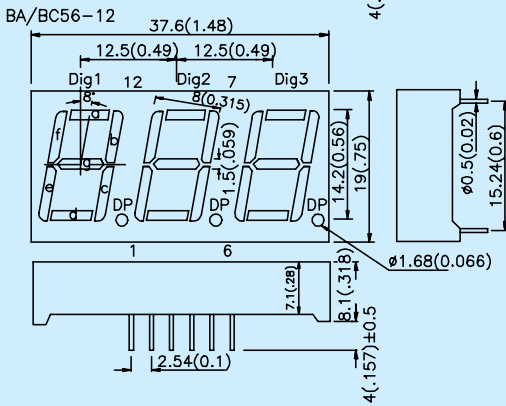
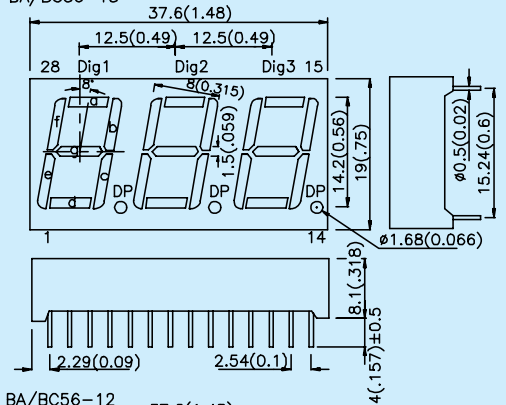


NOTES:

1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.

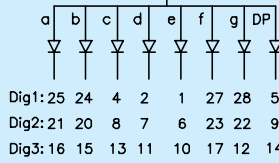
BA/BC56 Series

BA/BC56-11
BA/BC56-13



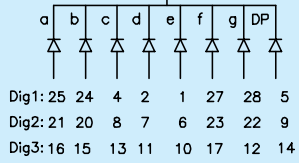
BA56-11

Dig1: 3,26
Dig2: 19
Dig3: 18



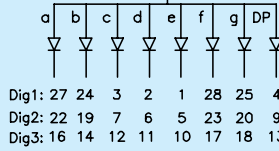
BC56-11

Dig1: 3,26
Dig2: 19
Dig3: 18



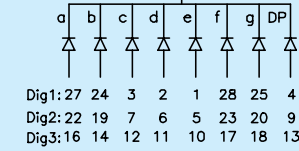
BA56-13

Dig1: 26
Dig2: 8,21
Dig3: 15



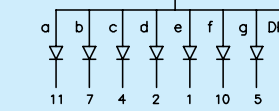
BC56-13

Dig1: 26
Dig2: 8,21
Dig3: 15



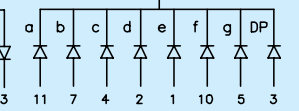
BA56-12

Dig1: 12
Dig2: 9
Dig3: 8



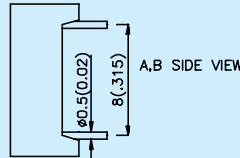
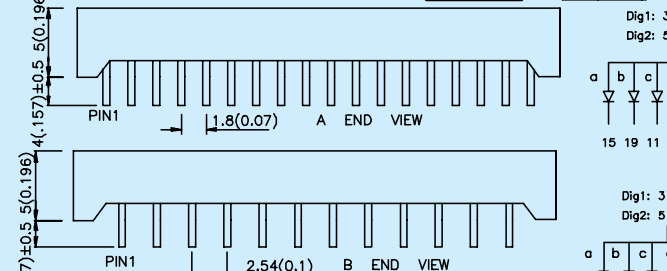
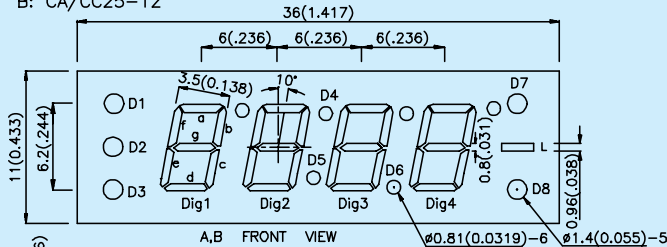
BC56-12

Dig1: 12
Dig2: 9
Dig3: 8



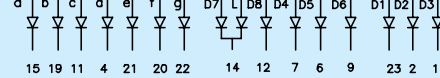
CA/CC25 Series

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



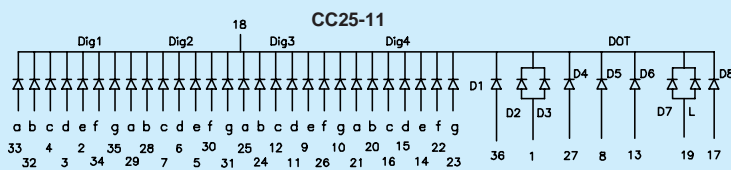
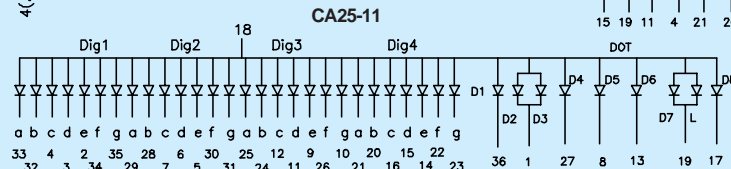
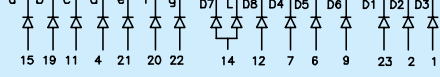
CA25-12

Dig1: 3 Dig3: 8
Dig2: 5 Dig4: 10



CC25-12

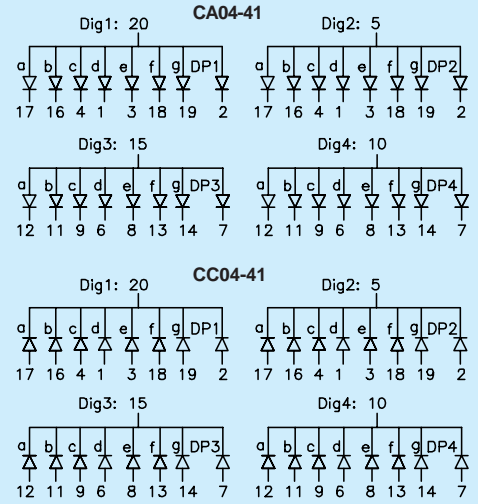
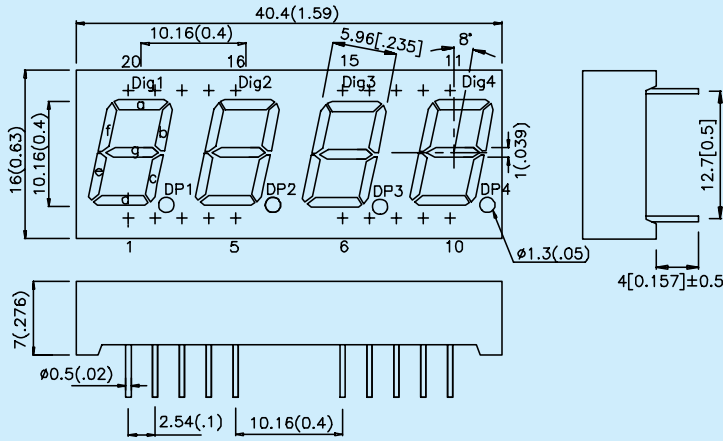
Dig1: 3 Dig3: 8
Dig2: 5 Dig4: 10



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

CA/CC04 Series

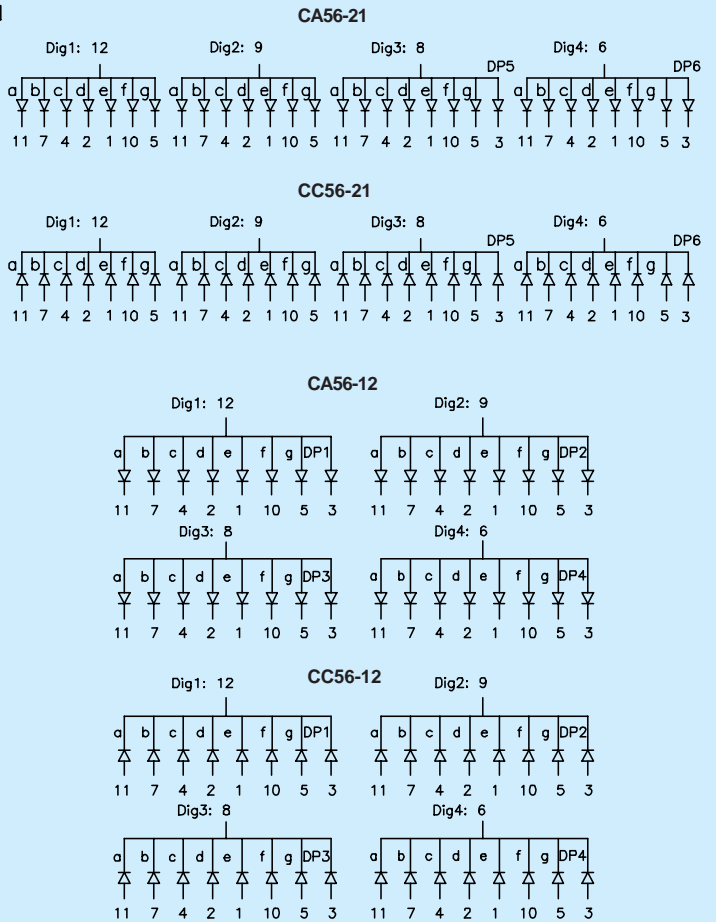
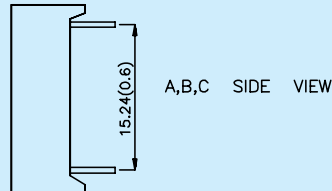
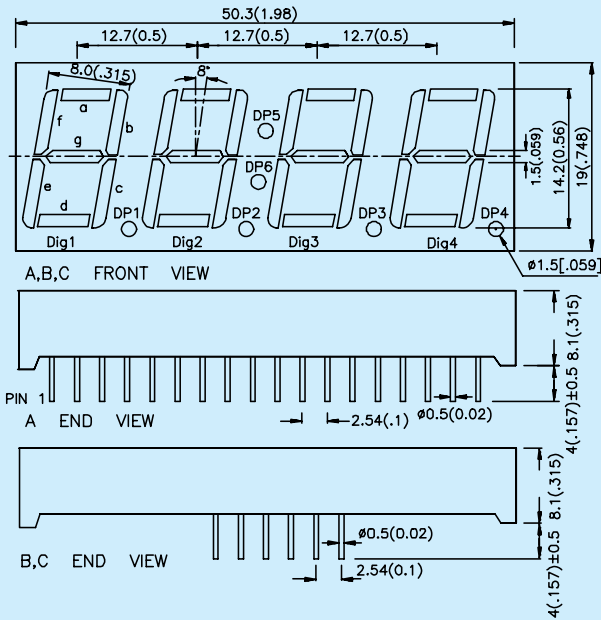
33



CA/CC56 Series

34

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

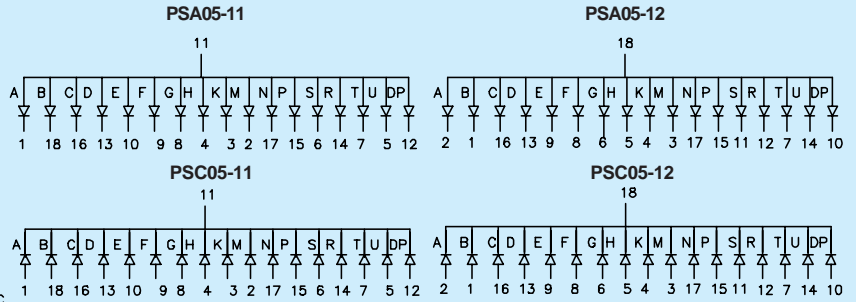
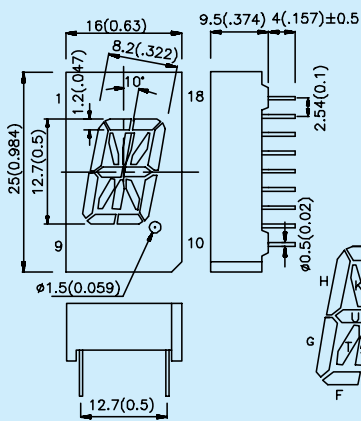


NOTES:

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

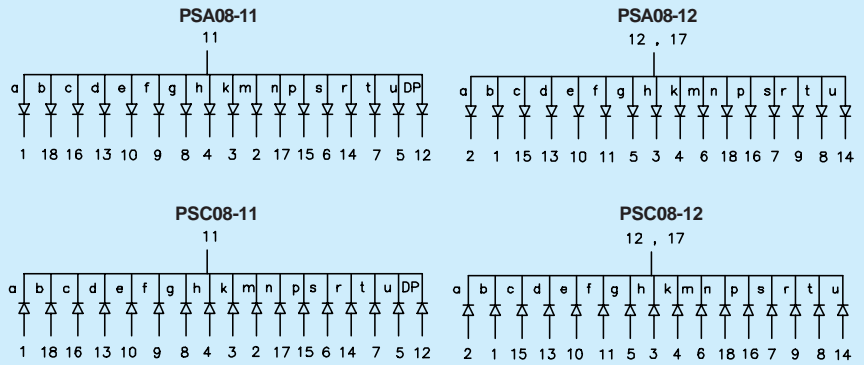
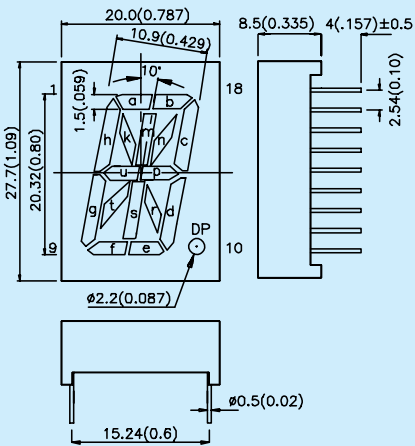
PSA/PSC05 Series

35



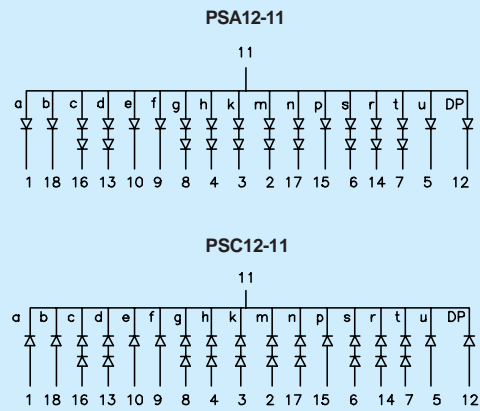
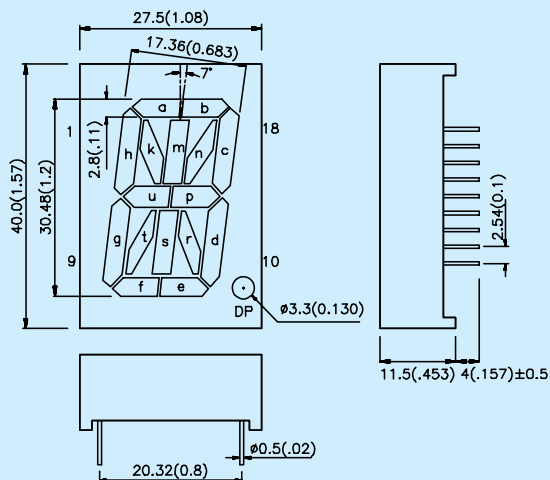
PSA/PSC08 Series

36



PSA/PSC12 Series

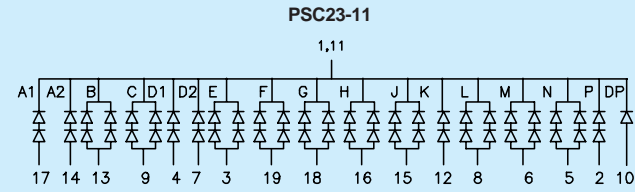
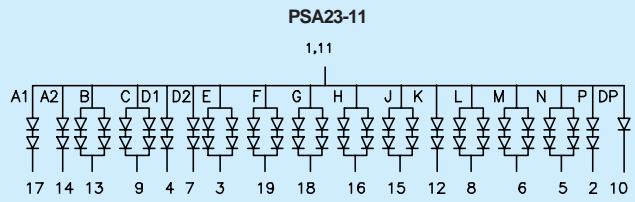
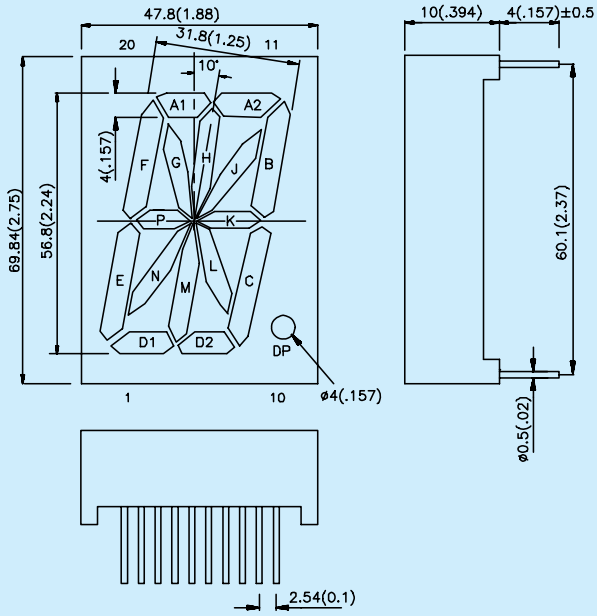
37



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

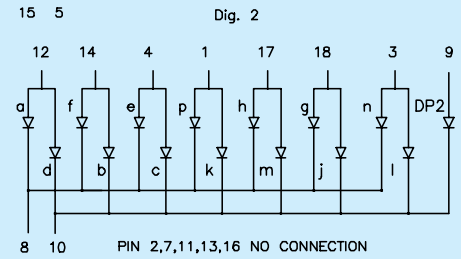
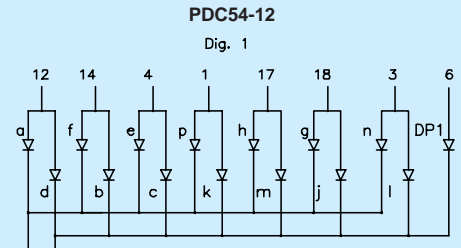
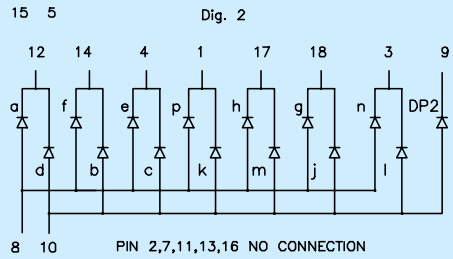
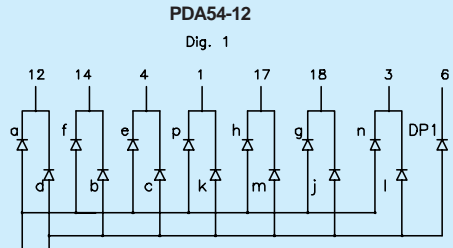
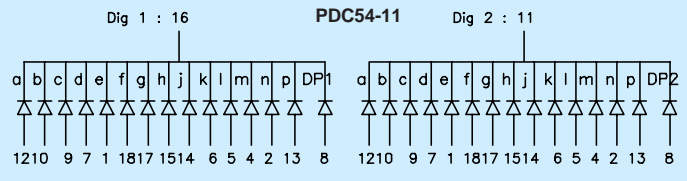
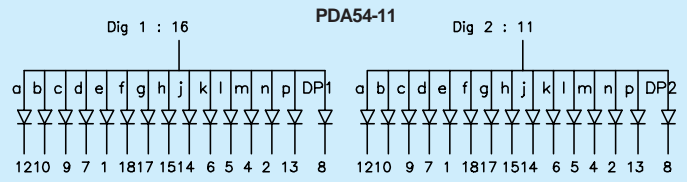
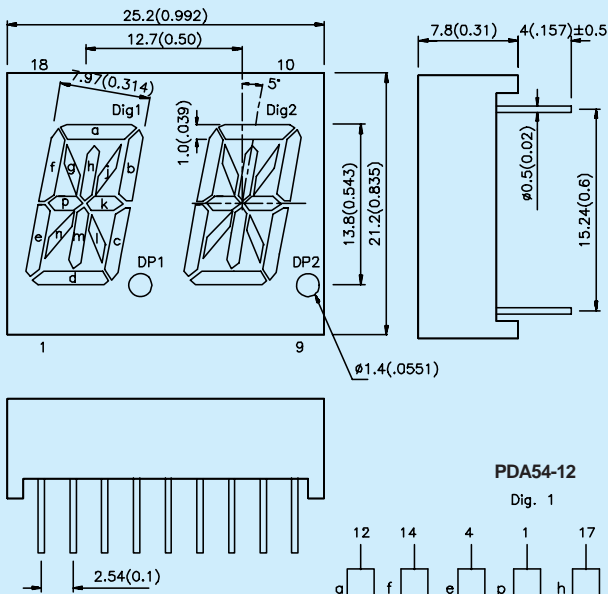
PSA/PSC23 Series

38



PDA/PDC54 Series

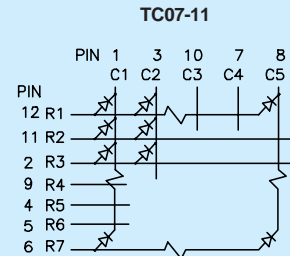
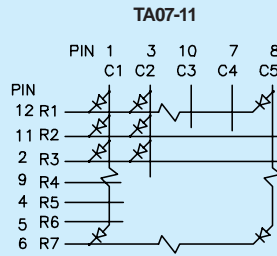
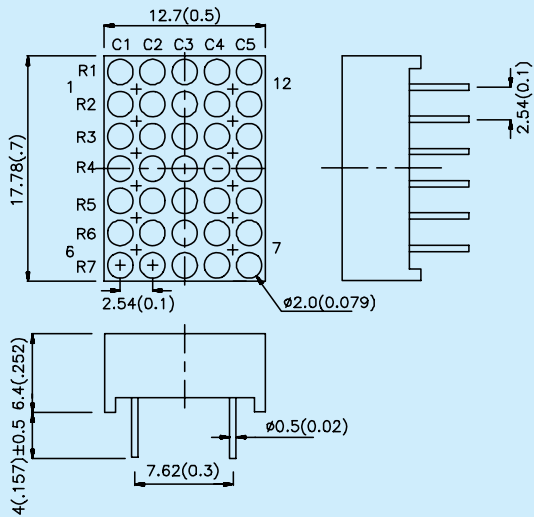
39



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

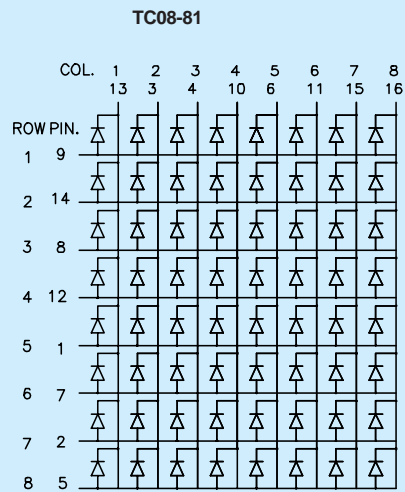
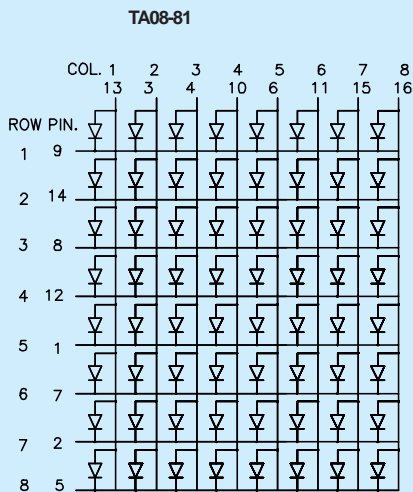
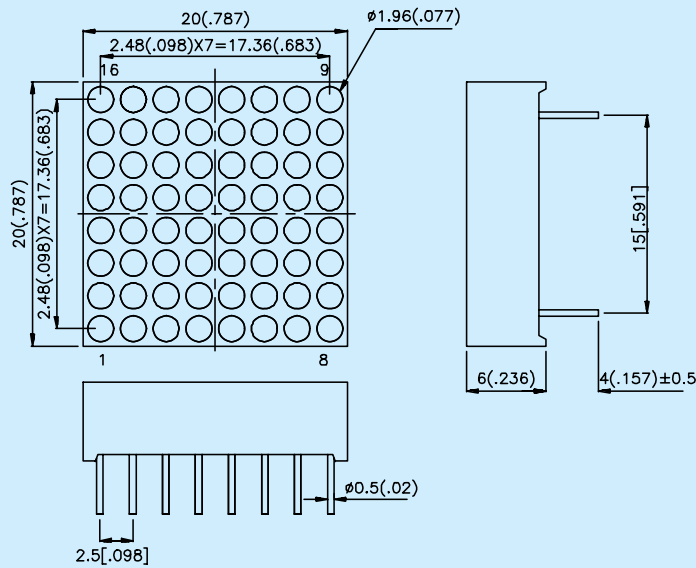
TA/TC07 Series

40



TA/TC08 Series

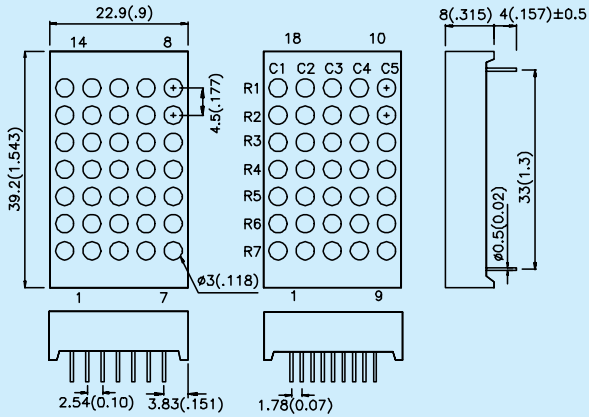
41



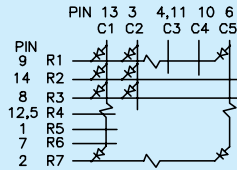
NOTES:
 1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.

TA/TC12-11

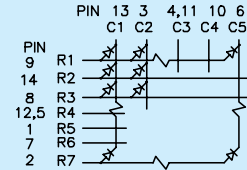
TBA/TBC12-11



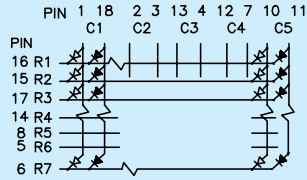
TA12-11



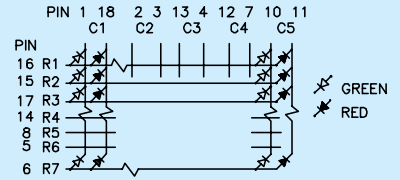
TC12-11



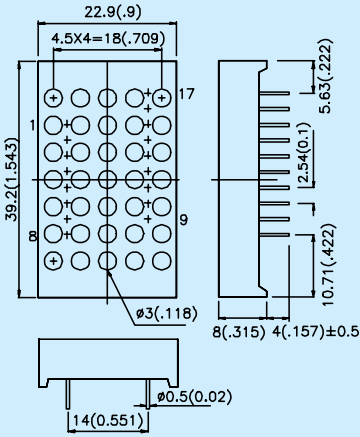
TBA12-11



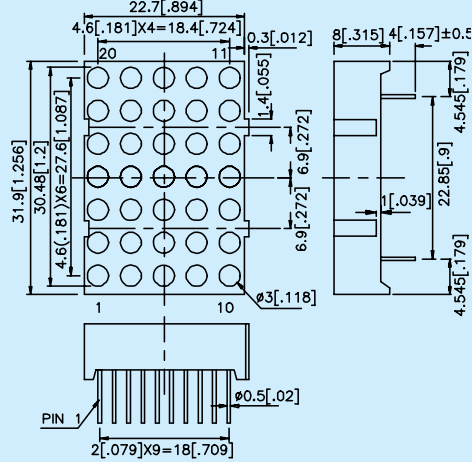
TBC12-11



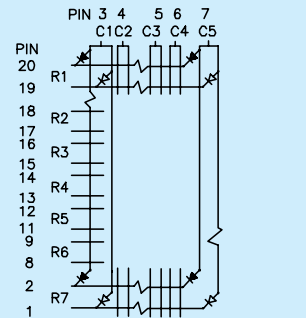
TBA/TBC12-12



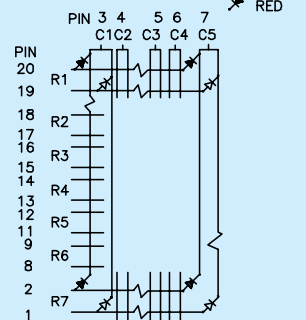
TBA/TBC12-22



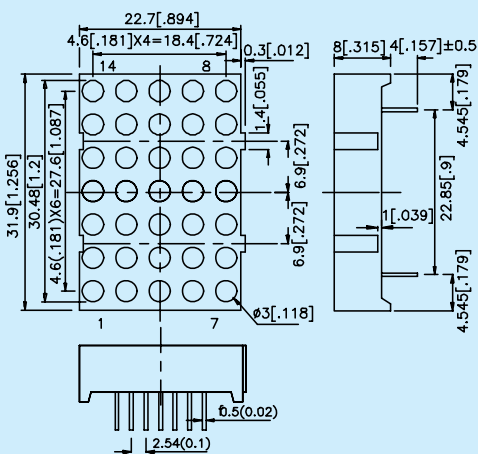
TBA12-22



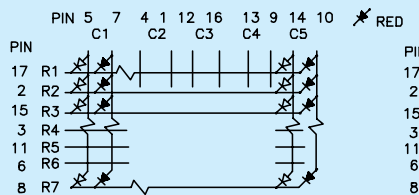
TBC12-22



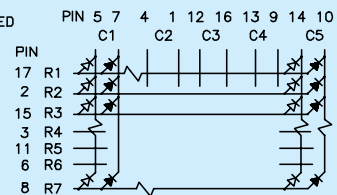
TA/TC12-22



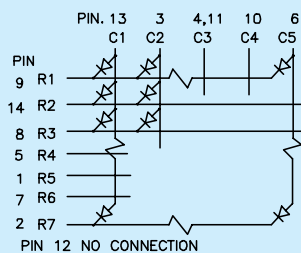
TBA12-12



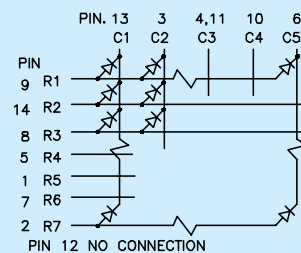
TBC12-12



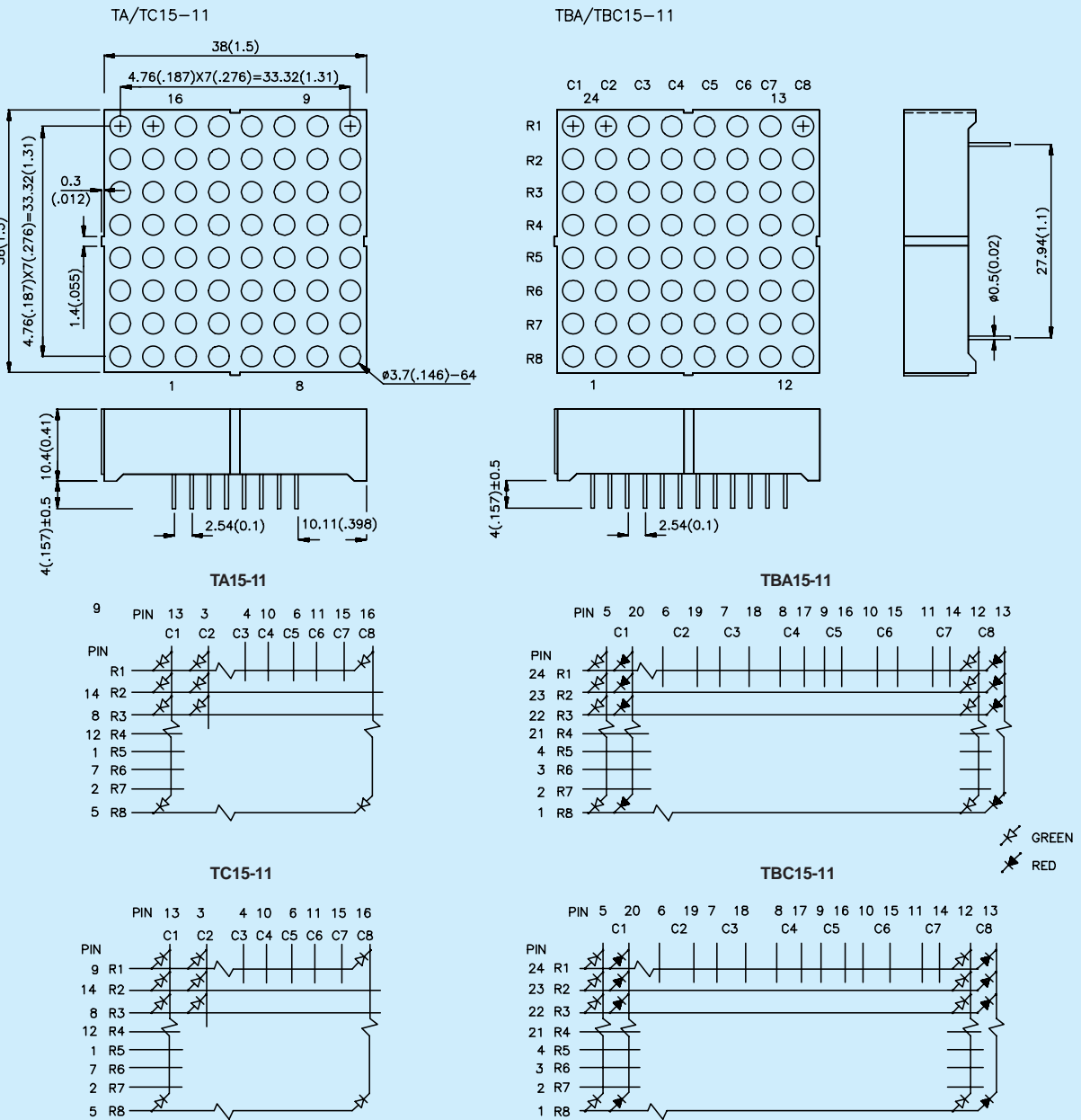
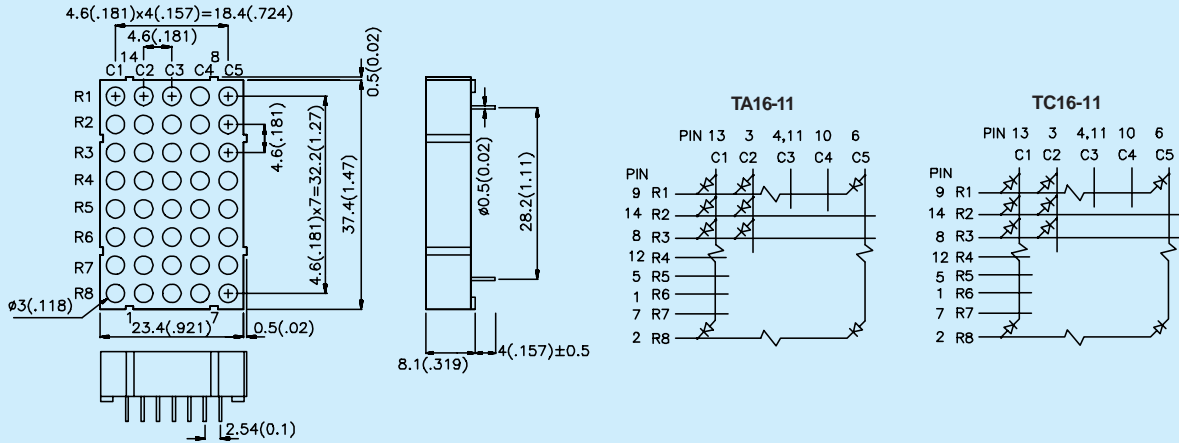
TA12-22



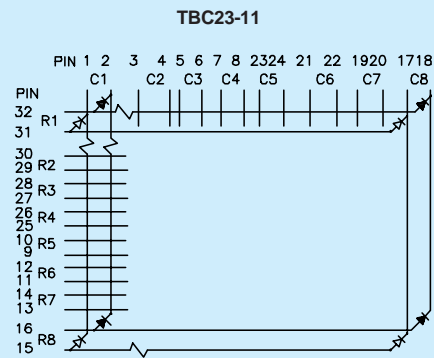
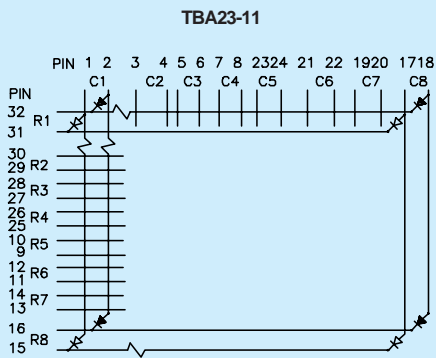
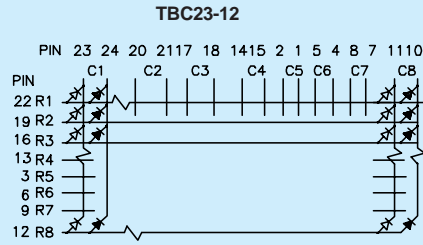
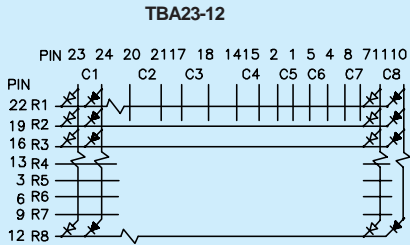
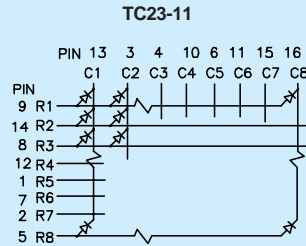
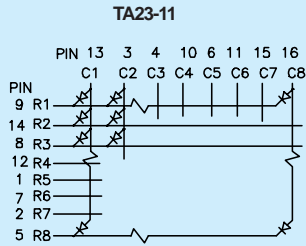
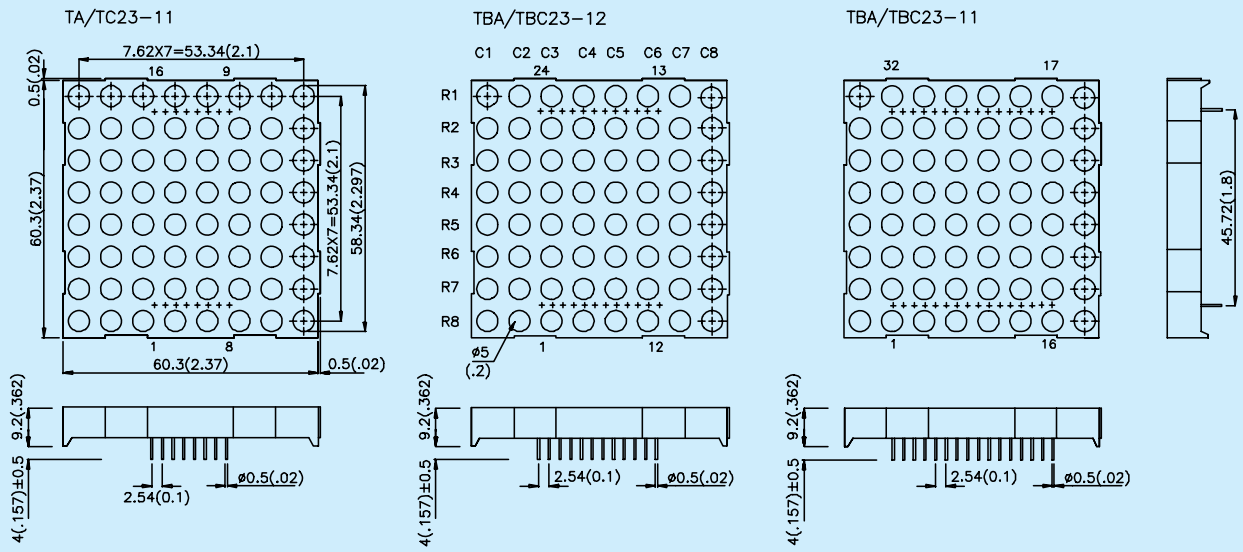
TC12-22



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



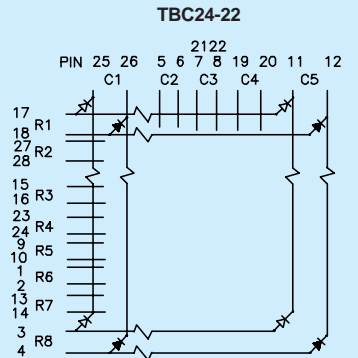
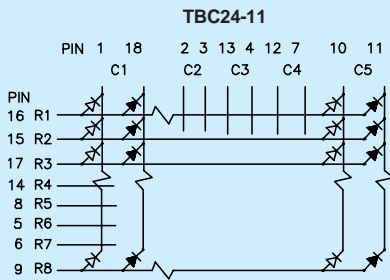
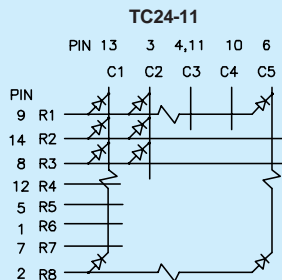
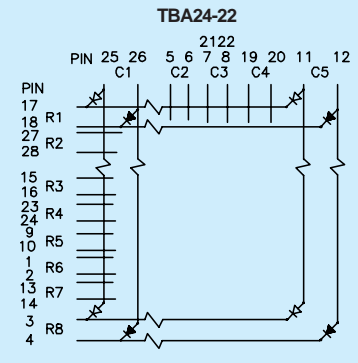
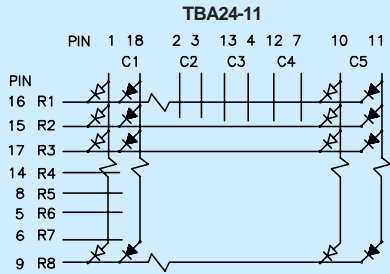
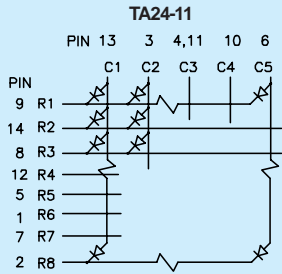
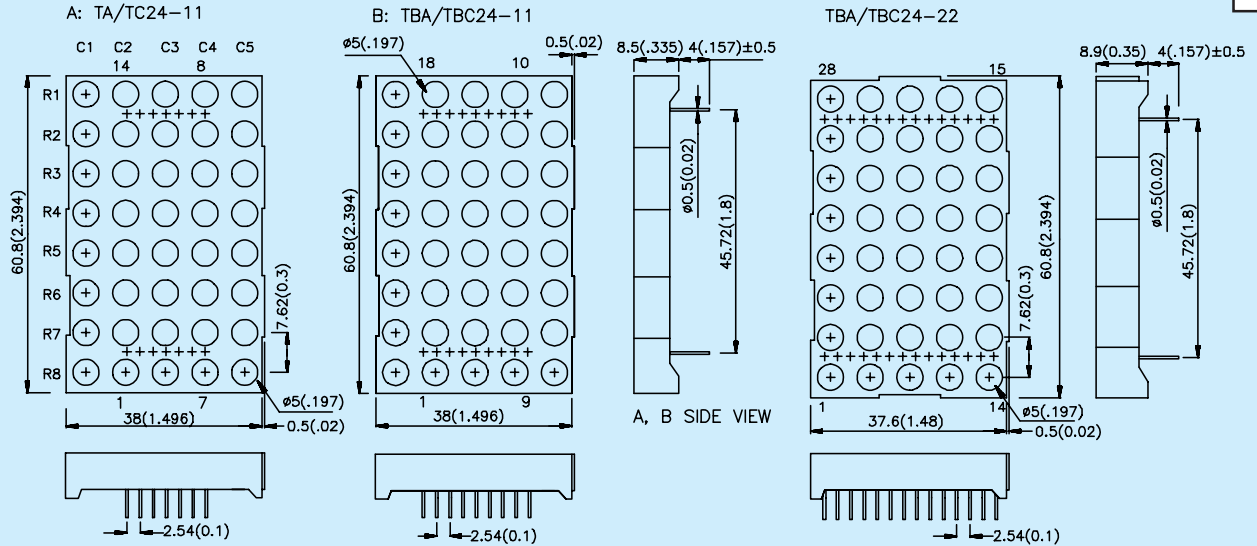
NOTES:
 1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.



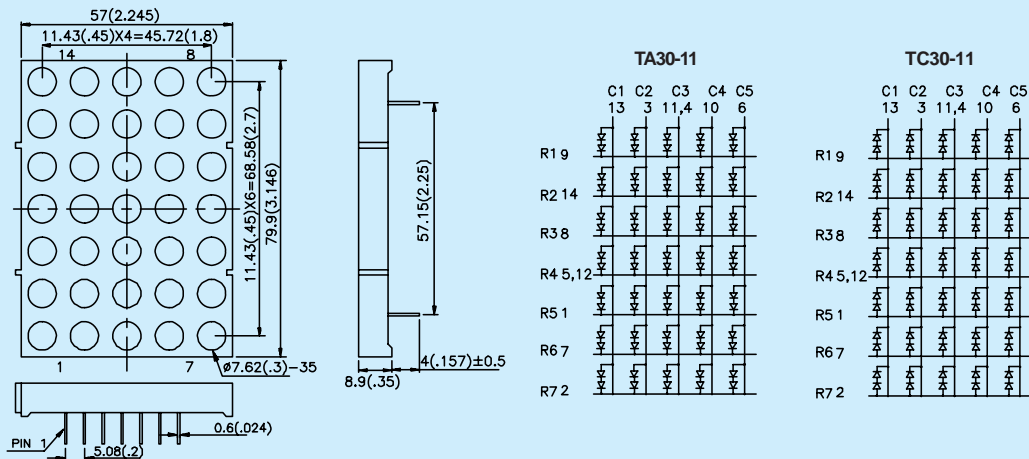
✕ GREEN
✕ RED

NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.

