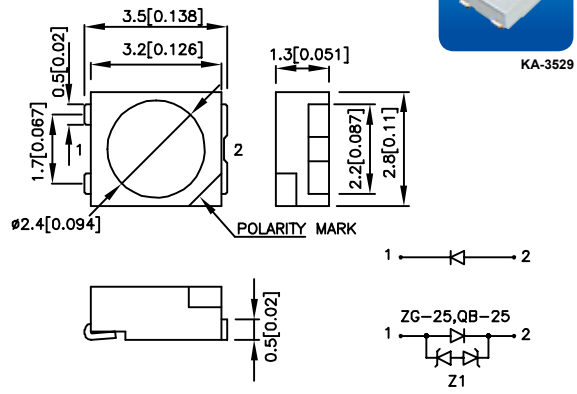
Kingbright

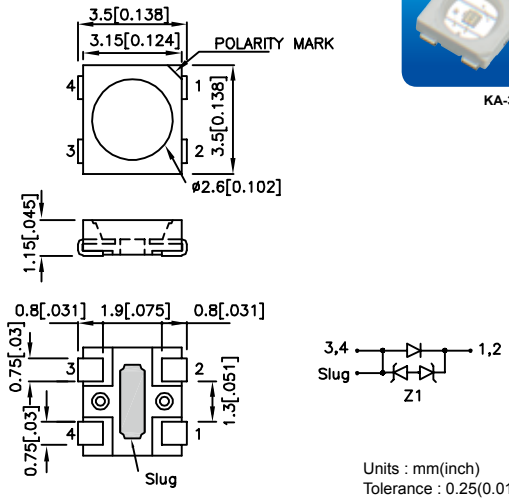
Optoelectronic Components

0.5W / 1W /2W /3W

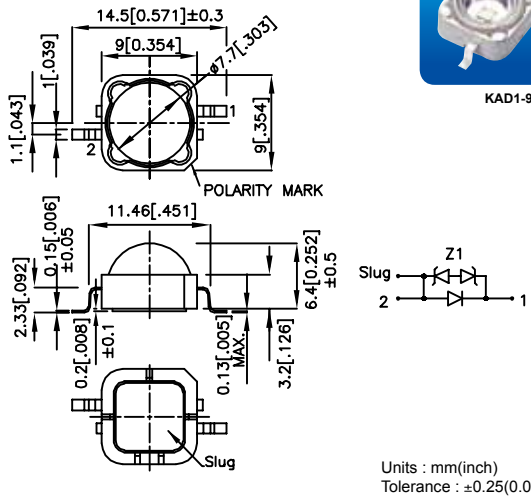
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	IF (mA)	Pd (W) TYP.	Φv (lm) TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KA-3529SES-L1	AlGaInP	618	water clear	150	0.5	5.5	120°	3.5mm x 2.8mm
KA-3529SYS-L1	AlGaInP	590	water clear	150	0.5	8	120°	
KA-3529ZG25Z1S	InGaN	525	water clear	150	0.5	24	120°	
KA-3529QB25Z1S	InGaN	450	water clear	150	0.5	51	120°	
KA-3535ZG25Z1S	InGaN	525	water clear	150	0.5	22	120°	3.5mm x 3.5mm
KA-3535QB25Z1S	InGaN	450	water clear	150	0.5	4.5	120°	
KAD1-9090SE28Z1S	AlGaInP	625	water clear	350	1	35	100°	9mm x 9mm
KAD1-9090SY28Z1S	AlGaInP	588	water clear	350	1	32	100°	
KAD1-9090QB10Z1S	AlGaInN	458	water clear	350	1	20	100°	
KAD1-9090SE9Z1S/2	AlGaInP	623	water clear	500	2	50	100°	
KAD1-9090SY9Z1S/2	AlGaInP	591	water clear	500	2	58	100°	
KAD1-9090QB11Z1S/3	AlGaInN	460	water clear	700	3	30	100°	