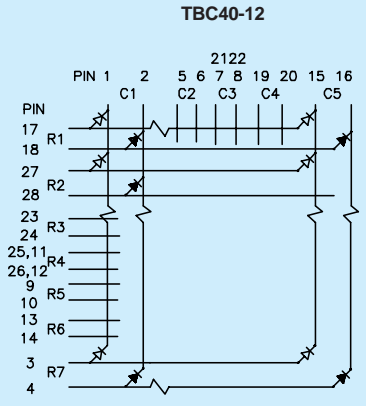
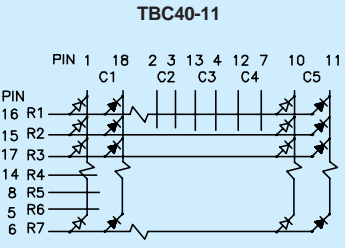
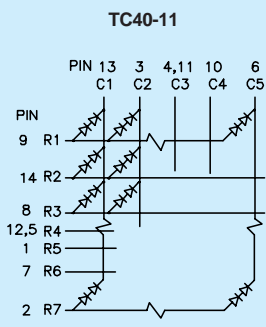
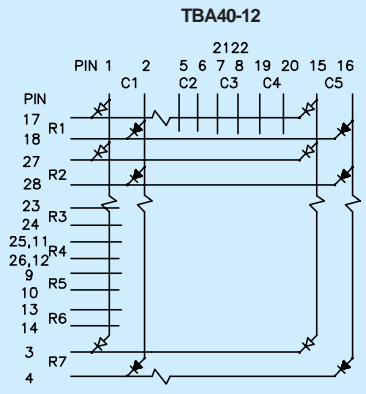
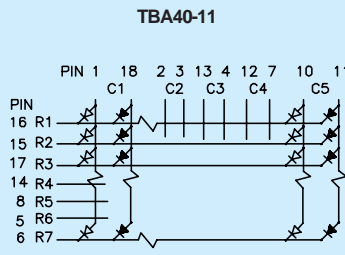
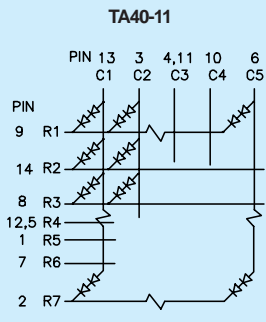
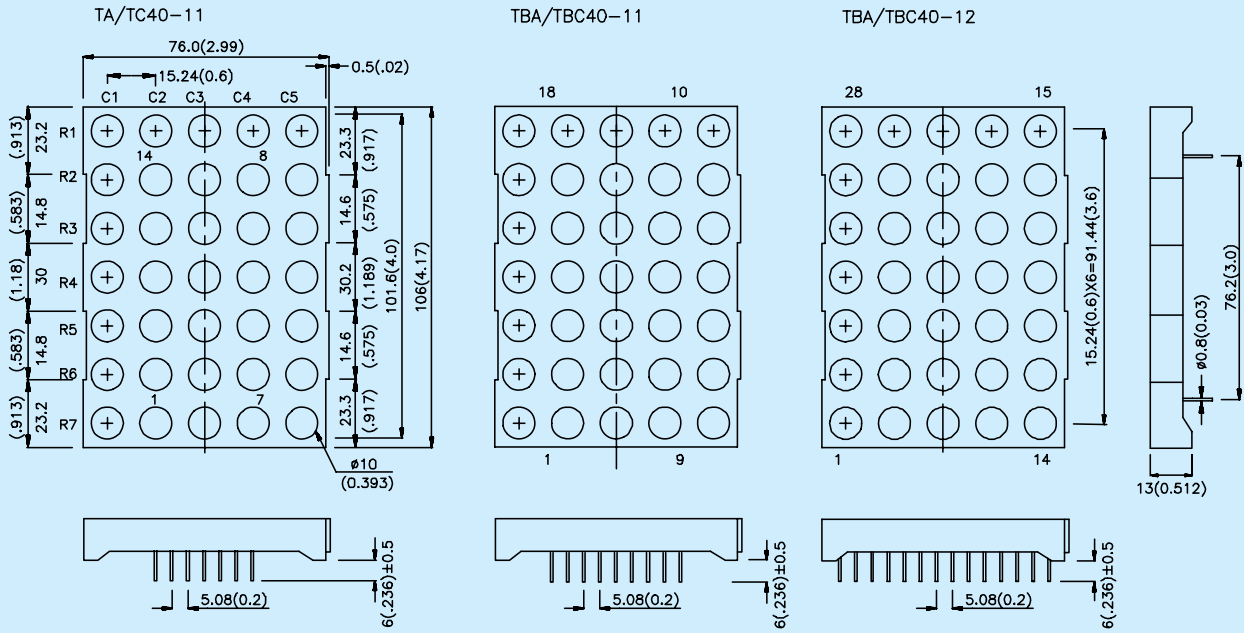
TA/TC24, TBA/TBC24 Series



TA/TC30 Series



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



✕ FOR 2 RED CHIPS

✕ FOR 2 GREEN CHIPS

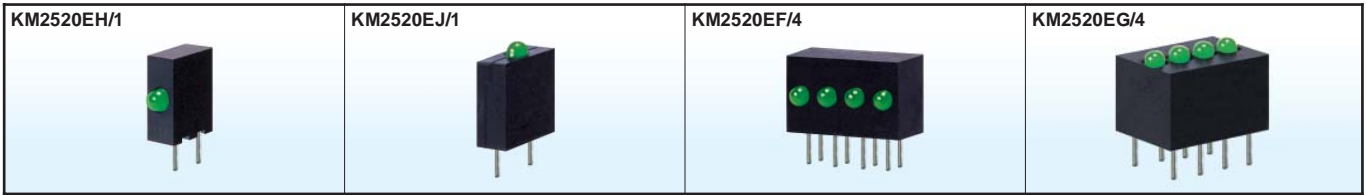
NOTES:
 1. All dimensions are in millimeters(inches).
 2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Kingbright Catalog

2005-2006

P 2-11 HOUSING LED LAMPS

P 12-13 HOUSING & SPACER FOR LED LAMPS



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA *V=5V		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

KM2520EH/1ID	GaAsP/GaP	625	red diffused	7	30	40°	<p>Subminiature Solid State Lamps</p>
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	*1.0	*3	40°	
KM2520EH/1SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EH/1SGD-5V	GaP	568	green diffused	*1.8	*10	40°	

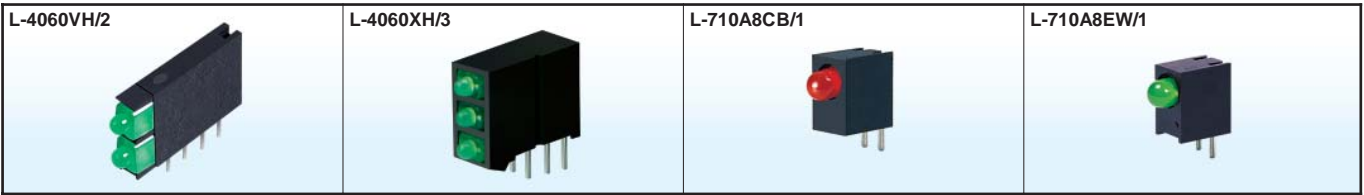
KM2520EJ/1ID	GaAsP/GaP	625	red diffused	7	30	40°	<p>Subminiature Solid State Lamps</p>
KM2520EJ/1ID-5V	GaAsP/GaP	625	red diffused	*1.8	*8	40°	
KM2520EJ/1YD	GaAsP/GaP	588	yellow diffused	2.6	10	40°	
KM2520EJ/1YD-5V	GaAsP/GaP	588	yellow diffused	*1.0	*3	40°	
KM2520EJ/1SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EJ/1SGD-5V	GaP	568	green diffused	*1.8	*10	40°	

KM2520EF/4ID	GaAsP/GaP	625	red diffused	7	30	40°	<p>Subminiature Solid State Lamps</p>
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	*1.0	*3	40°	
KM2520EF/4SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EF/4SGD-5V	GaP	568	green diffused	*1.8	*10	40°	

KM2520EG/4ID	GaAsP/GaP	625	red diffused	7	30	40°	<p>Subminiature Solid State Lamps</p>
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	*1.0	*3	40°	
KM2520EG/4SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EG/4SGD-5V	GaP	568	green diffused	*1.8	*10	40°	

NOTES:

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

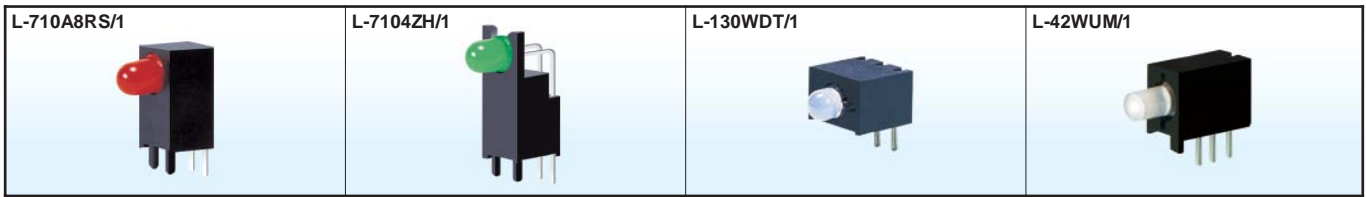
L-4060VH/2ID	GaAsP/GaP	625	red diffused	8	15	70°	<p>1.8mm Bi-Level</p>
L-4060VH/2SRD	GaAlAs	640	red diffused	*70	*200	70°	
L-4060VH/2YD	GaAsP/GaP	588	yellow diffused	1.8	5	70°	
L-4060VH/2GD	GaP	568	green diffused	5	10	70°	

L-4060XH/3ID	GaAsP/GaP	625	red diffused	8	15	70°	<p>1.8mm Tri-Level</p>
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°	<p>T-1 (3mm) Right Angle</p>
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-710A8EW/1ID	GaAsP/GaP	625	red diffused	12	25	40°	<p>T-1 (3mm) Right Angle</p>
L-710A8EW/1SRD	GaAlAs	640	red diffused	*110	*280	40°	
L-710A8EW/1YD	GaAsP/GaP	588	yellow diffused	5	12	40°	
L-710A8EW/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.



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ/2	Dimension
				Min.	Typ.		

L-710A8RS/1ID	GaAsP/GaP	625	red diffused	12	25	40°	<p>T-1 (3mm) Right Angle</p>
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°	

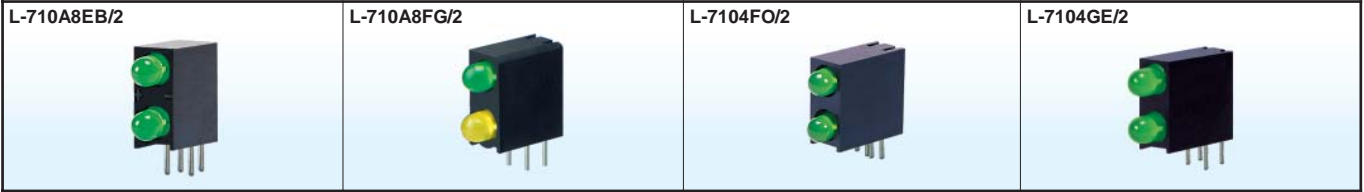
L-7104ZH/1ID	GaAsP/GaP	625	red diffused	8	20	40°	<p>T-1 (3mm) Right Angle</p>
L-7104ZH/1SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104ZH/1YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104ZH/1GD	GaP	568	green diffused	8	20	40°	

L-130WDT/1EGW	GaAsP/GaP	625	white diffused	*7	*30	60°	<p>T-1 (3mm) Right Angle</p>
	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/1EGW	GaAsP/GaP	625	white diffused	*4	*13	100°	<p>T-1 (3mm) Right Angle</p>
	GaP	568		*4	*13		
L-42WUM/1EYW	GaAsP/GaP	625	white diffused	*4	*13	100°	
	GaAsP/GaP	588		*2.6	*6		
L-42WUM/1GYW	GaP	568	white diffused	*4	*13	100°	
	GaAsP/GaP	588		*2.6	*6		

NOTES:

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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

L-710A8EB/2ID	GaAsP/GaP	625	red diffused	12	25	40°	<p>T-1 (3mm) Bi-Level</p>
L-710A8EB/2SRD	GaAlAs	640	red diffused	*110	*280	40°	
L-710A8EB/2YD	GaAsP/GaP	588	yellow diffused	5	12	40°	
L-710A8EB/2GD	GaP	568	green diffused	8	20	40°	

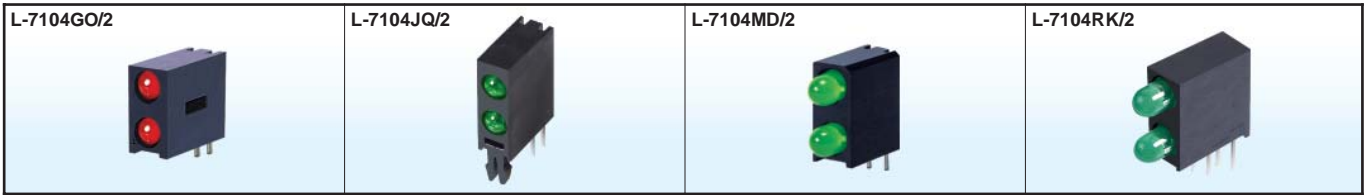
L-710A8FG/2ID	GaAsP/GaP	625	red diffused	12	25	40°	<p>T-1 (3mm) Bi-Level</p>
L-710A8FG/2SRD	GaAlAs	640	red diffused	*110	*280	40°	
L-710A8FG/2YD	GaAsP/GaP	588	yellow diffused	5	12	40°	
L-710A8FG/2GD	GaP	568	green diffused	8	20	40°	

L-7104FO/2ID	GaAsP/GaP	625	red diffused	8	20	40°	<p>T-1 (3mm) Bi-Level</p>
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°	<p>T-1 (3mm) Bi-Level</p>
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:

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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

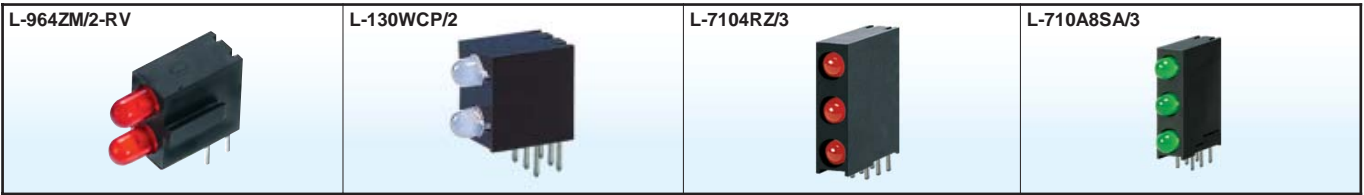
L-7104GO/2ID	GaAsP/GaP	625	red diffused	8	20	40°	<p>T-1 (3mm) Bi-Level</p>
L-7104GO/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104GO/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104GO/2GD	GaP	568	green diffused	8	20	40°	

L-7104JQ/2ID	GaAsP/GaP	625	red diffused	8	20	40°	<p>T-1 (3mm) Bi-Level</p>
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°	<p>T-1 (3mm) Bi-Level</p>
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°	<p>T-1 (3mm) Bi-Level</p>
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:
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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

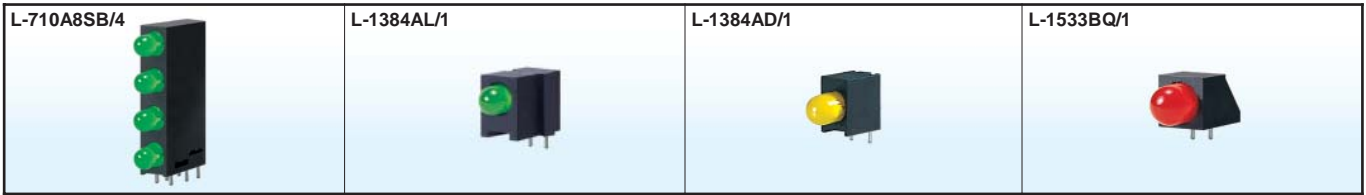
L-964ZM/2ID-RV	GaAsP/GaP	625	red diffused	8	20	60°	T-1 (3mm) Bi-Level
L-964ZM/2SRD-RV	GaAlAs	640	red diffused	*70	*250	60°	
L-964ZM/2YD-RV	GaAsP/GaP	588	yellow diffused	3	10	60°	
L-964ZM/2GD-RV	GaP	568	green diffused	5	15	60°	

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-7104RZ/3ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Tri-Level
L-7104RZ/3SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104RZ/3YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104RZ/3GD	GaP	568	green diffused	8	20	40°	

L-710A8SA/3ID	GaAsP/GaP	625	red diffused	12	25	40°	T-1 (3mm) Tri-Level
L-710A8SA/3SRD	GaAlAs	640	red diffused	*110	*280	40°	
L-710A8SA/3YD	GaAsP/GaP	588	yellow diffused	5	12	40°	
L-710A8SA/3GD	GaP	568	green diffused	8	20	40°	

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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

L-710A8SB/4ID	GaAsP/GaP	625	red diffused	12	25	40°	<p>T-1 (3mm) Quad-Level</p>
L-710A8SB/4SRD	GaAlAs	640	red diffused	*110	*280	40°	
L-710A8SB/4YD	GaAsP/GaP	588	yellow diffused	5	12	40°	
L-710A8SB/4GD	GaP	568	green diffused	8	20	40°	

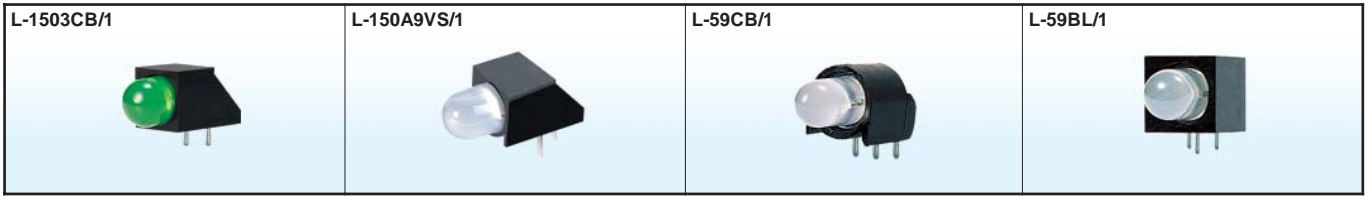
L-1384AL/1ID	GaAsP/GaP	625	red diffused	12	20	60°	<p>3.4mm Right Angle</p>
L-1384AL/1SRD	GaAlAs	640	red diffused	*70	*200	60°	
L-1384AL/1YD	GaAsP/GaP	588	yellow diffused	8	15	60°	
L-1384AL/1GD	GaP	568	green diffused	8	15	60°	

L-1384AD/1ID	GaAsP/GaP	625	red diffused	12	20	60°	<p>3.4mm Right Angle</p>
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°	<p>4.7mm Right Angle</p>
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°	

NOTES:

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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

L-1503CB/1ID	GaAsP/GaP	625	red diffused	8	30	60°	<p>T-1 3/4 (5mm) Right Angle</p>
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°	

L-150A9VS/1EGW	GaAsP/GaP	625	white diffused	*18	*50	30°	<p>T-1 3/4 (5mm) Right Angle</p>
	GaP	568		*10	*45		
L-150A9VS/1EYW	GaAsP/GaP	625	white diffused	*18	*45	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°	<p>T-1 3/4 (5mm) Right Angle</p>
	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°	<p>T-1 3/4 (5mm) Right Angle</p>
	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		

NOTES:

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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

L-73EB/2IDA	GaAsP/GaP	625	red diffused	8	30	60°	<p>4.8mm Bi-Level</p>
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°	

L-1503EB/2ID	GaAsP/GaP	625	red diffused	8	30	60°	<p>T-1 3/4 (5mm) Bi-Level</p>
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°	<p>T-1 3/4 (5mm) With Spacer</p> <p>L-7113BR-5.08/xxx (Dim.A : 5.08[.2]) L-7113BR-6.35/xxx (Dim.A : 6.35[.25]) L-7113BR-9.52/xxx (Dim.A : 9.52[.375]) L-7113BR-17.8/xxx (Dim.A : 17.8[.701]) L-7113BR-23.5/xxx (Dim.A : 23.5[.925])</p>
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°	

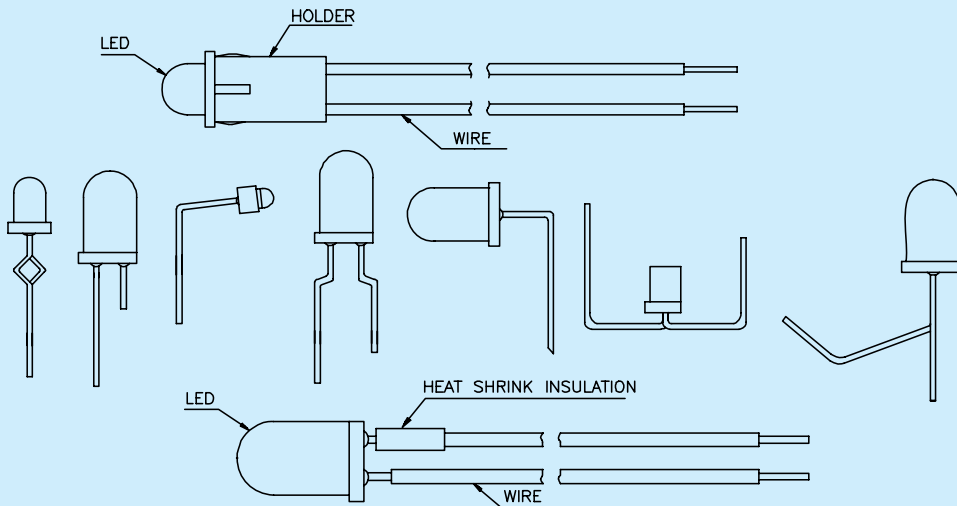
L-914CK/4



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA		Viewing Angle 2 θ 1/2	Dimension
				Min.	Typ.		
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°	

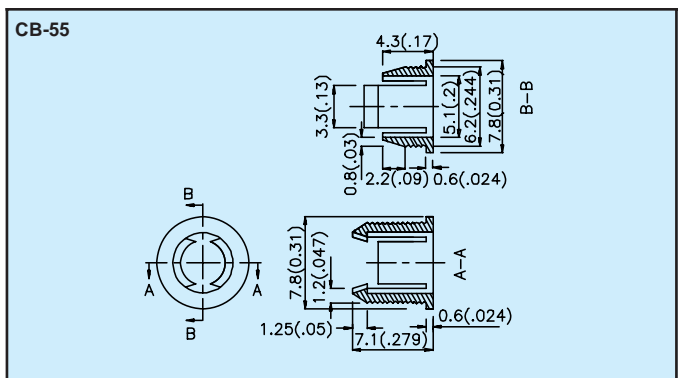
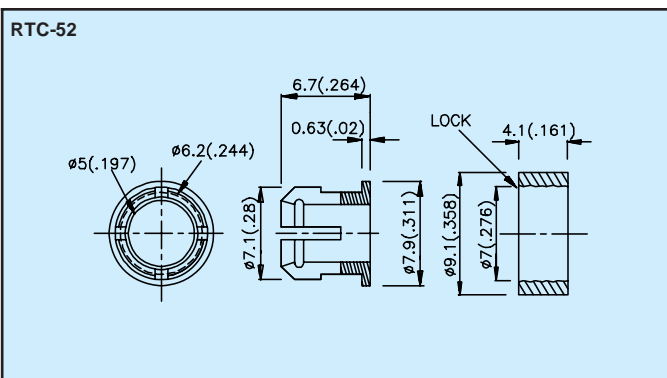
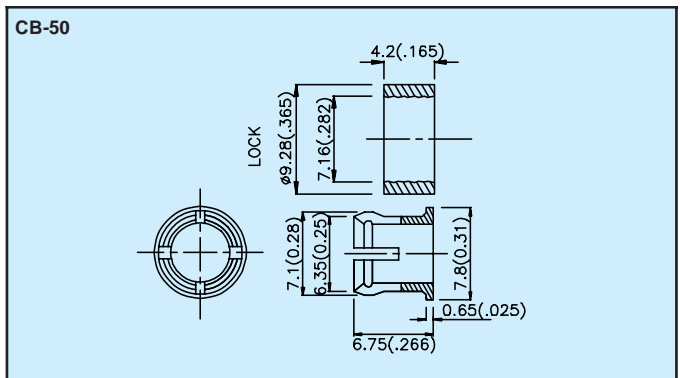
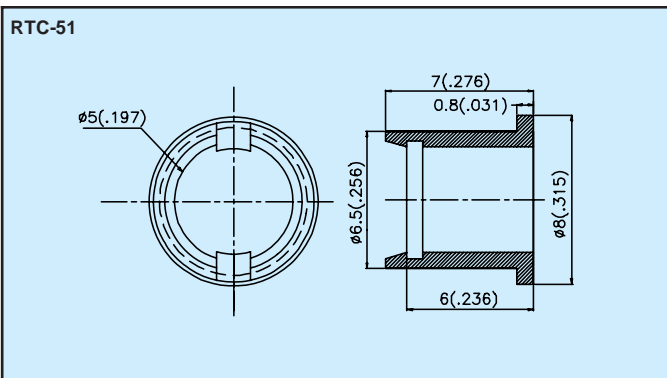
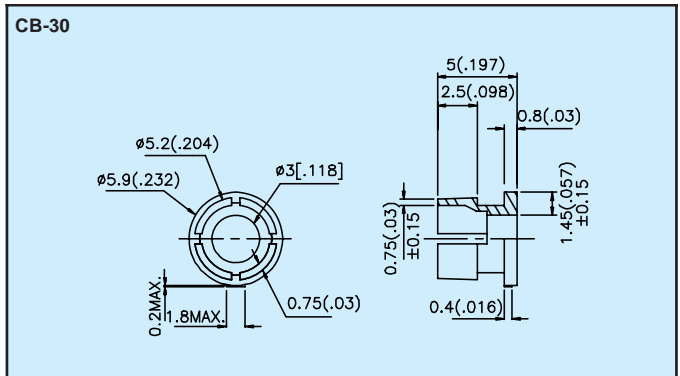
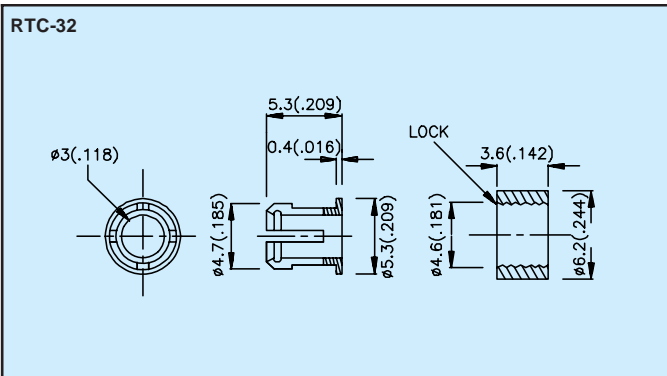
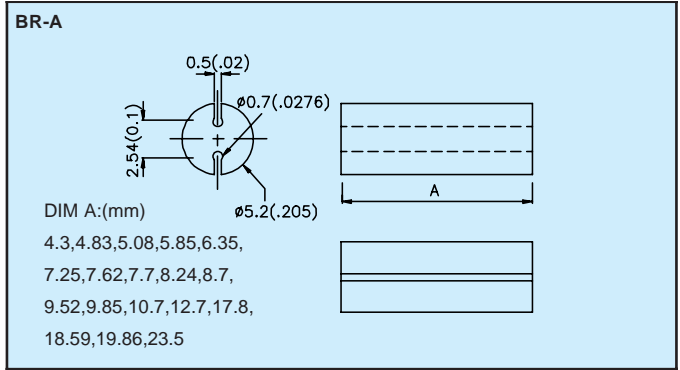
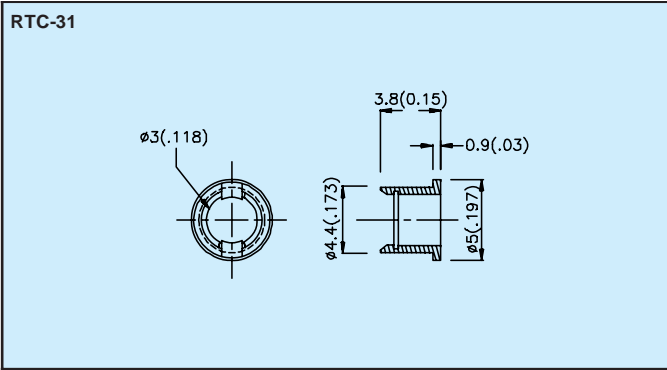
VALUE ADDED LED LAMPS

LED lamp with forming/wire leads available

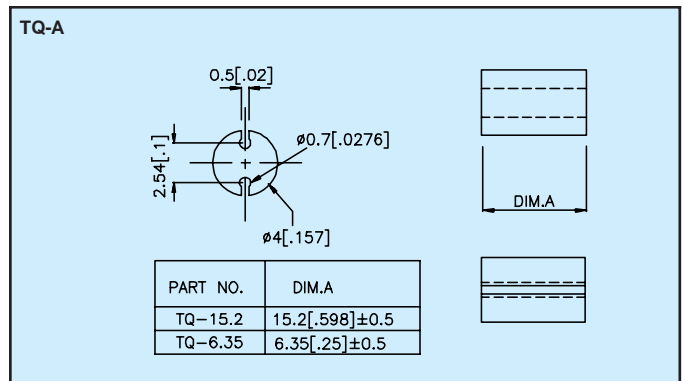
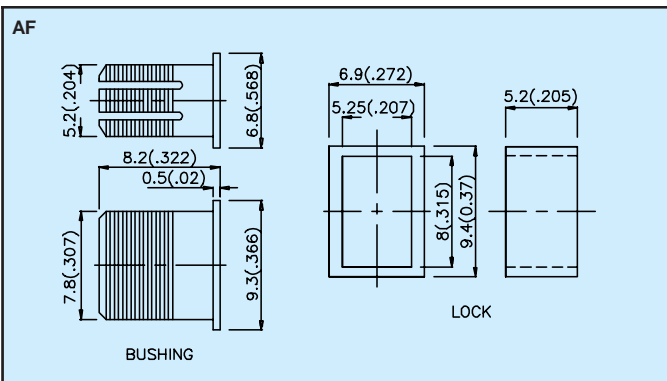
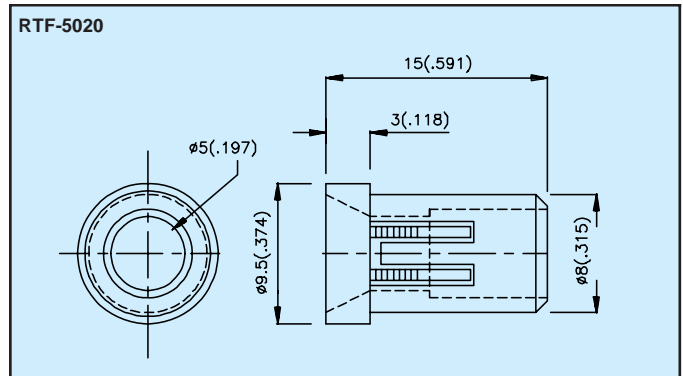
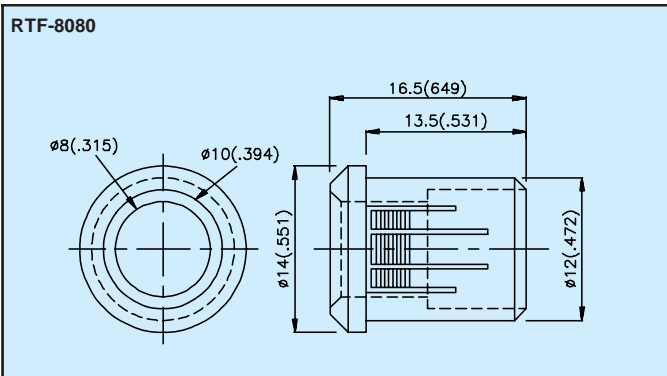
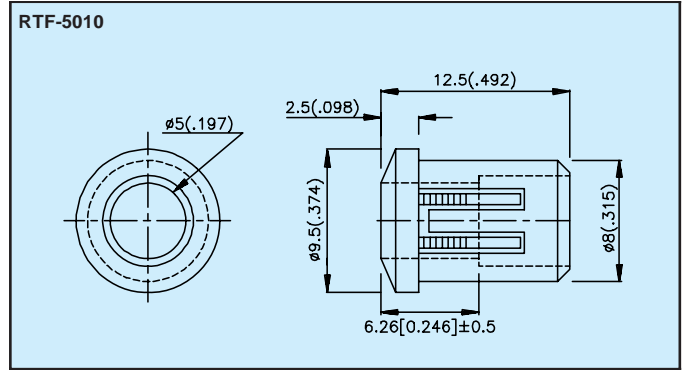
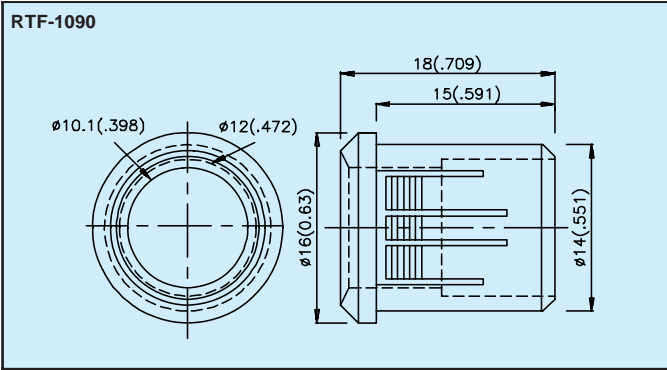


NOTES:

1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.



NOTES:
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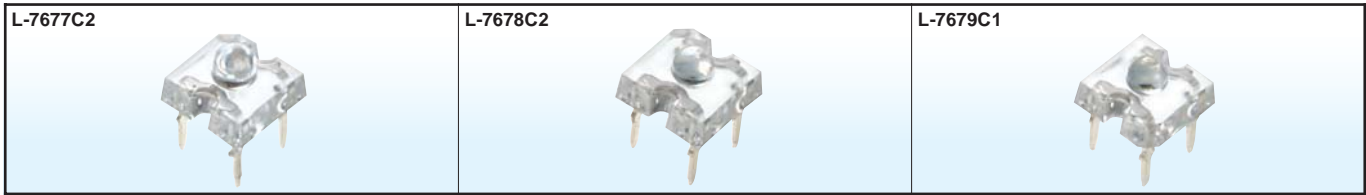


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Kingbright Catalog

2005-2006

P 2	SUPER FLUX LED LAMPS	P 12	BIG LED LAMPS
P 3	INFRARED EMITTING DIODES	P 13	SUPER BRIGHT LED LAMPS
P 4	PHOTOTRANSISTORS	P 14-17	BI-COLOR & BI-POLAR LED LAMPS
P 5-8	ROUND LED LAMPS	P 15	FULL COLOR LED LAMPS
P 8-9	OVAL LED LAMPS	P 18-19	BLINKING & LOW CURRENT LED LAMPS
P 9	FLAT TOP LED LAMPS	P 19	RESISTOR LED LAMPS
P 10-12	CYLINDRICAL & RECTANGULAR LED LAMPS	P 20	TAPE AND REEL LED LAMPS



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @50mA *70mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

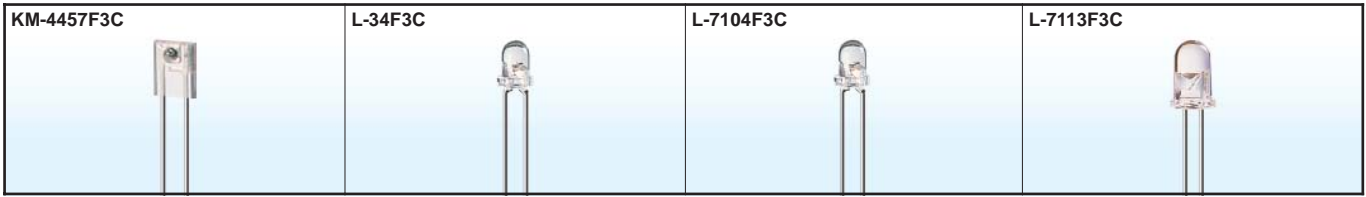
L-7677C2SEC-H	InGaAlP	630	water clear	*10000	*20000	30°	7.62mm x 7.62mm
L-7677C2SYC-H	InGaAlP	589	water clear	*1500	*5000	30°	
L-7677C2SURC-G	InGaAlP	630	water clear	*4700	*8000	30°	
L-7677C2PBC-H	InGaN	470	water clear	3300	6000	30°	

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-H	InGaN	470	water clear	2800	4500	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-H	InGaN	470	water clear	1800	3200	70°	

NOTES:

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



Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA *50mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

KM-4457F3C	GaAs	940	water clear	0.8	4	70°	1.5mm (Side Look)
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L-34F3C	GaAs	940	water clear	1.6	10	50°	T-1 (3mm) Round
L-34F3BT	GaAs	940	blue transparent	*4	*20	50°	
L-34SF4C	GaAlAs	880	water clear	1.6	4	50°	
L-34SF4BT	GaAlAs	880	blue transparent	*4	*20	50°	
L-34SF6C	GaAlAs	860	water clear	7	15	50°	
L-34SF6BT	GaAlAs	860	blue transparent	*7	*20	50°	
L-34SF7C	GaAlAs	850	water clear	7	18	50°	
L-34SF7BT	GaAlAs	850	blue transparent	*7	*18	50°	

L-7104F3C	GaAs	940	water clear	7	30	34°	T-1 (3mm) Round
L-7104F3BT	GaAs	940	blue transparent	*18	*80	34°	

L-7113F3C	GaAs	940	water clear	7	20	20°	T-1 3/4 (5mm) Round
L-7113F3BT	GaAs	940	blue transparent	*10	*30	20°	
L-7113SF4C	GaAlAs	880	water clear	4	20	20°	
L-7113SF4BT	GaAlAs	880	blue transparent	*7	*30	20°	
L-7113SF6C	GaAlAs	860	water clear	7	20	20°	
L-7113SF6BT	GaAlAs	860	blue transparent	*10	*40	20°	
L-7113SF7C	GaAlAs	850	water clear	10	40	20°	
L-7113SF7BT	GaAlAs	850	blue transparent	*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

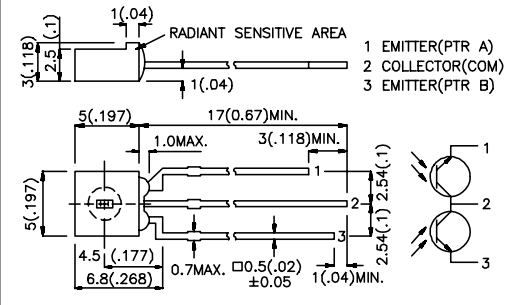


PHOTOTRANSISTOR

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 E _e =0mW/cm ²
V _{BR ECO}	Emitter-to-Collector Breakdown Voltage	5	-	-	V	I _E =100μA E _e =0mW/cm ²
V _{CE (SAT)}	Collector-to-Emitter Saturation Voltage	-	-	0.4	V	I _C =500μA E _e =5mW/cm ²
I _{CEO}	Collector Dark Current	-	-	100	nA	V _{CE} =10V E _e =0mW/cm ²
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	V _{CE} =5V, E _e =1mW/cm ² , λ=940nm
I _(ON)	On State Collector Current	0.1	0.5	-	mA	V _{CE} =5V, E _e =1mW/cm ² , λ=940nm
R	Collector Current Ratio of Phototransistor	0.8	1	1.25	Ω	I _C (on) (a) / I _C (on) (b)



ABSOLUTE MAXIMUM RATING T_A=25°C

Parameter	Max. Ratings
Collector-to-Emitter Breakdown Voltage	30V
Emitter-to-Collector Breakdown 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

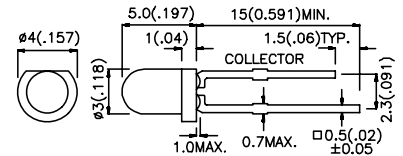
T-1 3/4 (5mm) PHOTOTRANSISTOR

L-7113P3C WATER CLEAR LENS

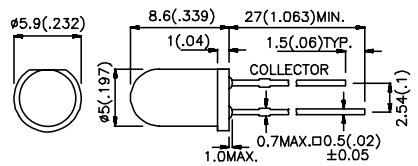
ELECTRICAL AND RADIANT CHARACTERISTICS T_A=25°C

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Condition
V _{BR CEO}	Collector-to-Emitter Breakdown Voltage	30	-	-	V	I _C =100μA E _e =0mW/cm ²
V _{BR ECO}	Emitter-to-Collector Breakdown Voltage	5	-	-	V	I _E =100μA E _e =0mW/cm ²
V _{CE (SAT)}	Collector-to-Emitter Saturation Voltage	-	-	0.8	V	I _C =2mA E _e =20mW/cm ²
I _{CEO}	Collector Dark Current	-	-	100	nA	V _{CE} =10V E _e =0mW/cm ²
T _R	Rise Time (10% to 90%)	-	3	-	μs	V _{CE} =5V I _C =1mA R _L =1KΩ
T _F	Fall Time (90% to 10%)	-	3	-	μs	V _{CE} =5V, E _e =1mW/cm ² , λ=940nm
I _(ON)	On State Collector Current	0.1	0.5	-	mA	V _{CE} =5V, E _e =1mW/cm ² , λ=940nm

L-32P3C



L-7113P3C

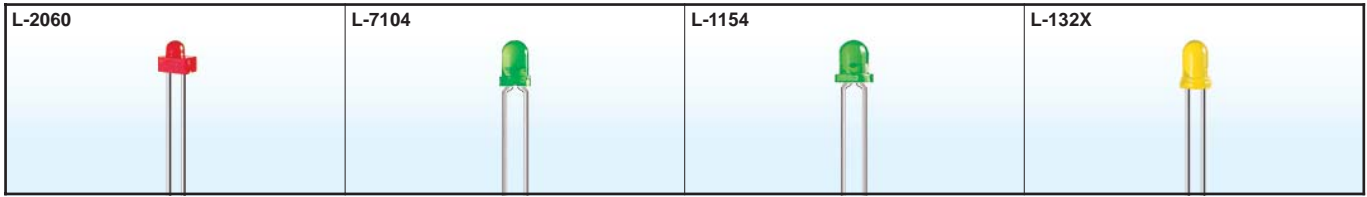


ABSOLUTE MAXIMUM RATING T_A=25°C

Parameter	Max. Ratings
Collector-to-Emitter Breakdown Voltage	30V
Emitter-to-Collector Breakdown 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:

- All dimensions are in millimeters(inches).
- Tolerance is ±0.25mm(0.01") unless otherwise noted.



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

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°	

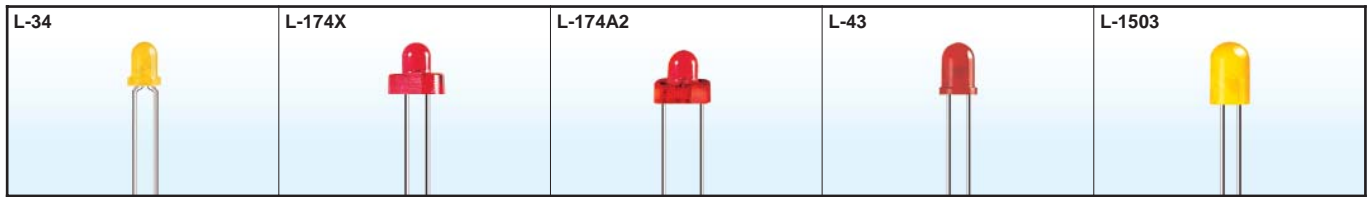
L-7104ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Round
L-7104IT	GaAsP/GaP	625	red transparent	18	60	34°	
L-7104EC	GaAsP/GaP	625	water clear	18	60	34°	
L-7104ED	GaAsP/GaP	625	orange diffused	8	20	40°	
L-7104ND	GaAsP/GaP	610	orange diffused	8	30	40°	
L-7104NT	GaAsP/GaP	610	orange transparent	18	50	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	20	34°	
L-7104YC	GaAsP/GaP	588	water clear	8	20	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-132XYP	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	10	50°	

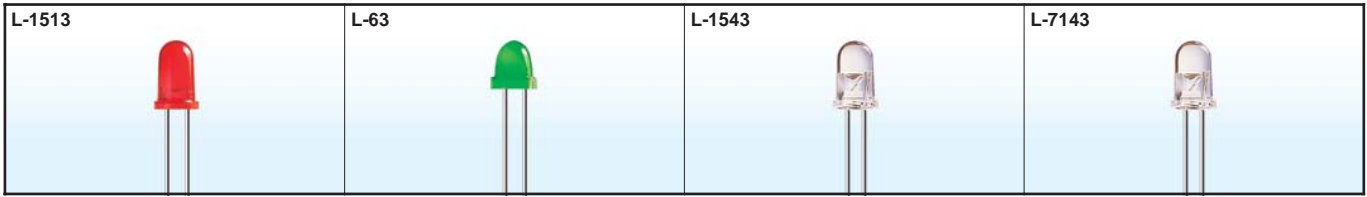
NOTES:

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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	100°	3.2mm Round
L-174XIT	GaAsP/GaP	625	red transparent	8	30	100°	
L-174XSRT	GaAlAs	640	red transparent	*110	*400	100°	
L-174XYT	GaAsP/GaP	588	yellow transparent	8	30	100°	
L-174XGT	GaP	568	green transparent	8	30	100°	
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.



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

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°	

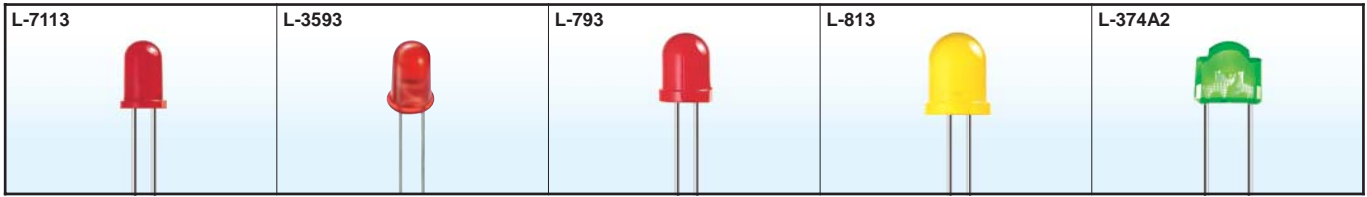
L-63ID	GaAsP/GaP	625	red diffused	12	20	60°	T-1 3/4 (5mm) Round
L-63IT	GaAsP/GaP	625	red transparent	28	50	30°	
L-63SRD	GaAlAs	640	red diffused	*110	*300	60°	
L-63SRT	GaAlAs	640	red transparent	*280	*600	30°	
L-63SRC	GaAlAs	640	water clear	*180	*700	30°	
L-63YD	GaAsP/GaP	588	yellow diffused	1.8	6	60°	
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-1543SRC-C	GaAlAs	640	water clear	*380	*600	50°	T-1 3/4 (5mm) Round
L-1543SRC-D	GaAlAs	640	water clear	*650	*900	50°	
L-1543SURC	InGaAlP	628	water clear	*480	*850	50°	
L-1543SURC-E	InGaAlP	630	water clear	*650	*1300	50°	
L-1543SGC	GaP	568	water clear	*70	*150	50°	

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°	

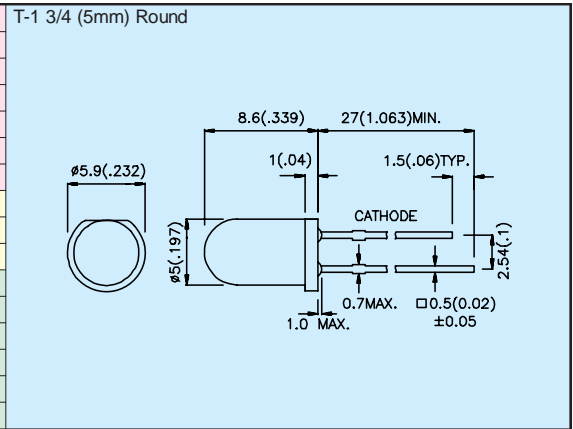
NOTES:

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

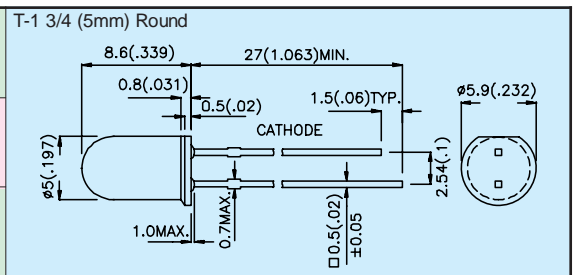


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

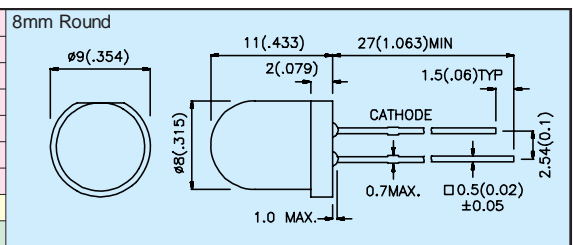
L-7113ID	GaAsP/GaP	625	red diffused	8	45	30°
L-7113IT	GaAsP/GaP	625	red transparent	28	80	20°
L-7113EC	GaAsP/GaP	625	water clear	28	80	20°
L-7113ED	GaAsP/GaP	625	orange diffused	8	25	30°
L-7113ND	GaAsP/GaP	610	orange diffused	12	30	30°
L-7113NT	GaAsP/GaP	610	orange transparent	40	80	20°
L-7113NC	GaAsP/GaP	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°



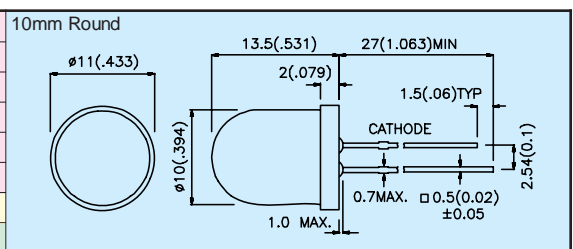
L-3593GC	GaP	568	water clear	70	150	20°
L-3593KD	GaAsP/GaP	625	red diffused	18	40	20°
L-3593SGC	GaP	568	water clear	*110	*350	20°



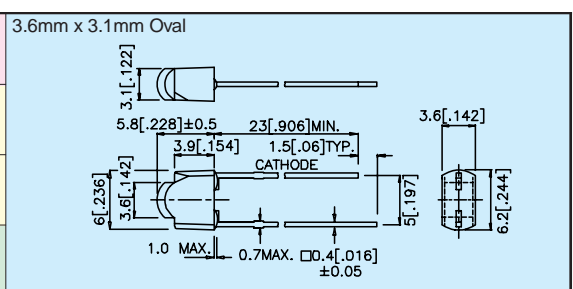
L-793ID	GaAsP/GaP	625	red diffused	*36	*100	60°
L-793SRC-D	GaAlAs	640	water clear	*1500	*1700	40°
L-793SRC-E	GaAlAs	640	water clear	*1800	*2700	40°
L-793SRD-C	GaAlAs	640	red diffused	*180	*250	60°
L-793SRD-D	GaAlAs	640	red diffused	*280	*350	60°
L-793SRD-E	GaAlAs	640	red diffused	*380	*450	60°
L-793ED	GaAsP/GaP	625	orange diffused	*36	*100	60°
L-793YD	GaAsP/GaP	588	yellow diffused	*18	*50	60°
L-793GD	GaP	568	green diffused	*18	*60	60°



L-813ID	GaAsP/GaP	625	red diffused	*36	*100	60°
L-813SRC-D	GaAlAs	640	water clear	*1500	*1700	40°
L-813SRD-C	GaAlAs	640	red diffused	*180	*250	60°
L-813SRD-D	GaAlAs	640	red diffused	*280	*350	60°
L-813SRD-E	GaAlAs	640	red diffused	*380	*450	60°
L-813ED	GaAsP/GaP	625	orange diffused	*36	*100	60°
L-813YD	GaAsP/GaP	588	yellow diffused	*10	*50	60°
L-813GD	GaP	568	green diffused	*18	*60	60°

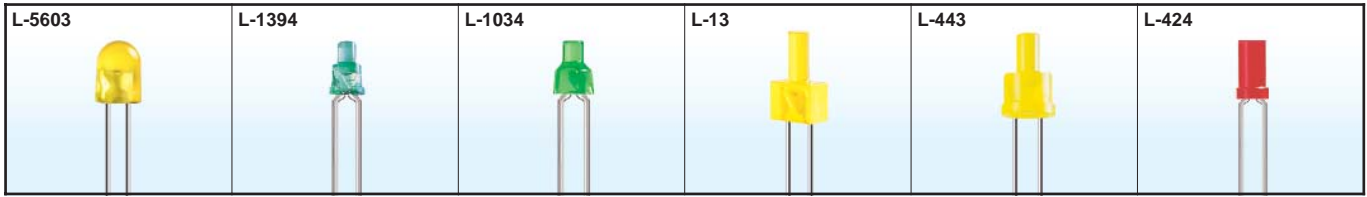


L-374A2IT	GaAsP/GaP	625	red transparent	8	20	60° (H) 55° (V)
L-374A2AT	GaAsP/GaP	588	amber transparent	3	9	60° (H) 55° (V)
L-374A2YT	GaAsP/GaP	588	yellow transparent	3	10	60° (H) 55° (V)
L-374A2GT	GaP	568	green transparent	5	15	60° (H) 55° (V)



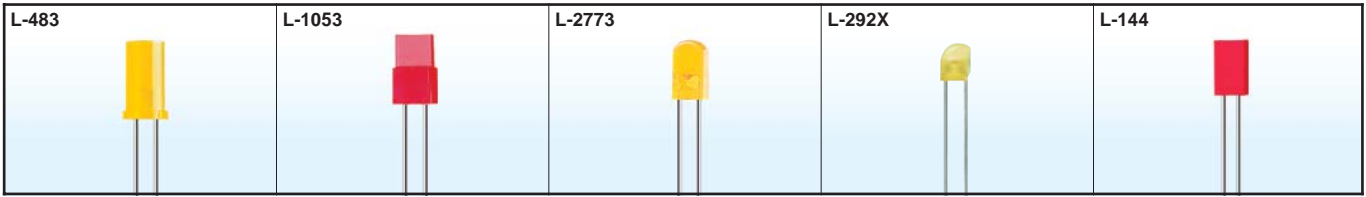
NOTES:

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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-H	InGaN	525	green semi diffused	*650	*2100	100° (H) 50° (V)	
L-5603PBDL/SD-H	InGaN	470	blue semi diffused	*650	*1400	100° (H) 50° (V)	
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-443HDT	GaP	660	red diffused	0.4	2	100°	2.4mm Flat Top
L-443IDT	GaAsP/GaP	625	red diffused	3	10	100°	
L-443EDT	GaAsP/GaP	625	orange diffused	3	10	100°	
L-443YDT	GaAsP/GaP	588	yellow diffused	1	5	100°	
L-443GDT	GaP	568	green diffused	1	5	100°	
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°	

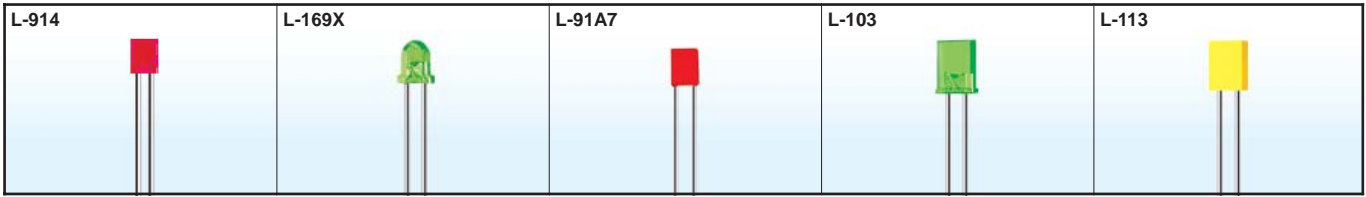
NOTES:
 1. All dimensions are in millimeters(inches).
 2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
L-483HDT	GaP	660	red diffused	0.4	1	100°	<p>T-1 3/4 (5mm) Cylindrical</p>
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-1053HD	GaP	660	red diffused	0.4	1	110°	<p>1mm x 5mm Rectangular</p>
L-1053ID	GaAsP/GaP	625	red diffused	3	8	110°	
L-1053YD	GaAsP/GaP	588	yellow diffused	1.8	5	110°	
L-1053GD	GaP	568	green diffused	1.8	5	110°	
L-2773HD	GaP	660	red diffused	0.7	2	100°	<p>1.75mm x 3.9mm Rectangular</p>
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-292XGD	GaP	568	green diffused	5	12	110°	<p>1.9mm x 3.1mm Rectangular</p>
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°	<p>1.9mm x 3.9mm Rectangular</p>
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°	

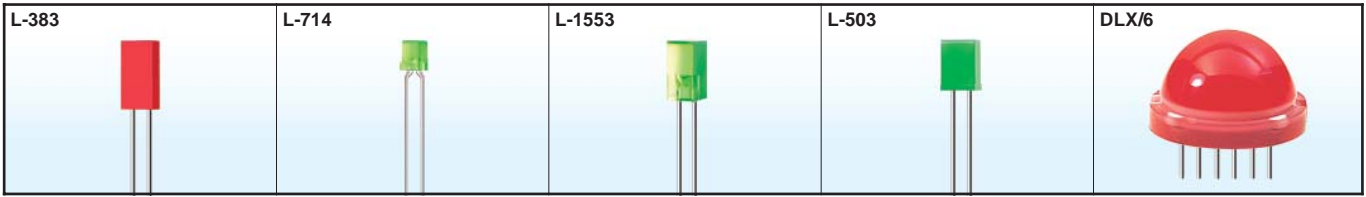
NOTES:
 1. All dimensions are in millimeters(inches).
 2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

RECTANGULAR LED LAMPS



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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	100°	
	GaP	568		*7	*10		

NOTES:
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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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:
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L-7104

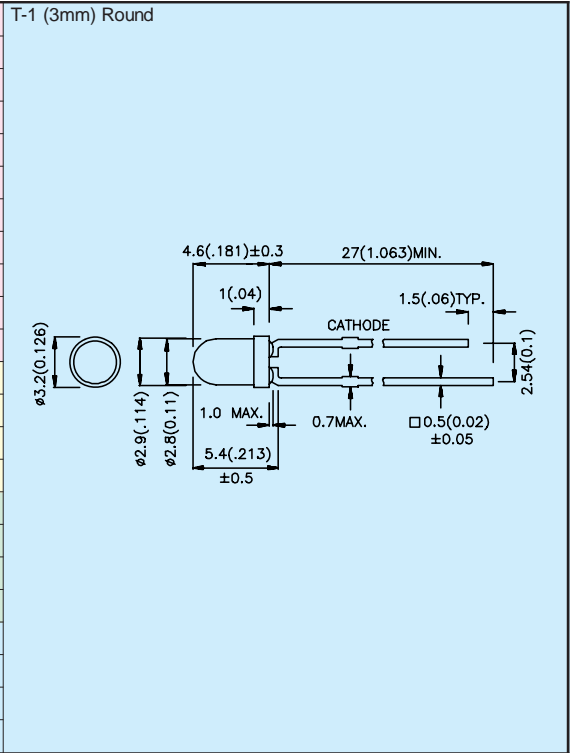


L-7113

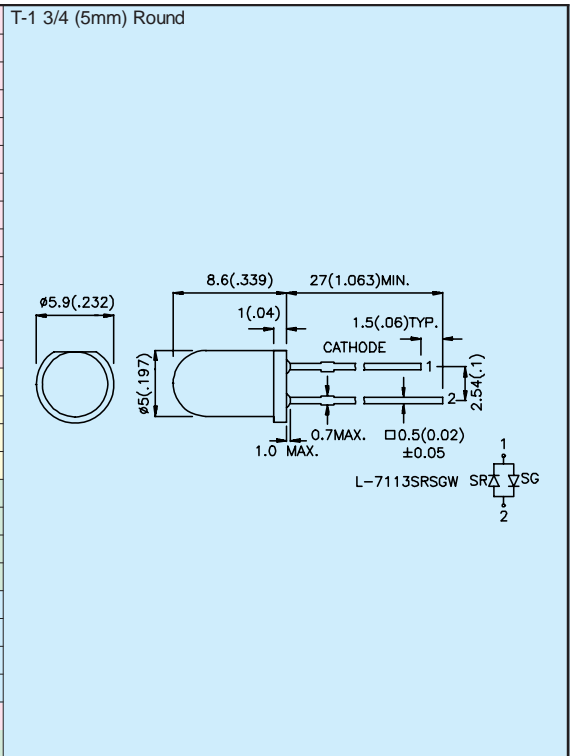


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

L-7104SRC-D	GaAlAs	640	water clear	480	600	34°
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	2000	34°
L-7104PBD	InGaN	470	blue diffused	70	200	30°
L-7104PBT	InGaN	470	blue transparent	110	250	20°
L-7104PBC	InGaN	470	water clear	180	450	20°
L-7104PBC-E	InGaN	470	water clear	280	550	20°

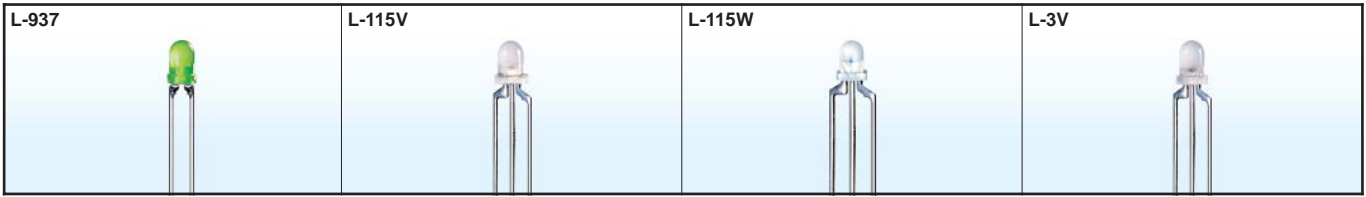


L-7113SRC-DU	GaAlAs	640	water clear	900	1100	20°
L-7113SRC-DV	GaAlAs	640	water clear	1200	1400	20°
L-7113SRC-DW	GaAlAs	640	water clear	1500	1700	20°
L-7113SRD-D	GaAlAs	640	red diffused	180	250	30°
L-7113SRD-E	GaAlAs	640	red diffused	280	400	30°
L-7113SRD-F	GaAlAs	640	red diffused	480	600	30°
L-7113SURC	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	110	400	30°
L-7113SYC-H	InGaAlP	589	water clear	1500	4500	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	1800	3000	20°
L-7113PBD	InGaN	470	blue diffused	70	400	20°
L-7113PBT	InGaN	470	blue transparent	280	450	16°
L-7113PBC	InGaN	470	water clear	280	1000	16°
L-7113PBC-E	InGaN	470	water clear	650	1200	16°
L-7113SRSGW	GaAlAs	640	white diffused	110	200	35°
	GaP	568	white diffused	18	60	35°



NOTES:

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.		