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

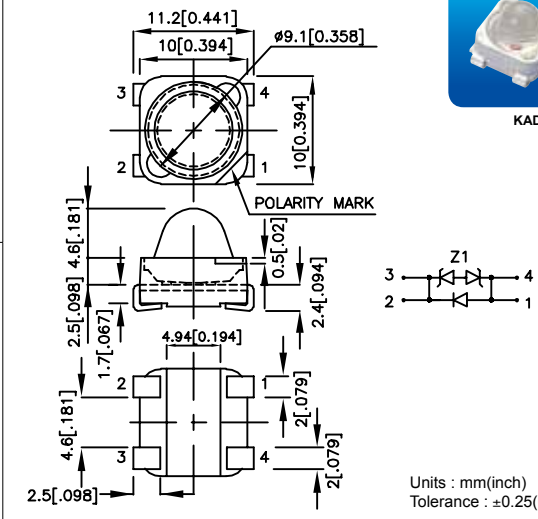
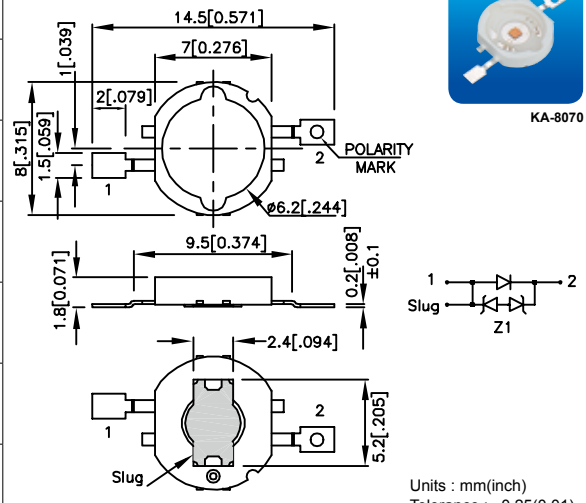
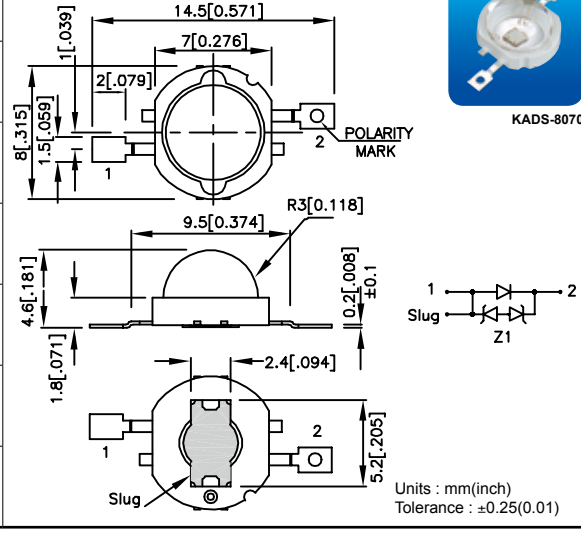


Units : mm(inch)
Tolerance : 0.25(0.01)



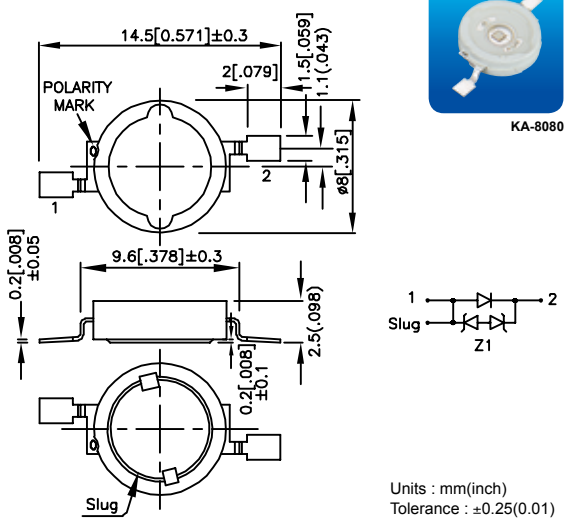
Units : mm(inch)
Tolerance : ±0.25(0.01)