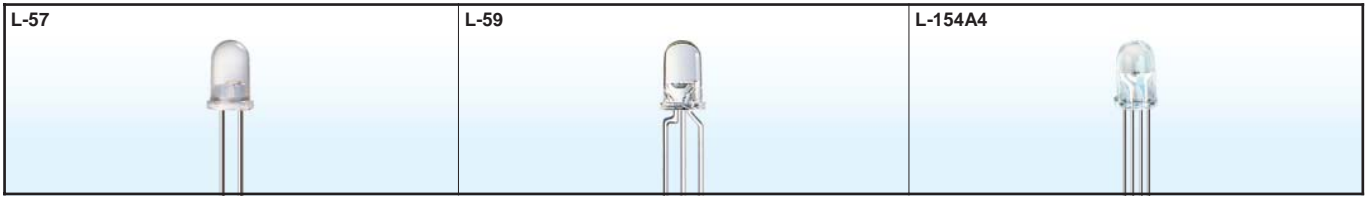
L-937IID	GaAsP/GaP	625	red diffused	7	20	60°	
	GaAsP/GaP	625		7	20		
L-937GGD	GaP	568	green diffused	4	15	60°	
	GaP	568		4	15		
L-937YYD	GaAsP/GaP	588	yellow diffused	4	10	60°	
	GaAsP/GaP	588		4	10		
L-937EGW	GaAsP/GaP	625	white diffused	7	20	60°	
	GaP	568		7	16		
L-937EYW	GaAsP/GaP	625	white diffused	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°	
	GaP	568		10	30		
L-115VEYW	GaAsP/GaP	625	white diffused	10	50	60°	
	GaAsP/GaP	588		7	15		
L-115VGW	GaP	568	white diffused	10	30	60°	
	GaAsP/GaP	588		7	15		

L-115WEGW	GaAsP/GaP	625	white diffused	10	40	60°	
	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°	
	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.



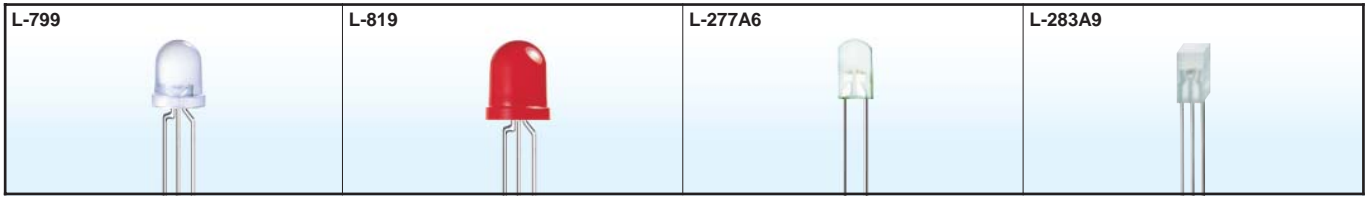
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.		

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°	
L-57EYW	GaP	568		10	20		
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
L-59EGW-CA	GaAsP/GaP	625		2.6	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		36	60		
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-154A4SURKPBVGC	InGaAlP	635		380	700	50°	T-1 3/4 (5mm) Full color
	InGaN	470	water clear	180	500		
	InGaN	525		480	1200		
L-154A4SURKPBVGW	InGaAlP	635		280	500	60°	
	InGaN	470	white diffused	70	300		
	InGaN	525		180	500		
L-154A4SUREPBVGC	InGaAlP	630		650	1300	50°	
	InGaN	470	water clear	280	800		
	InGaN	525		480	1200		
L-154A4SUREPBVGW	InGaAlP	630		380	750	60°	
	InGaN	470	white diffused	180	450		
	InGaN	525		180	500		

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle	Dimension
				Min.	Typ.		

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
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	200	50°	
	GaP	568		36	50		
L-819SURKMGKW	InGaAlP	635	white diffused	380	750	50°	
	InGaAlP	570		50	130		

L-277A6GNW	GaP	568	white diffused	4	10	60°	1.75mm x 3.9mm Rectangular
	GaAsP/GaP	610		4	11		
L-277A6GYW	GaP	568	white diffused	4	12	60°	
	GaAsP/GaP	588		2.6	6		

L-283A9NGWT/G	GaAsP/GaP	610	white diffused	7	15	120°	1.75mm x 3.5mm Rectangular
	GaP	568		4	10		

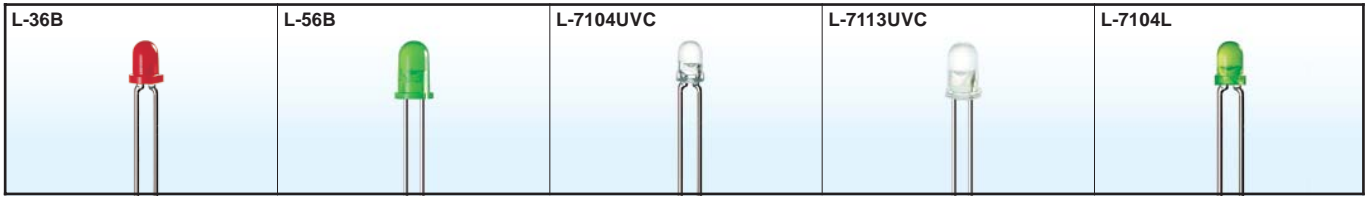
NOTES:

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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		
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:
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 2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) V=9V		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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°	

Part No.	Material	λ D (nm)	Lens Type	Φe (mW) @ 20 mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

L-7104UVC	InGaN	395	water clear	7	35	34°	Ultraviolet
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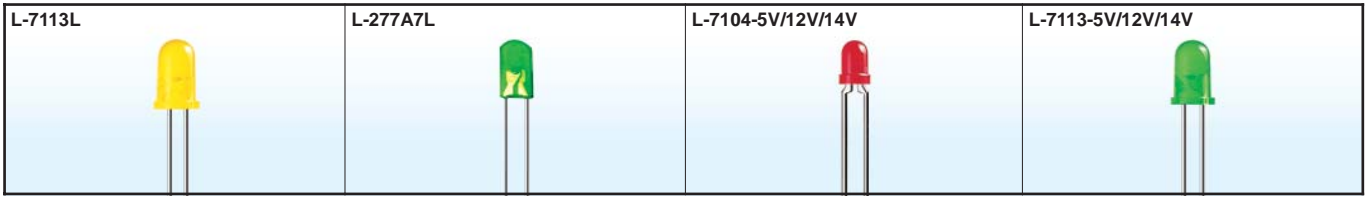
L-7113UVC	InGaN	395	water clear	7	30	20°	Ultraviolet
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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 2mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

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°	

NOTES:

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @ 2mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

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	30°	1.75mm x 3.9mm Rectangular
L-277A7LYD	GaAsP/GaP	588	yellow diffused	0.2	0.5	30°	
L-277A7LGD	GaP	568	green diffused	0.3	0.8	30°	

Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) V=5V		Viewing Angle 2θ1/2	Dimension
				*V=12V	**V=14V		

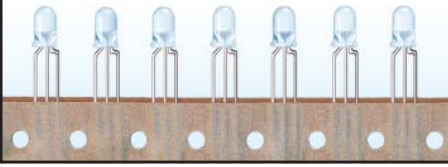
L-7104ID-5V	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Round
L-7104ID-12V	GaAsP/GaP	625	red diffused	*8	*20	40°	
L-7104ID-14V	GaAsP/GaP	625	red diffused	**8	**20	40°	
L-7104SRD-5V	GaAlAs	640	red diffused	70	150	40°	
L-7104SRD-12V	GaAlAs	640	red diffused	*40	*100	40°	
L-7104SRD-14V	GaAlAs	640	red diffused	**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°	

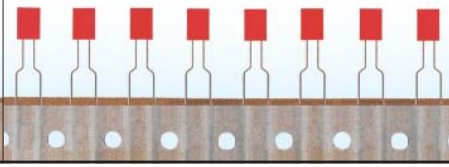
NOTES:

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

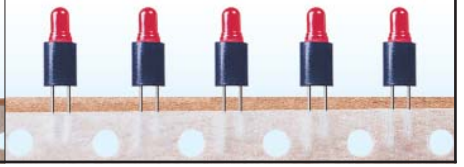
L-59-TNR2.54



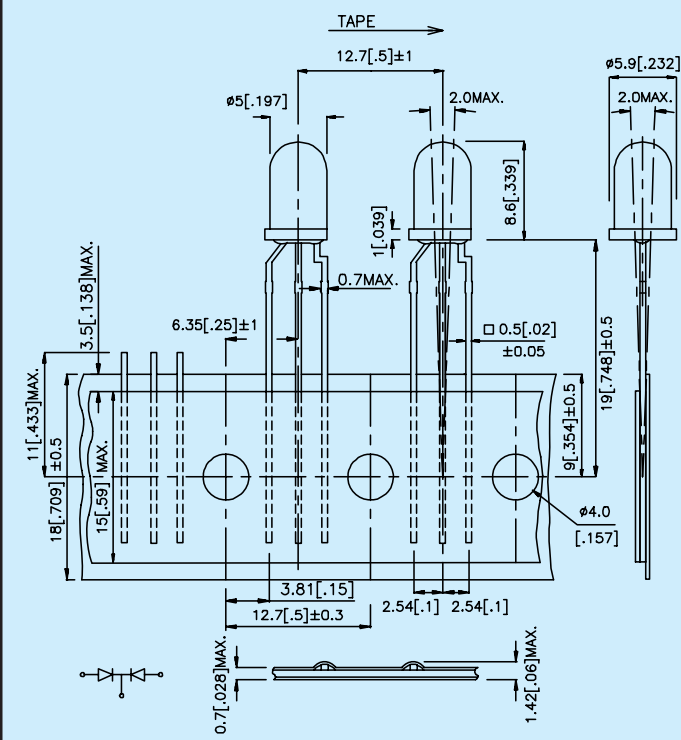
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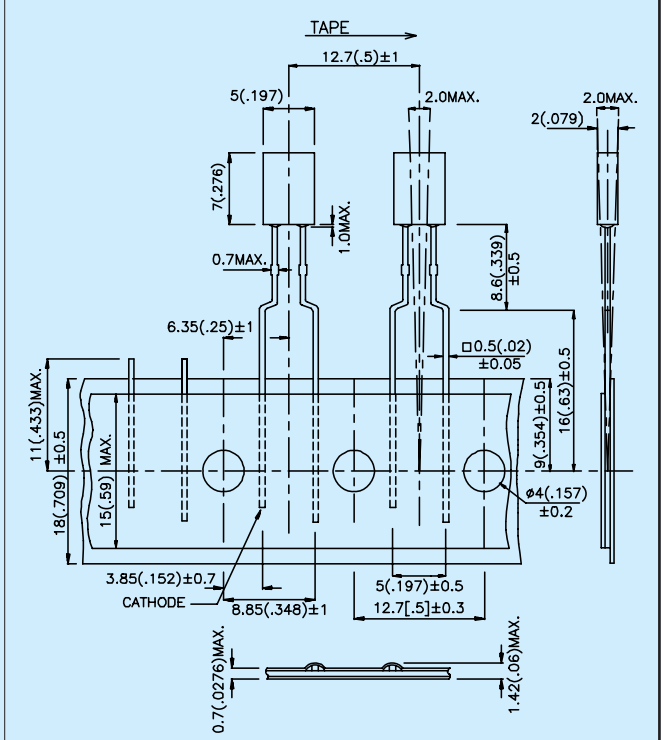
L-132XBR-7.7/xx-TNR2.54



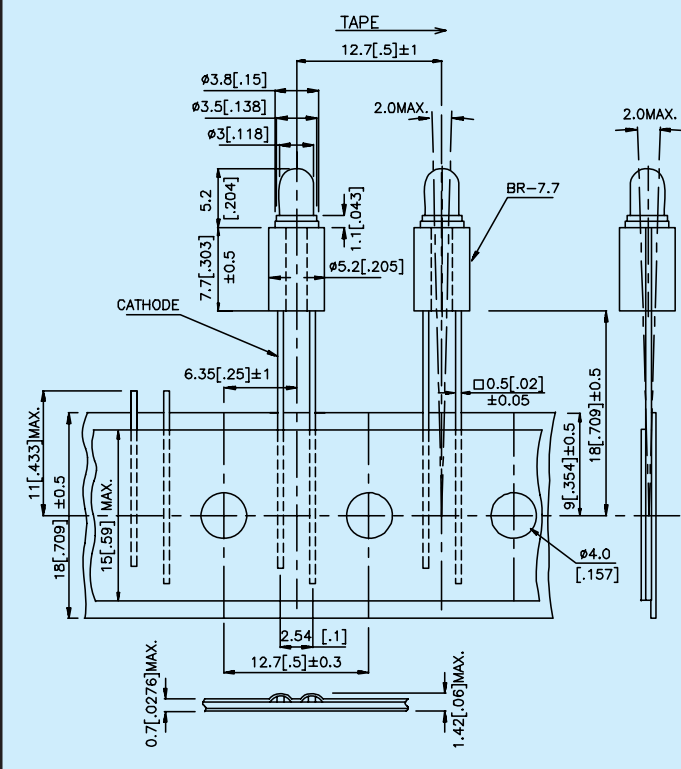
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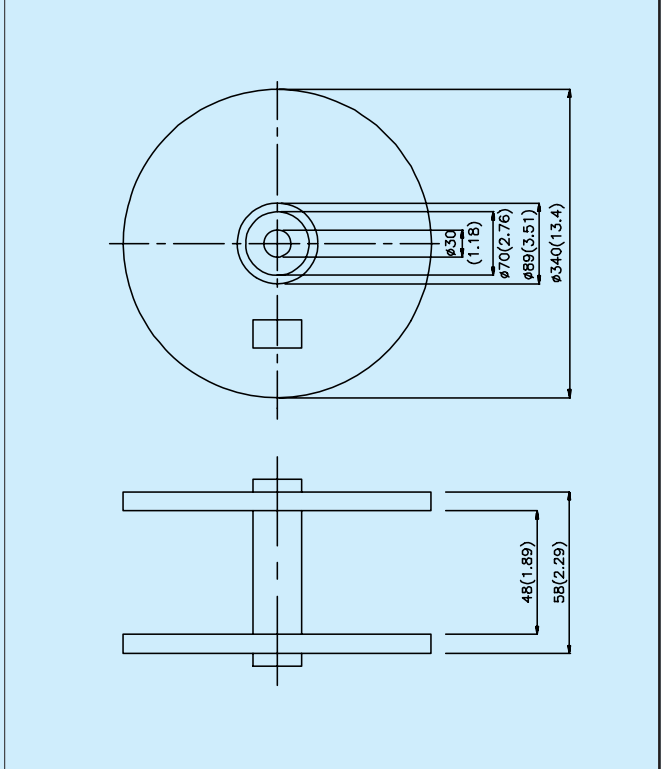
L-113-TNR5/8.6



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



REEL DIMENSIONS



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

Kingbright Catalog

2005-2006

P 2 **BACK LIGHT & SIDE VIEW**
P 3 **LIGHT PIPE**

P 4-6 **BASED LED LAMPS**
P 7-8 **CLUSTER**

SIDE VIEW



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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-C-CC-L5	GaN	470	water clear	50	120	120°	
KA-1114/2PBC-CC-L5	InGaN	470	water clear	18	50	120°	

BACK LIGHT

Part No.	Material	λ D (nm)	Lens Type	Ev (lux) @80mA		VF	Dimension
				Min.	Typ.		
GLP-003/1608SURC	InGaAlP	628	water clear	69	103	1.9	
GLP-003/1608CGKC	InGaAlP	570	water clear	110	164.5	2.1	
GLP-003/1608PBC	InGaN	470	water clear	293	440	3.65	

NOTES:
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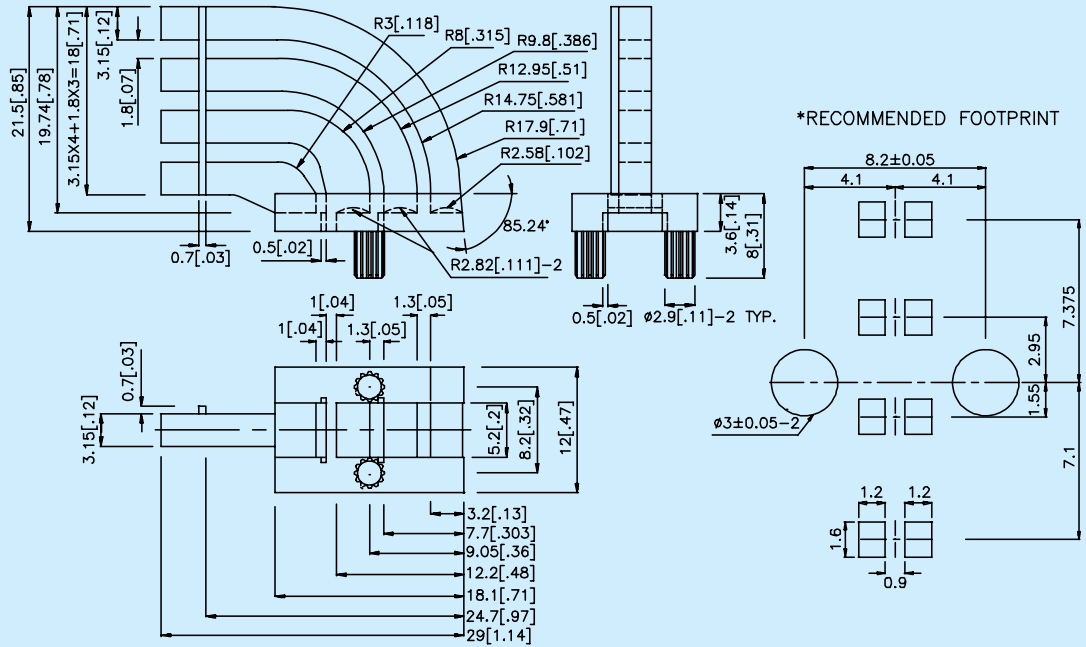
KL-05



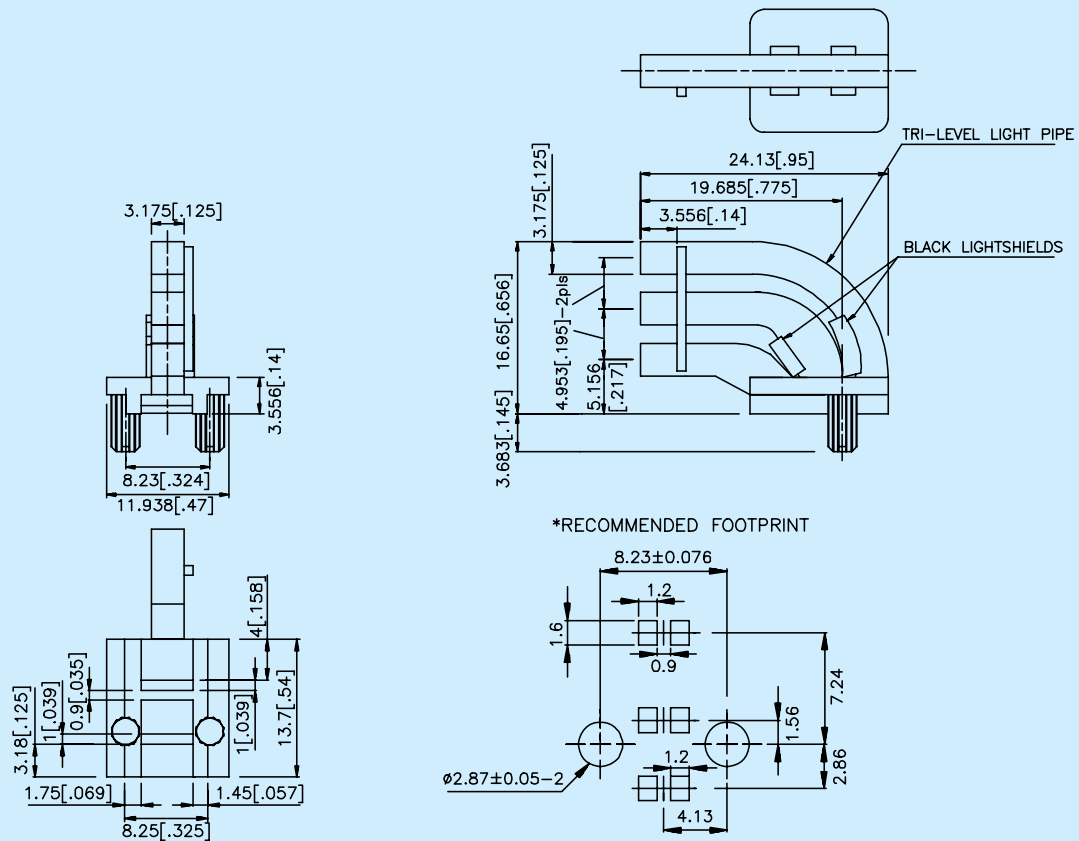
KL-07LS



KL-05



KL-07LS



NOTES:

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) V=6V *V=12V **V=28V		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

BLFA052PBC-6V-P	InGaN	470	water clear	50	100	110°	<p>5mm Flange Base</p>
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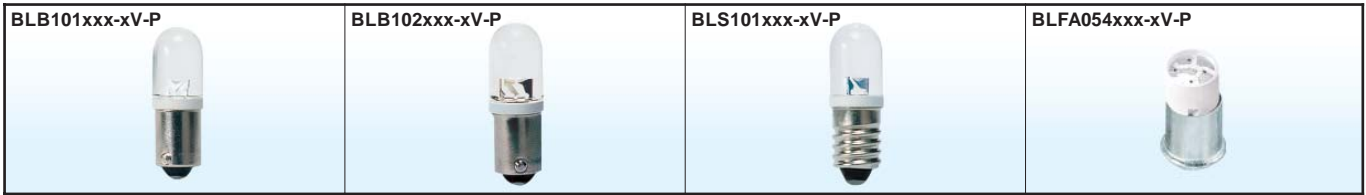
BLFA062PBC-6V-P	InGaN	470	water clear	70	170	110°	<p>6mm Flange Base</p>
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BLF041SURC-E-6V-P	InGaAlP	630	water clear	650	1500	30°	<p>4mm Flange Base</p>
BLF041SURC-E-12V-P	InGaAlP	630	water clear	*480	*1200	30°	
BLF041SURC-E-28V-P	InGaAlP	630	water clear	**380	**1000	30°	
BLF041SYC-6V-P	InGaAlP	588	water clear	380	800	30°	
BLF041SYC-12V-P	InGaAlP	588	water clear	*280	*700	30°	
BLF041SYC-28V-P	InGaAlP	588	water clear	**110	**280	30°	
BLF041MGC-6V-P	InGaAlP	568	water clear	280	800	30°	
BLF041MGC-12V-P	InGaAlP	568	water clear	*180	*700	30°	
BLF041MGC-28V-P	InGaAlP	568	water clear	**110	**350	30°	

BLF051SURC-E-6V-P	InGaAlP	630	water clear	650	1500	30°	<p>5mm Flange Base</p>
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°	

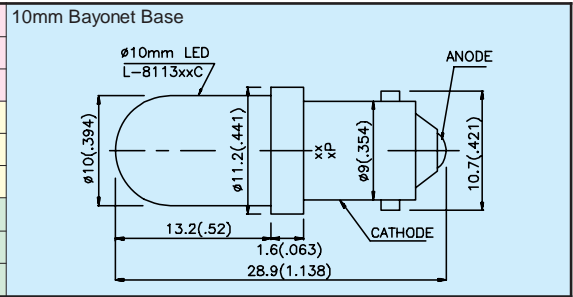
BLF052SURC-E-6V-P	InGaAlP	630	water clear	900	1200	45°	<p>5mm Flange Base</p>
BLF052SURC-E-12V-P	InGaAlP	630	water clear	*650	*1000	45°	
BLF052SURC-E-28V-P	InGaAlP	630	water clear	**480	**800	45°	
BLF052SYC-6V-P	InGaAlP	588	water clear	280	400	45°	
BLF052SYC-12V-P	InGaAlP	588	water clear	*180	*300	45°	
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°	

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

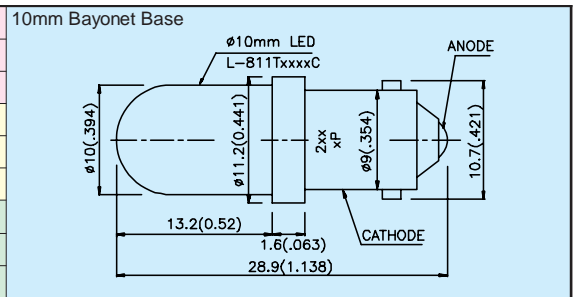


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) V=6V *V=12V **V=28V		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

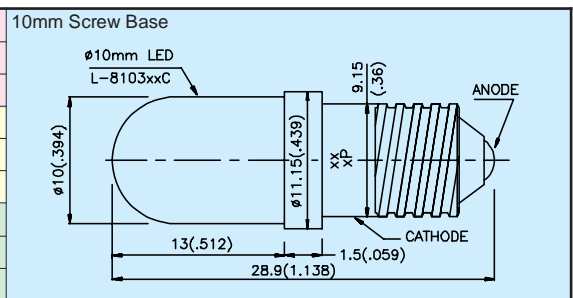
BLB101SURC-E-6V-P	InGaAlP	630	water clear	900	2200	20°
BLB101SURC-E-12V-P	InGaAlP	630	water clear	*650	*1800	20°
BLB101SURC-E-28V-P	InGaAlP	630	water clear	**480	**930	20°
BLB101SYC-6V-P	InGaAlP	588	water clear	650	1300	20°
BLB101SYC-12V-P	InGaAlP	588	water clear	*480	*1200	20°
BLB101SYC-28V-P	InGaAlP	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°



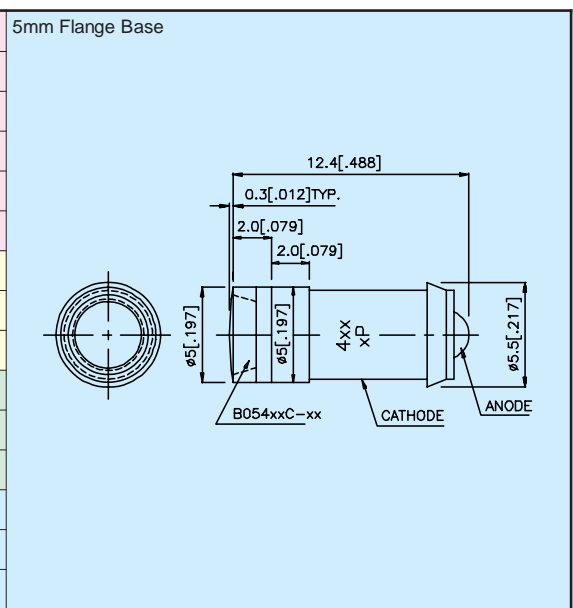
BLB102SURC-E-6V-P	InGaAlP	630	water clear	900	2200	40°
BLB102SURC-E-12V-P	InGaAlP	630	water clear	*650	*1800	40°
BLB102SURC-E-28V-P	InGaAlP	630	water clear	**480	**1300	40°
BLB102SYC-6V-P	InGaAlP	588	water clear	650	1300	40°
BLB102SYC-12V-P	InGaAlP	588	water clear	*480	*1200	40°
BLB102SYC-28V-P	InGaAlP	588	water clear	**380	**600	40°
BLB102MGC-6V-P	InGaAlP	568	water clear	380	900	40°
BLB102MGC-12V-P	InGaAlP	568	water clear	*280	*800	40°
BLB102MGC-28V-P	InGaAlP	568	water clear	**180	**400	40°



BLS101SURC-E-6V-P	InGaAlP	630	water clear	900	2200	20°
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°
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-6V-P	InGaN	470	water clear	70	200	110°
BLFA054PBC-12V-P	InGaN	470	water clear	*70	*180	110°
BLFA054PBC-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.

BLFA064xxx-xV-P



BLS102SURC-A110



Part No.	Material	λD (nm)	Lens Type	Iv (mcd)		Viewing Angle	Dimension
				V=6V *V=12V Min.	**V=28V **V=28V Typ.		
BLFA064SURCK-6V-P	InGaAlP	635	water clear	650	1100	110°	6mm Flange Base
BLFA064SURCK-12V-P	InGaAlP	635	water clear	*650	*1100	110°	
BLFA064SURCK-28V-P	InGaAlP	635	water clear	**650	**1100	110°	
BLFA064SECK-6V-P	InGaAlP	601	water clear	900	1500	110°	
BLFA064SECK-12V-P	InGaAlP	601	water clear	*900	*1500	110°	
BLFA064SECK-28V-P	InGaAlP	601	water clear	**900	**1500	110°	
BLFA064SYCK-6V-P	InGaAlP	590	water clear	110	260	110°	
BLFA064SYCK-12V-P	InGaAlP	590	water clear	*110	*260	110°	
BLFA064SYCK-28V-P	InGaAlP	590	water clear	**110	**260	110°	
BLFA064MGCK-6V-P	InGaAlP	570	water clear	110	240	110°	
BLFA064MGCK-12V-P	InGaAlP	570	water clear	*110	*240	110°	
BLFA064MGCK-28V-P	InGaAlP	570	water clear	**110	**240	110°	
BLFA064PBC-6V-P	InGaN	470	water clear	70	150	110°	
BLFA064PBC-12V-P	InGaN	470	water clear	*300	*650	110°	
BLFA064PBC-28V-P	InGaN	470	water clear	**170	**240	110°	

Part No.	Material	λD (nm)	Lens Type	Iv (mcd)		Viewing Angle	Dimension
				AC=110V Min.	AC=110V Typ.		
BLS102SURC-A110	InGaAlP	628	water clear	380	1400	25°	10mm Screw Base

NOTES:

1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.

BL0508-09-73



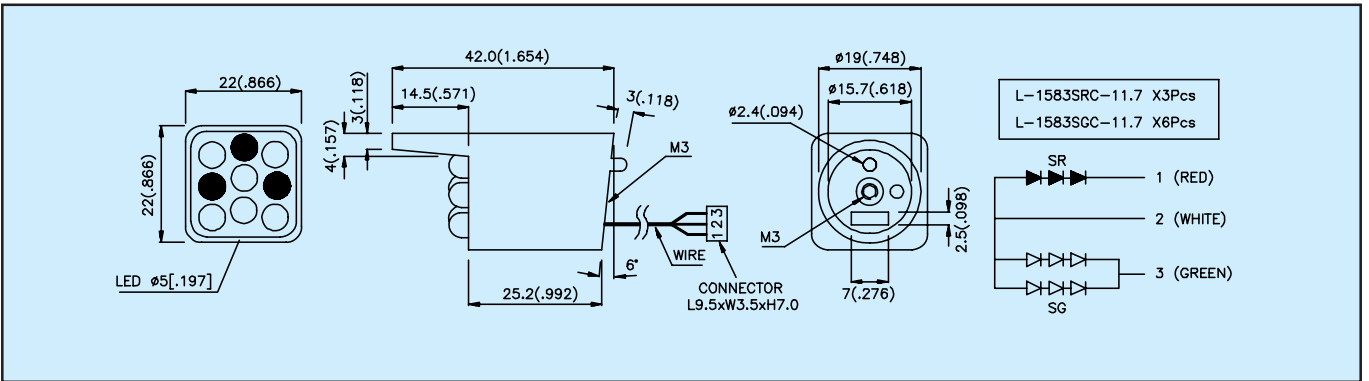
BL0709-18-349



BL0104-21-350

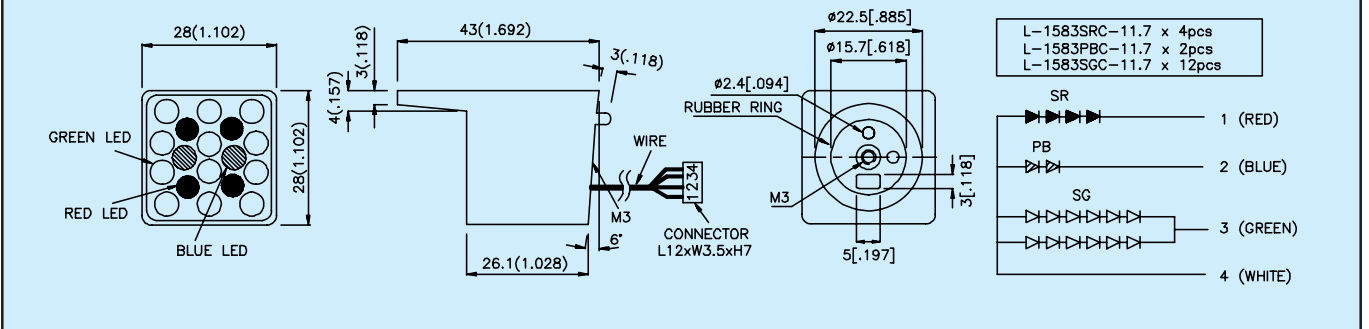


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd)		Viewing Angle 2θ1/2	IF(mA)
				Min.	Typ.		
BL0508-09-73	GaAlAs	640	water clear	480	1200	40°	20
	GaP	568	water clear	380	800	40°	40



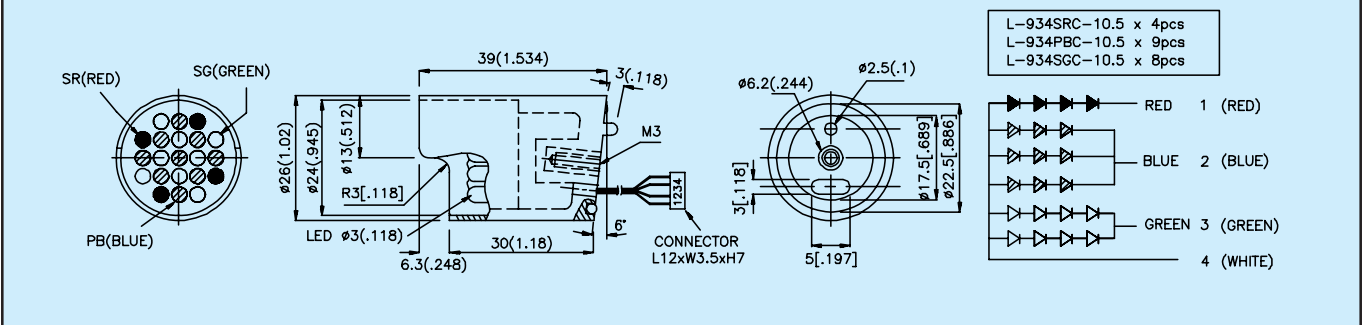
BL0709-18-349	GaAlAs	640	water clear	900	1800	40°	20
	InGaN	470	water clear	280	650	40°	20
	GaP	568	water clear	650	1200	40°	40

FULL COLOR



BL0104-21-350	GaAlAs	640	water clear	650	1800	40°	20
	InGaN	470	water clear	2800	3700	40°	60
	GaP	568	water clear	480	1200	40°	40

FULL COLOR



NOTES:

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

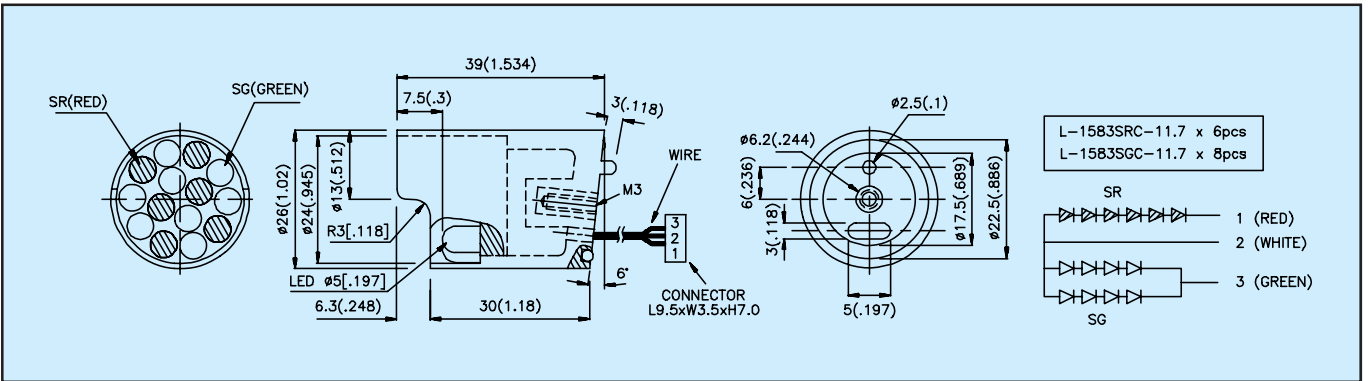
BL0102-14-34



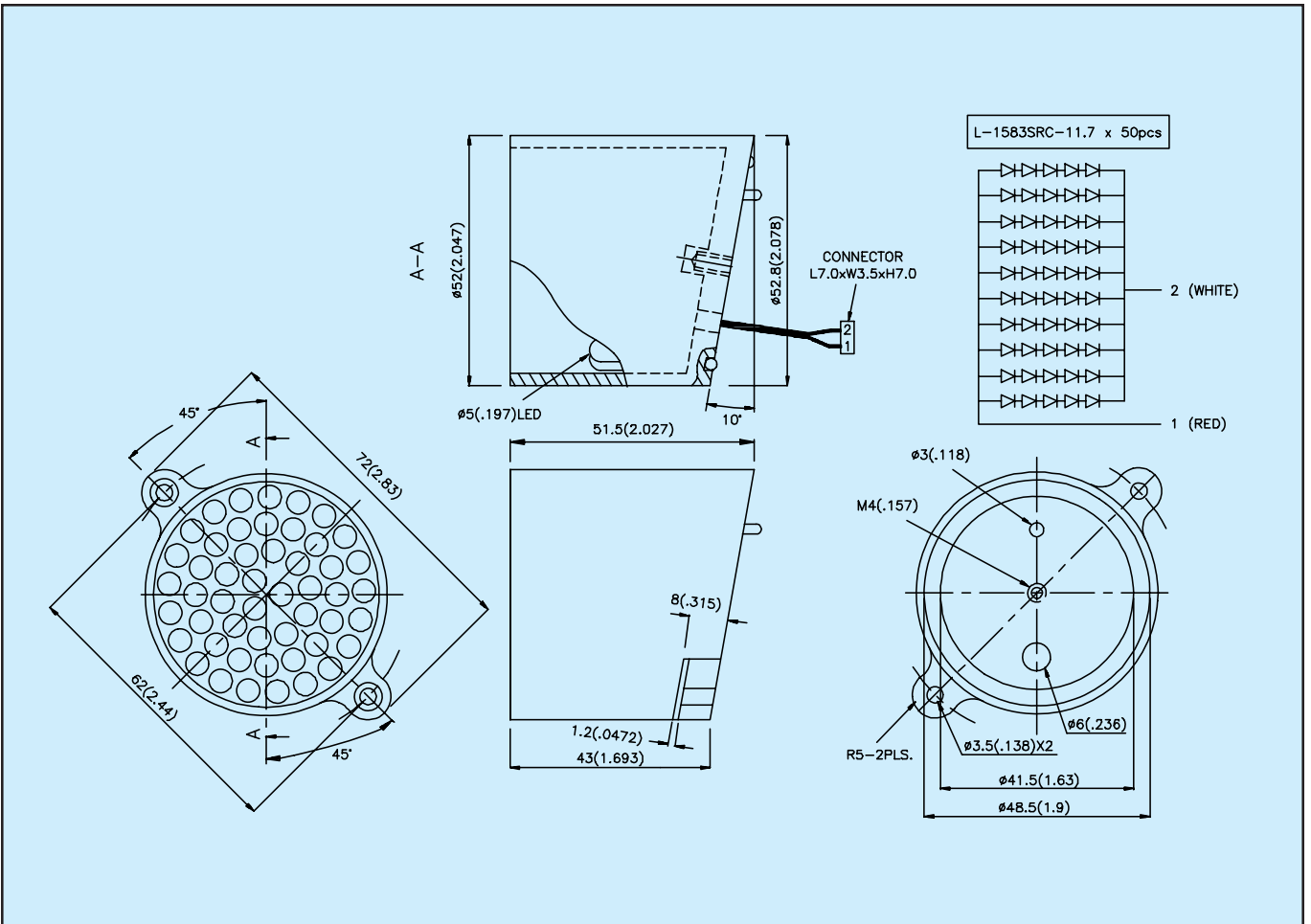
BL0307-50-44



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd)		Viewing Angle	IF(mA)
				Min.	Typ.		
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
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NOTES:

1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.

Kingbright Catalog



2005-2006

P 2-8

PHOTOCOUPLERS

P 9-10

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P 11-14

PHOTO INTERRUPTERS



Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCE0(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=±1mA, VCE=5V	IF=±20mA, IC=1mA	Min.	Max.	Typ.	Max.	
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



Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCE0(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=±1mA, VCE=2V	IF=±20mA, IC=5mA	Min.	Max.	Typ.	Max.	
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



Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEo(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=1mA, VCE=2V	IF=20mA, IC=5mA	Min.	Max.	Typ.	Max.	
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

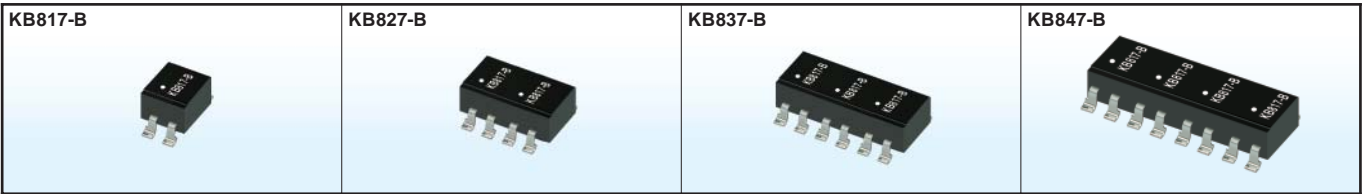


Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEo(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=5mA, VCE=5V	IF=20mA, IC=1mA	Min.	Max.	Typ.	Max.	
KB816		UL NO.E225308 & 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



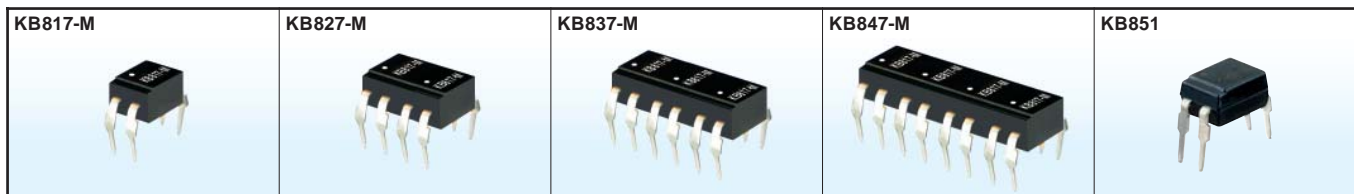
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEo(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						Min.	Max.	Typ.	Max.	tr	tf	

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



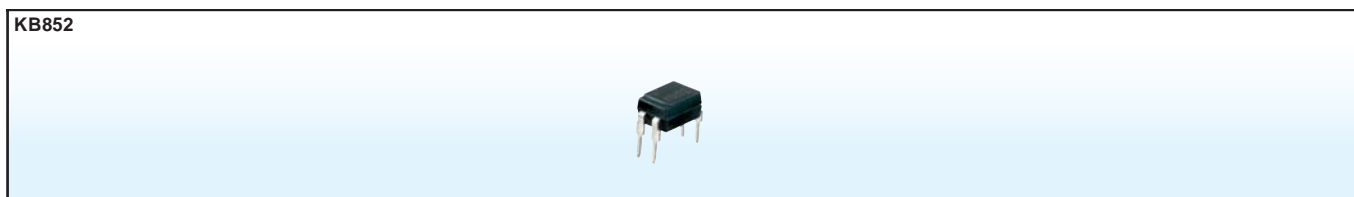
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEo(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						Min.	Max.	Typ.	Max.	tr	tf	

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



Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCE0(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=5mA, VCE=5V	IF=20mA, IC=1mA	Min.	Max.	Typ.	Max.	

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



Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCE0(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=1mA, VCE=2V	IF=20mA, IC=100mA	Min.	Max.	Typ.	Max.	

KB852		VDE0884. NO.400063-64	High collector-emitter voltage High sensitivity	5000	350	1000	15000	-	1.2	100	20	1
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Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEO(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						Min.	Max.	Typ.	Max.	tr	tf	

KB355NT		UL NO.E225308	High current transfer ratio Small package size	3750	35	600	7500	0.8	1.0	60	53	13
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Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEO(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						Min.	Max.	Typ.	Max.	tr	tf	

KB356NT		UL NO.E225308	High collector-emitter Voltage Small package size	3750	80	50	600	0.1	0.2	6	8	13
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KB357NT		UL NO.E225308	Small package size	3750	35	50	600	-	0.2	4	3	13
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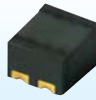
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEO(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						Min.	Max.	Typ.	Max.	tr	tf	

KB354NT		UL NO.E225308	AC input response Small package size	3750	35	20	400	0.1	0.2	4	3	13
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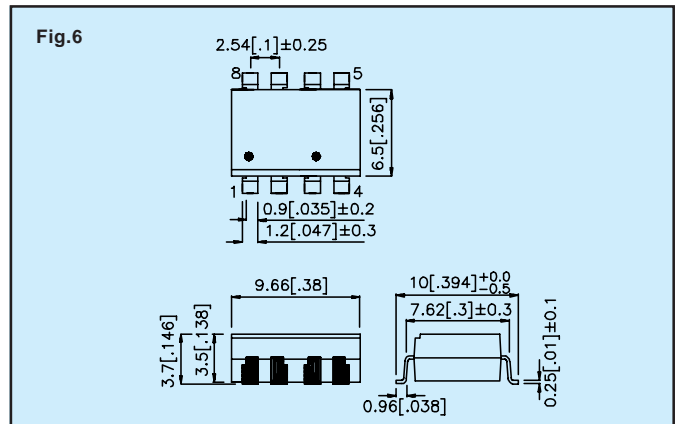
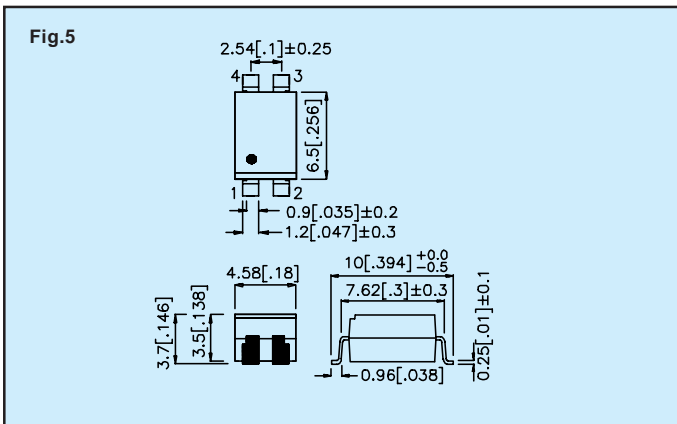
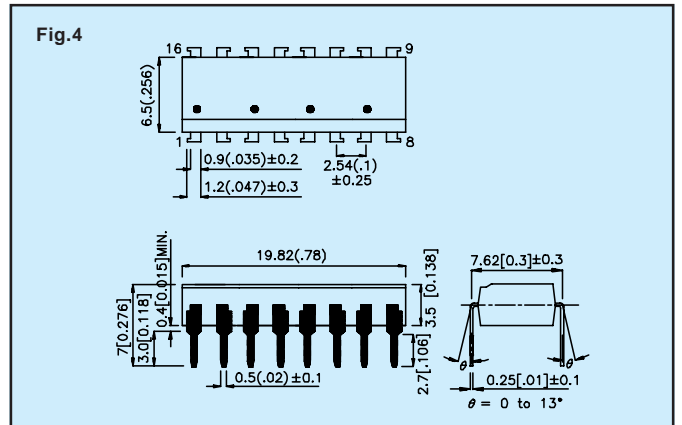
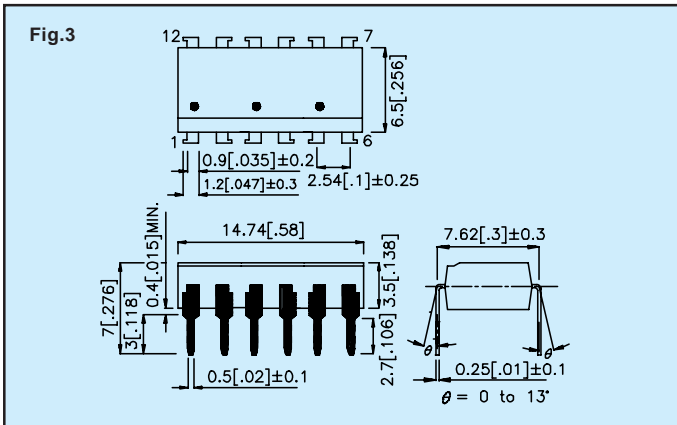
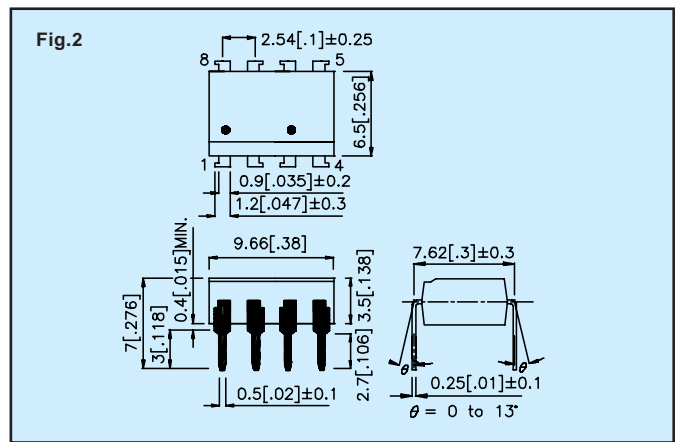
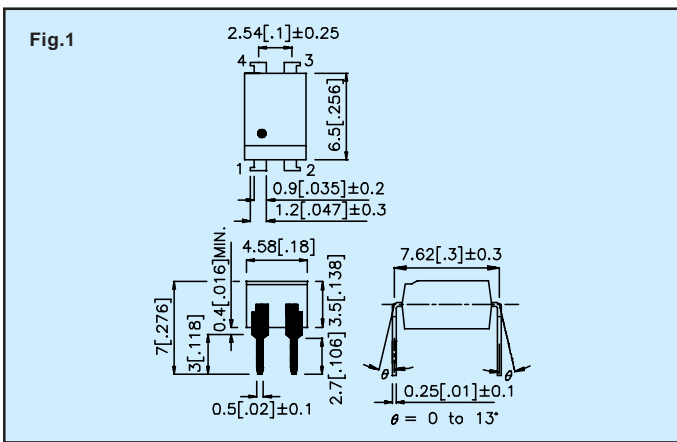
Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEO(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						Min.	Max.	Typ.	Max.	tr	tf	

KB3541NT		UL NO.E225308	AC input response High sensitivity Small package size	3750	35	450	7400	0.8	1.0	60	53	13
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KBT011



Part No.	Pin Configuration	Safety Standards	Features	Absolute Maximum Ratings		Electrical Characteristics						Fig.
				Isolation Voltage(AC) Viso(Vrms)	Collector Emitter Voltage VCEO(V)	CTR(%)		V(sat) (V)		Response time(μs) Typ.		
						IF=5mA,VCE=5V	IF=20mA,IC=1mA	Min.	Max.	Typ.	Max.	
KBT011		-	PCB Surface mounting type	2000	35	50	300	0.1	0.2	4	3	14



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

Fig.7

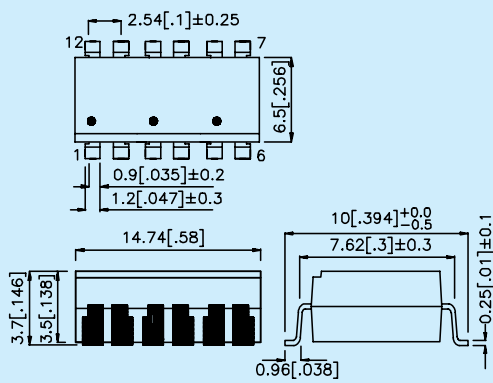


Fig.8

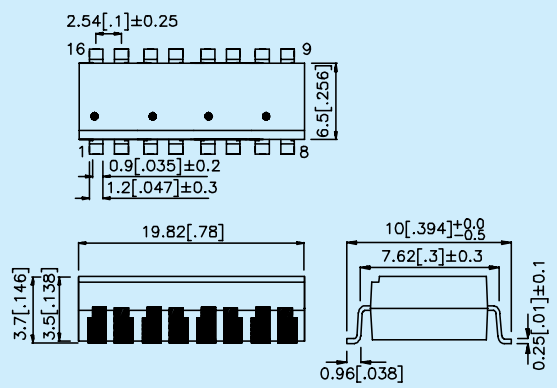


Fig.9

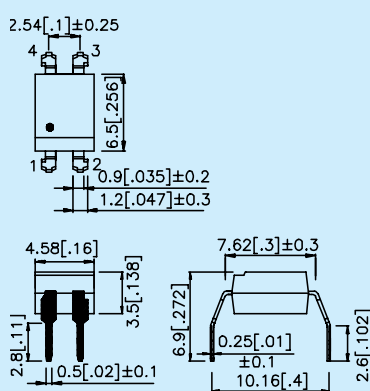


Fig.10

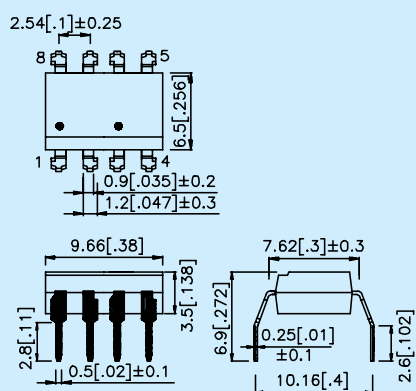


Fig.11

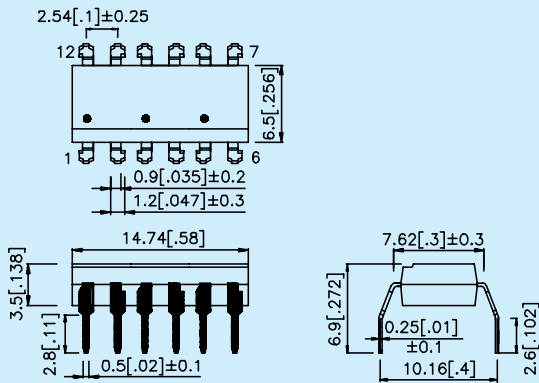


Fig.12

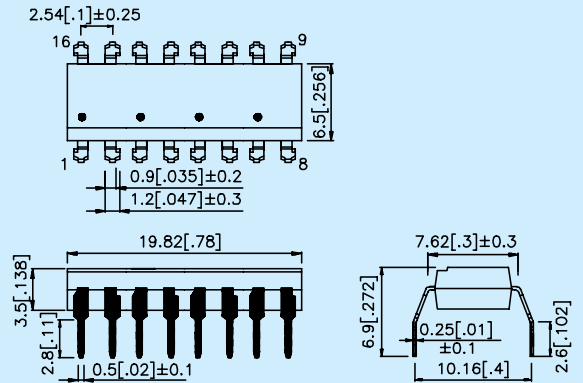


Fig.13

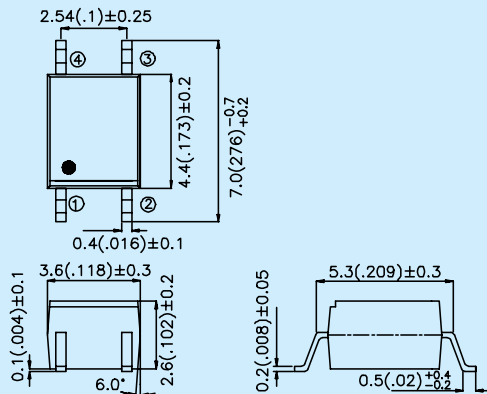
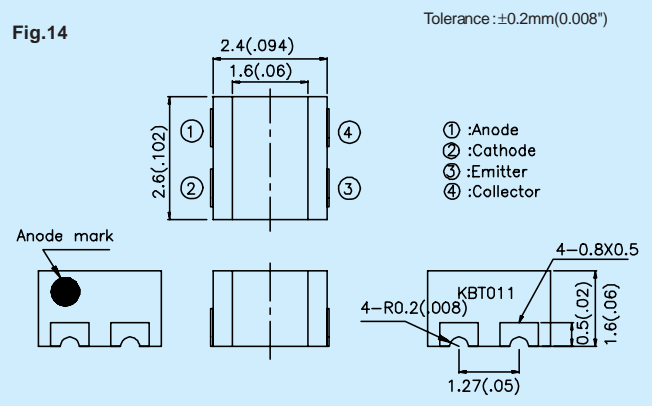
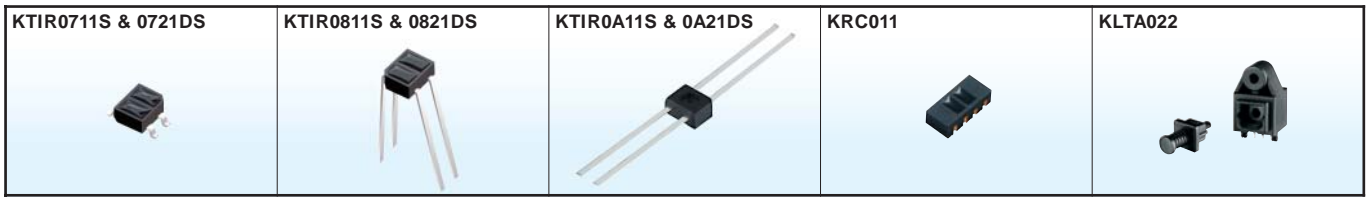


Fig.14



NOTES:

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



Part No.	Pin Configuration	Material	λP (nm)	I_C (μA)			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				$V_{CE}=2V, I_F=4mA$			IF(mA)	IC(mA)	Max.(V)			
				Min.	Typ.	Max.						

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	λP (nm)	I_C (μA)			$V_{CE(SAT)}$			Rise Time (μs) Typ.	Fall Time (μs) Typ.	Fig.
				$V_{CE}=5V, I_F=20mA$			IF(mA)	IC(mA)	Max.(V)			
				Min.	Typ.	Max.						

KRC011		GaAs/SiC	940	10	-	300	-	-	-	20	20	4
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Part No.	Pin Configuration	λP (nm)			V_{DD} (V)		T (Mbps)	P_c (dBm)			Δt_i (ns)	Fig.
		Min.	Typ.	Max.	Min.	Max.	Max.	Min.	Typ.	Max.	Typ.	

KLTA022		630	660	690	2.7	5.5	13	-21	-17	-15	1	5
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Fig.1

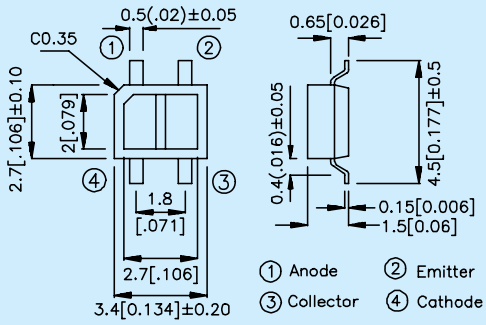


Fig.3

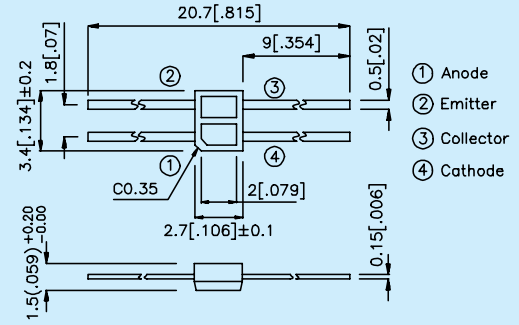


Fig.2

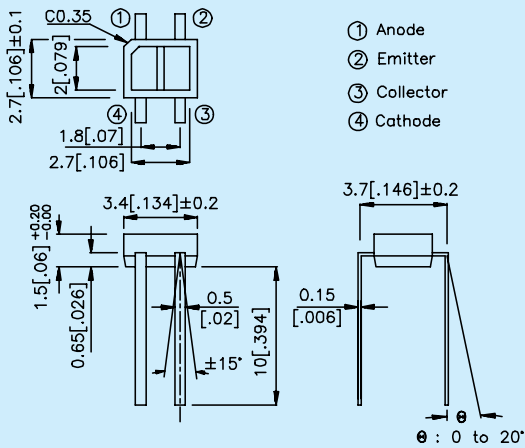


Fig.4

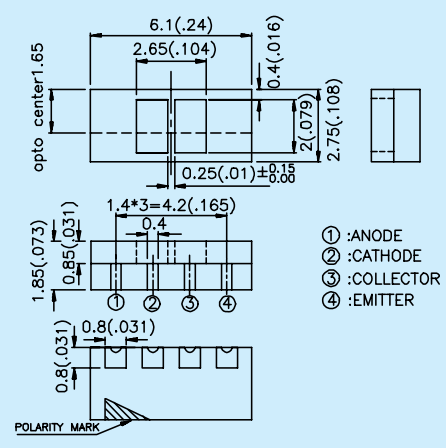
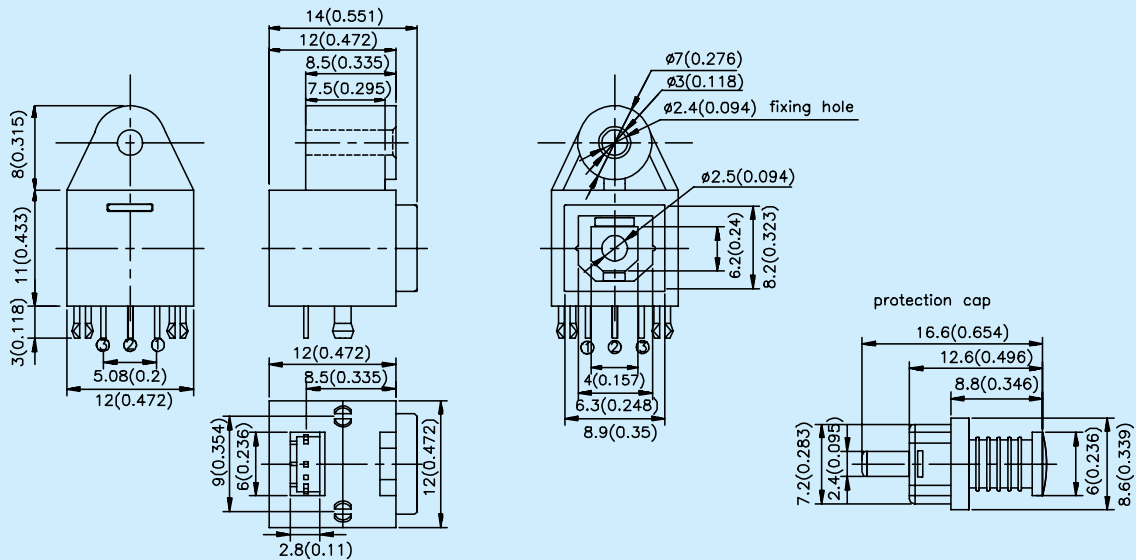
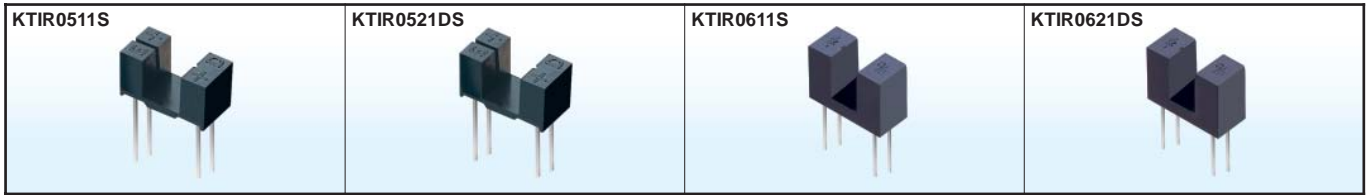


Fig.5

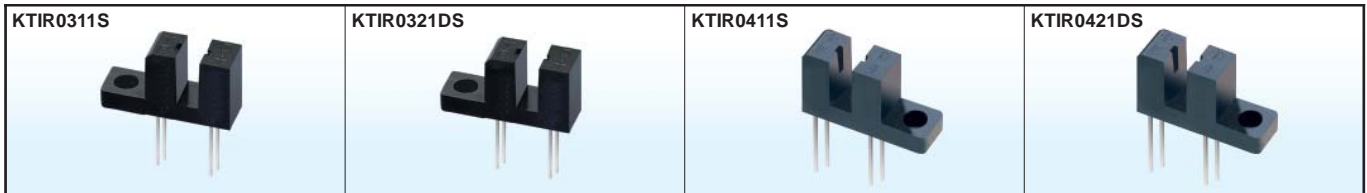


NOTES:

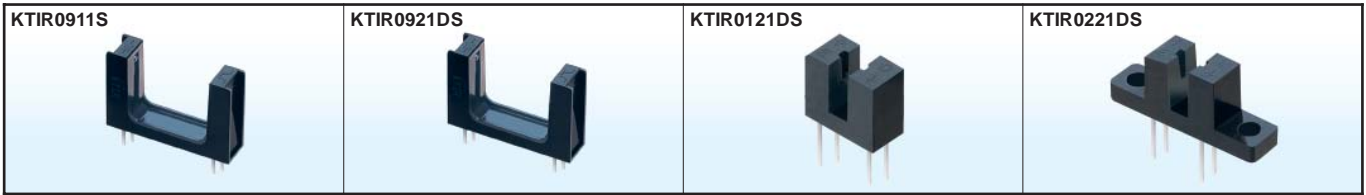
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



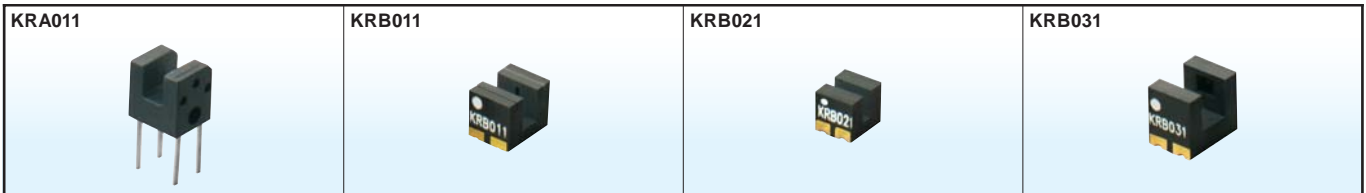
Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μ s) Typ.	Fall Time (μ s) Typ.	Fig.
				IF(mA)	V_{CE} (V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
KTIR0511S		GaAs/SiC	940	20	5	10	40	1	0.4	5	4	6
KTIR0521DS		GaAs/SiC	940	1	2	180	2	1	1	90	80	7
KTIR0611S		GaAs/SiC	940	20	5	14	40	1	0.4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



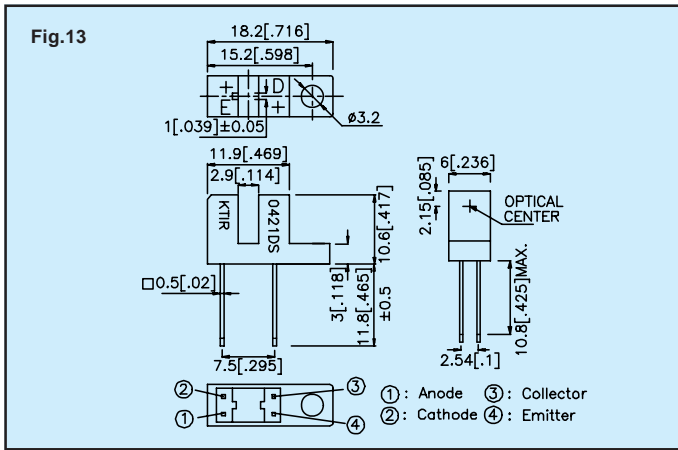
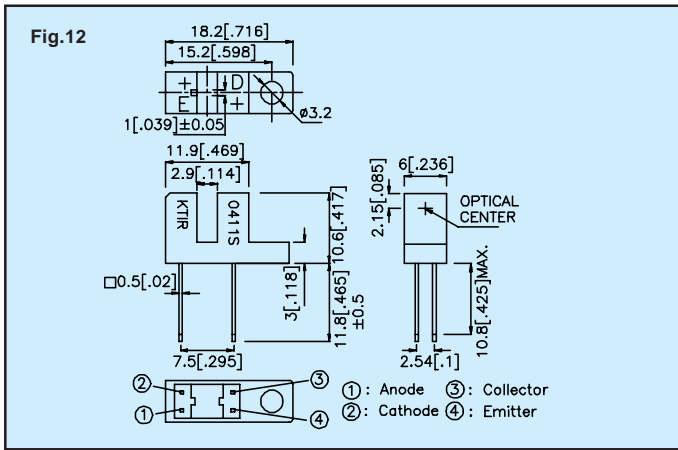
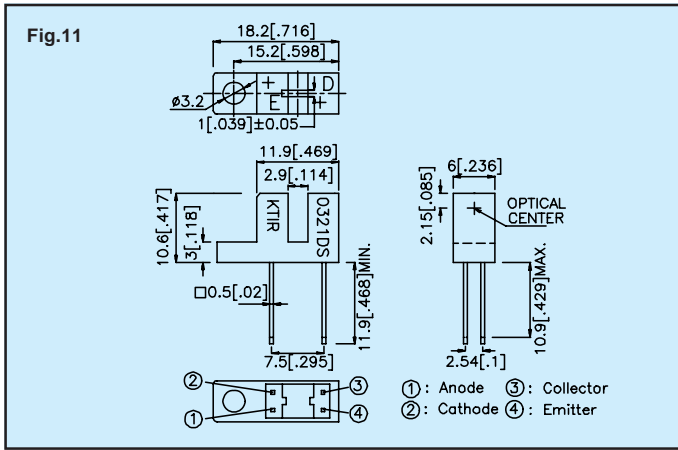
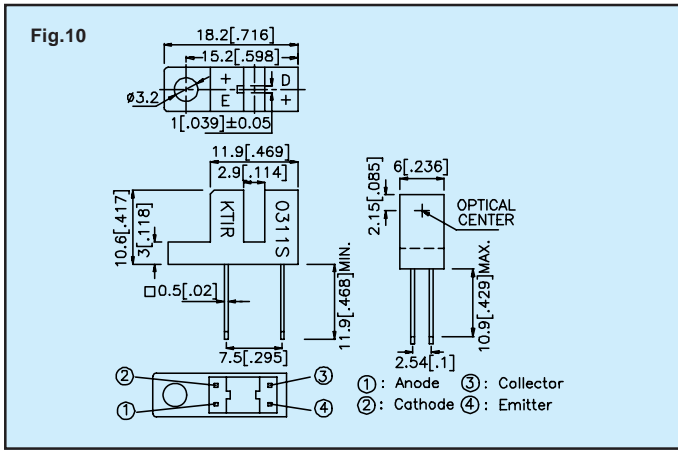
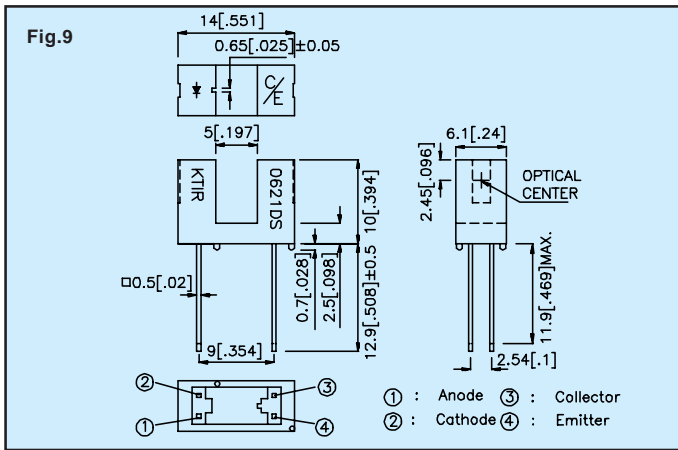
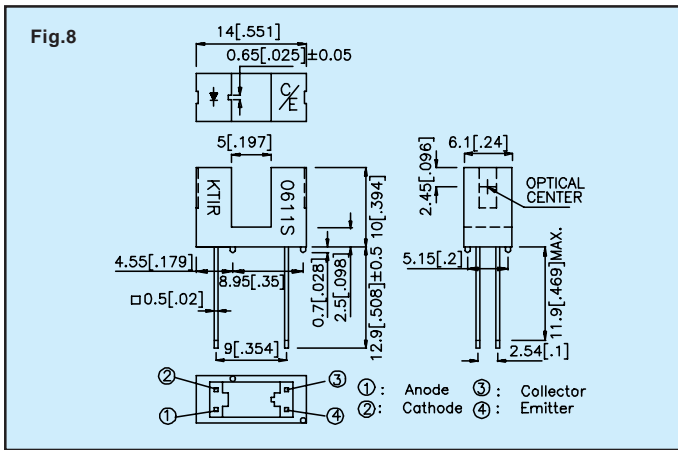
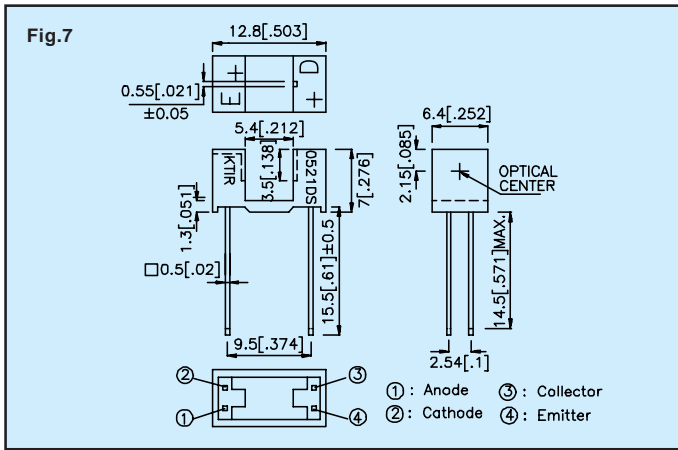
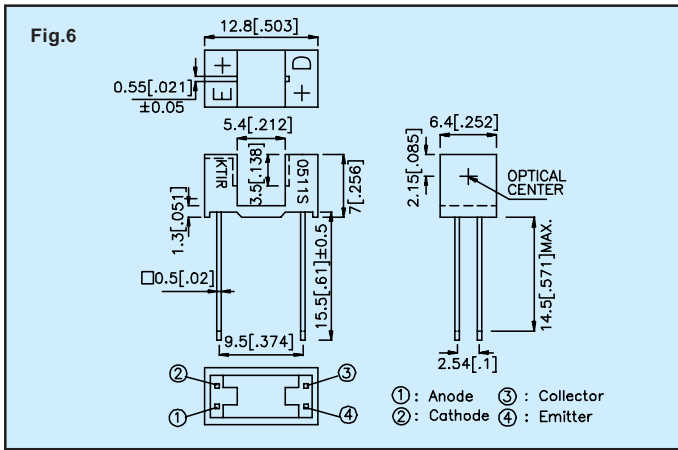
Part No.	Pin Configuration	Material	λ P (nm)	CTR			$V_{CE(SAT)}$			Rise Time (μ s) Typ.	Fall Time (μ s) Typ.	Fig.
				IF(mA)	V_{CE} (V)	Typ.(%)	IF(mA)	IC(mA)	Max.(V)			
KTIR0311S		GaAs/SiC	940	20	5	38	40	1	0.4	5	4	10
KTIR0321DS		GaAs/SiC	940	1	2	650	2	1	1	90	80	11
KTIR0411S		GaAs/SiC	940	20	5	38	40	1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



Part No.	Pin Configuration	Material	λP (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



Part No.	Pin Configuration	Material	λP (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
KRB011		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	19
KRB021		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	20
KRB031		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10	21



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

Fig.14

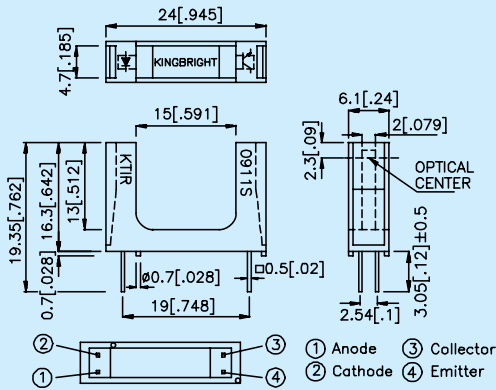


Fig.15

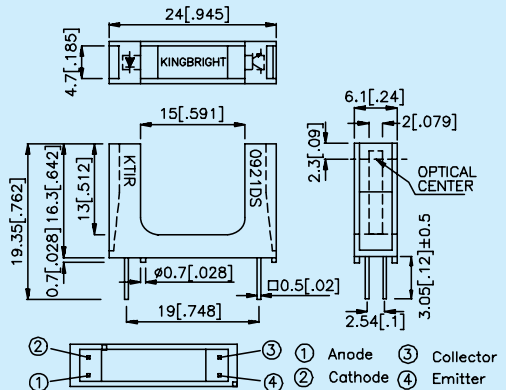


Fig.16

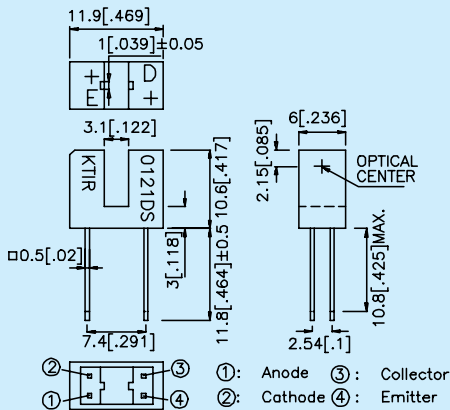


Fig.17

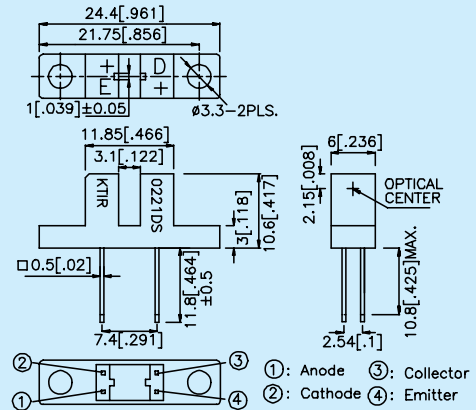


Fig.18

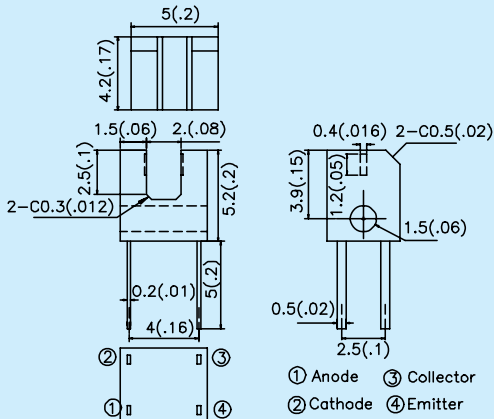


Fig.19

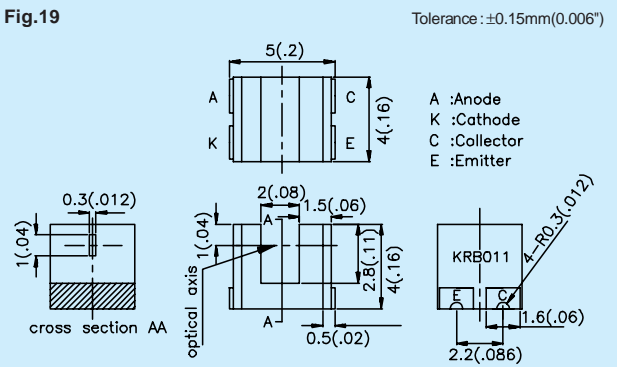


Fig.20

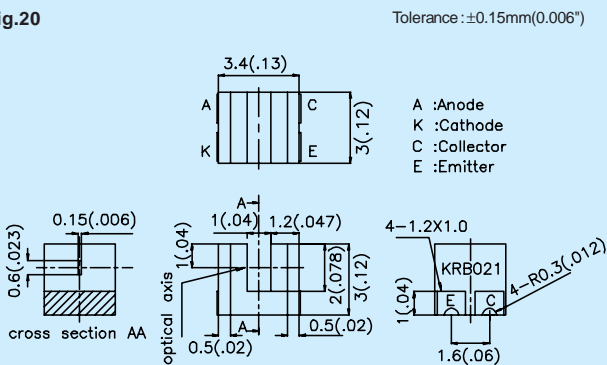
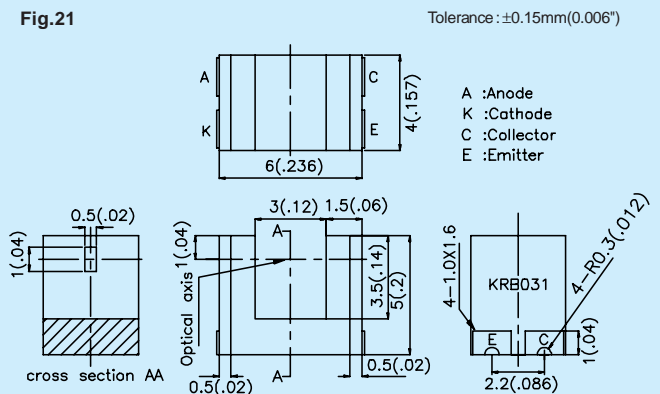


Fig.21



NOTES:

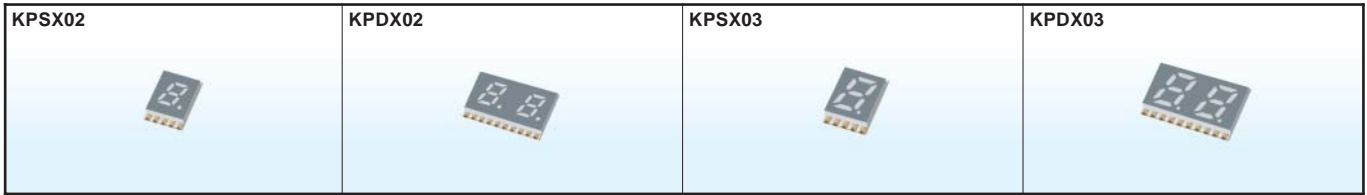
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Kingbright Catalog

2005-2006

P 2-4 SMD NUMERIC DISPLAYS
P 5-9 PACKAGE DIMENSION

P 10-11 SMD DISPLAYS TAPE SPECIFICATIONS
P 12 RECOMMENDED SOLDERING PATTERN



Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
KPSA02-101 KPDA02-101	KPSC02-101 KPDC02-101	0.2 inch (5.08mm) Gray Face White Segment	GaAsP/GaP	625	1200	5800	1,2
KPSA02-105 KPDA02-105	KPSC02-105 KPDC02-105		InGaAIP	635	8000	30400	
KPSA02-106 KPDA02-106	KPSC02-106 KPDC02-106		InGaAIP	601	8000	37200	
KPSA02-103 KPDA02-103	KPSC02-103 KPDC02-103		GaAsP/GaP	588	480	1900	
KPSA02-107 KPDA02-107	KPSC02-107 KPDC02-107		InGaAIP	590	8000	34000	
KPSA02-102 KPDA02-102	KPSC02-102 KPDC02-102		GaP	568	1900	10000	
KPSA02-127 KPDA02-127	KPSC02-127 KPDC02-127		InGaN	525	8000	31320	
KPSA02-123 KPDA02-123	KPSC02-123 KPDC02-123		InGaAIP	570	4700	26000	
KPSA02-109 KPDA02-109	KPSC02-109 KPDC02-109		GaN	466	800	3700	
KPSA02-110 KPDA02-110	KPSC02-110 KPDC02-110		InGaN	470	1900	10800	
KPSA03-101 KPDA03-101	KPSC03-101 KPDC03-101	0.3 inch (7.62mm) Gray Face White Segment	GaAsP/GaP	625	1200	4210	3,4
KPSA03-104 KPDA03-104	KPSC03-104 KPDC03-104		GaAlAs	640	1900	7657	
KPSA03-105 KPDA03-105	KPSC03-105 KPDC03-105		InGaAIP	635	3000	15257	
KPSA03-106 KPDA03-106	KPSC03-106 KPDC03-106		InGaAIP	601	4700	21371	
KPSA03-103 KPDA03-103	KPSC03-103 KPDC03-103		GaAsP/GaP	588	480	2290	
KPSA03-107 KPDA03-107	KPSC03-107 KPDC03-107		InGaAIP	590	8000	35400	
KPSA03-102 KPDA03-102	KPSC03-102 KPDC03-102		GaP	568	1200	5600	
KPSA03-127 KPDA03-127	KPSC03-127 KPDC03-127		InGaN	525	4700	23130	
KPSA03-123 KPDA03-123	KPSC03-123 KPDC03-123		InGaAIP	570	1900	11000	
KPSA03-109 KPDA03-109	KPSC03-109 KPDC03-109		GaN	466	1200	5000	
KPSA03-110 KPDA03-110	KPSC03-110 KPDC03-110	InGaN	470	1900	7400		

NOTES:

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



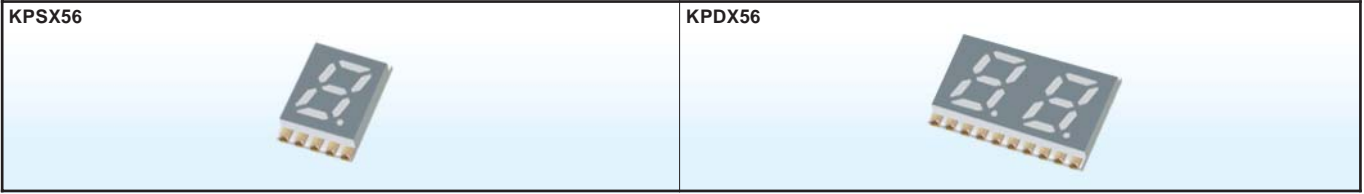
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	

KPSA04-101 KPDA04-101	KPSC04-101 KPDC04-101	0.4 inch (10.16mm) Gray Face White Segment	GaAsP/GaP	625	1200	5000	5,6
KPSA04-104 KPDA04-104	KPSC04-104 KPDC04-104		GaAlAs	640	8000	27500	
KPSA04-105 KPDA04-105	KPSC04-105 KPDC04-105		InGaAlP	635	8000	26000	
KPSA04-106 KPDA04-106	KPSC04-106 KPDC04-106		InGaAlP	601	12000	41200	
KPSA04-103 KPDA04-103	KPSC04-103 KPDC04-103		GaAsP/GaP	588	480	2500	
KPSA04-107 KPDA04-107	KPSC04-107 KPDC04-107		InGaAlP	590	4700	22000	
KPSA04-102 KPDA04-102	KPSC04-102 KPDC04-102		GaP	568	1900	7000	
KPSA04-127 KPDA04-127	KPSC04-127 KPDC04-127		InGaN	525	12000	46000	
KPSA04-123 KPDA04-123	KPSC04-123 KPDC04-123		InGaAlP	570	4700	17400	
KPSA04-109 KPDA04-109	KPSC04-109 KPDC04-109		GaN	466	800	3600	
KPSA04-110 KPDA04-110	KPSC04-110 KPDC04-110		InGaN	470	3000	12200	

KPPSA04-101 KPPDA04-101	KPPSC04-101 KPPDC04-101	0.4 inch (10.16mm) Gray Face White Segment	GaAsP/GaP	625	800	3200	7,8
KPPSA04-104 KPPDA04-104	KPPSC04-104 KPPDC04-104		GaAlAs	640	4700	16200	
KPPSA04-105 KPPDA04-105	KPPSC04-105 KPPDC04-105		InGaAlP	635	4700	22800	
KPPSA04-106 KPPDA04-106	KPPSC04-106 KPPDC04-106		InGaAlP	601	1900	7800	
KPPSA04-103 KPPDA04-103	KPPSC04-103 KPPDC04-103		GaAsP/GaP	588	800	3400	
KPPSA04-107 KPPDA04-107	KPPSC04-107 KPPDC04-107		InGaAlP	590	8000	24700	
KPPSA04-102 KPPDA04-102	KPPSC04-102 KPPDC04-102		GaP	568	1900	7500	
KPPSA04-127 KPPDA04-127	KPPSC04-127 KPPDC04-127		InGaN	525	12000	37185	
KPPSA04-123 KPPDA04-123	KPPSC04-123 KPPDC04-123		InGaAlP	570	3000	11200	
KPPSA04-109 KPPDA04-109	KPPSC04-109 KPPDC04-109		GaN	466	800	3800	
KPPSA04-110 KPPDA04-110	KPPSC04-110 KPPDC04-110		InGaN	470	1900	8300	

NOTES:

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



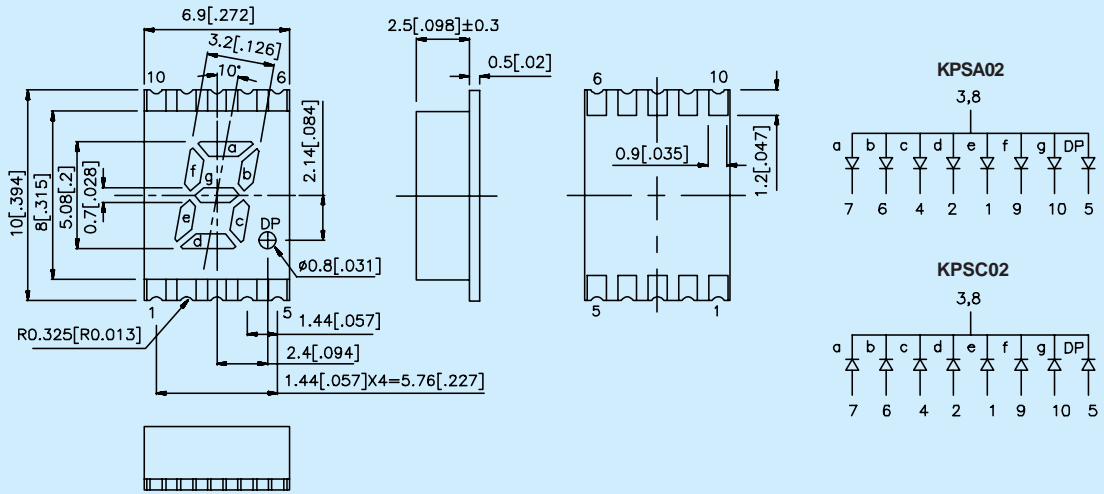
Part No.		Package Description	Material	λ D (nm)	Iv (ucd) @10mA		Package Dimension
Common Anode	Common Cathode				Min.	Typ.	
KPSA56-101 KPDA56-101	KPSC56-101 KPDC56-101	0.56 inch (14.22mm) Gray Face White Segment	GaAsP/GaP	625	1200	7400	9,10
KPSA56-104 KPDA56-104	KPSC56-104 KPDC56-104		GaAlAs	640	3000	15500	
KPSA56-105 KPDA56-105	KPSC56-105 KPDC56-105		InGaAlP	635	4700	17700	
KPSA56-106 KPDA56-106	KPSC56-106 KPDC56-106		InGaAlP	601	12000	40100	
KPSA56-103 KPDA56-103	KPSC56-103 KPDC56-103		GaAsP/GaP	588	1200	5000	
KPSA56-107 KPDA56-107	KPSC56-107 KPDC56-107		InGaAlP	590	12000	42100	
KPSA56-102 KPDA56-102	KPSC56-102 KPDC56-102		GaP	568	3000	13200	
KPSA56-127 KPDA56-127	KPSC56-127 KPDC56-127		InGaN	525	12000	51335	
KPSA56-123 KPDA56-123	KPSC56-123 KPDC56-123		InGaAlP	570	8000	35500	
KPSA56-109 KPDA56-109	KPSC56-109 KPDC56-109		GaN	466	1200	5200	
KPSA56-110 KPDA56-110	KPSC56-110 KPDC56-110		InGaN	470	3000	15800	

NOTES:

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

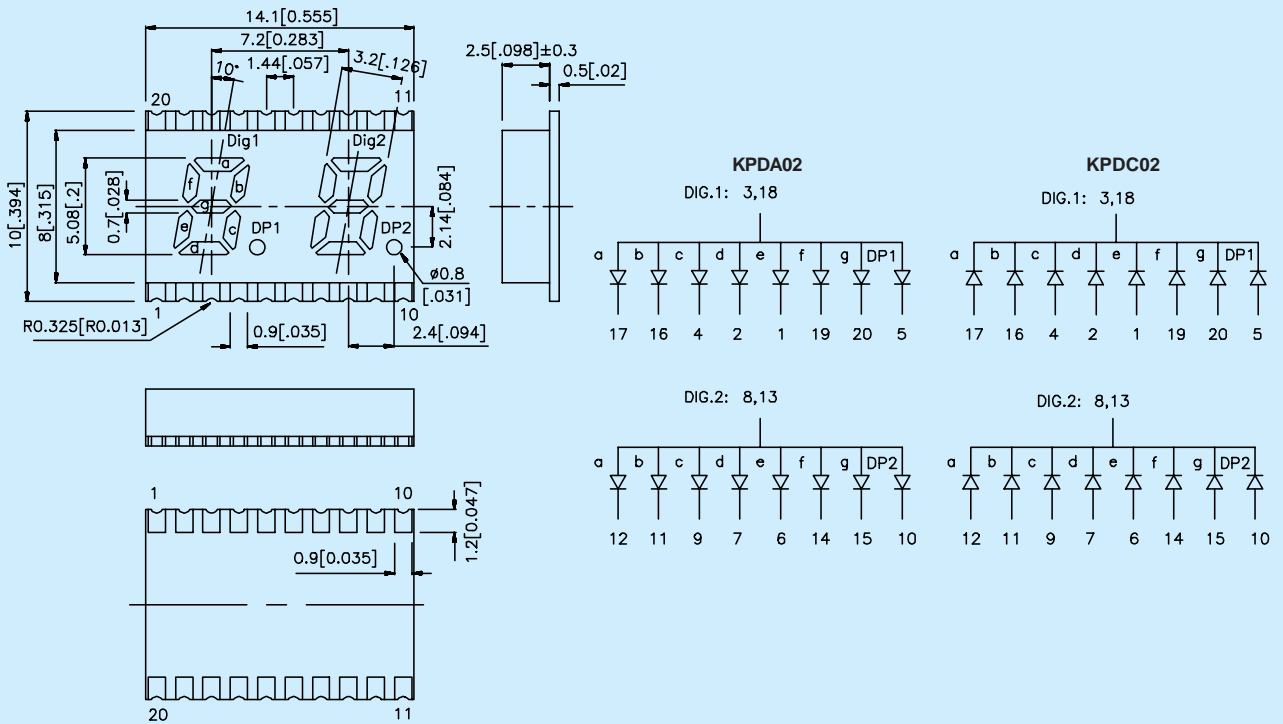
KPSA/KPSC02 Series

1



KPDA/KPDC02 Series

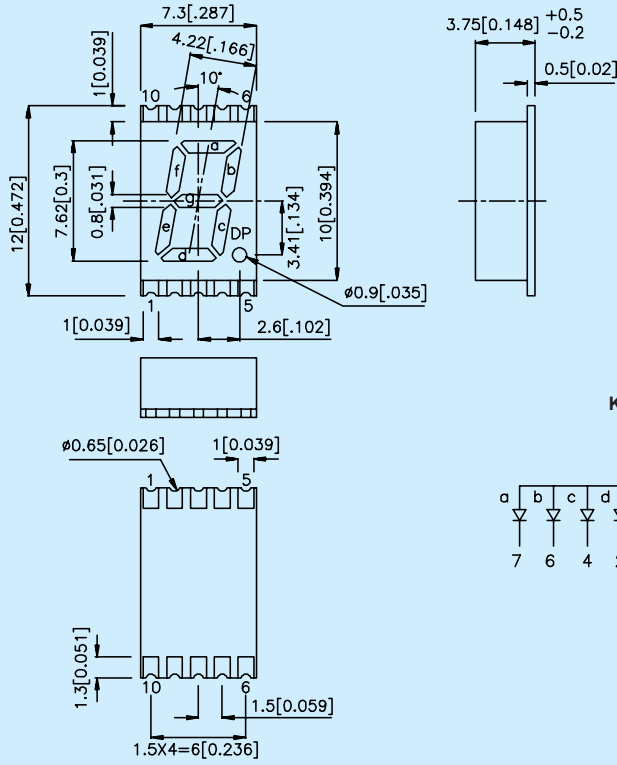
2



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

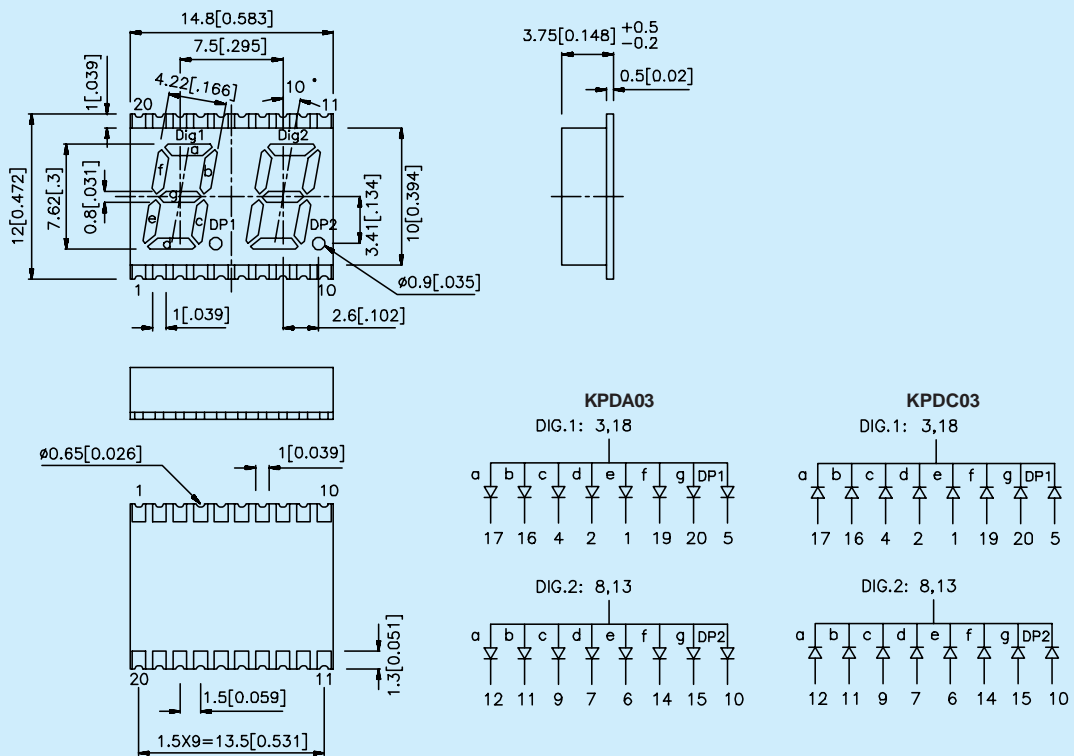
KPSA/KPSC03 Series

3

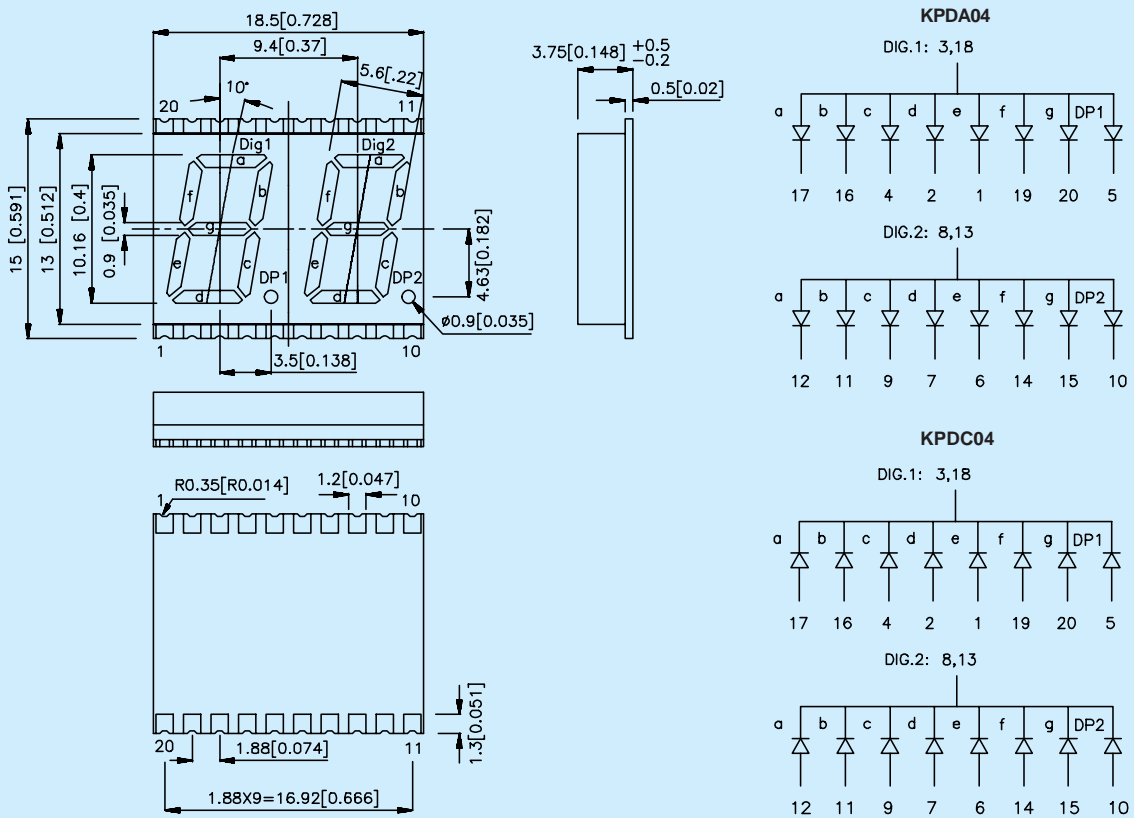
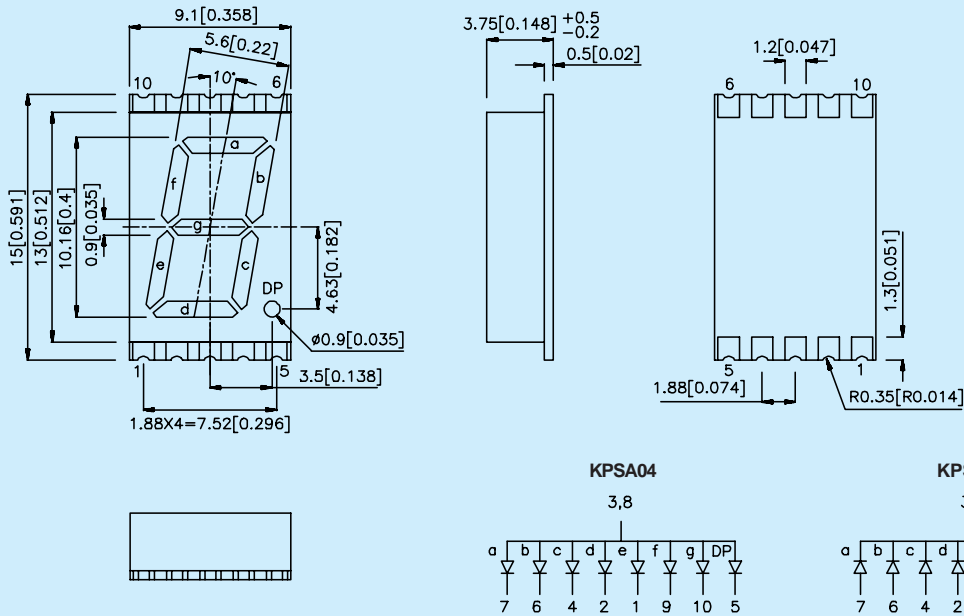


KPDA/KPDC03 Series

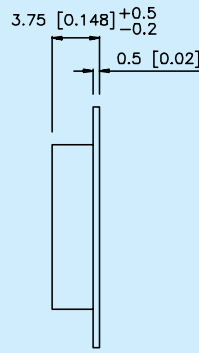
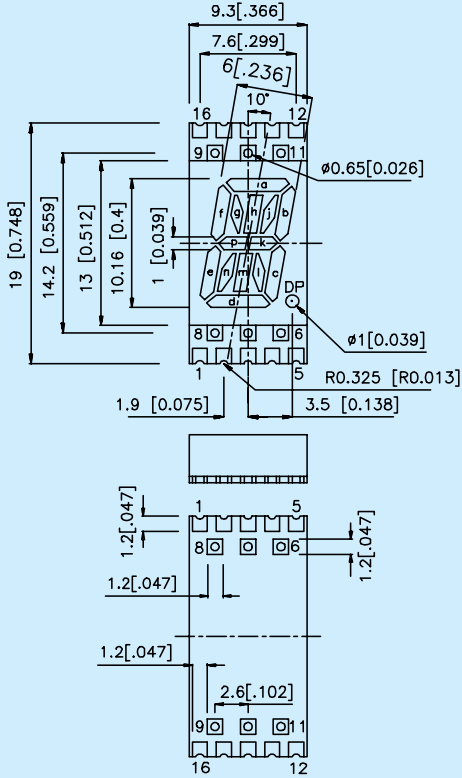
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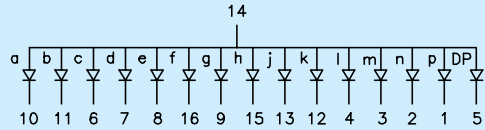
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.



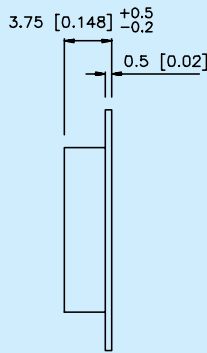
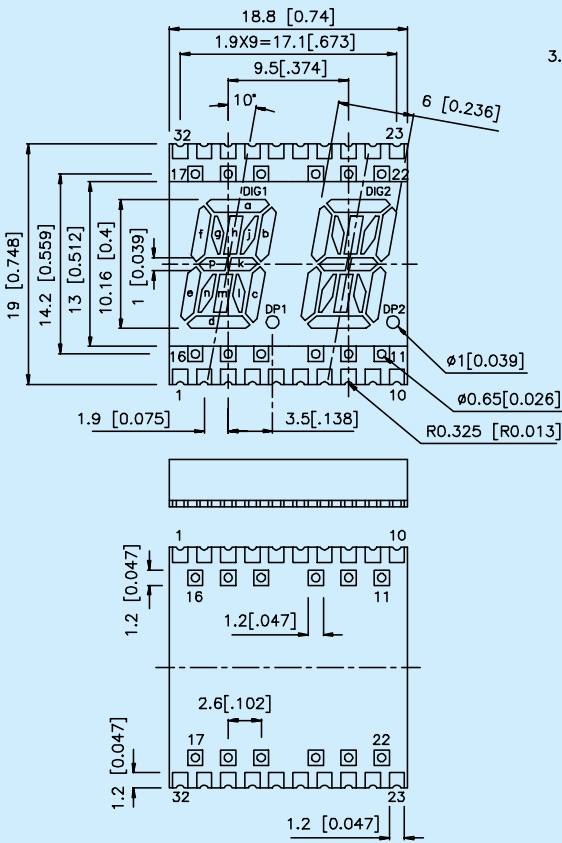
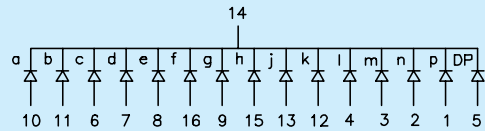
NOTES:
 1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.



KPPSA04

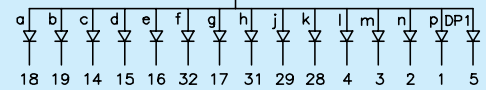


KPPSC04

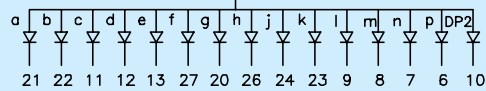


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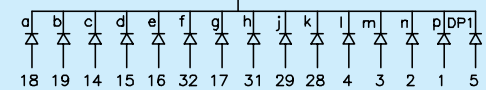


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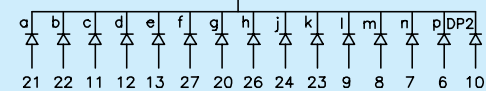


KPPDC04

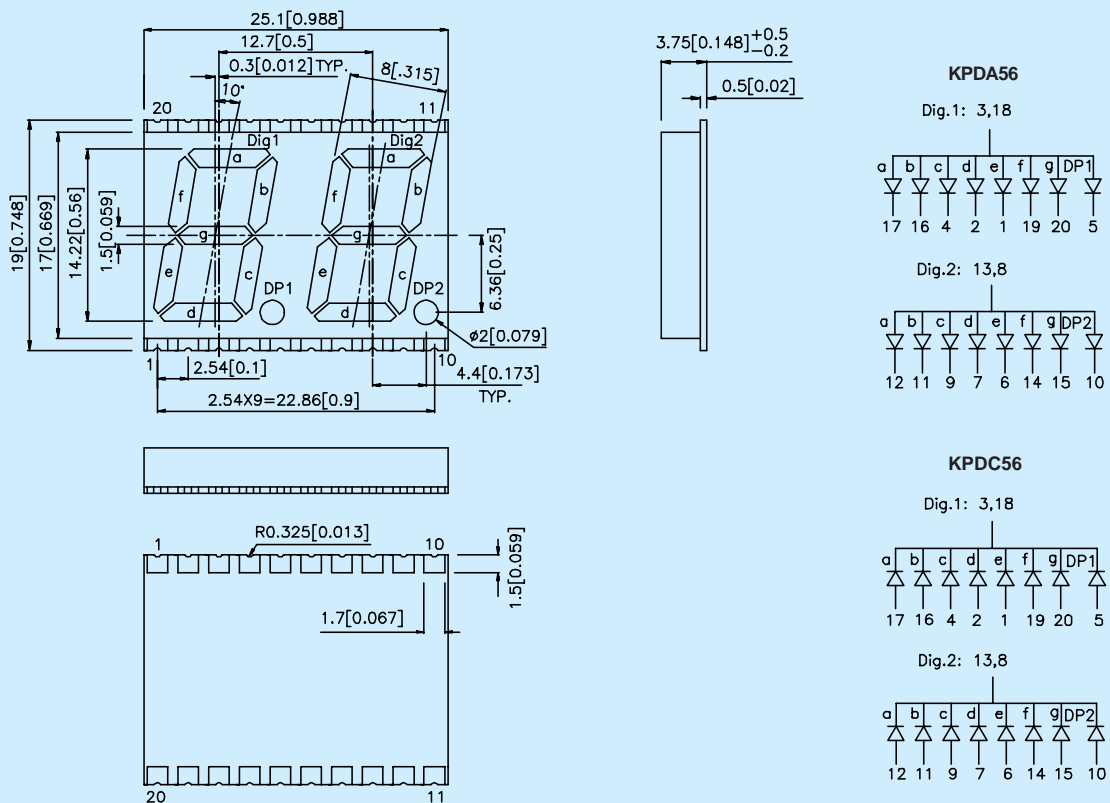
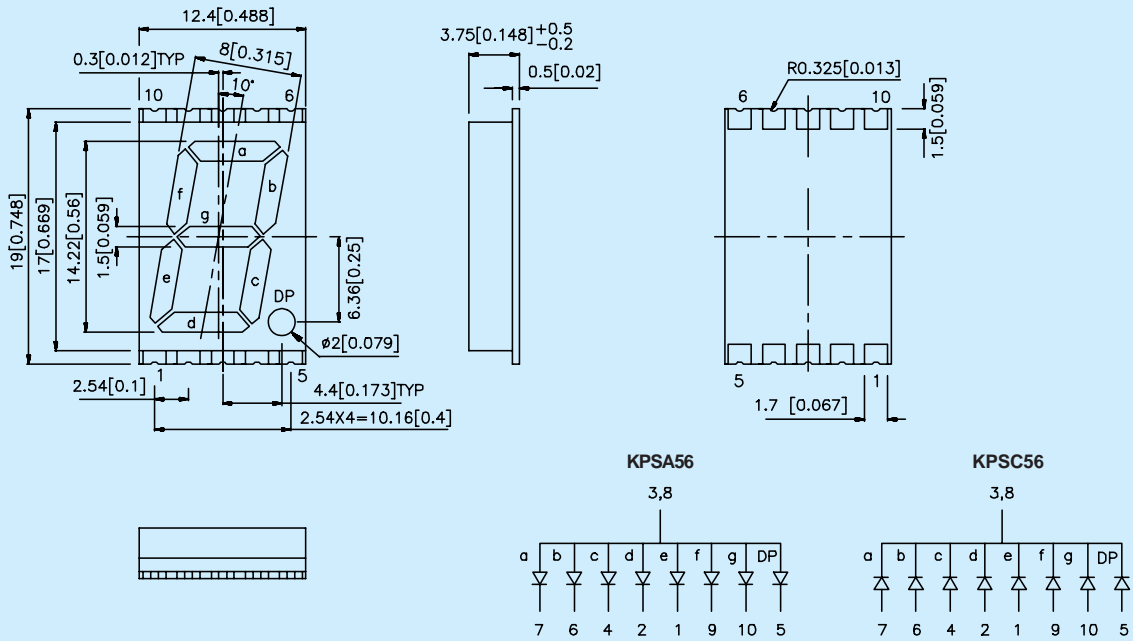
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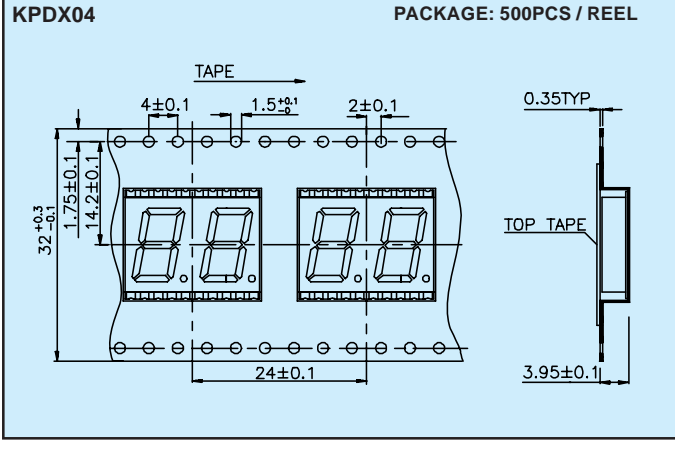
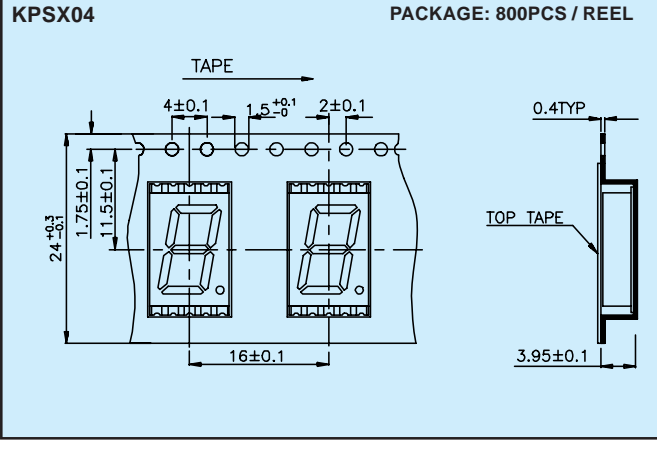
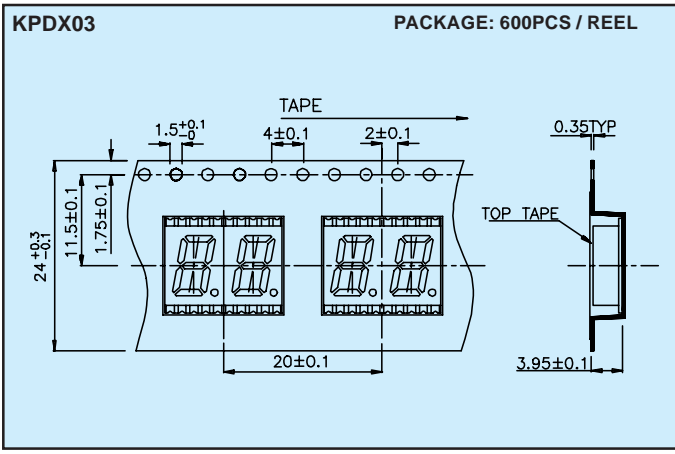
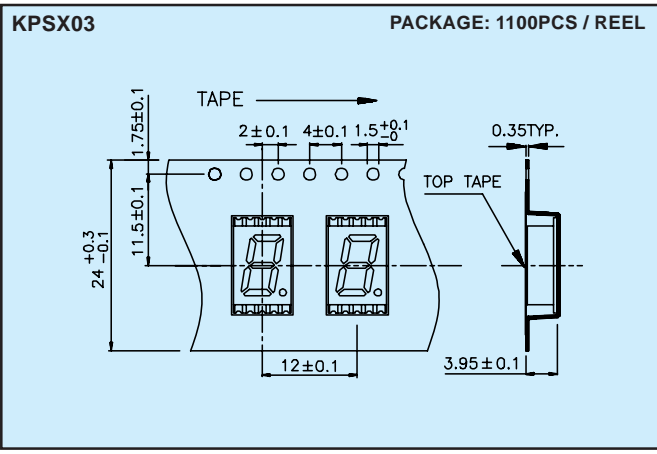
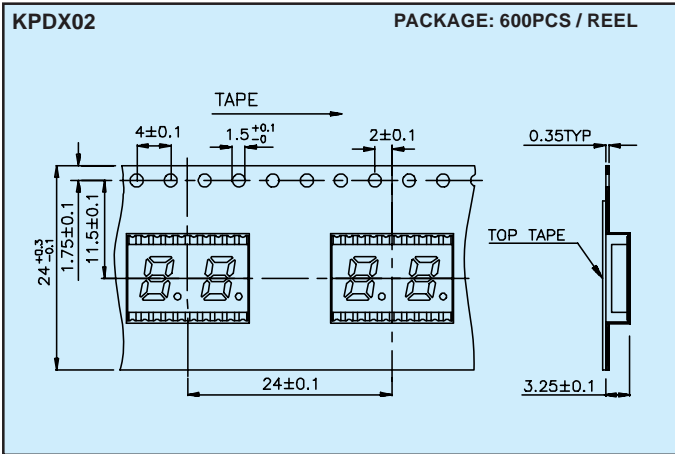
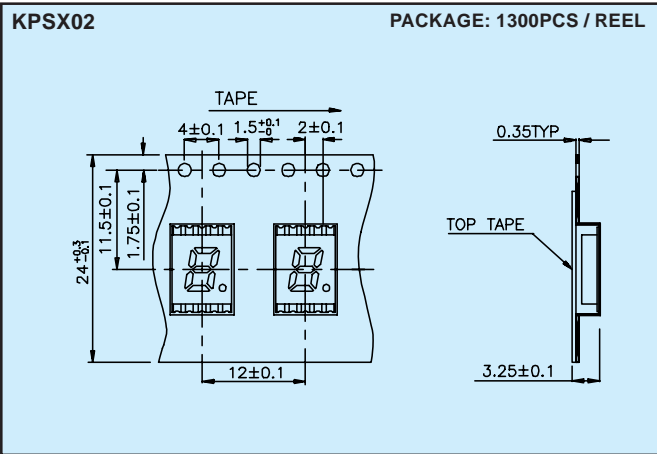
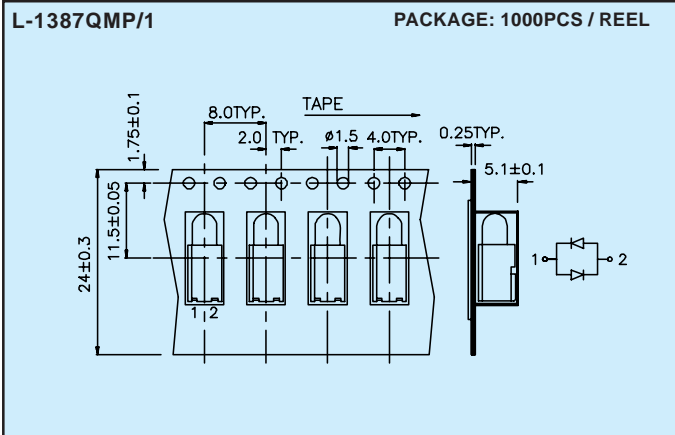
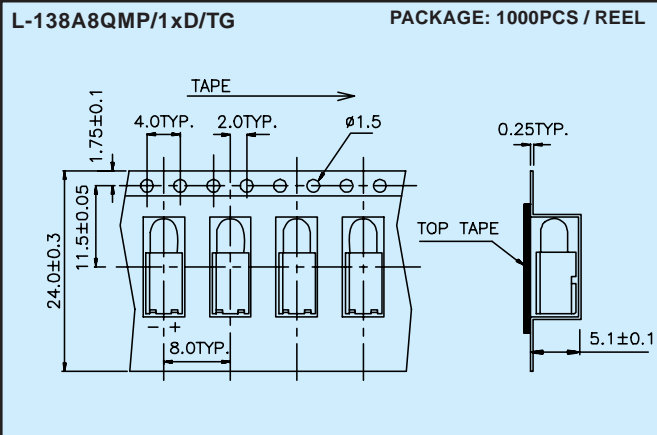
Dig.2: 25



NOTES:
 1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.

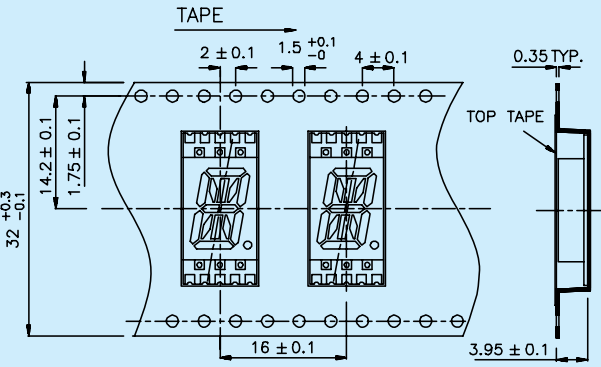


- NOTES:
 1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.

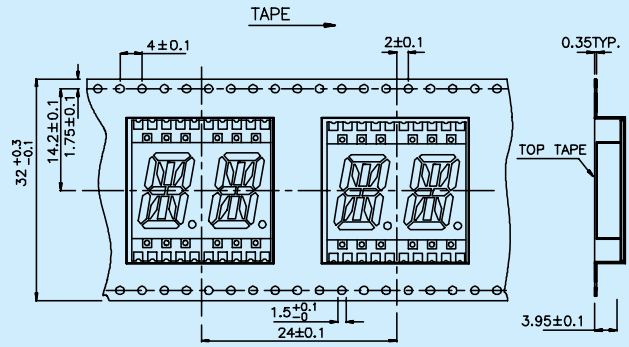


NOTES:
 1. All dimensions are in millimeters (inches).
 2. Tolerance is ±0.25mm (0.01") unless otherwise noted.

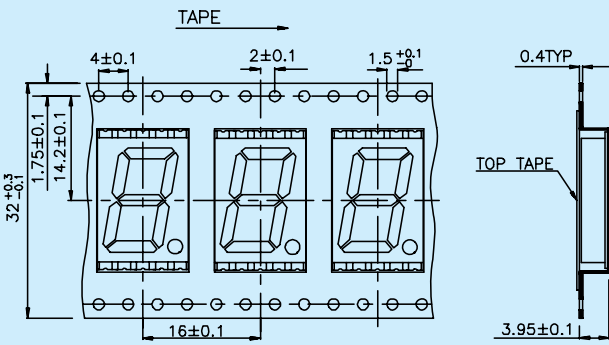
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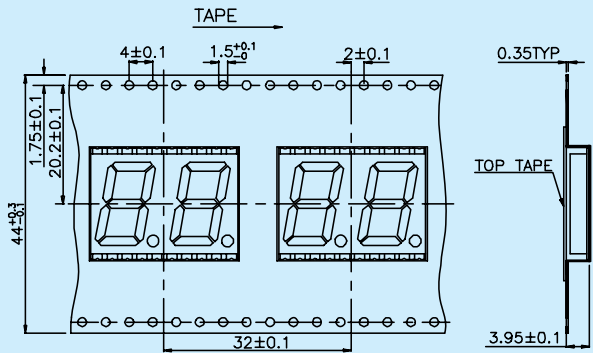
KPPDX04 PACKAGE: 500PCS / REEL



KPSX56 PACKAGE: 800PCS / REEL



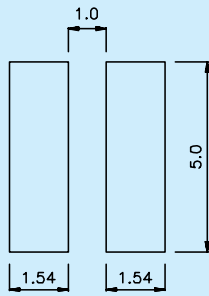
KPDX56 PACKAGE: 400PCS / REEL



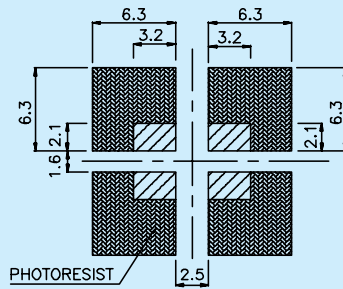
NOTES:

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

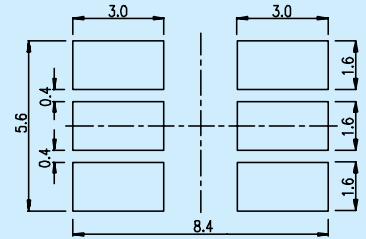
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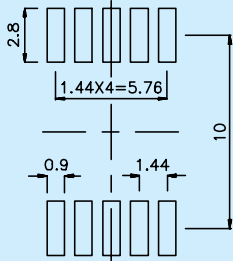
KA-5060, KAA-5060



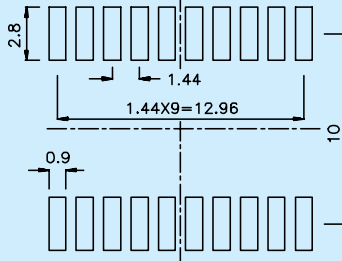
KAAF-5060



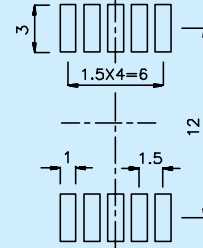
KPSX02



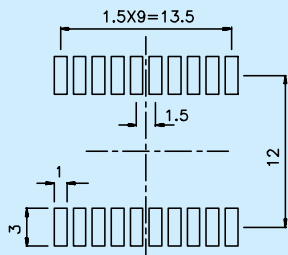
KPDX02



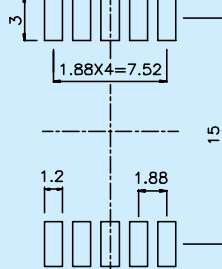
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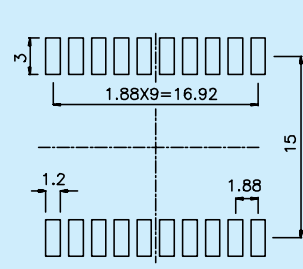
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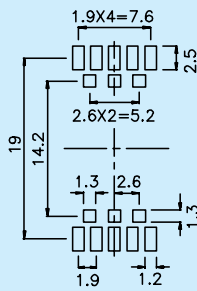
KPSX04



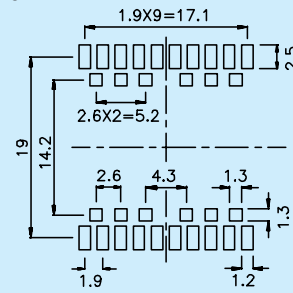
KPDX04



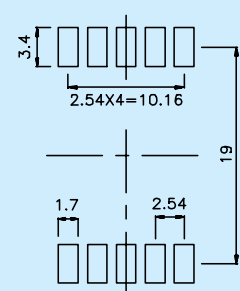
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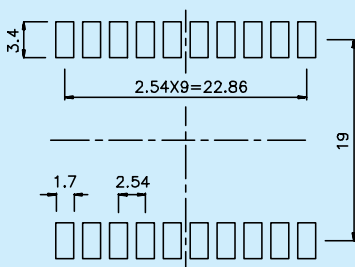
KPPDX04



KPSX56



KPDX56



NOTES:

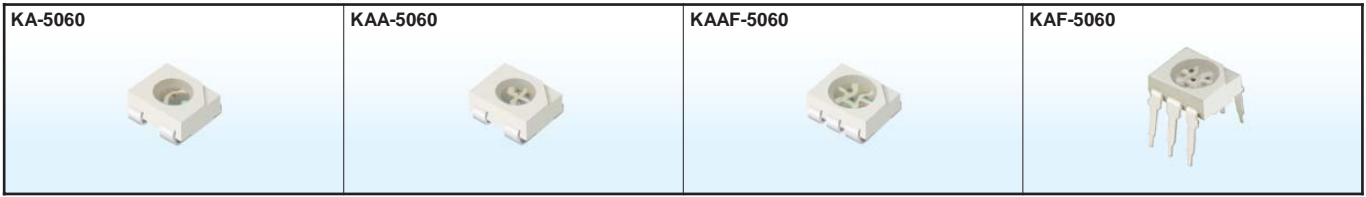
1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.

Kingbright Catalog

2005-2006

P 2-3 HIGH CURRENT LED LAMPS
P 3-22 SURFACE MOUNT LED LAMPS
P 23-24 SMD INFRARED EMITTING DIODES
P 25 SMD PHOTOTRANSISTORS

P 26 THROUGH HOLE LED LAMPS
P 27-36 SMD TAPE SPECIFICATIONS
P 37-40 RECOMMENDED SOLDERING PATTERN
P 41 SNAPLED



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @30mA*50mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

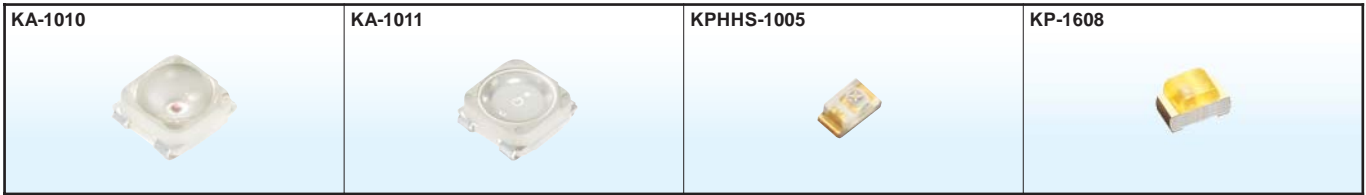
KA-5060SURC-G	InGaAlP	630	water clear	*480	*750	100°	
KA-5060SEC-H	InGaAlP	630	water clear	*1500	*2300	100°	
KA-5060SYC-H	InGaAlP	589	water clear	*380	*700	100°	
KA-5060PBC-G	InGaN	470	water clear	180	300	100°	
KA-5060VGC-G	InGaN	525	water clear	380	750	100°	
KA-5060ZGC	AlInGaN	525	water clear	180	400	100°	<p>Units : mm(inch) Tolerance : ±0.25(0.01)</p>

KAA-5060SUREVGEC	InGaAlP	630	water clear	*380	*700	100°	
	InGaN	525		280	600		
KAA-5060SYEVGEC	InGaAlP	590	water clear	*280	*500	100°	
	InGaN	525		280	600		
KAA-5060SEEVGPBEC	InGaAlP	621	water clear	*650	*1000	100°	
	InGaN	525		180	350		
KAA-5060SURVGPBEC	InGaAlP	628	water clear	*380	*500	100°	
	InGaN	525		180	350		
	InGaN	470		110	250		

KAAF-5060PBESEEVGC	InGaN	470	water clear	110	250	100°	
	InGaAlP	621		*650	*1000		
	InGaN	525		180	350		
KAAF-5060PBESURVGC	InGaN	470	water clear	110	250	100°	
	InGaAlP	628		*380	*500		
	InGaN	525		180	350		

KAF-5060PBESEEVGC	InGaN	470	water clear	110	250	100°	
	InGaAlP	621		*650	*1000		
	InGaN	525		180	350		
KAF-5060PBESURVGC	InGaN	470	water clear	110	250	100°	
	InGaAlP	628		*380	*500		
	InGaN	525		180	350		

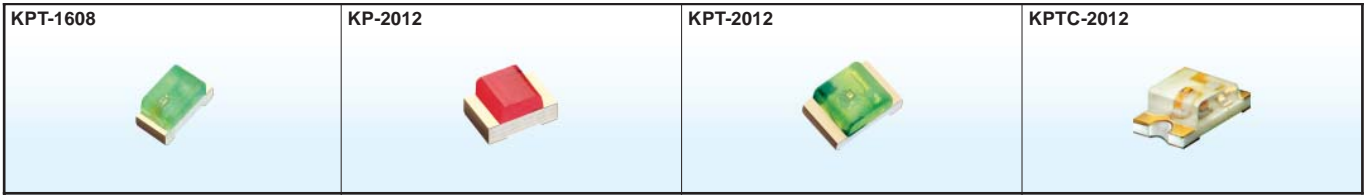
NOTES:
 1. All dimensions are in millimeters(inches).
 2. Tolerance is ±0.25mm(0.01") unless otherwise noted.



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA*350mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
KA-1010SYC28	InGaAlP	588	water clear	*6000	*8500	120°	10mm x 10mm (XPower)
KA-1010SEC28	InGaAlP	625		*15000	*20000		
KA-1011SYC28	InGaAlP	588	water clear	*14000	*19000	30°	10mm x 10mm (XPower)
KA-1011SEC28	InGaAlP	625		*19000	*25000		
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	18	120	120°	
KPHHS-1005CGCK	InGaAlP	570	water clear	10	40	120°	
KPHHS-1005PBC-A	InGaN	465	water clear	36	80	120°	
KP-1608EC	GaAsP/GaP	625	water clear	4	12	120°	1.6mm x 0.8mm x 1.1mm (0603)
KP-1608SRC-PRV	GaAlAs	640	water clear	36	100	120°	
KP-1608SURC	InGaAlP	628	water clear	70	200	120°	
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-1608YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KP-1608SYC	InGaAlP	588	water clear	36	150	120°	
KP-1608SYCK	InGaAlP	590	water clear	18	120	120°	
KP-1608SGC	GaP	568	water clear	4	15	120°	
KP-1608MGC	InGaAlP	568	water clear	18	70	120°	
KP-1608CGCK	InGaAlP	570	water clear	10	40	120°	
KP-1608QBC-C	GaN	470	water clear	36	60	120°	
KP-1608PBC	InGaN	470	water clear	18	60	120°	

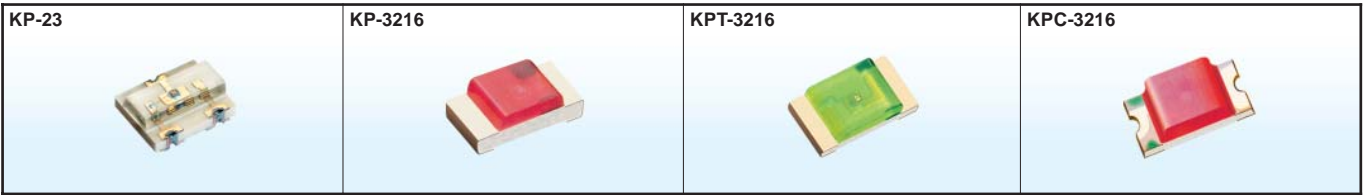
1.KA-1010 & KA-1011 series results from mounting on PC board FR4(pad size>=100mm² per pad).

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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	36	150	120°	
KPT-1608SYCK	InGaAlP	590	water clear	18	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 clear	10	40	120°	
KPT-1608QBC-C	GaN	470	water clear	36	60	120°	
KPT-1608PBC	InGaN	470	water clear	18	60	120°	
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	36	150	120°	
KP-2012SYCK	InGaAlP	590	water clear	18	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-2012QBC-C	GaN	470	water clear	36	60	120°	
KP-2012PBC	InGaN	470	water clear	18	60	120°	
KPT-2012EC	GaAsP/GaP	625	water clear	4	12	120°	2.0mm x 1.25mm x 0.75mm (0805 Super Thin)
KPT-2012SRC-PRV	GaAlAs	640	water clear	36	100	120°	
KPT-2012SURC	InGaAlP	628	water clear	70	200	120°	
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-2012YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KPT-2012SYC	InGaAlP	588	water clear	36	150	120°	
KPT-2012SYCK	InGaAlP	590	water clear	18	120	120°	
KPT-2012SGC	GaP	568	water clear	4	15	120°	
KPT-2012MGC	InGaAlP	568	water clear	18	70	120°	
KPT-2012CGCK	InGaAlP	570	water clear	10	40	120°	
KPT-2012QBC-C	GaN	470	water clear	36	60	120°	
KPT-2012PBC	InGaN	470	water clear	18	60	120°	
KPTC-2012EC	GaAsP/GaP	625	water clear	4	12	120°	2.0mm x 1.25mm x 0.75mm (0805 Super Thin)
KPTC-2012SRC	GaAlAs	640	water clear	36	100	120°	
KPTC-2012SURC	InGaAlP	628	water clear	70	200	120°	
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-2012YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KPTC-2012SYC	InGaAlP	588	water clear	36	150	120°	
KPTC-2012SYCK	InGaAlP	590	water clear	18	120	120°	
KPTC-2012SGC	GaP	568	water clear	4	15	120°	
KPTC-2012MGC	InGaAlP	568	water clear	18	70	120°	
KPTC-2012CGCK	InGaAlP	570	water clear	10	40	120°	
KPTC-2012QBC-C	GaN	470	water clear	36	60	120°	
KPTC-2012PBC	InGaN	470	water clear	18	60	120°	

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

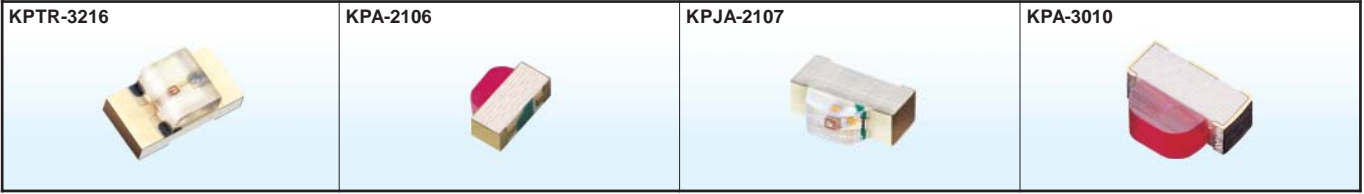
KP-23EC-F	GaAsP/GaP	625	water clear	7	20	120°	3.0mm x 2.4mm x 1.05mm Units : mm(inch) Tolerance : ±0.2(0.008)
KP-23SRC-F	GaAlAs	640	water clear	36	100	120°	
KP-23SURC-F	InGaAlP	628	water clear	110	250	120°	
KP-23SURCK-F	InGaAlP	635	water clear	50	150	120°	
KP-23SEC-F	InGaAlP	601	water clear	70	200	120°	
KP-23SECK-F	InGaAlP	601	water clear	50	160	120°	
KP-23YC-F	GaAsP/GaP	588	water clear	2.6	8	120°	
KP-23YC-F	InGaAlP	588	water clear	50	100	120°	
KP-23YCK-F	InGaAlP	590	water clear	18	60	120°	
KP-23SGC-F	GaP	568	water clear	7	20	120°	
KP-23MGC-F	InGaAlP	568	water clear	36	70	120°	
KP-23CGCK-F	InGaAlP	570	water clear	18	60	120°	
KP-23QBC-C-F	GaN	470	water clear	36	60	120°	
KP-23PBC-F	InGaN	470	water clear	18	45	120°	
KP-23ESGC	GaAsP/GaP	625	water clear	7	20	120°	
KP-23ESGC	GaP	568	water clear	7	20	120°	
KP-23YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
KP-23YSGC	GaP	568	water clear	7	20	120°	

KP-3216EC	GaAsP/GaP	625	water clear	4	12	120°	3.2mm x 1.6mm x 1.1mm (1206) Units : mm(inch) Tolerance : ±0.2(0.008)
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	36	150	120°	
KP-3216SYCK	InGaAlP	590	water clear	18	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-3216QBC-C	GaN	470	water clear	36	60	120°	
KP-3216PBC	InGaN	470	water clear	18	60	120°	

KPT-3216EC	GaAsP/GaP	625	water clear	4	12	120°	3.2mm x 1.6mm x 0.75mm (1206 Super Thin) Units : mm(inch) Tolerance : ±0.2(0.008)
KPT-3216SRC-PRV	GaAlAs	640	water clear	36	80	120°	
KPT-3216SURC	InGaAlP	628	water clear	70	200	120°	
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-3216YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KPT-3216SYC	InGaAlP	588	water clear	36	150	120°	
KPT-3216SYCK	InGaAlP	590	water clear	18	120	120°	
KPT-3216SGC	GaP	568	water clear	4	15	120°	
KPT-3216MGC	InGaAlP	568	water clear	18	70	120°	
KPT-3216CGCK	InGaAlP	570	water clear	10	40	120°	
KPT-3216QBC-C	GaN	470	water clear	36	60	120°	
KPT-3216PBC	InGaN	470	water clear	18	60	120°	

KPC-3216EC	GaAsP/GaP	625	water clear	4	12	120°	3.2mm x 1.6mm x 1.1mm (1206) LED CHIP POLARITY MARK Units : mm(inch) Tolerance : ±0.2(0.008)
KPC-3216SRC-PRV	GaAlAs	640	water clear	36	80	120°	
KPC-3216SURC	InGaAlP	628	water clear	70	200	120°	
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-3216YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KPC-3216SYC	InGaAlP	588	water clear	36	150	120°	
KPC-3216SYCK	InGaAlP	590	water clear	18	120	120°	
KPC-3216SGC	GaP	568	water clear	4	15	120°	
KPC-3216MGC	InGaAlP	568	water clear	18	70	120°	
KPC-3216CGCK	InGaAlP	570	water clear	10	40	120°	
KPC-3216QBC-C	GaN	470	water clear	36	60	120°	
KPC-3216PBC	InGaN	470	water clear	18	60	120°	

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



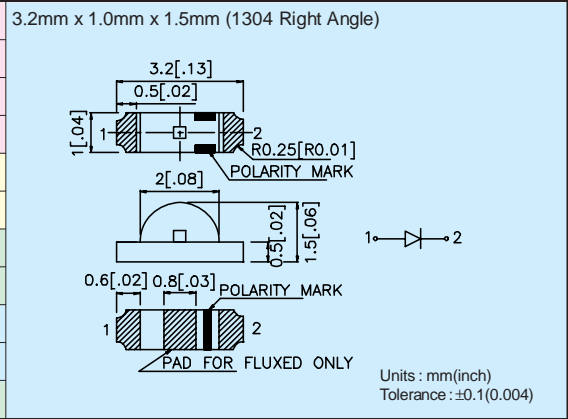
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
KPTR-3216EC	GaAsP/GaP	625	water clear	4	12	120°	3.2mm x 1.6mm x 1.05mm (1206 Reverse Mount)
KPTR-3216SRC-PRV	GaAlAs	640	water clear	36	80	120°	
KPTR-3216SURC	InGaAlP	628	water clear	70	200	120°	
KPTR-3216SURCK	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-3216YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KPTR-3216SYC	InGaAlP	588	water clear	36	150	120°	
KPTR-3216SYCK	InGaAlP	590	water clear	18	120	120°	
KPTR-3216SGC	GaP	568	water clear	4	15	120°	
KPTR-3216MGC	InGaAlP	568	water clear	18	70	120°	
KPTR-3216CGCK	InGaAlP	570	water clear	10	40	120°	
KPTR-3216QBC-C	GaN	470	water clear	36	60	120°	
KPTR-3216PBC	InGaN	470	water clear	18	60	120°	
KPA-2106EC	GaAsP/GaP	625	water clear	4	15	120°	2.1mm x 0.6mm x 1.0mm (0802 Right Angle)
KPA-2106SRC-PRV	GaAlAs	640	water clear	50	100	120°	
KPA-2106SURC	InGaAlP	628	water clear	70	200	120°	
KPA-2106SURCK	InGaAlP	635	water clear	50	150	120°	
KPA-2106SEC	InGaAlP	601	water clear	70	300	120°	
KPA-2106SECK	InGaAlP	601	water clear	50	250	120°	
KPA-2106YC	GaAsP/GaP	588	water clear	2.6	7	120°	
KPA-2106SYC	InGaAlP	588	water clear	36	120	120°	
KPA-2106SYCK	InGaAlP	590	water clear	18	100	120°	
KPA-2106SGC	GaP	568	water clear	4	15	120°	
KPA-2106MGC	InGaAlP	568	water clear	36	80	120°	
KPA-2106CGCK	InGaAlP	570	water clear	18	60	120°	
KPA-2106QBC-C	GaN	470	water clear	36	60	120°	
KPA-2106PBC	InGaN	470	water clear	18	60	120°	
KPJA-2107EC	GaAsP/GaP	625	water clear	4	15	120°	2.1mm x 0.7mm x 1.3mm (0802 Right Angle)
KPJA-2107SRC-PRV	GaAlAs	640	water clear	50	100	120°	
KPJA-2107SURC	InGaAlP	628	water clear	70	200	120°	
KPJA-2107SURCK	InGaAlP	635	water clear	50	150	120°	
KPJA-2107SEC	InGaAlP	601	water clear	70	300	120°	
KPJA-2107SECK	InGaAlP	601	water clear	50	250	120°	
KPJA-2107YC	GaAsP/GaP	588	water clear	2.6	7	120°	
KPJA-2107SYC	InGaAlP	588	water clear	36	120	120°	
KPJA-2107SYCK	InGaAlP	590	water clear	18	100	120°	
KPJA-2107SGC	GaP	568	water clear	4	15	120°	
KPJA-2107MGC	InGaAlP	568	water clear	36	80	120°	
KPJA-2107CGCK	InGaAlP	570	water clear	18	60	120°	
KPJA-2107QBC-C-PRV	GaN	470	water clear	36	60	120°	
KPJA-2107PBC	InGaN	470	water clear	18	60	120°	
KPA-3010EC	GaAsP/GaP	625	water clear	4	15	120°	3.0mm x 1.0mm x 2.0mm (1104 Right Angle)
KPA-3010SRC-PRV	GaAlAs	640	water clear	50	100	120°	
KPA-3010SURC	InGaAlP	628	water clear	70	200	120°	
KPA-3010SURCK	InGaAlP	635	water clear	50	150	120°	
KPA-3010SEC	InGaAlP	601	water clear	70	300	120°	
KPA-3010SECK	InGaAlP	601	water clear	70	250	120°	
KPA-3010YC	GaAsP/GaP	588	water clear	2.6	7	120°	
KPA-3010SYC	InGaAlP	588	water clear	36	120	120°	
KPA-3010SYCK	InGaAlP	590	water clear	18	100	120°	
KPA-3010SGC	GaP	568	water clear	4	15	120°	
KPA-3010MGC	InGaAlP	568	water clear	36	80	120°	
KPA-3010CGCK	InGaAlP	570	water clear	18	60	120°	
KPA-3010QBC-C	GaN	470	water clear	36	60	120°	
KPA-3010PBC	InGaN	470	water clear	18	60	120°	