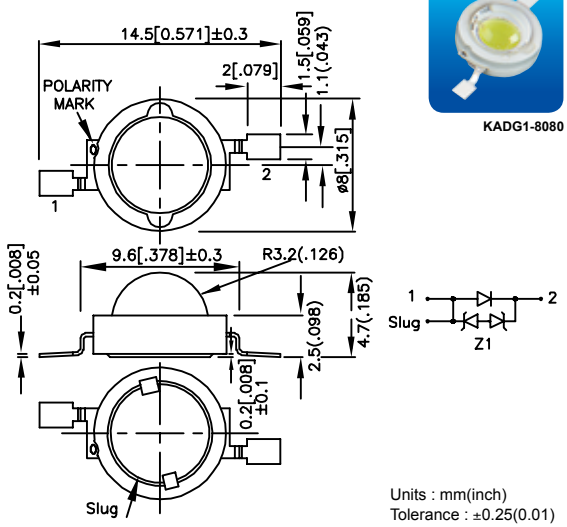
1W /2W /3W

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	IF (mA)	Pd (W)	Φv (lm)	VIEWING ANGLE	DIMENSION
					TYP.	TYP.	2θ1/2	
KAD1-1010SE28Z1S	AlGaInP	625	water clear	350	1	30	20°	10mm x 10mm (X Power)  KAD1-1010  Units : mm(inch) Tolerance : ±0.25(0.01)
KAD1-1010SY28Z1S	AlGaInP	588	water clear	350	1	35	20°	
KA-8070SE28Z1S	AlGaInP	625	water clear	350	1	25	120°	14.5mm x 7mm x 1.8mm  KA-8070  Units : mm(inch) Tolerance : ±0.25(0.01)
KA-8070SY28Z1S	AlGaInP	588	water clear	350	1	30	120°	
KA-8070ZG10Z1S	AlGaInN	530	water clear	350	1	55	120°	
KA-8070QB10Z1S	AlGaInN	458	water clear	350	1	15	120°	
KA-8070SE9Z1S/2	AlGaInP	623	water clear	500	2	39	120°	
KA-8070SY9Z1S/2	AlGaInP	591	water clear	500	2	31	120°	
KA-8070QB11Z1S/3	AlGaInN	460	water clear	700	3	24	120°	
KADS-8070SE28Z1S	AlGaInP	625	water clear	350	1	30	90°	14.5mm x 7mm x 4.6mm  KADS-8070  Units : mm(inch) Tolerance : ±0.25(0.01)
KADS-8070SY28Z1S	AlGaInP	588	water clear	350	1	28	90°	
KADS-8070ZG10Z1S	AlGaInN	530	water clear	350	1	62	90°	
KADS-8070QB10Z1S	AlGaInN	458	water clear	350	1	17	90°	
KADS-8070SE9Z1S/2	AlGaInP	623	water clear	500	2	43	90°	
KADS-8070SY9Z1S/2	AlGaInP	591	water clear	500	2	37	90°	
KADS-8070QB11Z1S/3	AlGaInN	460	water clear	700	3	27	90°	

1W /2W /3W

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	IF (mA)	Pd (W) TYP.	Φv (lm) TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KA-8080SE28Z1S	AlGaInP	625	water clear	350	1	25	120°	14.5mm x 8mm x 2.5mm
KA-8080SY28Z1S	AlGaInP	588	water clear	350	1	25	120°	
KA-8080ZG10Z1S	AlGaInN	530	water clear	350	1	60	120°	
KA-8080QB10Z1S	AlGaInN	458	water clear	350	1	14	120°	
KA-8080SE9Z1S/2	AlGaInP	623	water clear	500	2	45	120°	
KA-8080SY9Z1S/2	AlGaInP	591	water clear	500	2	50	120°	
KA-8080QB11Z1S/3	AlGaInN	460	water clear	700	3	28	120°	
KADG1-8080SE28Z1S	AlGaInP	625	water clear	350	1	28	100°	14.5mm x 8mm x 4.7mm
KADG1-8080SY28Z1S	AlGaInP	588	water clear	350	1	28	100°	
KADG1-8080ZG10Z1S	AlGaInN	530	water clear	350	1	65	100°	
KADG1-8080QB10Z1S	AlGaInN	458	water clear	350	1	17	100°	
KADG1-8080SE9Z1S/2	AlGaInP	623	water clear	500	2	50	100°	
KADG1-8080SY9Z1S/2	AlGaInP	591	water clear	500	2	55	100°	
KADG1-8080QB11Z1S/3	AlGaInN	460	water clear	700	3	30	100°	