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

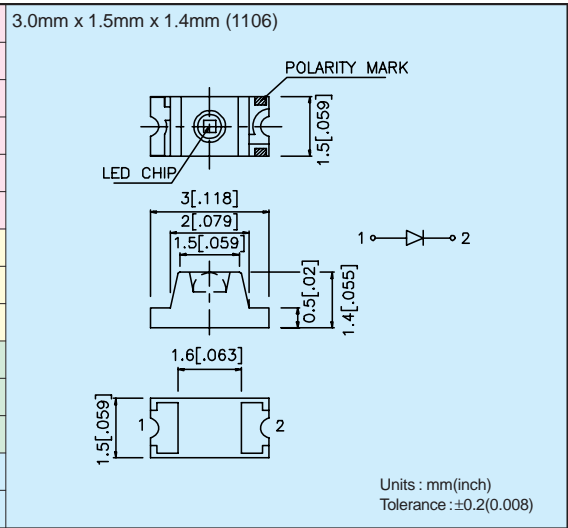


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

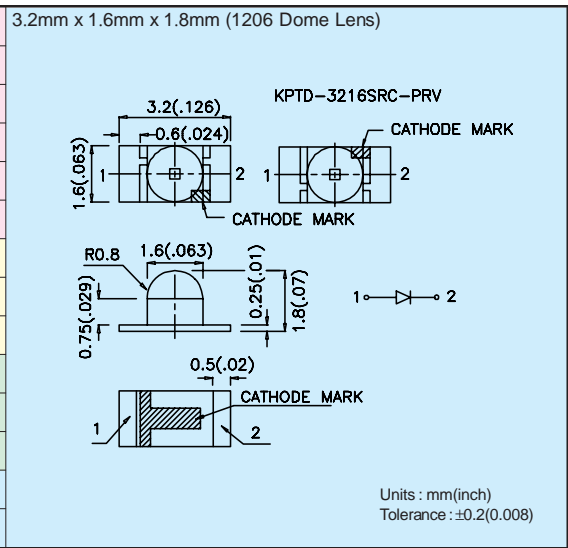
KPA-3210SURC	InGaAlP	628	water clear	110	250	120°
KPA-3210SURCK	InGaAlP	635	water clear	70	150	120°
KPA-3210SEC	InGaAlP	601	water clear	70	300	120°
KPA-3210SECK	InGaAlP	601	water clear	70	180	120°
KPA-3210SYC	InGaAlP	588	water clear	36	100	120°
KPA-3210SYCK	InGaAlP	590	water clear	18	70	120°
KPA-3210MGC	InGaAlP	568	water clear	36	90	120°
KPA-3210CGCK	InGaAlP	570	water clear	18	50	120°
KPA-3210QBC-C	GaN	470	water clear	36	60	120°
KPA-3210PBC	InGaN	470	water clear	18	60	120°
KPA-3210VGC	InGaN	525	water clear	70	180	120°



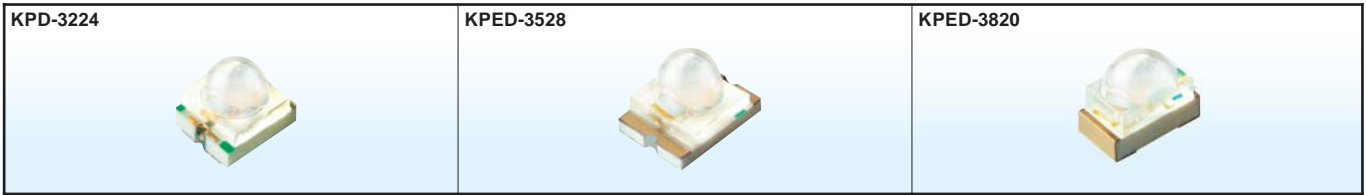
KPL-3015EC	GaAsP/GaP	625	water clear	4	20	70°
KPL-3015SRC-PRV	GaAlAs	640	water clear	36	80	70°
KPL-3015SURC	InGaAlP	628	water clear	110	280	70°
KPL-3015SURCK	InGaAlP	635	water clear	70	240	70°
KPL-3015SEC	InGaAlP	601	water clear	180	500	70°
KPL-3015SECK	InGaAlP	601	water clear	70	300	70°
KPL-3015YC	GaAsP/GaP	588	water clear	2.6	10	70°
KPL-3015SYC	InGaAlP	588	water clear	36	150	70°
KPL-3015SYCK	InGaAlP	590	water clear	36	100	70°
KPL-3015SGC	GaP	568	water clear	4	20	70°
KPL-3015MGC	InGaAlP	568	water clear	70	140	70°
KPL-3015CGCK	InGaAlP	570	water clear	36	90	70°
KPL-3015QBC-C	GaN	470	water clear	70	150	70°
KPL-3015PBC	InGaN	470	water clear	50	120	70°



KPTD-3216EC	GaAsP/GaP	625	water clear	10	50	40°
KPTD-3216SRC-PRV	GaAlAs	640	water clear	110	300	50°
KPTD-3216SURC	InGaAlP	628	water clear	280	600	50°
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-3216YC	GaAsP/GaP	588	water clear	4	30	40°
KPTD-3216SYC	InGaAlP	588	water clear	110	300	50°
KPTD-3216SYCK	InGaAlP	590	water clear	70	250	50°
KPTD-3216SGC	GaP	568	water clear	10	50	40°
KPTD-3216MGC	InGaAlP	568	water clear	110	350	50°
KPTD-3216CGCK	InGaAlP	570	water clear	70	200	50°
KPTD-3216QBC-C	GaN	470	water clear	180	350	40°
KPTD-3216PBC	InGaN	470	water clear	70	220	50°



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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
KPD-3224EC	GaAsP/GaP	625	water clear	36	70	20°	3.2mm x 2.4mm x 2.4mm (Dome Lens)
KPD-3224SURC	InGaAIP	628	water clear	650	1200	20°	
KPD-3224SURCK	InGaAIP	635	water clear	480	1000	20°	
KPD-3224SEC	InGaAIP	601	water clear	650	2000	20°	
KPD-3224SECK	InGaAIP	601	water clear	650	1300	20°	
KPD-3224YC	GaAsP/GaP	588	water clear	10	40	20°	
KPD-3224SYC	InGaAIP	588	water clear	180	700	20°	
KPD-3224SYCK	InGaAIP	590	water clear	110	600	20°	
KPD-3224SGC	GaP	568	water clear	18	70	20°	
KPD-3224MGC	InGaAIP	568	water clear	280	550	20°	
KPD-3224CGCK	InGaAIP	570	water clear	180	550	20°	
KPD-3224QBC-C	GaN	470	water clear	180	400	20°	
KPD-3224PBC	InGaN	470	water clear	110	380	20°	
KPED-3528EC	GaAsP/GaP	625	water clear	18	50	40°	3.5mm x 2.8mm x 3.2mm
KPED-3528SRC	GaAlAs	640	water clear	70	200	40°	
KPED-3528SURC	InGaAIP	628	water clear	110	500	40°	
KPED-3528SURCK	InGaAIP	635	water clear	110	450	40°	
KPED-3528SEC	InGaAIP	601	water clear	380	700	40°	
KPED-3528SECK	InGaAIP	601	water clear	280	550	40°	
KPED-3528YC	GaAsP/GaP	588	water clear	7	20	40°	
KPED-3528SYC	InGaAIP	588	water clear	70	250	40°	
KPED-3528SYCK	InGaAIP	590	water clear	70	200	40°	
KPED-3528SGC	GaP	568	water clear	18	50	40°	
KPED-3528SGT	GaP	568	green transparent	10	25	40°	
KPED-3528MGC	InGaAIP	568	water clear	70	250	40°	
KPED-3528VGC	InGaN	525	water clear	110	300	40°	
KPED-3528VGC-E	InGaN	525	water clear	280	400	40°	
KPED-3528PBC	InGaN	470	water clear	50	150	40°	
KPED-3528PBC-E	InGaN	470	water clear	70	200	40°	
KPED-3820EC	GaAsP/GaP	625	water clear	18	40	60° (H) 35° (V)	3.8mm x 2.0mm x 3.2mm (Dome Lens)
KPED-3820SRC	GaAlAs	640	water clear	110	240	60° (H) 35° (V)	
KPED-3820SURC	InGaAIP	628	water clear	180	500	60° (H) 35° (V)	
KPED-3820SURCK	InGaAIP	635	water clear	180	450	60° (H) 35° (V)	
KPED-3820SEC	InGaAIP	601	water clear	480	800	60° (H) 35° (V)	
KPED-3820SECK	InGaAIP	601	water clear	280	600	60° (H) 35° (V)	
KPED-3820YC	GaAsP/GaP	588	water clear	7	20	60° (H) 35° (V)	
KPED-3820SYC	InGaAIP	588	water clear	110	250	60° (H) 35° (V)	
KPED-3820SYCK	InGaAIP	590	water clear	70	200	60° (H) 35° (V)	
KPED-3820SGC	GaP	568	water clear	10	40	60° (H) 35° (V)	
KPED-3820MGC	InGaAIP	568	water clear	70	250	60° (H) 35° (V)	
KPED-3820CGCK	InGaAIP	570	water clear	70	170	60° (H) 35° (V)	
KPED-3820QBC-C	GaN	470	water clear	70	250	60° (H) 35° (V)	
KPED-3820PBC	InGaN	470	water clear	50	150	60° (H) 35° (V)	

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
KPD-2520EC-03	GaAsP/GaP	625	water clear	10	60	20°	4.5mm x 2.0mm x 2.8mm
KPD-2520SURC-03	InGaAlP	628	water clear	280	700	20°	
KPD-2520SURCK-03	InGaAlP	635	water clear	180	650	20°	
KPD-2520SEC-03	InGaAlP	601	water clear	380	1300	20°	
KPD-2520SECK-03	InGaAlP	601	water clear	380	1200	20°	
KPD-2520YC-03	GaAsP/GaP	588	water clear	10	25	20°	
KPD-2520SYC-03	InGaAlP	588	water clear	110	450	20°	
KPD-2520SYCK-03	InGaAlP	590	water clear	70	250	20°	
KPD-2520SGC-03	GaP	568	water clear	36	90	20°	
KPD-2520MGC-03	InGaAlP	568	water clear	110	400	20°	
KPD-2520CGCK-03	InGaAlP	570	water clear	70	300	20°	
KPD-2520QBC-C-03	GaN	470	water clear	70	250	20°	
KPD-2520PBC-03	InGaN	470	water clear	70	200	20°	

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-1612SURKSGC	InGaAlP	635	water clear	70	150	120°	
	GaP	568		4	12		
KPTB-1612SYKCGKC	InGaAlP	590	water clear	18	50	120°	
	InGaAlP	570		18	50		
KPTB-1612SURKCGKC	InGaAlP	635	water clear	70	150	120°	
	InGaAlP	570		18	50		
KPTB-1612PBVGC	InGaN	470	water clear	18	60	120°	
	InGaN	525		70	180		

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	18	50	120°	
	InGaAlP	570		18	50		
KPTB-1615SGNC	GaP	568	water clear	4	12	120°	
	GaAsP/GaP	610		4	12		
KPTB-1615PBVGC	InGaN	470	water clear	18	60	120°	
	InGaN	525		70	180		

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

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-3010SURKSGC	InGaAlP	635	water clear	110	200	140°	
	GaP	568		4	12		
KPBA-3010EYC	GaAsP/GaP	625	water clear	4	12	140°	
	GaAsP/GaP	588		2.6	6		
KPBA-3010SURKCGKC	InGaAlP	635	water clear	110	200	140°	
	InGaAlP	570		18	50		
KPBA-3010SYKCGKC	InGaAlP	590	water clear	36	120	140°	
	InGaAlP	570		18	50		
KPBA-3010SGNC	GaP	568	water clear	4	12	140°	
	GaAsP/GaP	610		4	12		
KPBA-3010PBVGC	InGaN	470	water clear	18	60	140°	
	InGaN	525		50	120		

KPBA-3210SURKMGKC	InGaAlP	635	water clear	110	200	120°	3.2mm x 1.0mm x 1.5mm (1304 Right Angle, Bi-Color)
	InGaAlP	570		36	80		

KPBA-3025ESGC	GaAsP/GaP	625	water clear	4	12	120°	3.0mm x 2.5mm x 1.1mm (1109 Bi-Color)
	GaP	568		4	12		
KPBA-3025EYC	GaAsP/GaP	625	water clear	4	12	120°	
	GaAsP/GaP	588		2.6	8		
KPBA-3025NSGC	GaAsP/GaP	610	water clear	4	12	120°	
	GaP	568		4	12		
KPBA-3025SRSGC-PRV	GaAlAs	640	water clear	36	100	120°	
	GaP	568		4	12		
KPBA-3025SRQGC-PRV	GaAlAs	640	water clear	36	100	120°	
	GaP	565		4	12		
KPBA-3025SRPGC-PRV	GaAlAs	640	water clear	36	100	120°	
	GaP	555		1.6	5		
KPBA-3025SURKCGKC	InGaAlP	635	water clear	50	160	120°	
	InGaAlP	570		10	40		
KPBA-3025YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
	GaP	568		4	12		

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

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-3025NSGC	GaAsP/GaP	610	water clear	7	20	100°	
	GaP	568		7	20		
KPBL-3025SRSGC-PRV	GaAlAs	640	water clear	36	100	100°	
	GaP	568		7	20		
KPBL-3025SRQGC-PRV	GaAlAs	640	water clear	36	100	100°	
	GaP	565		7	20		
KPBL-3025SRPGC-PRV	GaAlAs	640	water clear	36	100	100°	
	GaP	555		2.6	8		
KPBL-3025SURKCGKC	InGaAlP	635	water clear	110	300	100°	
	InGaAlP	570		18	80		
KPBL-3025YSGC	GaAsP/GaP	588	water clear	4	15	100°	
	GaP	568		7	20		

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-3224SURKCGKC	InGaAlP	635	water clear	70	350	20°	
	InGaAlP	570		18	120		
KPBD-3224SYKCGKC	InGaAlP	590	water clear	36	150	20°	
	InGaAlP	570		18	120		
KPBD-3224SGNC	GaP	568	water clear	10	40	20°	
	GaAsP/GaP	610		10	30		
KPBD-3224PBVGC	InGaN	470	water clear	36	100	20°	
	InGaN	525		280	600		

KPHF-1612QBDSURKZGC	GaN	470	water clear	50	90	120°	1.6mm x 1.26mm x 0.52mm (Full Color)
	InGaAlP	635		70	150		
	AllnGaN	525		70	180		

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



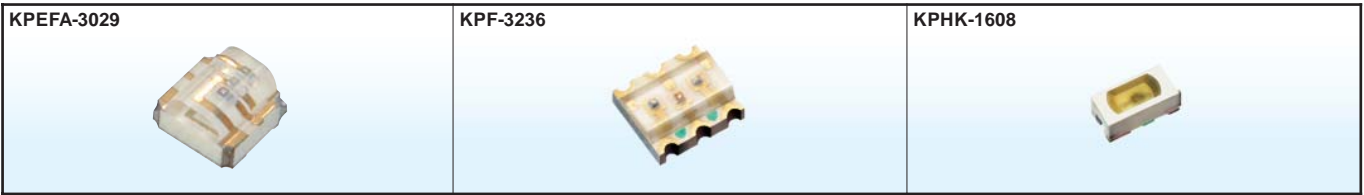
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

KPEFA-3010QBDVGSEEC	GaN	470		50	100		3.0mm x 1.0mm x 2.0mm (1104 Right Angle, Full Color)
	InGaN	525	water clear	70	250	120°	
	InGaAlP	621		110	300		

KPFA-3210QBCVGSKEC	GaN	470		36	70		3.2mm x 1.0mm x 1.5mm (1304 Right Angle, Full Color)
	InGaN	525	water clear	50	200	130°	
	InGaAlP	601		70	200		

KPTF-3216PBVGSURKC	InGaN	470		50	100		3.2mm x 1.6mm x 0.75mm (1206 Full Color)
	InGaN	525	water clear	70	150	120°	
	InGaAlP	635		70	150		

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



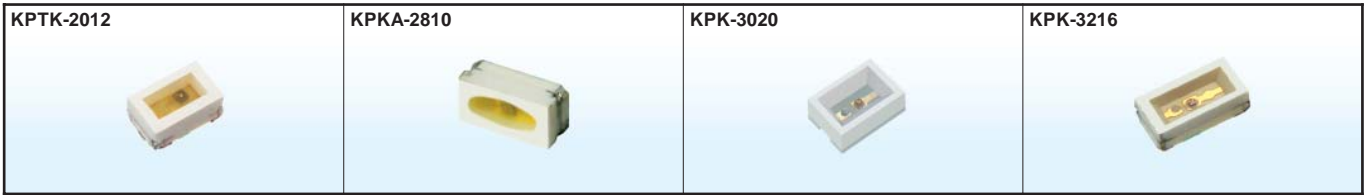
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

KPEFA-3029SEEVGPBGC	InGaAlP	621		110	280		3.0mm x 2.9mm x 2.0mm (Right Angle, Full Color)
	InGaN	525	water clear	70	200	120°	
	InGaN	470		70	130		

KPF-3236SRSGPBC-PRV	GaAlAs	640		36	70		3.2mm x 3.6mm x 1.1mm (Full Color)
	GaP	568	water clear	2.6	12	120°	
	InGaN	470		18	60		
KPF-3236SURKVG PBC	InGaAlP	635		70	150		
	InGaN	525	water clear	50	100	120°	
	InGaN	470		18	60		
KPF-3236SURKMGK PBC	InGaAlP	635		70	150		
	InGaAlP	570	water clear	18	60	120°	
	InGaN	470		18	60		

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-1608MGCK	InGaAlP	570	water clear	36	80	90°	
KPHK-1608TGC	InGaN	505	water clear	70	150	90°	
KPHK-1608VGC	InGaN	525	water clear	70	180	90°	
KPHK-1608QBC-C	GaN	470	water clear	50	100	90°	
KPHK-1608PBC	InGaN	470	water clear	36	70	90°	

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

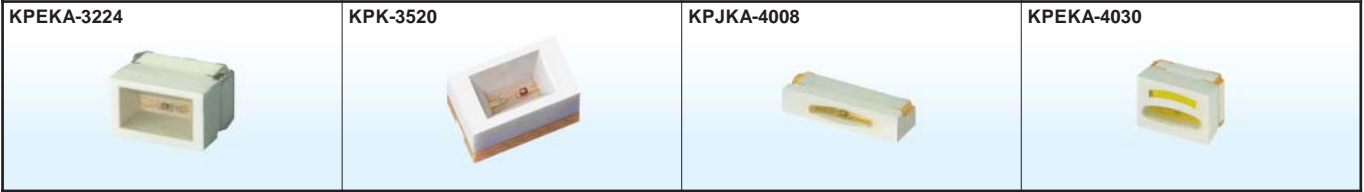
KPTK-2012SURC	InGaAlP	628	water clear	110	250	100°	<p>2.0mm x 1.25mm x 0.75mm (0805)</p> <p>Units : mm(inch) Tolerance : ±0.1(0.004)</p>
KPTK-2012SURCK	InGaAlP	635	water clear	70	200	100°	
KPTK-2012SEC	InGaAlP	601	water clear	110	280	100°	
KPTK-2012SECK	InGaAlP	601	water clear	70	230	100°	
KPTK-2012SYC	InGaAlP	588	water clear	50	120	100°	
KPTK-2012SYCK	InGaAlP	590	water clear	36	100	100°	
KPTK-2012MGC	InGaAlP	568	water clear	36	80	100°	
KPTK-2012MGCK	InGaAlP	570	water clear	36	70	100°	
KPTK-2012TGC	InGaN	505	water clear	70	150	100°	
KPTK-2012VGC	InGaN	525	water clear	70	200	100°	
KPTK-2012QBC-C	GaN	470	water clear	36	100	100°	
KPTK-2012PBC	InGaN	470	water clear	36	70	100°	

KPKA-2810SURC	InGaAlP	628	water clear	70	220	90°	<p>2.8mm x 1.0mm x 1.2mm (1104 Right Angle)</p> <p>Units : mm(inch) Tolerance : ±0.25(0.01)</p>
KPKA-2810SURCK	InGaAlP	635	water clear	50	170	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-2810MGCK	InGaAlP	570	water clear	36	80	90°	
KPKA-2810TGC	InGaN	505	water clear	70	150	90°	
KPKA-2810VGC	InGaN	525	water clear	70	200	90°	
KPKA-2810QBC-C	GaN	470	water clear	50	100	90°	
KPKA-2810PBC	InGaN	470	water clear	36	70	90°	

KPK-3020SURC	InGaAlP	628	water clear	70	230	120°	<p>3.0mm x 2.0mm x 1.3mm(1108)</p> <p>Units : mm(inch) Tolerance : ±0.2(0.008)</p>
KPK-3020SURCK	InGaAlP	635	water clear	50	200	120°	
KPK-3020SEC	InGaAlP	601	water clear	110	300	120°	
KPK-3020SECK	InGaAlP	601	water clear	70	150	120°	
KPK-3020SYC	InGaAlP	588	water clear	50	150	120°	
KPK-3020SYCK	InGaAlP	590	water clear	36	120	120°	
KPK-3020MGC	InGaAlP	568	water clear	36	90	120°	
KPK-3020MGCK	InGaAlP	570	water clear	36	80	120°	
KPK-3020TGC	InGaN	505	water clear	70	150	120°	
KPK-3020VGC	InGaN	525	water clear	70	150	120°	
KPK-3020QBC-C	GaN	470	water clear	50	120	120°	
KPK-3020PBC	InGaN	470	water clear	18	60	120°	

KPK-3216SURC	InGaAlP	628	water clear	110	250	90°	<p>3.2mm x 1.6mm x 1.1mm(1206)</p> <p>Units : mm(inch) Tolerance : ±0.2(0.008)</p>
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-3216MGCK	InGaAlP	570	water clear	36	80	90°	
KPK-3216TGC	InGaN	505	water clear	70	180	90°	
KPK-3216VGC	InGaN	525	water clear	70	220	90°	
KPK-3216QBC-C	GaN	470	water clear	50	100	90°	
KPK-3216PBC	InGaN	470	water clear	36	70	90°	

NOTE:
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Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
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	120	90°	
KPEKA-3224SYCK	InGaAlP	590	water clear	50	90	90°	
KPEKA-3224SGC	GaP	568	water clear	7	20	90°	
KPEKA-3224MGC	InGaAlP	568	water clear	50	110	90°	
KPEKA-3224CGCK	InGaAlP	570	water clear	36	60	90°	
KPEKA-3224QBC-C	GaN	470	water clear	50	100	90°	
KPEKA-3224PBC	InGaN	470	water clear	50	100	90°	
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-3520MGCK	InGaAlP	570	water clear	36	80	120°	
KPK-3520TGC	InGaN	505	water clear	70	150	120°	
KPK-3520VGC	InGaN	525	water clear	70	120	120°	
KPK-3520QBC-C	GaN	470	water clear	50	120	120°	
KPK-3520PBC	InGaN	470	water clear	18	60	120°	
KPJKA-4008SURC	InGaAlP	628	water clear	70	220	90°	4.0mm x 0.8mm x 1.4mm (1503 Right Angle)
KPJKA-4008SEC	InGaAlP	601	water clear	110	250	90°	
KPJKA-4008SYC	InGaAlP	588	water clear	50	100	90°	
KPJKA-4008MGC	InGaAlP	568	water clear	36	100	90°	
KPJKA-4008MGCK	InGaAlP	570	water clear	36	80	90°	
KPJKA-4008TGC	InGaN	505	water clear	50	150	90°	
KPJKA-4008VGC	InGaN	525	water clear	70	200	90°	
KPJKA-4008QBC-C	GaN	470	water clear	50	100	90°	
KPJKA-4008PBC	InGaN	470	water clear	36	80	90°	
KPEKA-4030SURC	InGaAlP	628	water clear	70	250	90°	4.0mm x 3.0mm x 2.65mm (1511 Right Angle)
KPEKA-4030SEC	InGaAlP	601	water clear	110	320	90°	
KPEKA-4030SYC	InGaAlP	588	water clear	50	120	90°	
KPEKA-4030MGC	InGaAlP	568	water clear	36	100	90°	
KPEKA-4030TGC	InGaN	505	water clear	50	100	90°	
KPEKA-4030VGC	InGaN	525	water clear	70	220	90°	
KPEKA-4030PBC	InGaN	470	water clear	36	80	90°	

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

KPKA-4110SURC	InGaAlP	628	water clear	70	220	90°	<p>4.1mm x 1.0mm x 1.52mm (1604 Right Angle)</p> <p>Units : mm(inch) Tolerance :±0.25(0.01)</p>
KPKA-4110SEC	InGaAlP	601	water clear	70	250	90°	
KPKA-4110SYC	InGaAlP	588	water clear	50	100	90°	
KPKA-4110MGC	InGaAlP	568	water clear	36	100	90°	
KPKA-4110MGCK	InGaAlP	570	water clear	36	80	90°	
KPKA-4110TGC	InGaN	505	water clear	36	100	90°	
KPKA-4110VGC	InGaN	525	water clear	50	150	90°	
KPKA-4110QBC-C	GaN	470	water clear	50	100	90°	
KPKA-4110PBC	InGaN	470	water clear	36	80	90°	

KPTKA-5614SURC	InGaAlP	628	water clear	110	300	90°	<p>5.6mm x 1.4mm x 1.0mm (2205 Right Angle)</p> <p>Units : mm(inch) Tolerance :±0.2(0.008)</p>
KPTKA-5614SEC	InGaAlP	601	water clear	180	450	90°	
KPTKA-5614SYC	InGaAlP	588	water clear	50	150	90°	
KPTKA-5614MGC	InGaAlP	568	water clear	50	100	90°	
KPTKA-5614MGCK	InGaAlP	570	water clear	36	80	90°	
KPTKA-5614TGC	InGaN	505	water clear	70	150	90°	
KPTKA-5614VGC	InGaN	525	water clear	70	200	90°	
KPTKA-5614QBC-C	GaN	470	water clear	50	100	90°	
KPTKA-5614PBC	InGaN	470	water clear	36	80	90°	

KPKB-3025ESGC	GaAsP/GaP	625	water clear	10	20	120°	<p>3.0mm x 2.5mm x 1.3mm (1109 Bi-Color)</p> <p>Units : mm(inch) Tolerance :±0.2(0.008)</p>
	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-3025SURKSYKC	InGaAlP	635	water clear	70	150	120°	
	InGaAlP	590		18	50		

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



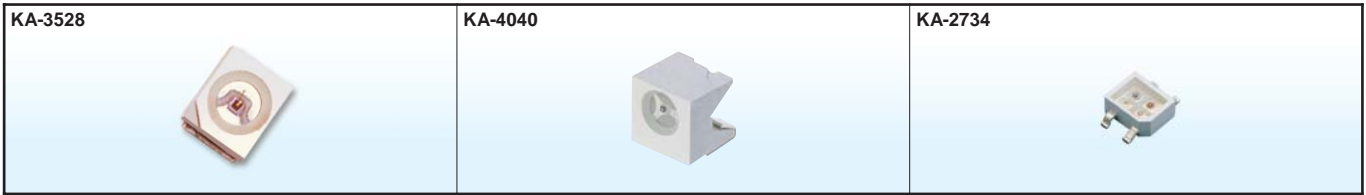
Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

KPKF-3030SEEVGPBEC	InGaAIP	621		180	400		<p>3.0mm x 3.0mm x 1.8mm (Full Color)</p> <p>Units : mm(inch) Tolerance : ±0.2(0.008)</p>
	InGaN	525	water clear	110	250	100°	
	InGaN	470		50	120		
KPKF-3030SURVGPBEC	InGaAIP	628		110	220		
	InGaN	525	water clear	110	250	100°	
	InGaN	470		50	120		

KA-3020EC	GaAsP/GaP	625	water clear	7	20	90°	<p>3.0mm x 2.0mm (1208)</p> <p>Units : mm(inch) Tolerance : ±0.25(0.01)</p>
KA-3020SRC	GaAlAs	640	water clear	36	120	90°	
KA-3020SURC	InGaAIP	628	water clear	110	230	90°	
KA-3020SURCK	InGaAIP	635	water clear	70	200	90°	
KA-3020SEC	InGaAIP	601	water clear	110	300	90°	
KA-3020SECK	InGaAIP	601	water clear	70	150	90°	
KA-3020YC	GaAsP/GaP	588	water clear	4	15	90°	
KA-3020SYC	InGaAIP	588	water clear	50	120	90°	
KA-3020SYCK	InGaAIP	590	water clear	36	100	90°	
KA-3020SGC	GaP	568	water clear	7	30	90°	
KA-3020MGC	InGaAIP	568	water clear	36	80	90°	
KA-3020CGCK	InGaAIP	570	water clear	18	60	90°	
KA-3020PBC	InGaN	470	water clear	18	60	90°	

KA-3022EC-4.5SF	GaAsP/GaP	625	water clear	7	30	90°	<p>3.0mm x 2.2mm</p> <p>Units : mm(inch) Tolerance : ±0.25(0.01)</p>
KA-3022SRC-4.5SF	GaAlAs	640	water clear	36	150	90°	
KA-3022YC-4.5SF	GaAsP/GaP	588	water clear	4	10	90°	
KA-3022SYC-4.5SF	InGaAIP	588	water clear	50	120	90°	
KA-3022SGC-4.5SF	GaP	568	water clear	7	20	90°	

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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

KA-3528EC	GaAsP/GaP	625	water clear	7	30	120°	
KA-3528SRC	GaAlAs	640	water clear	50	150	120°	
KA-3528SURC	InGaAlP	628	water clear	110	230	120°	
KA-3528SURCK	InGaAlP	635	water clear	70	200	120°	
KA-3528SEC	InGaAlP	601	water clear	180	350	120°	
KA-3528SECK	InGaAlP	601	water clear	70	300	120°	
KA-3528YC	GaAsP/GaP	588	water clear	4	15	120°	
KA-3528SYC	InGaAlP	588	water clear	36	120	120°	
KA-3528SYCK	InGaAlP	590	water clear	36	100	120°	
KA-3528SGC	GaP	568	water clear	10	25	120°	
KA-3528CGCK	InGaAlP	570	water clear	18	60	120°	
KA-3528MGC	InGaAlP	568	water clear	70	150	120°	
KA-3528VGC	InGaN	525	water clear	110	220	120°	
KA-3528VGC-E	InGaN	525	water clear	110	280	120°	
KA-3528PBC	InGaN	470	water clear	18	60	120°	
KA-3528PBC-E	InGaN	470	water clear	50	120	120°	

KA-4040SRC	GaAlAs	640	water clear	50	120	90°	
KA-4040SURC	InGaAlP	628	water clear	70	200	90°	
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	120	90°	
KA-4040CGCK	InGaAlP	570	water clear	36	70	90°	
KA-4040MGC	InGaAlP	568	water clear	50	100	90°	
KA-4040PGC	GaP	555	water clear	1.6	6	90°	

KA-2734ESGC	GaAsP/GaP	625	water clear	7	30	120°	
	GaP	568		7	30		
KA-2734SRCGKC	GaAlAs	640	water clear	70	150	120°	
	InGaAlP	570		36	60		

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

KAA-3528



KM-23-F



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
KAA-3528SURKSYKC	InGaAlP	635	water clear	70	200	120°	3.5mm x 2.8mm KAA-3528SURKSYKC KAA-3528SURKCGKC KAA-3528EPBSCG KAA-3528SURKVGPCB
	InGaAlP	590		18	100		
KAA-3528SURKCGKC	InGaAlP	635	water clear	70	200	120°	
	InGaAlP	570		18	80		
KAA-3528EPBSCG	GaAsP/GaP	625	water clear	10	30	120°	
	InGaN	470		36	70		
	GaP	568		4	20		
KAA-3528SURKVGPCB	InGaAlP	635	water clear	70	200	120°	
	InGaN	525		70	200		
	InGaN	470		36	70		
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-23SYD-F	InGaAlP	588	yellow diffused	50	100	140°	
KM-23SYC-F	InGaAlP	588	water clear	50	100	140°	
KM-23CGCK-F	InGaAlP	570	water clear	18	40	140°	
KM-23SGC-F	GaP	568	water clear	4	15	140°	
KM-23ESGW	GaAsP/GaP	625	white diffused	4	15	140°	
	GaP	568		4	15		
KM-23ESGC	GaAsP/GaP	625	water clear	4	15	140°	
	GaP	568		4	15		

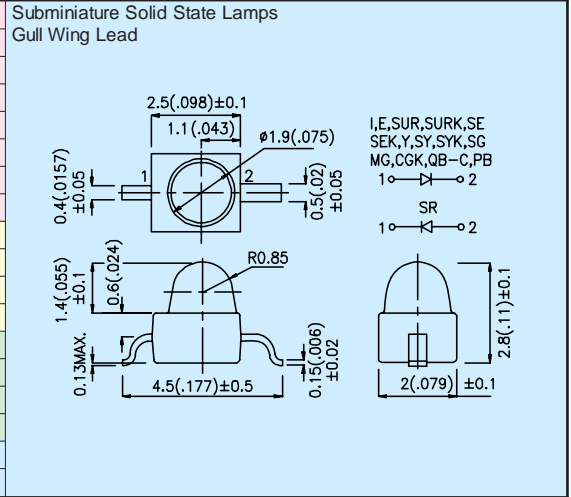
NOTES:

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

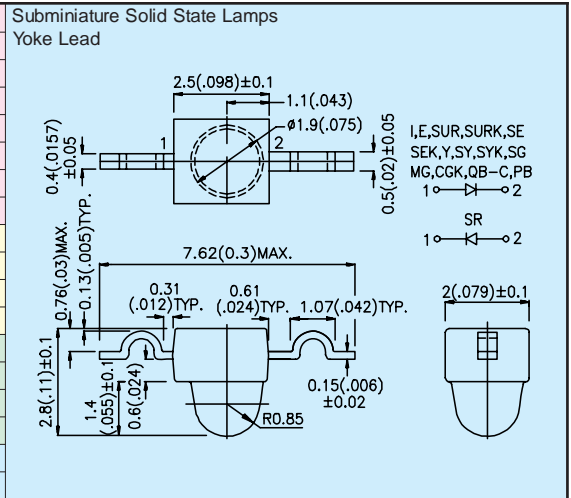


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

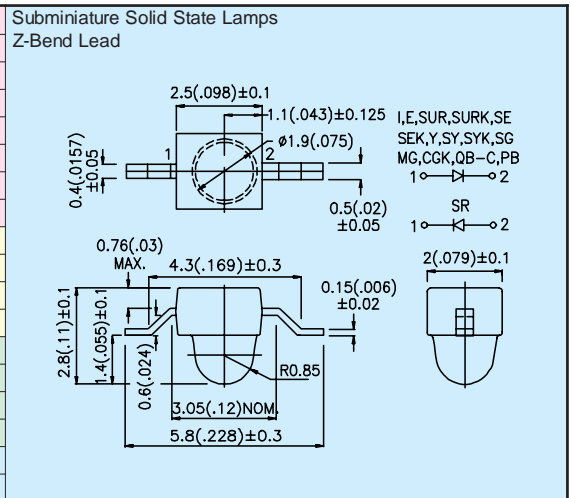
KM2520ID03	GaAsP/GaP	625	red diffused	7	30	40°
KM2520EC03	GaAsP/GaP	625	water clear	10	70	20°
KM2520SRD03	GaAlAs	640	red diffused	50	150	40°
KM2520SRC03	GaAlAs	640	water clear	110	600	20°
KM2520SURC03	InGaAlP	628	water clear	280	1000	20°
KM2520SURCK03	InGaAlP	635	water clear	180	650	20°
KM2520SEC03	InGaAlP	601	water clear	480	1300	20°
KM2520SECK03	InGaAlP	601	water clear	180	700	20°
KM2520YD03	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM2520YC03	GaAsP/GaP	588	water clear	10	30	20°
KM2520SYC03	InGaAlP	588	water clear	110	700	20°
KM2520SYCK03	InGaAlP	590	water clear	70	300	20°
KM2520SGD03	GaP	568	green diffused	2.6	10	40°
KM2520SGC03	GaP	568	water clear	36	80	20°
KM2520MGC03	InGaAlP	568	water clear	280	600	20°
KM2520CGCK03	InGaAlP	570	water clear	110	400	20°
KM2520QBC-C03	GaN	470	water clear	110	400	20°
KM2520PBC03	InGaN	470	water clear	110	250	20°



KM2520ID08	GaAsP/GaP	625	red diffused	7	30	40°
KM2520EC08	GaAsP/GaP	625	water clear	10	70	20°
KM2520SRD08	GaAlAs	640	red diffused	50	150	40°
KM2520SRC08	GaAlAs	640	water clear	110	600	20°
KM2520SURC08	InGaAlP	628	water clear	280	1000	20°
KM2520SURCK08	InGaAlP	635	water clear	180	650	20°
KM2520SEC08	InGaAlP	601	water clear	480	1300	20°
KM2520SECK08	InGaAlP	601	water clear	180	700	20°
KM2520YD08	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM2520YC08	GaAsP/GaP	588	water clear	10	30	20°
KM2520SYC08	InGaAlP	588	water clear	110	700	20°
KM2520SYCK08	InGaAlP	590	water clear	70	300	20°
KM2520SGD08	GaP	568	green diffused	2.6	10	40°
KM2520SGC08	GaP	568	water clear	36	80	20°
KM2520MGC08	InGaAlP	568	water clear	280	600	20°
KM2520CGCK08	InGaAlP	570	water clear	110	400	20°
KM2520QBC-C08	GaN	470	water clear	110	400	20°
KM2520PBC08	InGaN	470	water clear	110	250	20°



KM2520ID09	GaAsP/GaP	625	red diffused	7	30	40°
KM2520EC09	GaAsP/GaP	625	water clear	10	70	20°
KM2520SRD09	GaAlAs	640	red diffused	50	150	40°
KM2520SRC09	GaAlAs	640	water clear	110	600	20°
KM2520SURC09	InGaAlP	628	water clear	280	1000	20°
KM2520SURCK09	InGaAlP	635	water clear	180	650	20°
KM2520SEC09	InGaAlP	601	water clear	480	1300	20°
KM2520SECK09	InGaAlP	601	water clear	180	700	20°
KM2520YD09	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM2520YC09	GaAsP/GaP	588	water clear	10	30	20°
KM2520SYC09	InGaAlP	588	water clear	110	700	20°
KM2520SYCK09	InGaAlP	590	water clear	70	300	20°
KM2520SGD09	GaP	568	green diffused	2.6	10	40°
KM2520SGC09	GaP	568	water clear	36	80	20°
KM2520MGC09	InGaAlP	568	water clear	280	600	20°
KM2520CGCK09	InGaAlP	570	water clear	110	400	20°
KM2520QBC-C09	GaN	470	water clear	110	400	20°
KM2520PBC09	InGaN	470	water clear	110	250	20°

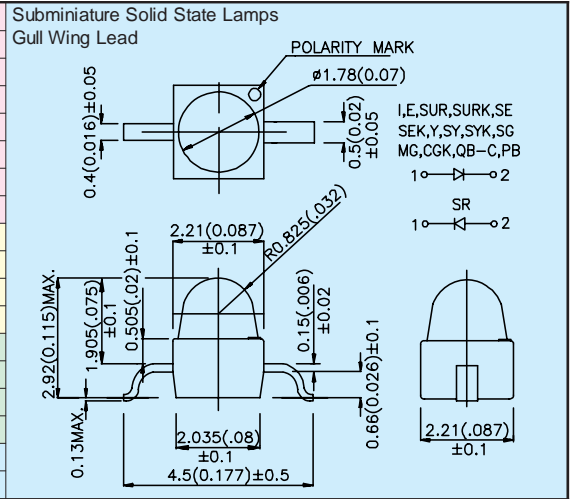


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

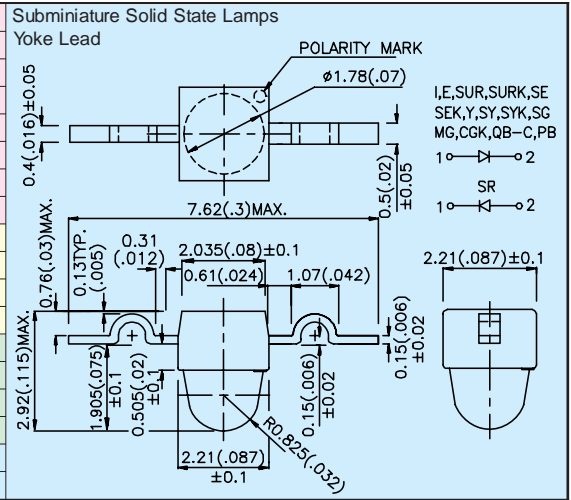


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle	Dimension
				Min.	Typ.		

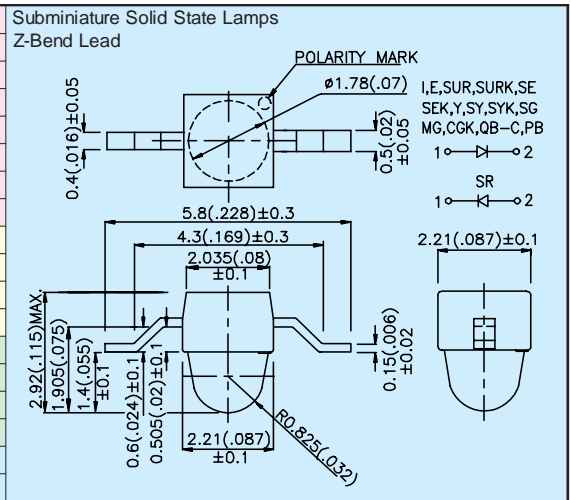
KM-27ID-03	GaAsP/GaP	625	red diffused	7	30	40°
KM-27EC-03	GaAsP/GaP	625	water clear	10	70	20°
KM-27SRD-03	GaAlAs	640	red diffused	50	150	40°
KM-27SRC-03	GaAlAs	640	water clear	110	600	20°
KM-27SURC-03	InGaAlP	628	water clear	280	1000	20°
KM-27SURCK-03	InGaAlP	635	water clear	180	650	20°
KM-27SEC-03	InGaAlP	601	water clear	480	1300	20°
KM-27SECK-03	InGaAlP	601	water clear	180	700	20°
KM-27YD-03	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM-27YC-03	GaAsP/GaP	588	water clear	10	30	20°
KM-27SYC-03	InGaAlP	588	water clear	110	700	20°
KM-27SYCK-03	InGaAlP	590	water clear	70	300	20°
KM-27SGD-03	GaP	568	green diffused	2.6	10	40°
KM-27SGC-03	GaP	568	water clear	36	80	20°
KM-27MGC-03	InGaAlP	568	water clear	280	600	20°
KM-27CGCK-03	InGaAlP	570	water clear	110	400	20°
KM-27QBC-C-03	GaN	470	water clear	110	400	20°
KM-27PBC-03	InGaN	470	water clear	110	250	20°



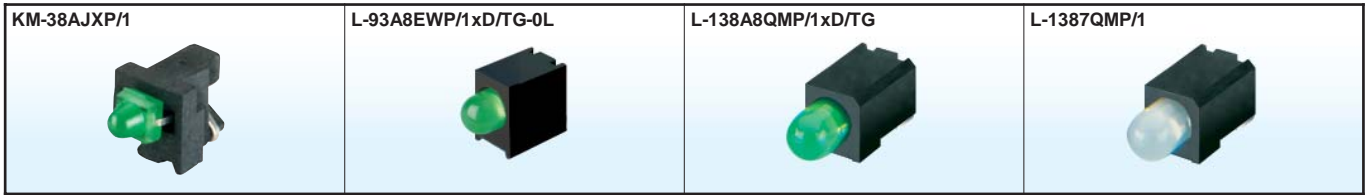
KM-27ID-08	GaAsP/GaP	625	red diffused	7	30	40°
KM-27EC-08	GaAsP/GaP	625	water clear	10	70	20°
KM-27SRD-08	GaAlAs	640	red diffused	50	150	40°
KM-27SRC-08	GaAlAs	640	water clear	110	600	20°
KM-27SURC-08	InGaAlP	628	water clear	280	1000	20°
KM-27SURCK-08	InGaAlP	635	water clear	180	650	20°
KM-27SEC-08	InGaAlP	601	water clear	480	1300	20°
KM-27SECK-08	InGaAlP	601	water clear	180	700	20°
KM-27YD-08	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM-27YC-08	GaAsP/GaP	588	water clear	10	30	20°
KM-27SYC-08	InGaAlP	588	water clear	110	700	20°
KM-27SYCK-08	InGaAlP	590	water clear	70	300	20°
KM-27SGD-08	GaP	568	green diffused	2.6	10	40°
KM-27SGC-08	GaP	568	water clear	36	80	20°
KM-27MGC-08	InGaAlP	568	water clear	280	600	20°
KM-27CGCK-08	InGaAlP	570	water clear	110	400	20°
KM-27QBC-C-08	GaN	470	water clear	110	400	20°
KM-27PBC-08	InGaN	470	water clear	110	250	20°



KM-27ID-09	GaAsP/GaP	625	red diffused	7	30	40°
KM-27EC-09	GaAsP/GaP	625	water clear	10	70	20°
KM-27SRD-09	GaAlAs	640	red diffused	50	150	40°
KM-27SRC-09	GaAlAs	640	water clear	110	600	20°
KM-27SURC-09	InGaAlP	628	water clear	280	1000	20°
KM-27SURCK-09	InGaAlP	635	water clear	180	650	20°
KM-27SEC-09	InGaAlP	601	water clear	480	1300	20°
KM-27SECK-09	InGaAlP	601	water clear	180	700	20°
KM-27YD-09	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM-27YC-09	GaAsP/GaP	588	water clear	10	30	20°
KM-27SYC-09	InGaAlP	588	water clear	110	700	20°
KM-27SYCK-09	InGaAlP	590	water clear	70	300	20°
KM-27SGD-09	GaP	568	green diffused	2.6	10	40°
KM-27SGC-09	GaP	568	water clear	36	80	20°
KM-27MGC-09	InGaAlP	568	water clear	280	600	20°
KM-27CGCK-09	InGaAlP	570	water clear	110	400	20°
KM-27QBC-C-09	GaN	470	water clear	110	400	20°
KM-27PBC-09	InGaN	470	water clear	110	250	20°



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



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @10mA *20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

KM-38AJXP/1ID	GaAsP/GaP	625	red diffused	*7	*30	40°	<p>Right Angle LED Indicator</p> <p>LED: KM-27XXD-10</p>
KM-38AJXP/1SEDK	InGaAlP	601	orange diffused	*380	*700	40°	
KM-38AJXP/1SGD	GaP	568	green diffused	*2.6	*10	40°	
KM-38AJXP/1CGDK	InGaAlP	570	green diffused	*18	*50	40°	
KM-38AJXP/1YD	GaAsP/GaP	588	yellow diffused	*2.6	*10	40°	
KM-38AJXP/1SYDK	InGaAlP	590	yellow diffused	*18	*50	40°	
KM-38AJXP/1SURDK	InGaAlP	635	red diffused	*180	*380	40°	

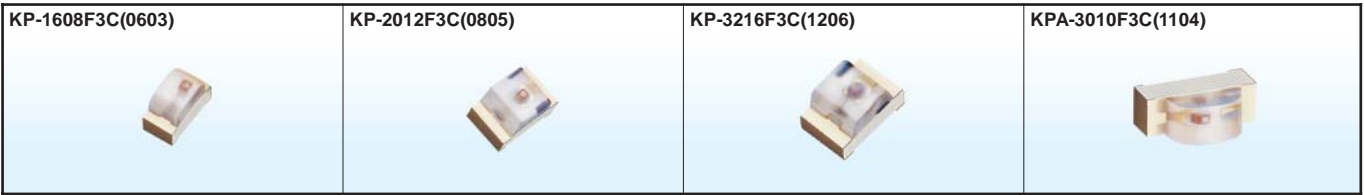
L-93A8EWP/1ID/TG-0L	GaAsP/GaP	625	red diffused	12	25	60°	<p>T-1 (3mm) Right Angle</p>
L-93A8EWP/1SRD/TG-0L	GaAlAs	640	red diffused	*110	*280	60°	
L-93A8EWP/1YD/TG-0L	GaAsP/GaP	588	yellow diffused	5	12	60°	
L-93A8EWP/1GD/TG-0L	GaP	568	green diffused	8	20	60°	

L-138A8QMP/1ID/TG	GaAsP/GaP	625	red diffused	12	20	60°	<p>3.4mm Right Angle</p>
L-138A8QMP/1SRD/TG	GaAlAs	640	red diffused	*110	*250	60°	
L-138A8QMP/1YD/TG	GaAsP/GaP	588	yellow diffused	8	15	60°	
L-138A8QMP/1GD/TG	GaP	568	green diffused	8	15	60°	

L-1387QMP/1EGW	GaAsP/GaP	625	white diffused	*7	*20	60°	<p>3.4mm Right Angle</p>
	GaP	568		*7	*20		
L-1387QMP/1GYW	GaP	568	white diffused	*7	*20	60°	
	GaAsP/GaP	588		*4	*10		
L-1387QMP/1SURKCGKW	InGaAlP	635	white diffused	*70	*300	60°	
	InGaAlP	570		*50	*120		
L-1387QMP/1CGKPBW	InGaAlP	570	white diffused	*50	*120	60°	
	InGaN	470		*36	*150		

NOTES:

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



Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA		Viewing Angle 2 θ 1/2	Dimension
				Min.	Typ.		
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°	

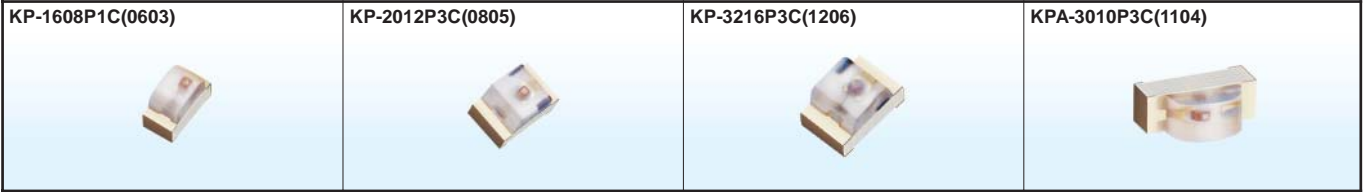
NOTES:
 1. All dimensions are in millimeters(inches).
 2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.