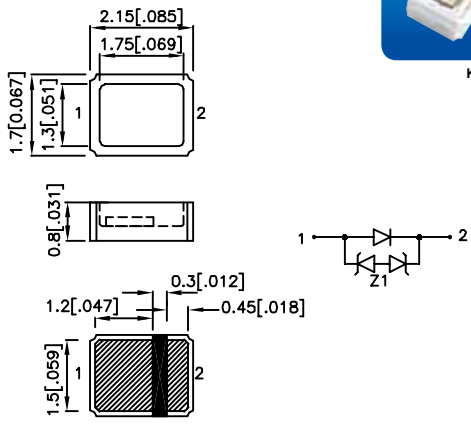




0.5W /1W

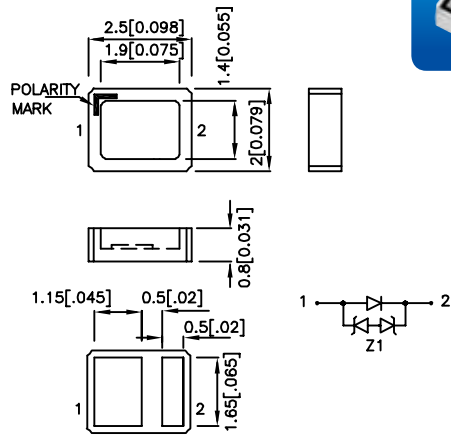
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	IF (mA)	Pd (W)	Φv (lm)	VIEWING ANGLE	DIMENSION
					TYP.	TYP.	2θ1/2	
KT-2117SEL1Z1S-VFS	AlGaInP	618	water clear	140	0.5	9	120°	2.15mm x 1.7mm x 0.8mm
KT-2117SYL1Z1S-VFS	AlGaInP	590	water clear	140	0.5	7	120°	
KT-2117ZG25Z1S-VFS	InGaN	525	water clear	150	0.5	22	120°	
KT-2117QB25Z1S-VFS	InGaN	450	water clear	150	0.5	4.3	120°	
KT-2117SE9Z1S-VFS	AlGaInP	623	water clear	350	1	16	120°	
KT-2117SY9Z1S-VFS	AlGaInP	591	water clear	350	1	16	120°	
KT-2117ZG10Z1S-VFS	AlGaInN	530	water clear	350	1	42	120°	
KT-2117QB10Z1S-VFS	AlGaInN	458	water clear	350	1	12	120°	
KT-2520SEL1Z1S	AlGaInP	618	water clear	150	0.5	8.5	130°	2.5mm x 2.0mm x 0.8mm
KT-2520SYL1Z1S	AlGaInP	590	water clear	150	0.5	7	130°	
KT-2520ZG25Z1S	InGaN	525	water clear	150	0.5	21	120°	
KT-2520QB25Z1S	InGaN	450	water clear	150	0.5	4.3	120°	
KT-2520SE9Z1S	AlGaInP	623	water clear	350	1	18	130°	
KT-2520SY9Z1S	AlGaInP	591	water clear	350	1	16	130°	
KT-2520ZG10Z1S	AlGaInN	530	water clear	350	1	45	120°	
KT-2520QB10Z1S	AlGaInN	458	water clear	350	1	13	120°	
KT-3020SEL1Z1S	AlGaInP	618	water clear	150	0.5	9	120°	3.0mm x 2.0mm x 0.8mm
KT-3020SYL1Z1S	AlGaInP	590	water clear	150	0.5	9	120°	
KT-3020ZG25Z1S	InGaN	525	water clear	150	0.5	21	120°	
KT-3020QB25Z1S	InGaN	450	water clear	150	0.5	5	120°	

KT-2117



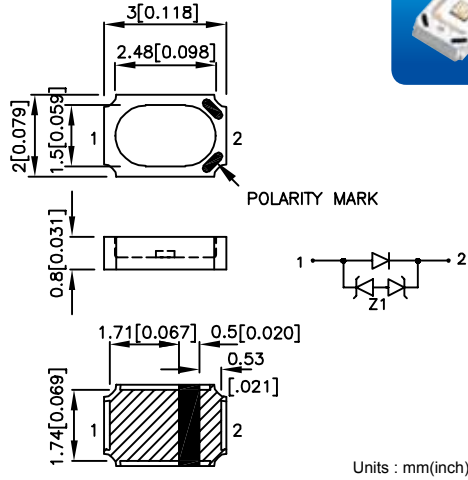
Units : mm(inch)
Tolerance : ±0.25(0.01)