Part No.	Material	λ P (nm)	Lens Type	Po (mW/sr) @20mA *50mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		
KPL-3015F3C	GaAs	940	water clear	0.4	1.2	70°	3.0mm x 1.5mm x 1.4mm (1106) Units : mm(inch) Tolerance : ±0.2(0.008)
KPL-3015SF4C	GaAlAs	880	water clear	0.4	1	70°	
KA-3528F3C	GaAs	940	water clear	1.6	3	120°	3.5mm x 2.8mm
KA-3528SF4C	GaAlAs	880	water clear	*2.6	*8	120°	
KM2520F3C03	GaAs	940	water clear	1.6	6	20°	2mm Subminiature IR Emitter
KM2520SF4C03	GaAlAs	880	water clear	*10	*15	20°	
				1.6	4	20°	
				*2.6	*8	20°	

NOTES:

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



PHOTOTRANSISTORS

1.6mm x 0.8mm x 1.1mm (0603)

- KP-1608P1C WATER CLEAR LENS
- KP-1608P1BT BLUE TRANSPARENT LENS

2.0mm x 1.25mm x 1.1mm (0805)

- KP-2012P3C WATER CLEAR LENS
- KP-2012P3BT BLUE TRANSPARENT LENS

3.2mm x 1.6mm x 1.1mm (1206)

- KP-3216P3C WATER CLEAR LENS
- KP-3216P3BT BLUE TRANSPARENT LENS

3.0mm x 1.0mm x 2.0mm (1104)

- KPA-3010P3C WATER CLEAR LENS
- KPA-3010P3BT BLUE TRANSPARENT LENS

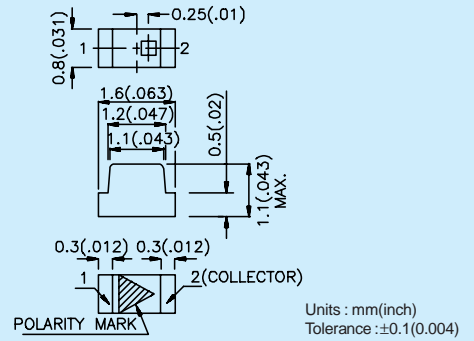
ABSOLUTE MAXIMUM RATING $T_A=25^\circ\text{C}$

Parameter	Max. Ratings
Collector-to-Emitter Breakdown Voltage	30V
Emitter-to-Collector Breakdown 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

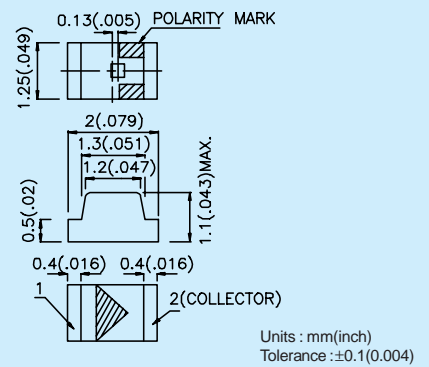
ELECTRICAL AND RADIANT CHARACTERISTICS $T_A=25^\circ\text{C}$

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Condition
$V_{BR\ CE0}$	Collector-to-Emitter Breakdown Voltage	30	-	-	V	$I_C=100\mu\text{A}$ $E_e=0\text{mW}/\text{cm}^2$
$V_{BR\ EC0}$	Emitter-to-Collector Breakdown Voltage	5	-	-	V	$I_E=100\mu\text{A}$ $E_e=0\text{mW}/\text{cm}^2$
$V_{CE(SAT)}$	Collector-to-Emitter Saturation Voltage	-	-	0.8	V	$I_C=2\text{mA}$ $E_e=20\text{mW}/\text{cm}^2$
I_{CE0}	Collector Dark Current	-	-	100	nA	$V_{CE}=10\text{V}$ $E_e=0\text{mW}/\text{cm}^2$
T_R	Rise Time (10% to 90%)	-	3	-	μs	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $R_L=1\text{K}\Omega$
T_F	Fall Time (90% to 10%)	-	3	-	μs	
$I_{(ON)}$	On State Collector Current	0.1	0.3	-	mA	$V_{CE}=5\text{V}$, $E_e=1\text{mW}/\text{cm}^2$, $\lambda=940\text{nm}$

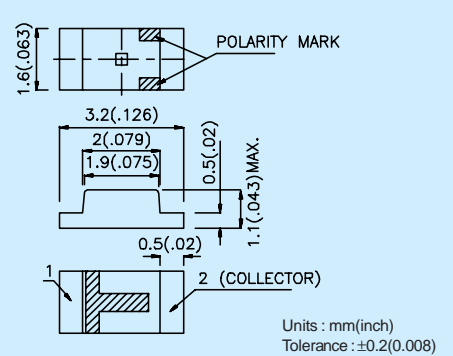
KP-1608P1 1.6mm x 0.8mm x 1.1mm (0603)



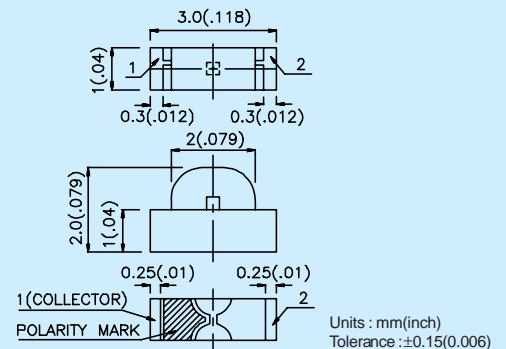
KP-2012P3 2.0mm x 1.25mm x 1.1mm (0805)



KP-3216P3 3.2mm x 1.6mm x 1.1mm (1206)



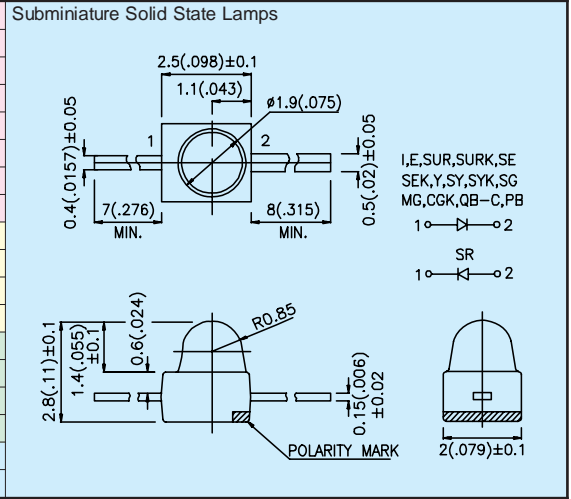
KPA-3010P3 3.0mm x 1.0mm x 2.0mm (1104)



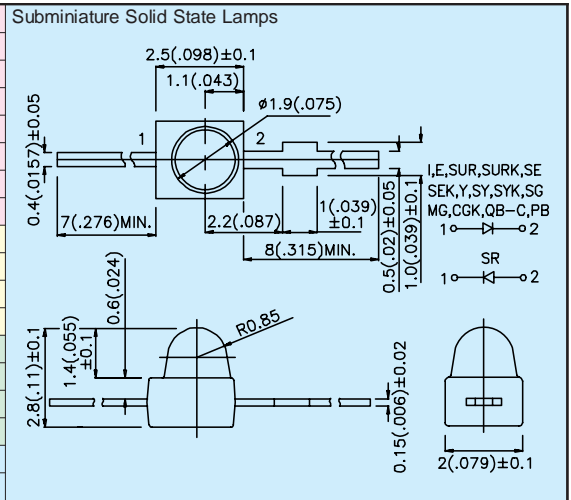


Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @20mA		Viewing Angle 2θ1/2	Dimension
				Min.	Typ.		

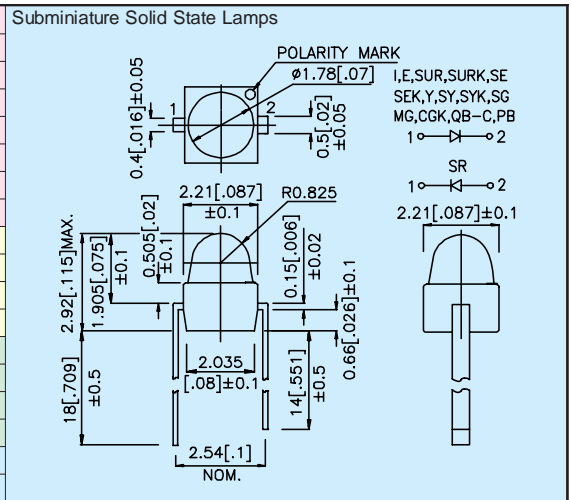
KM2520ID01	GaAsP/GaP	625	red diffused	7	30	40°
KM2520EC01	GaAsP/GaP	625	water clear	10	70	20°
KM2520SRD01	GaAlAs	640	red diffused	50	150	40°
KM2520SRC01	GaAlAs	640	water clear	110	600	20°
KM2520SURC01	InGaAlP	628	water clear	280	1000	20°
KM2520SURCK01	InGaAlP	635	water clear	180	650	20°
KM2520SEC01	InGaAlP	601	water clear	480	1300	20°
KM2520SECK01	InGaAlP	601	water clear	180	700	20°
KM2520YD01	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM2520YC01	GaAsP/GaP	588	water clear	10	30	20°
KM2520YSC01	InGaAlP	588	water clear	110	700	20°
KM2520SYCK01	InGaAlP	590	water clear	70	300	20°
KM2520SGD01	GaP	568	green diffused	2.6	10	40°
KM2520SGC01	GaP	568	water clear	36	80	20°
KM2520MGC01	InGaAlP	568	water clear	280	600	20°
KM2520CGCK01	InGaAlP	570	water clear	110	400	20°
KM2520QBC-C01	GaN	470	water clear	110	400	20°
KM2520PBC01	InGaN	470	water clear	110	250	20°



KM2520ID02	GaAsP/GaP	625	red diffused	7	30	40°
KM2520EC02	GaAsP/GaP	625	water clear	10	70	20°
KM2520SRD02	GaAlAs	640	red diffused	50	150	40°
KM2520SRC02	GaAlAs	640	water clear	110	600	20°
KM2520SURC02	InGaAlP	628	water clear	280	1000	20°
KM2520SURCK02	InGaAlP	635	water clear	180	650	20°
KM2520SEC02	InGaAlP	601	water clear	480	1300	20°
KM2520SECK02	InGaAlP	601	water clear	180	700	20°
KM2520YD02	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM2520YC02	GaAsP/GaP	588	water clear	10	30	20°
KM2520YSC02	InGaAlP	588	water clear	110	700	20°
KM2520SYCK02	InGaAlP	590	water clear	70	300	20°
KM2520SGD02	GaP	568	green diffused	2.6	10	40°
KM2520SGC02	GaP	568	water clear	36	80	20°
KM2520MGC02	InGaAlP	568	water clear	280	600	20°
KM2520CGCK02	InGaAlP	570	water clear	110	400	20°
KM2520QBC-C02	GaN	470	water clear	110	400	20°
KM2520PBC02	InGaN	470	water clear	110	250	20°

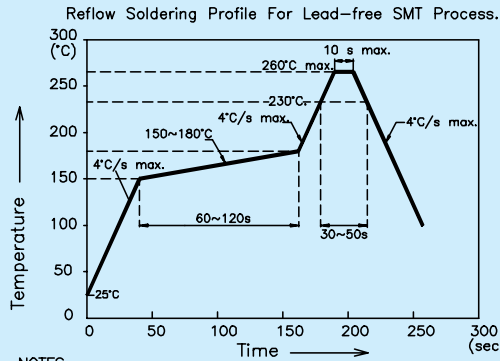


KM-27ID-10	GaAsP/GaP	625	red diffused	7	30	40°
KM-27EC-10	GaAsP/GaP	625	water clear	10	70	20°
KM-27SRD-10	GaAlAs	640	red diffused	50	150	40°
KM-27SRC-10	GaAlAs	640	water clear	110	600	20°
KM-27SURC-10	InGaAlP	628	water clear	280	1000	20°
KM-27SURCK-10	InGaAlP	635	water clear	180	650	20°
KM-27SEC-10	InGaAlP	601	water clear	480	1300	20°
KM-27SECK-10	InGaAlP	601	water clear	180	700	20°
KM-27YD-10	GaAsP/GaP	588	yellow diffused	2.6	10	40°
KM-27YC-10	GaAsP/GaP	588	water clear	10	30	20°
KM-27SYC-10	InGaAlP	588	water clear	110	700	20°
KM-27SYCK-10	InGaAlP	590	water clear	70	300	20°
KM-27SGD-10	GaP	568	green diffused	2.6	10	40°
KM-27SGC-10	GaP	568	water clear	36	80	20°
KM-27MGC-10	InGaAlP	568	water clear	280	600	20°
KM-27CGCK-10	InGaAlP	570	water clear	110	400	20°
KM-27QBC-C-10	GaN	470	water clear	110	400	20°
KM-27PBC-10	InGaN	470	water clear	110	250	20°



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

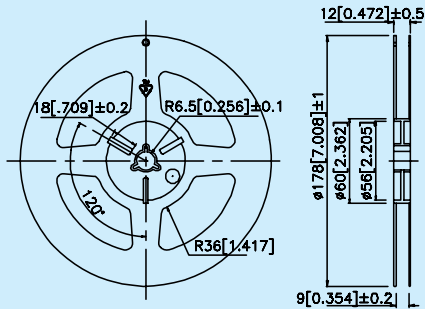
SMT Reflow Soldering Instructions



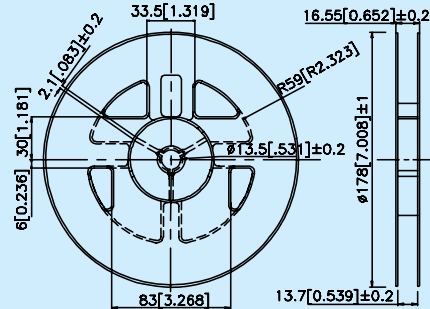
- NOTES:
1. We recommend the reflow temperature $245^{\circ}\text{C}(\pm 5^{\circ}\text{C})$. The maximum soldering temperature should be limited to 260°C .
 2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
 3. Number of reflow process shall be 2 times or less.

PART NO.	REEL DIMENSION
KA-3020, KM-23-F, KP-1608, KP-2012, KP-23-F, KP-3216, KPA-2106, KPA-3010, KPA-3210, KPBA-3025, KPBA-3010, KPBA-3210, KPBD-3224, KPBL-3025, KPC-3216, KPD-3224, KPEFA-3010, KPEKA-3224, KPFA-3210, KPHF-1612, KPHK-1608, KPHHS-1005, KPJA-2107, KPK-3020, KPK-3216, KPKA-2810, KPKE-3030, KPKE-3025, KPL-3015, KPT-1608, KPT-2012, KPT-3216, KPTB-1612, KPTB-1615, KPTC-2012, KPTK-2012, KPTD-3216, KPTR-3216, KPTR-3216.	7" (for 8mm width tape)
KPDX04, KPDX04, KPDX04, KPSX56.	13" (for 32mm width tape)
KA-2734, KA-3022-4.5SF, KA-3528, KA-4040, KA-5060, KAA-3528, KAA-5060, KAAF-5060, KM2520xxx03, KM2520xxx08, KM2520xxx09, KM-27xxx-03, KM-27xxx-08, KM-27xxx-09, KPD-2520-03, KPED-3528, KPED-3820, KPEFA-3029, KPEKA-4030, KPF-3236, KPJA-4008, KPK-3520, KPKA-4110, KPTKA-5614.	7" (for 12mm width tape)
KA-1010, KA-1011, KM-38AJXP/1, KPDX02, KPDX03, KPSX02, KPSX03, KPSX04, L-138A8QMP/1xD/TG, L-1387QMP/1, L-93A8EWP/1xD/TG-0L.	13" (for 24mm width tape)
KPDX56.	13" (for 44mm width tape)

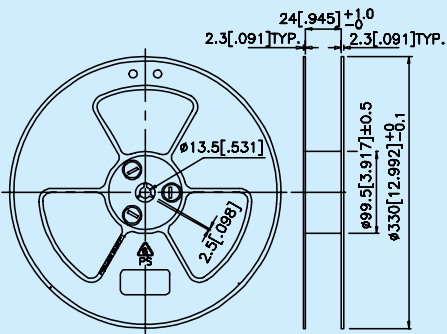
7" (for 8mm width tape)



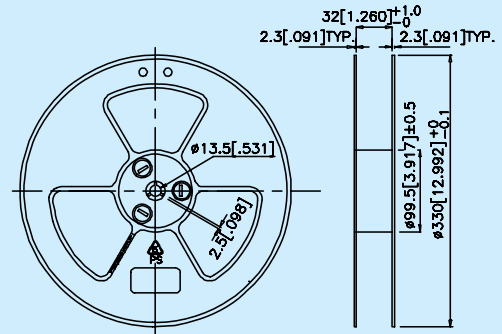
7" (for 12mm width tape)



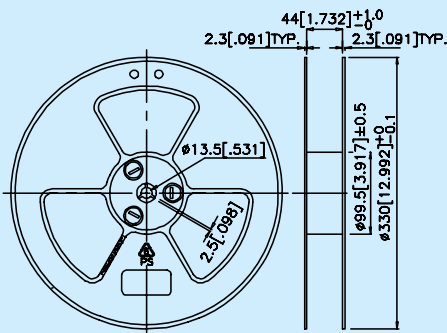
13" (for 24mm width tape)



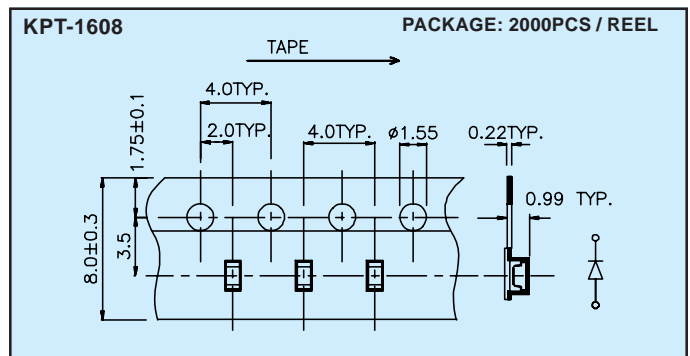
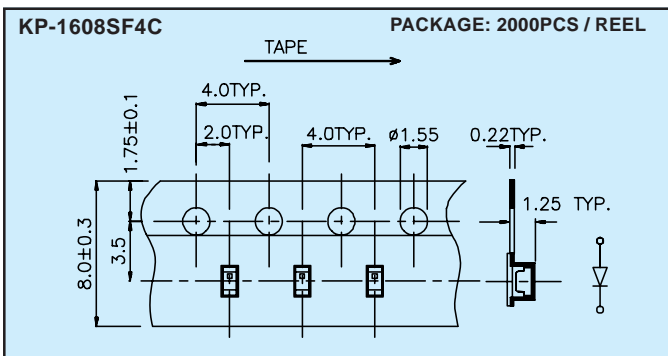
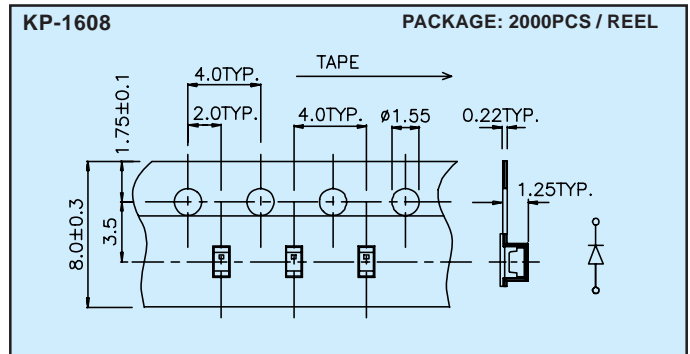
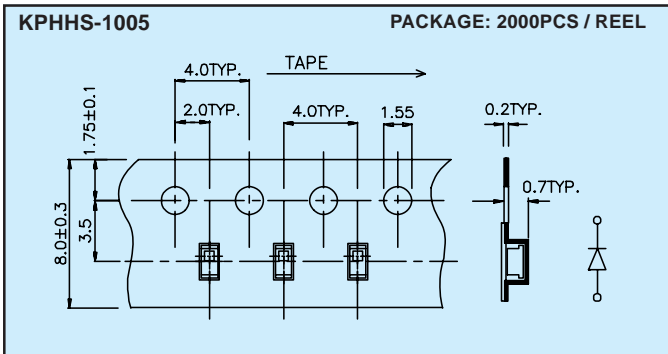
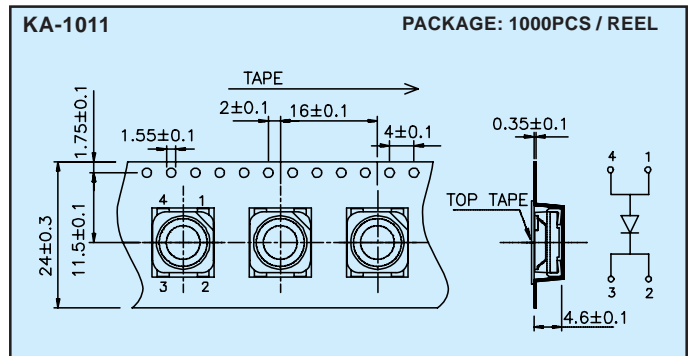
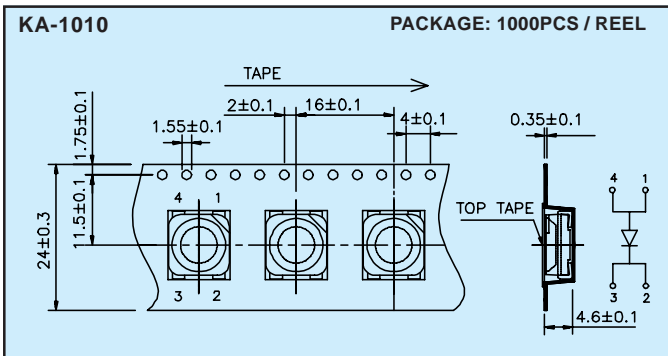
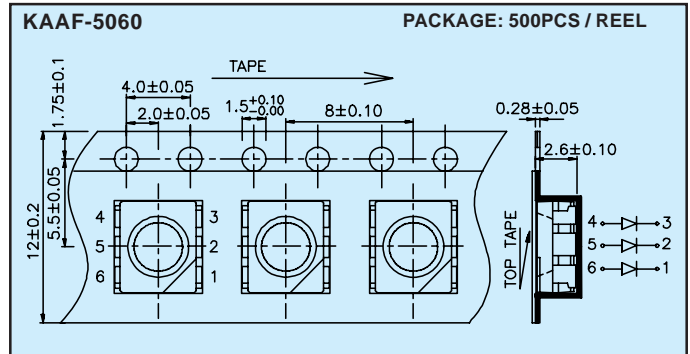
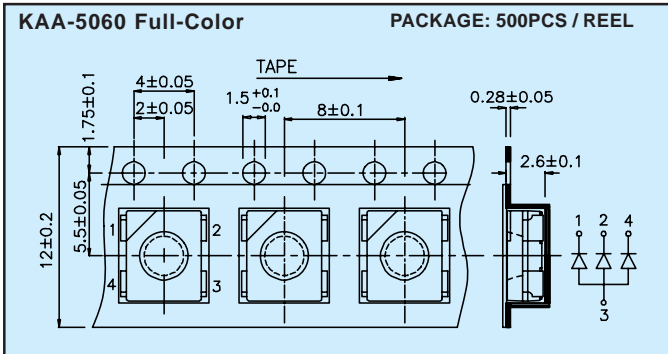
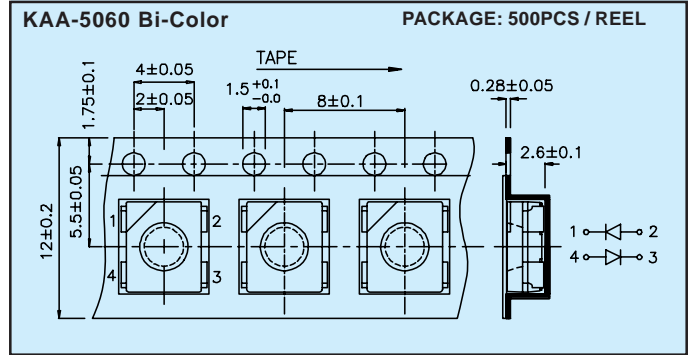
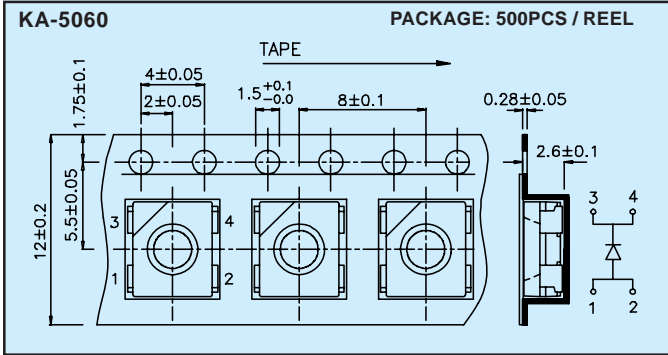
13" (for 32mm width tape)



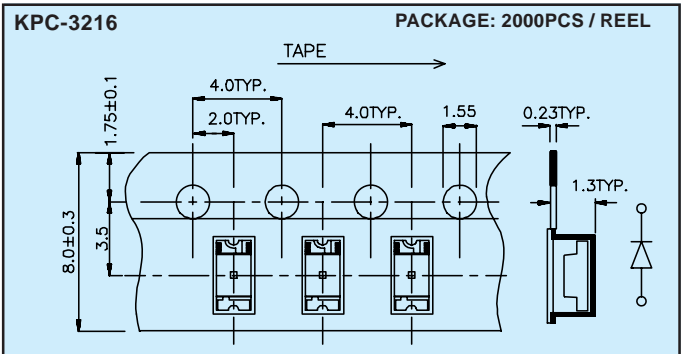
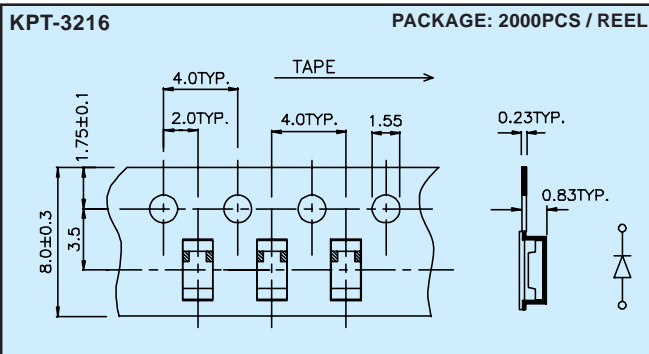
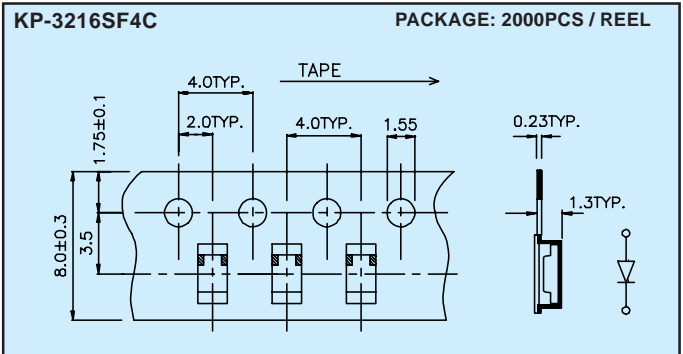
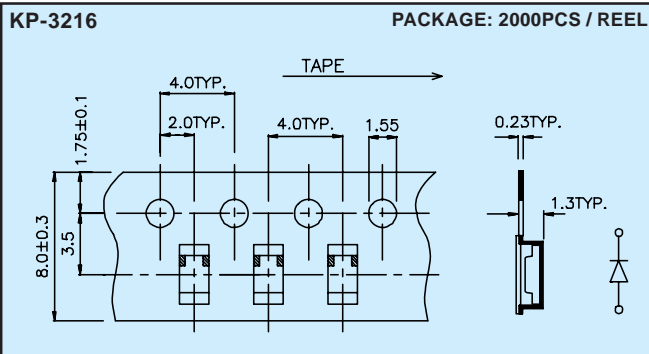
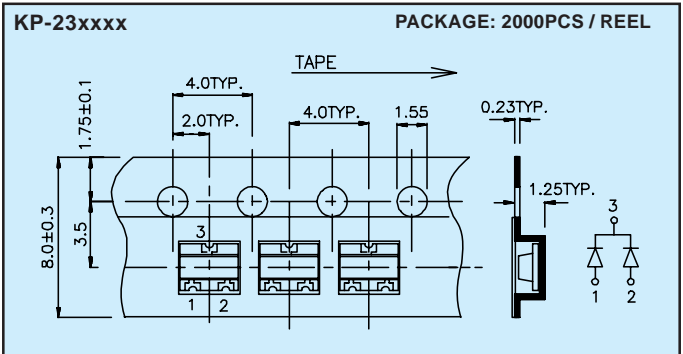
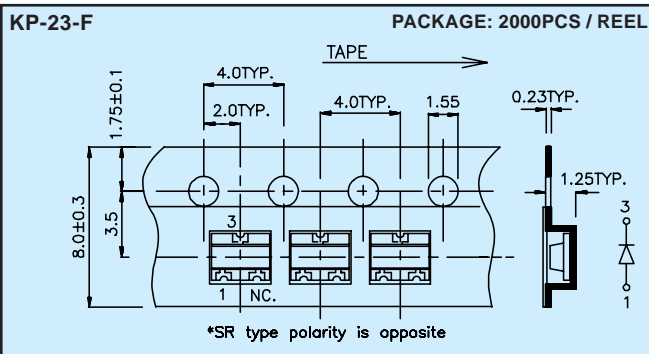
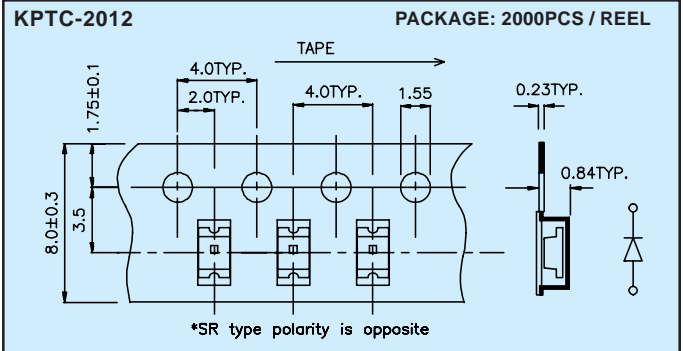
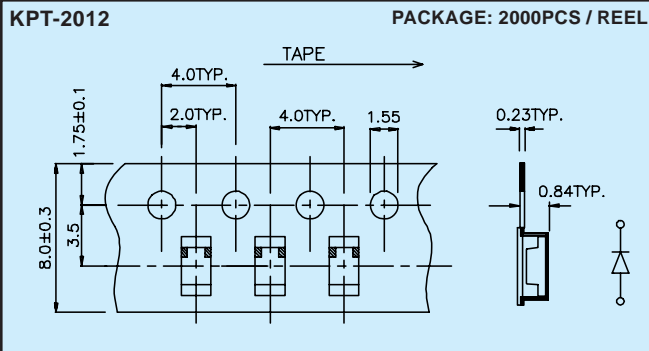
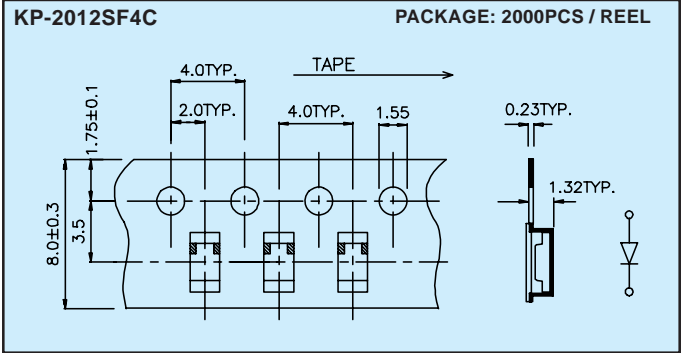
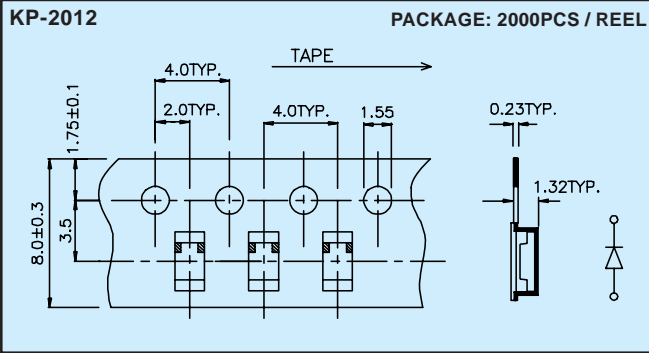
13" (for 44mm width tape)



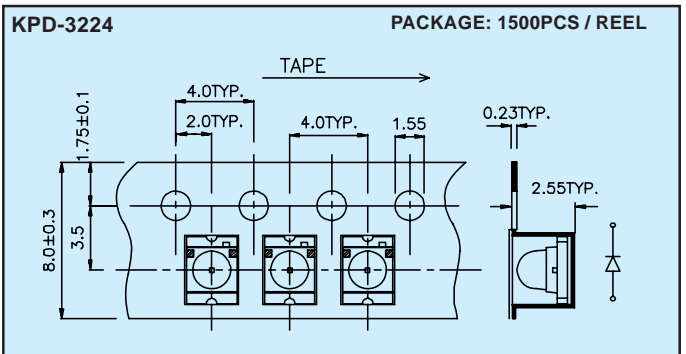
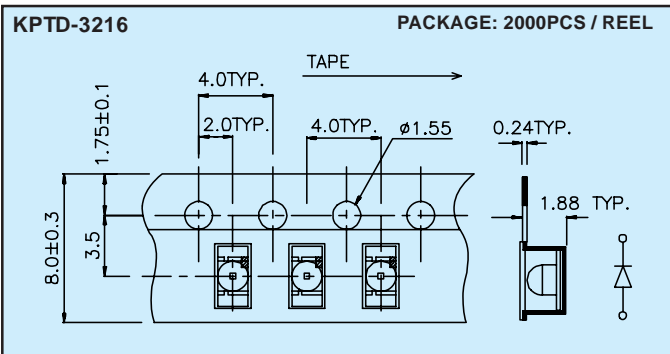
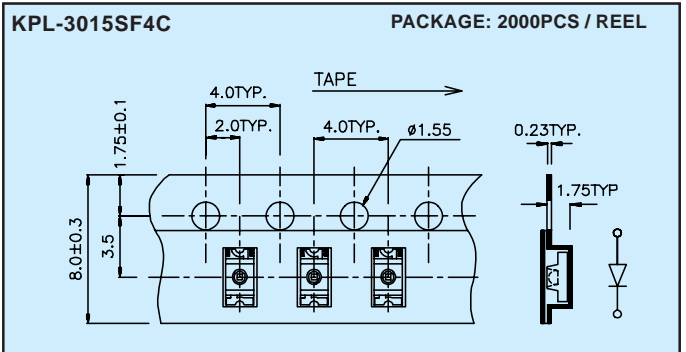
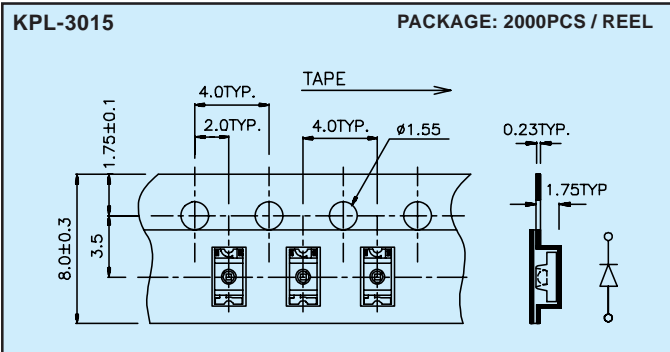
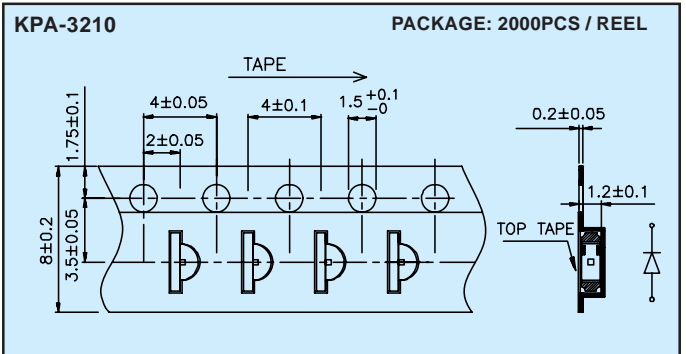
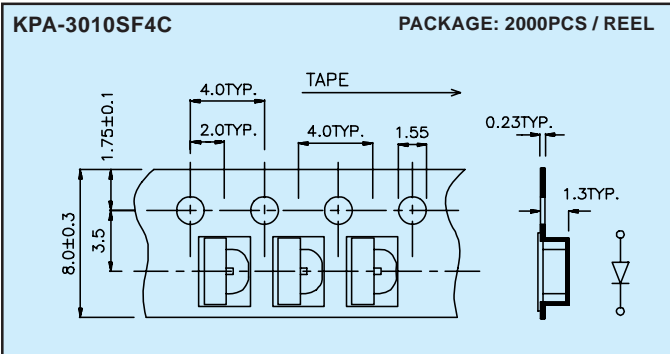
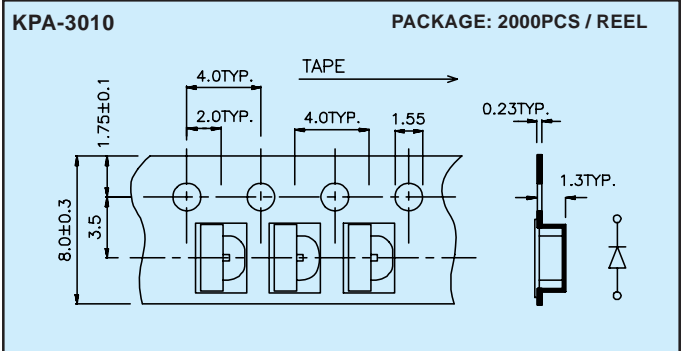
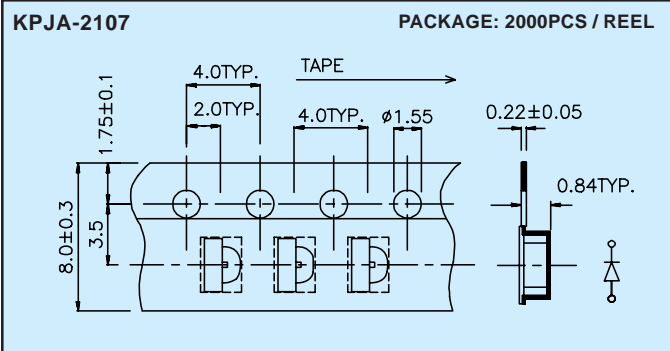
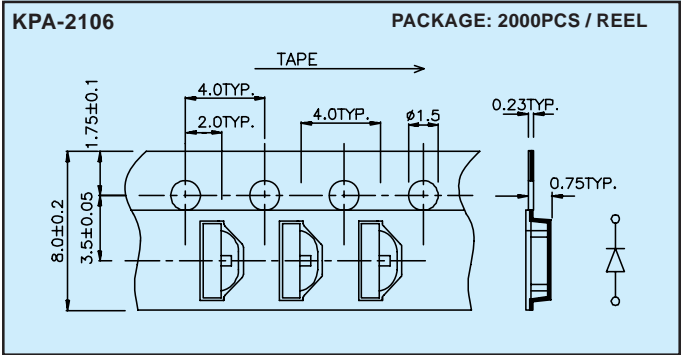
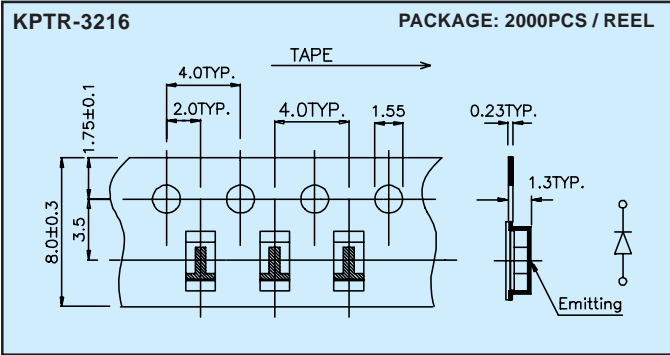
- NOTES:
1. All dimensions are in millimeters (inches).
 2. Tolerance is $\pm 0.25\text{mm} (0.01")$ unless otherwise noted.



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

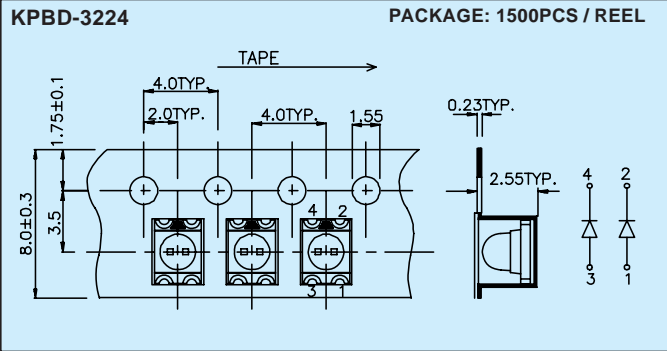
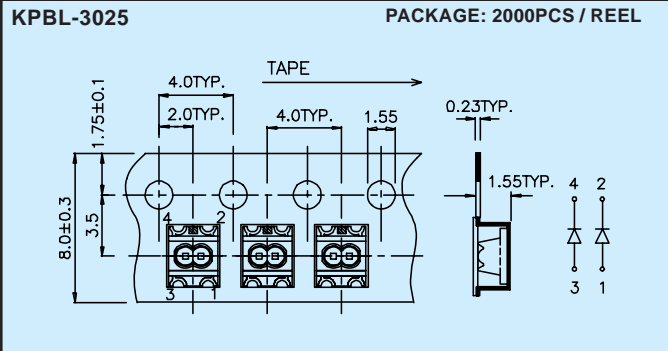
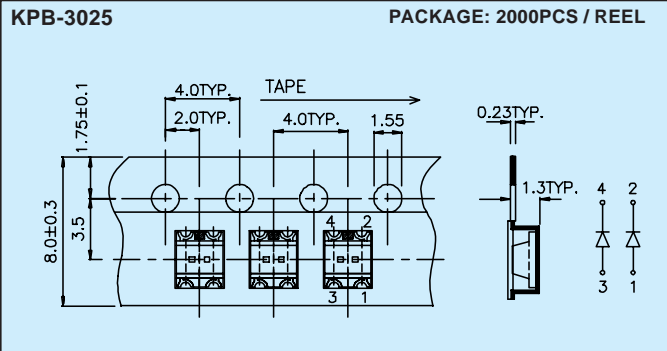
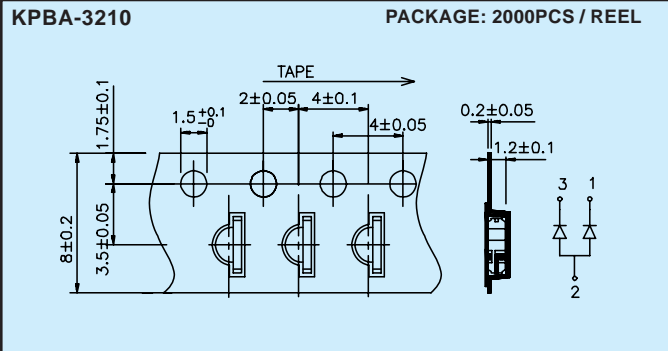
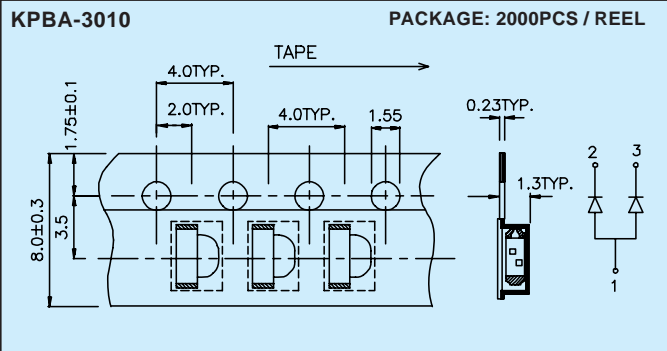
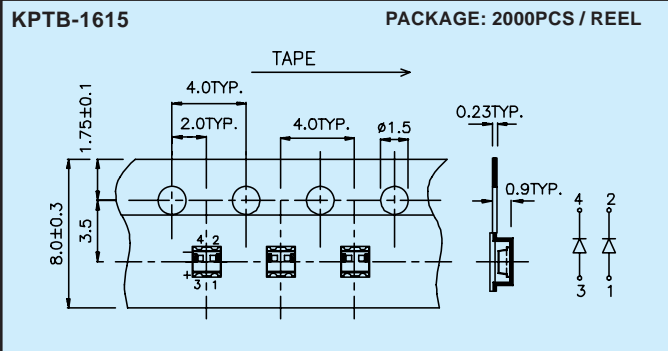
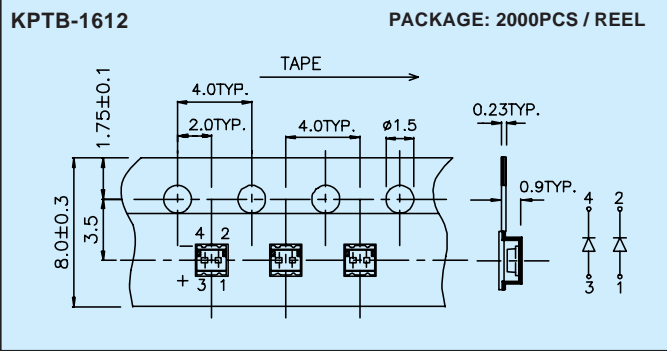
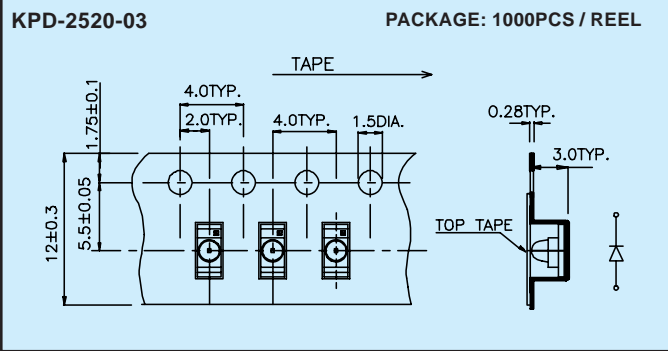
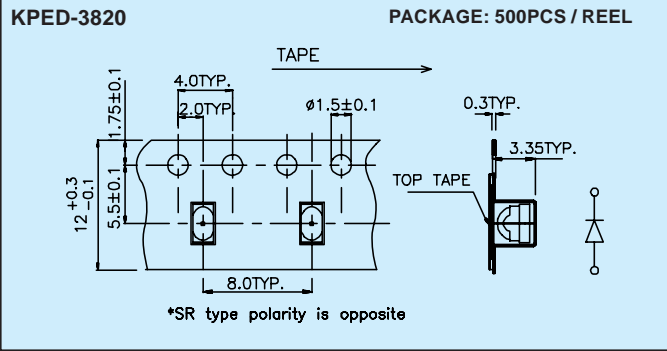
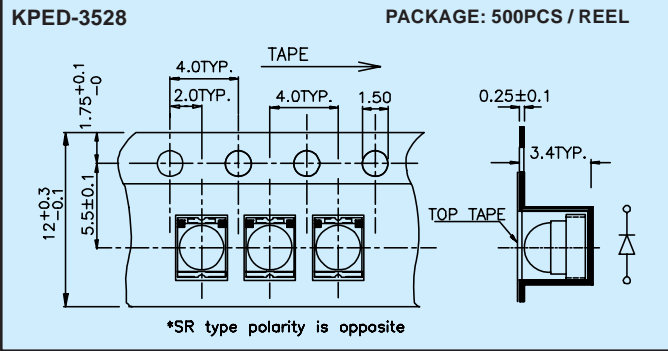


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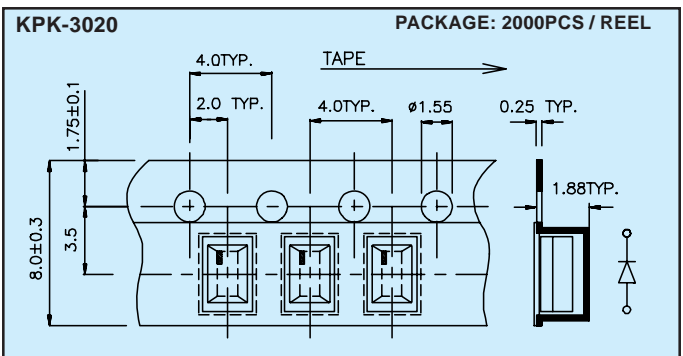
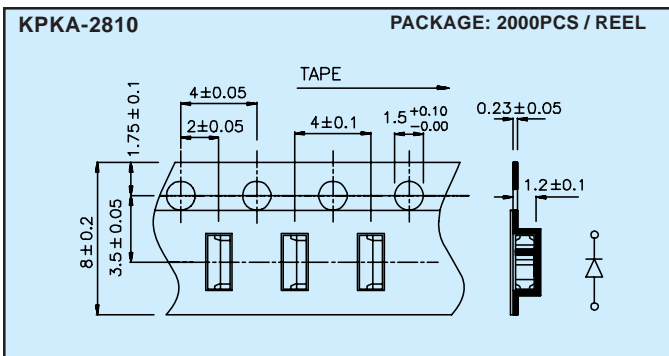
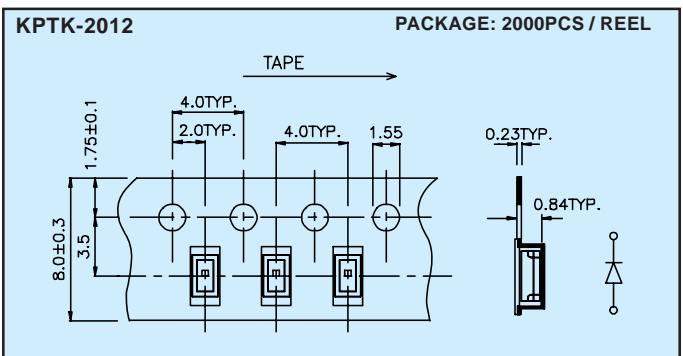
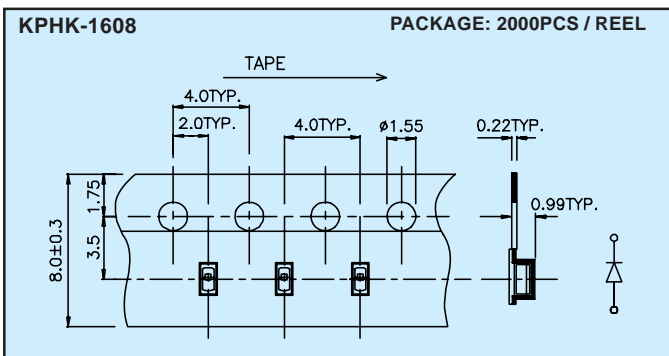
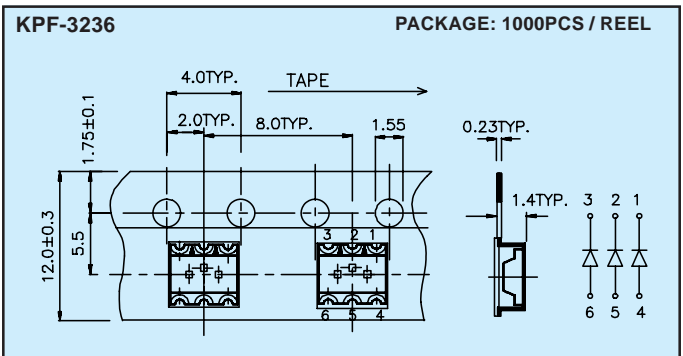
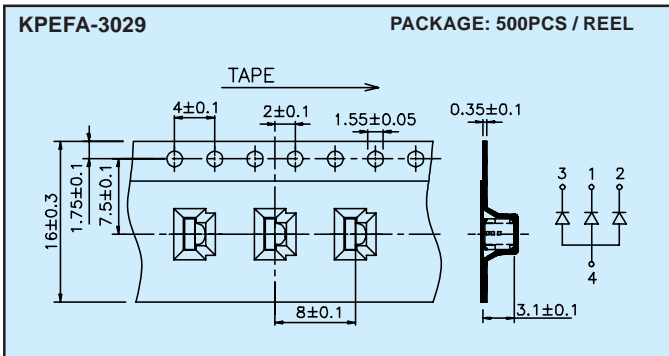
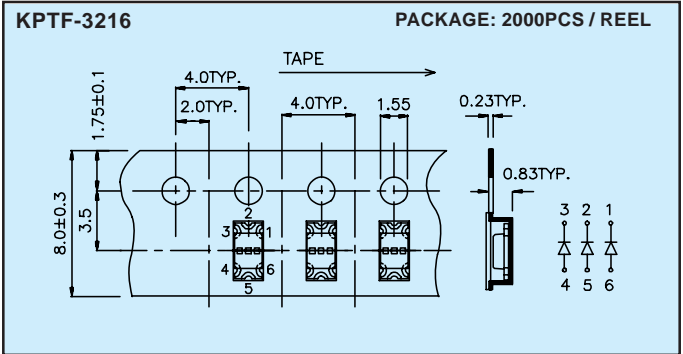
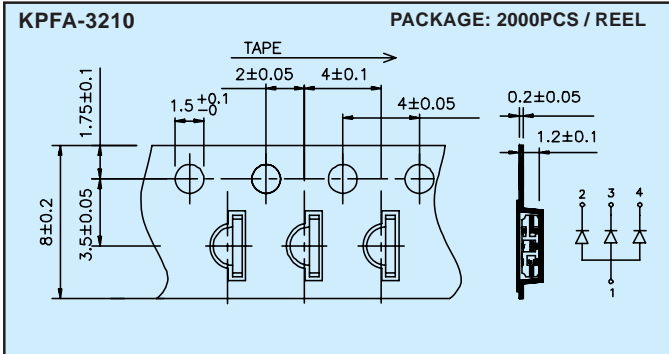
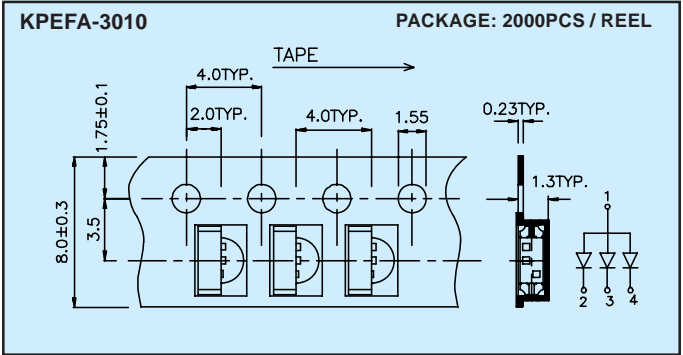
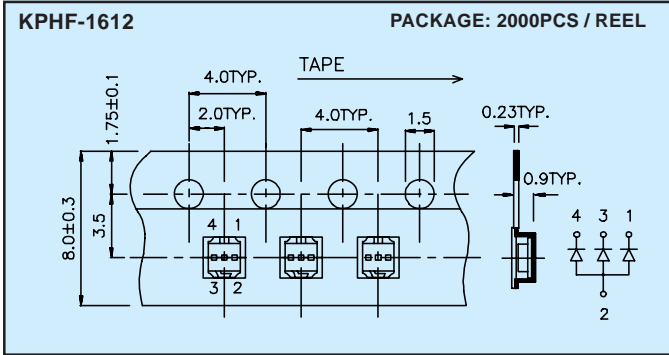


NOTES:

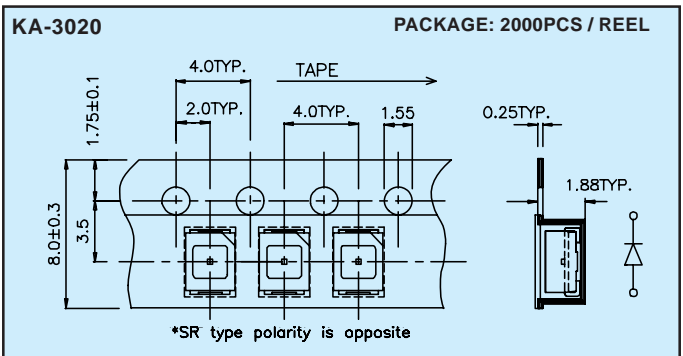
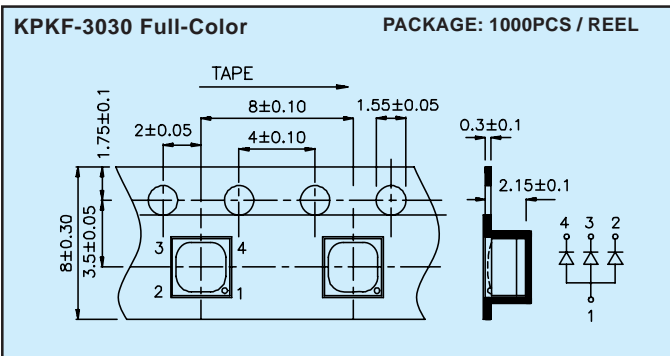
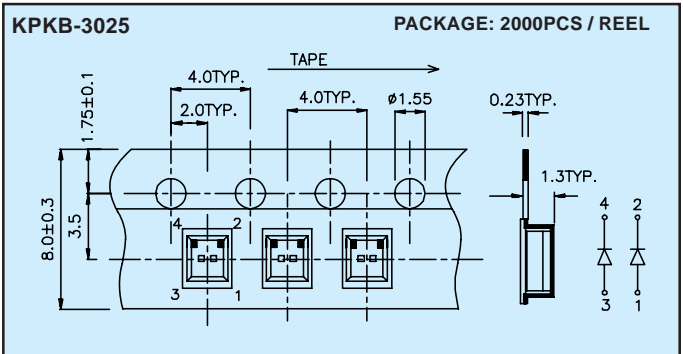
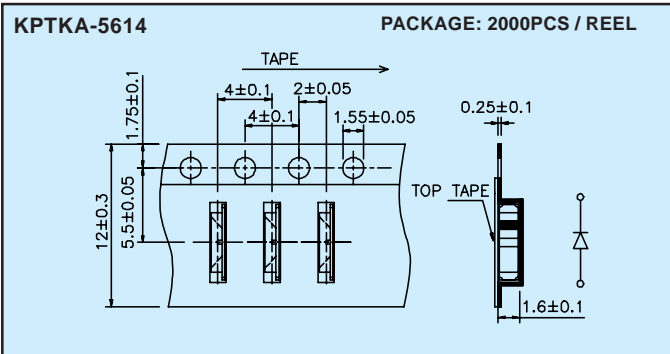
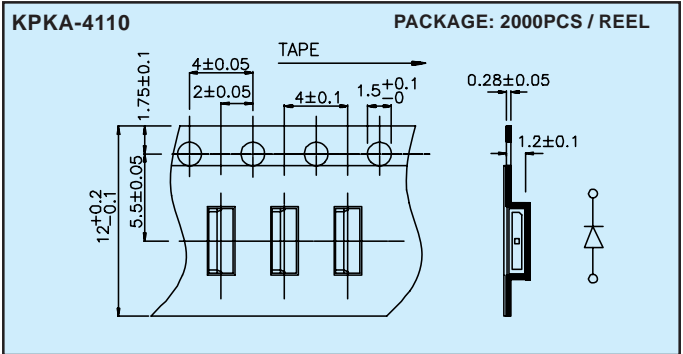
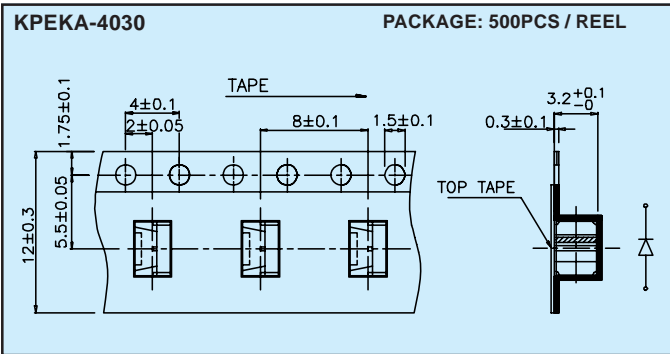
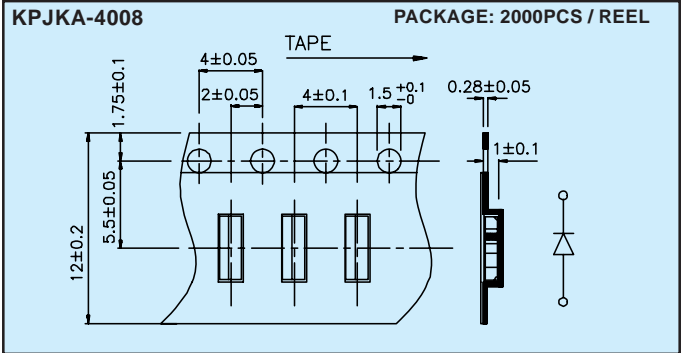
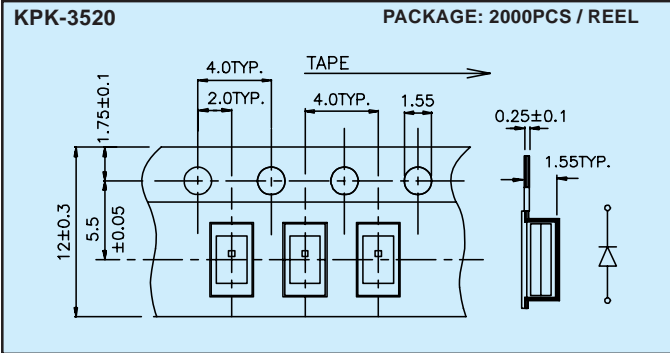
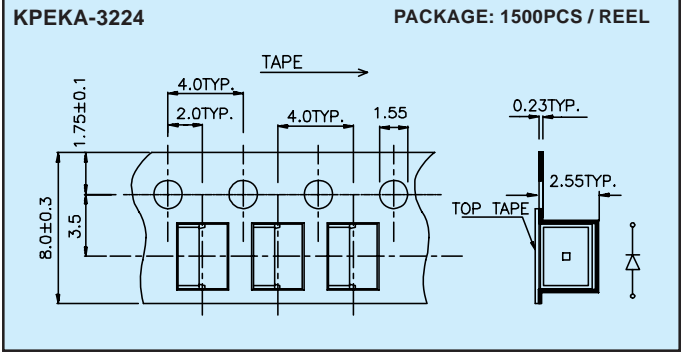
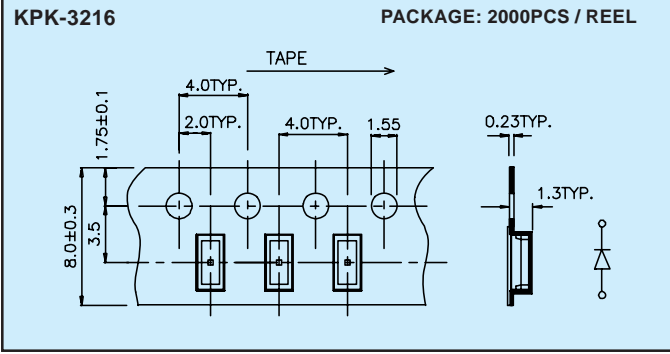
1. All dimensions are in millimeters (inches).
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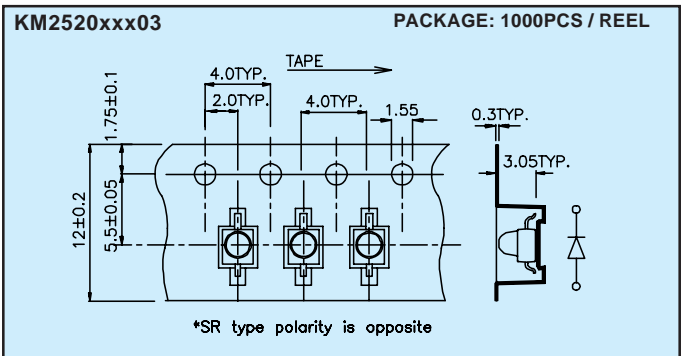
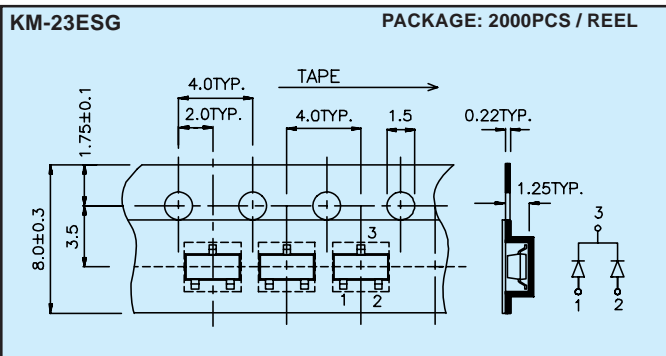
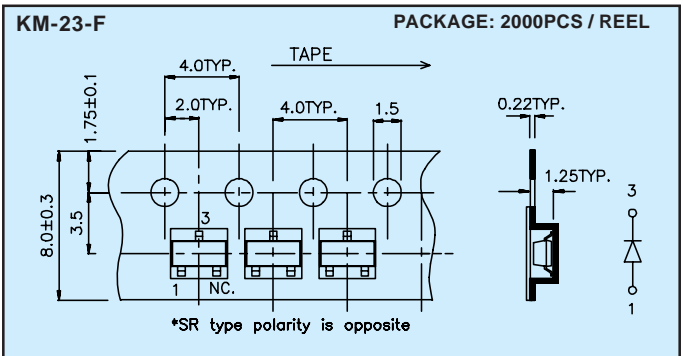
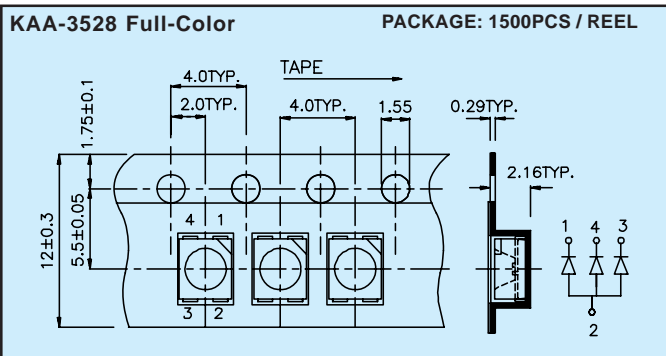
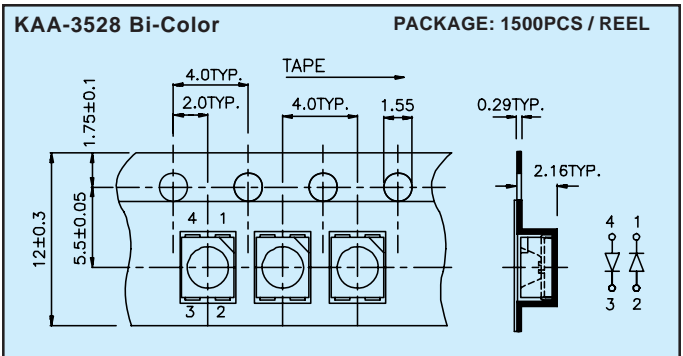
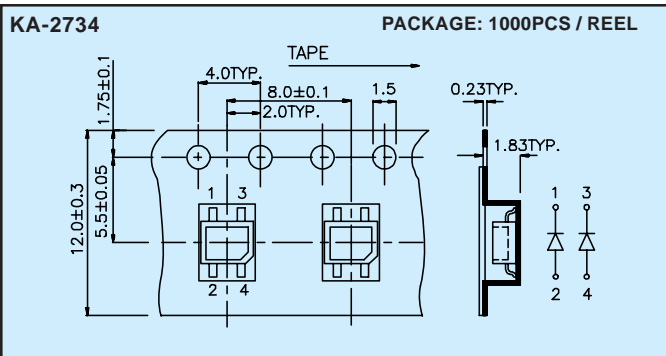
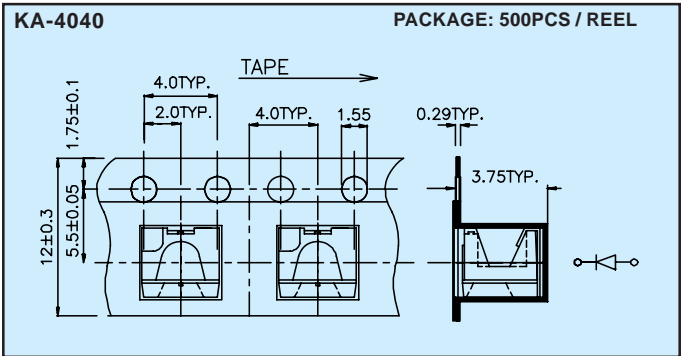
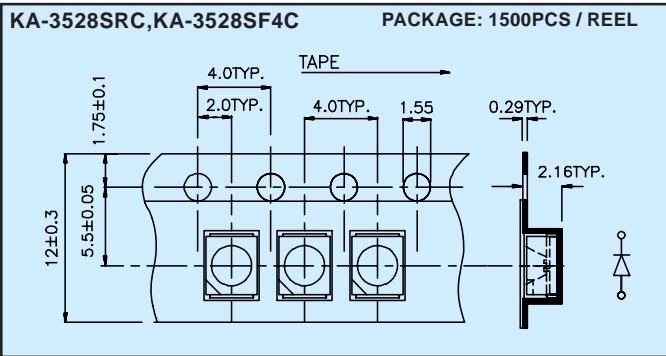
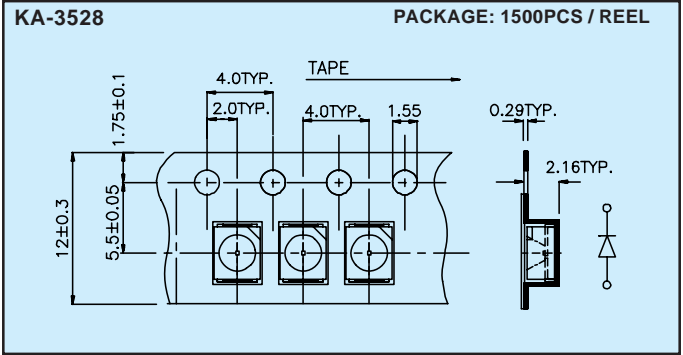
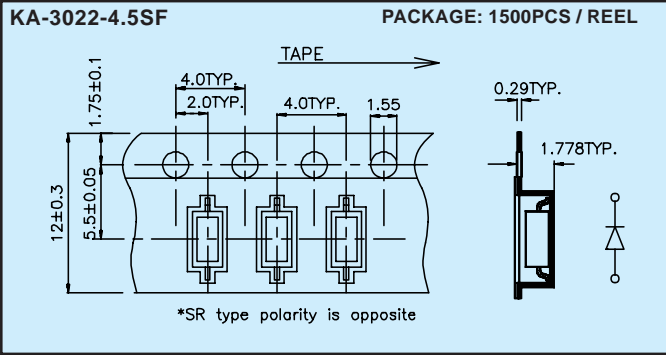
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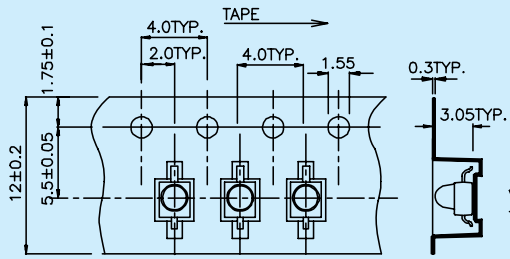
NOTES:
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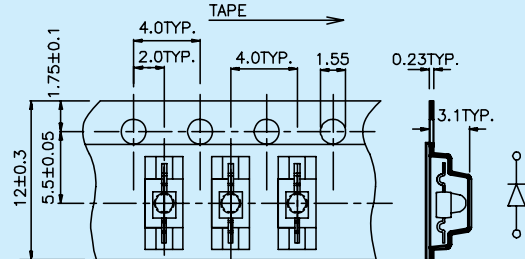
KM2520SF4C03

PACKAGE: 1000PCS / REEL



KM2520xxx08

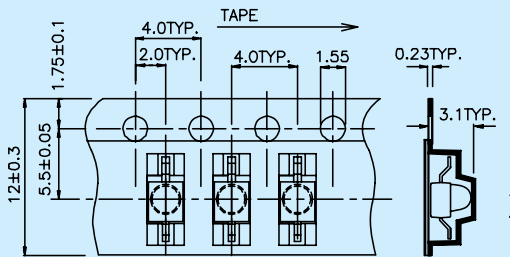
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* SR type polarity is opposite

KM2520xxx09

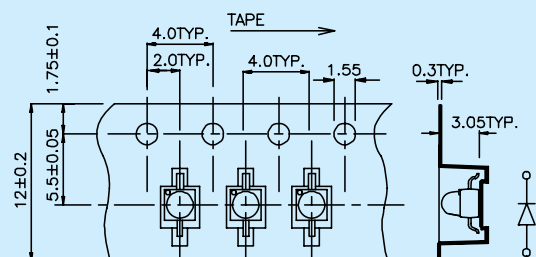
PACKAGE: 1000PCS / REEL



*SR type polarity is opposite

KM-27xxx-03

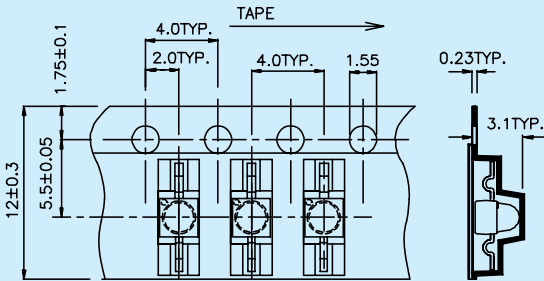
PACKAGE: 1000PCS / REEL



*SR type polarity is opposite

KM-27xxx-08

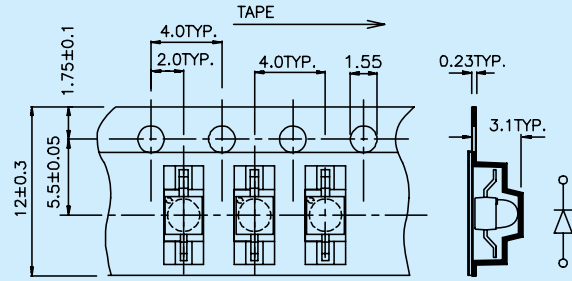
PACKAGE: 1000PCS / REEL



*SR type polarity is opposite

KM-27xxx-09

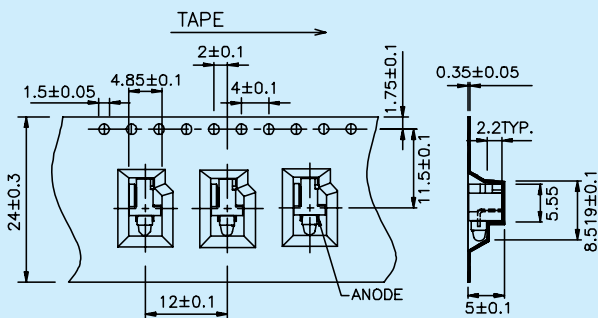
PACKAGE: 1000PCS / REEL



*SR type polarity is opposite

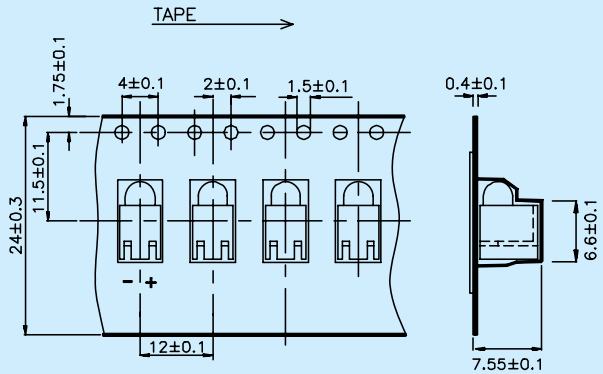
KM-38AJXP/1

PACKAGE: 500PCS / REEL



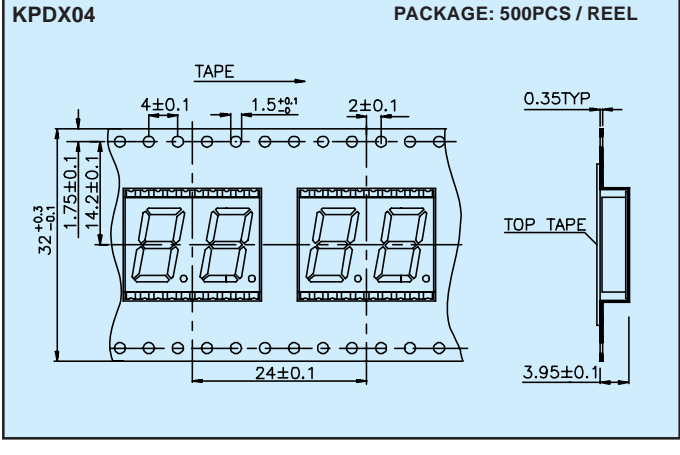
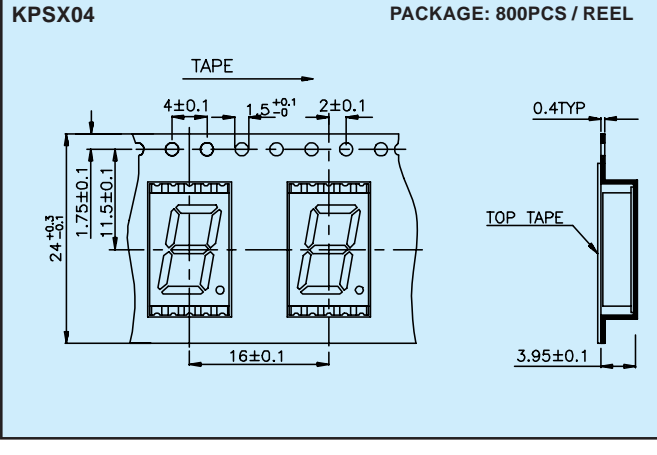
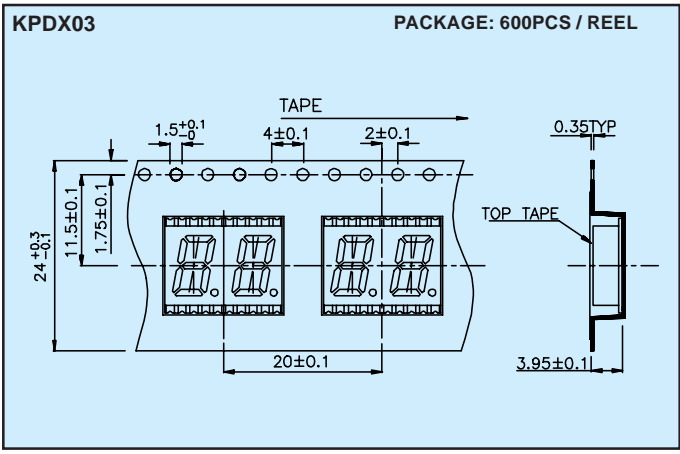
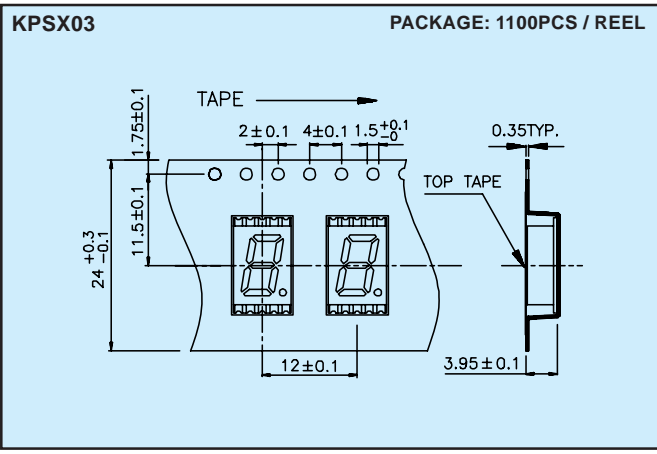
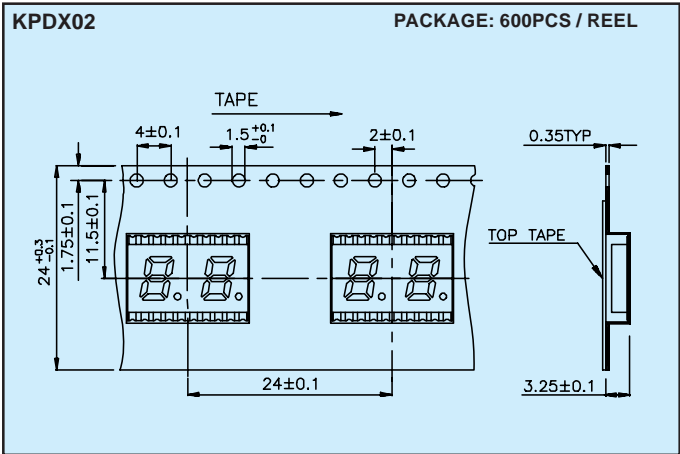
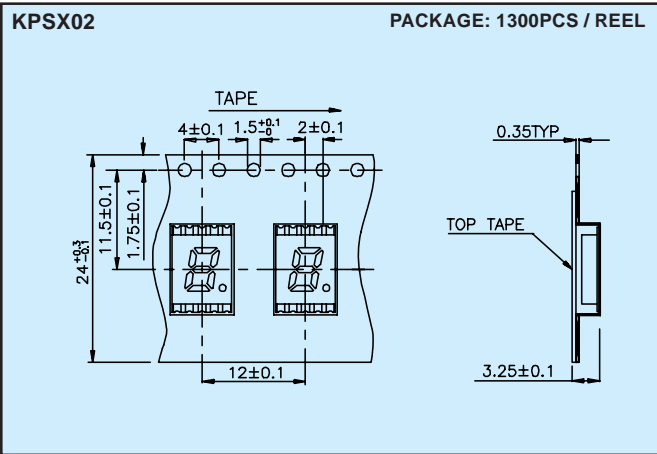
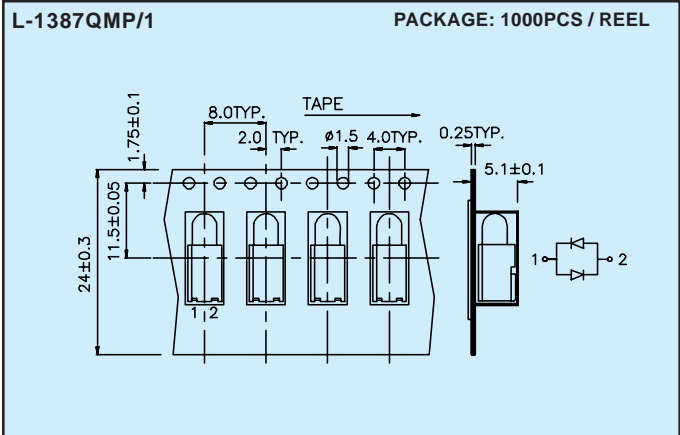
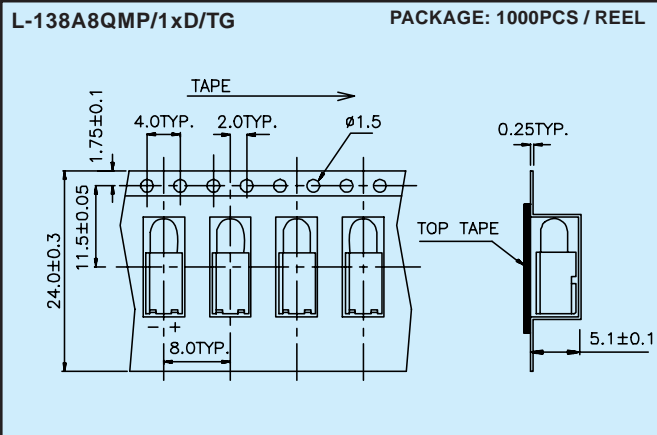
L-93A8EWP/1xD/TG-0L

PACKAGE: 1000PCS / REEL



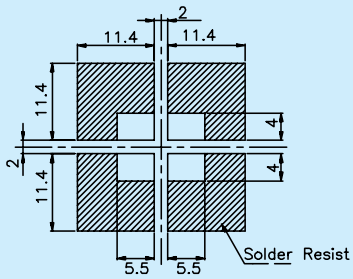
NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.

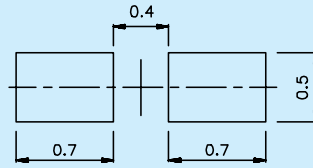


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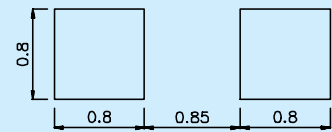
KA-1010, KA-1011



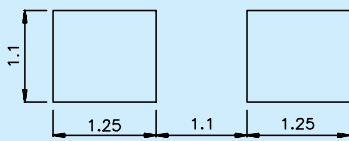
KPHHS-1005



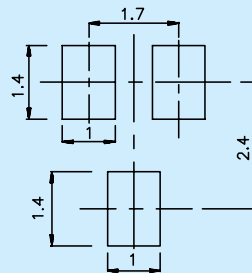
KP-1608, KPT-1608



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



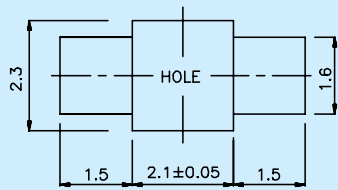
KP-23



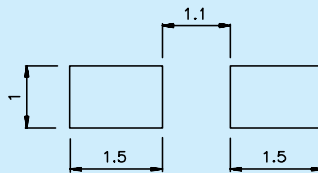
KP-3216, KPT-3216, KPC-3216, KPTD-3216, KPK-3216



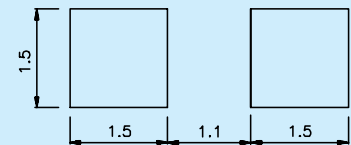
KPTR-3216



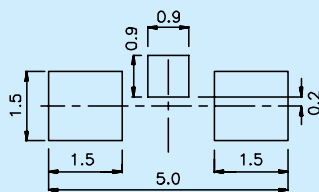
KPA-2106



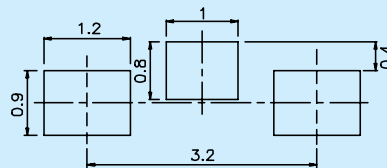
KPJA-2107



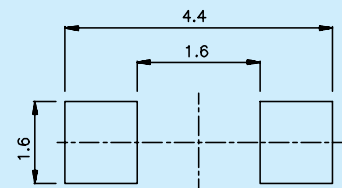
KPA-3010, KPBA-3010



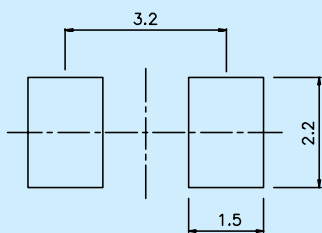
KPA-3210, KPBA-3210



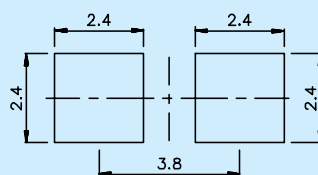
KPL-3015



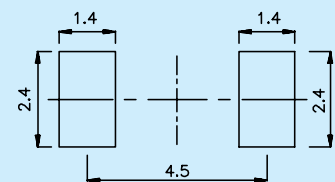
KPD-3224



KPED-3820



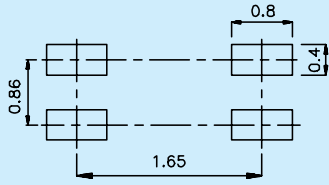
KPD-2520-03



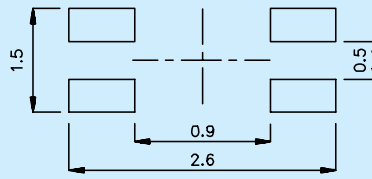
NOTES:

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

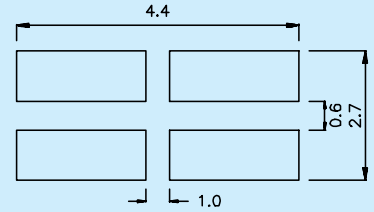
KPTB-1612



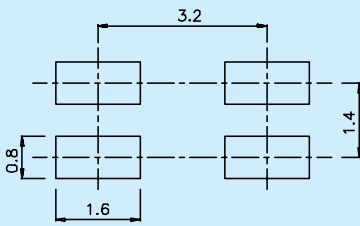
KPTB-1615



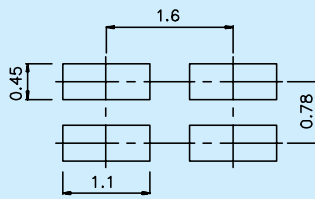
KPB-3025, KPBL-3025, KPKB-3025



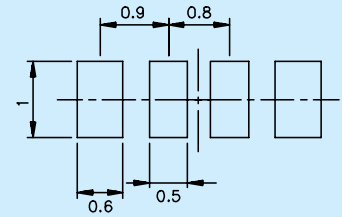
KPBD-3224



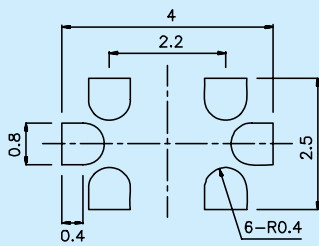
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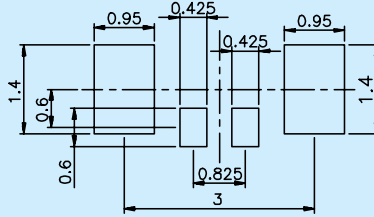
KPEFA-3010, KPFA-3210



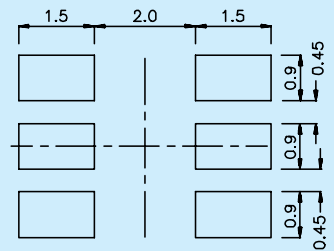
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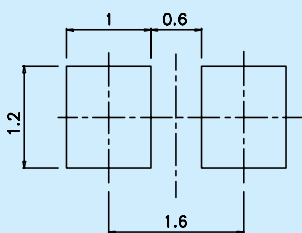
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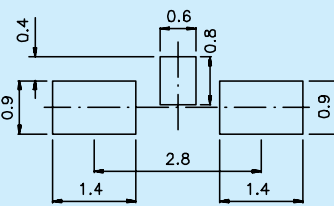
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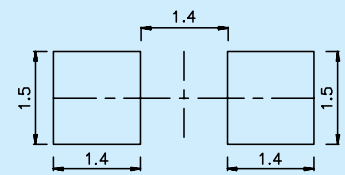
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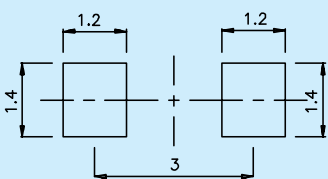
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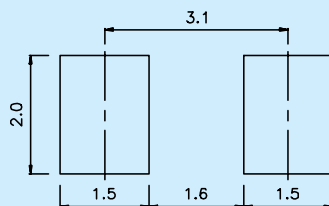
KPK-3020



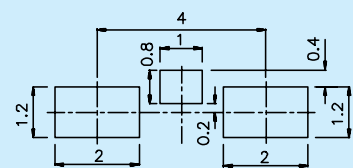
KPEKA-3224



KPK-3520



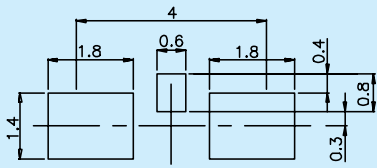
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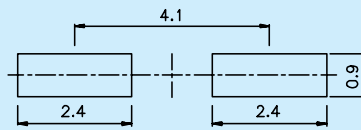
NOTES:

1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.

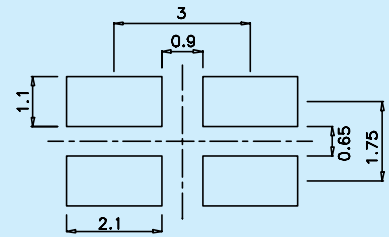
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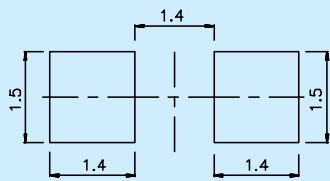
KPKA-4110



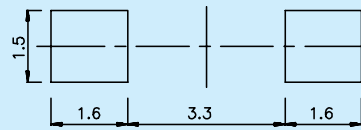
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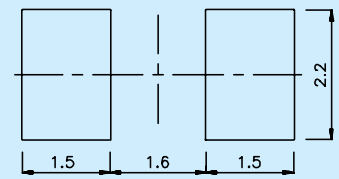
KA-3020



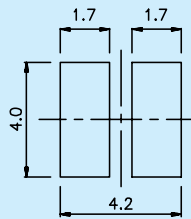
KA-3022-4.5SF



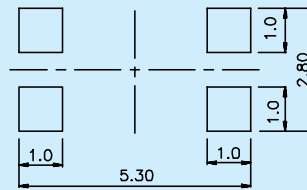
KA-3528,KPED-3528



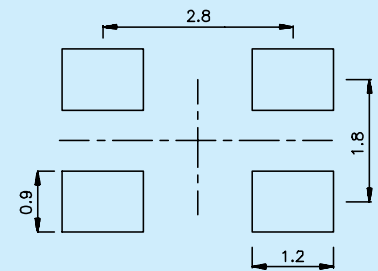
KA-4040



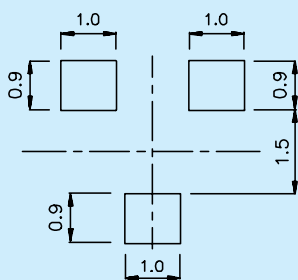
KA-2734



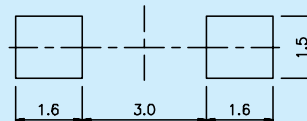
KAA-3528



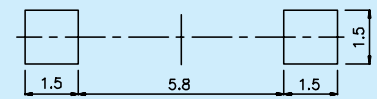
KM-23-F



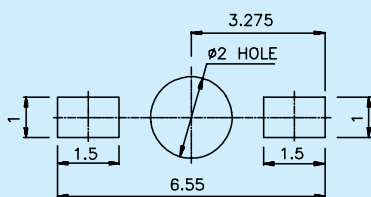
KM2520xxx03,KM-27xxx-03



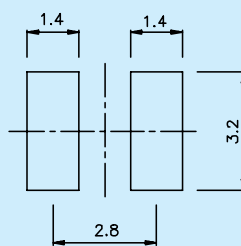
KM2520xxx08,KM-27xxx-08



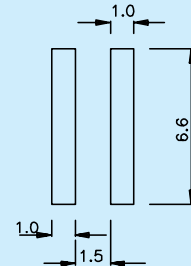
KM2520xxx09,KM-27xxx-09



KM-38AJXP/1



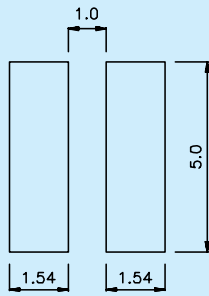
L-93A8EWP/1xD/TG-0L



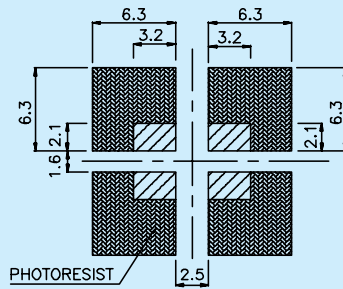
NOTES:

1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01\text{'})$ unless otherwise noted.

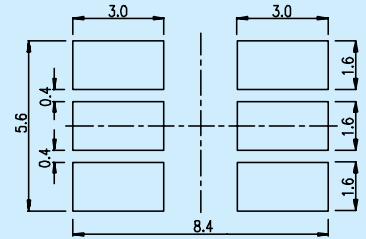
L-138A8QMP/1xD/TG, L-1387QMP/1



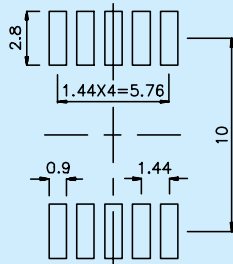
KA-5060, KAA-5060



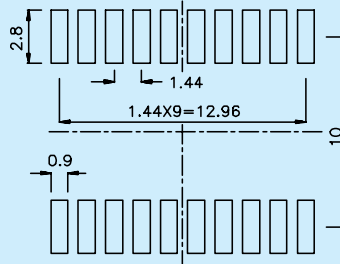
KAAF-5060



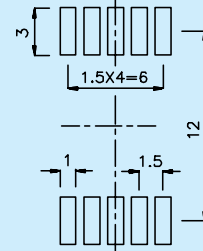
KPSX02



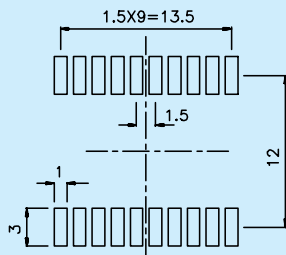
KPDX02



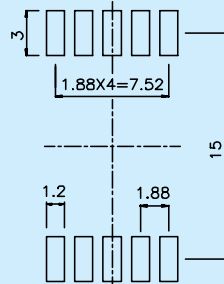
KPSX03



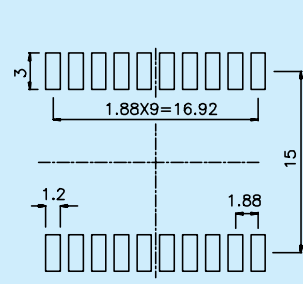
KPDX03



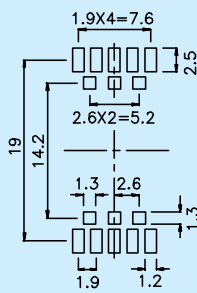
KPSX04



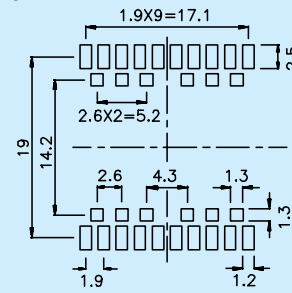
KPDX04



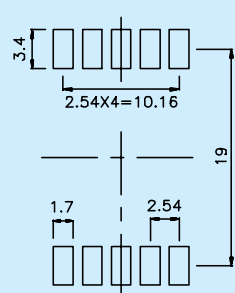
KPPSX04



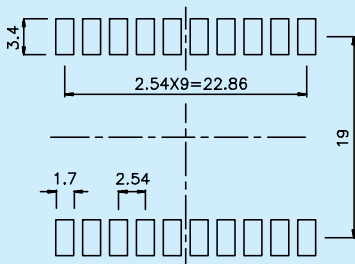
KPPDX04



KPSX56

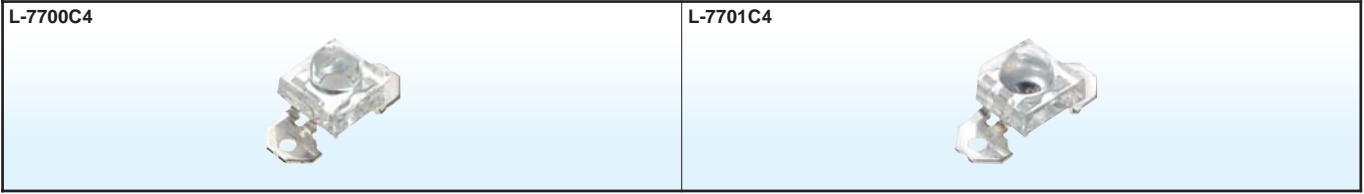


KPDX56



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ ($0.01''$) unless otherwise noted.



Part No.	Material	λ D (nm)	Lens Type	Iv (mcd) @50mA *70mA		Viewing Angle 2 θ 1/2	Dimension
				Min.	Typ.		

L-7700C4SEC-H	InGaAlP	630	water clear	*25000	*30000	30°	<p>7.62mm x 7.62mm</p>
L-7700C4SYC-H	InGaAlP	589	water clear	*5700	*6400	30°	
L-7700C4SURC-G	InGaAlP	630	water clear	*4700	*7000	30°	
L-7700C4PBC-H	InGaN	470	water clear	3800	5700	30°	
L-7700C4VGC-H	InGaN	525	water clear	16000	21000	30°	

L-7701C4SEC-H	InGaAlP	630	water clear	*10000	*12000	50°	<p>7.62mm x 7.62mm</p>
L-7701C4SYC-H	InGaAlP	589	water clear	*3300	*3700	50°	
L-7701C4SURC-G	InGaAlP	630	water clear	*2800	*4100	50°	
L-7701C4PBC-H	InGaN	470	water clear	2200	3200	50°	
L-7701C4VGC-H	InGaN	525	water clear	7500	9400	50°	

NOTES:

1. All dimensions are in millimeters(inches).
2. Tolerance is $\pm 0.25\text{mm}(0.01")$ unless otherwise noted.