KT-2520



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

KT-3020

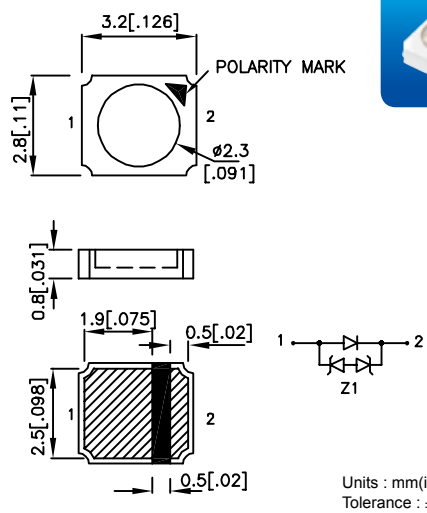


Units : mm(inch)
Tolerance : 0.25(0.01)

0.5W /1W

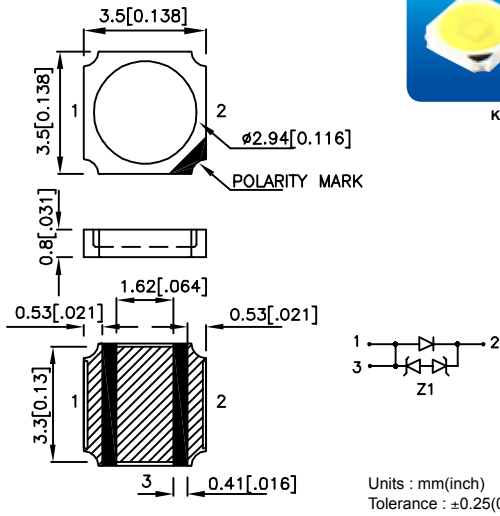
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	IF (mA)	Pd (W) TYP.	Φv (lm) TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KT-3228SEL1Z1S	AlGaInP	618	water clear	150	0.5	9	120°	3.2mm x 2.8mm x 0.8mm
KT-3228SYL1Z1S	AlGaInP	590	water clear	150	0.5	10	120°	
KT-3228ZG25Z1S	InGaN	525	water clear	150	0.5	23	120°	
KT-3228QB25Z1S	InGaN	450	water clear	150	0.5	4.3	120°	
KT-3228SE9Z1S	AlGaInP	623	water clear	350	1	18	120°	
KT-3228SY9Z1S	AlGaInP	591	water clear	350	1	14	120°	
KT-3228ZG10Z1S	AlGaInN	530	water clear	350	1	50	120°	
KT-3228QB10Z1S	AlGaInN	458	water clear	350	1	13	120°	
KT-3535SEL1Z1S	AlGaInP	618	water clear	150	0.5	9	120°	3.5mm x 3.5mm x 0.8mm
KT-3535SYL1Z1S	AlGaInP	590	water clear	150	0.5	9	120°	
KT-3535ZG25Z1S	InGaN	525	water clear	150	0.5	22	120°	
KT-3535QB25Z1S	InGaN	450	water clear	150	0.5	4.3	120°	
KT-3535SE9Z1S	AlGaInP	623	water clear	350	1	16	120°	
KT-3535SY9Z1S	AlGaInP	591	water clear	350	1	17	120°	
KT-3535ZG10Z1S	AlGaInN	530	water clear	350	1	55	120°	
KT-3535QB10Z1S	AlGaInN	458	water clear	350	1	13	120°	
KT-5050SEL1Z1S	AlGaInP	618	water clear	150	0.5	9.5	120°	5.0mm x 5.0mm x 1.0mm
KT-5050SYL1Z1S	AlGaInP	590	water clear	150	0.5	8.5	120°	
KT-5050ZG25Z1S	InGaN	525	water clear	150	0.5	25	120°	
KT-5050QB25Z1S	InGaN	450	water clear	150	0.5	5.2	120°	
KT-5050SE9Z1S	AlGaInP	623	water clear	350	1	24	120°	
KT-5050SY9Z1S	AlGaInP	591	water clear	350	1	25	120°	
KT-5050ZG10Z1S	AlGaInN	530	water clear	350	1	55	120°	
KT-5050QB10Z1S	AlGaInN	458	water clear	350	1	15	120°	


KT-3228



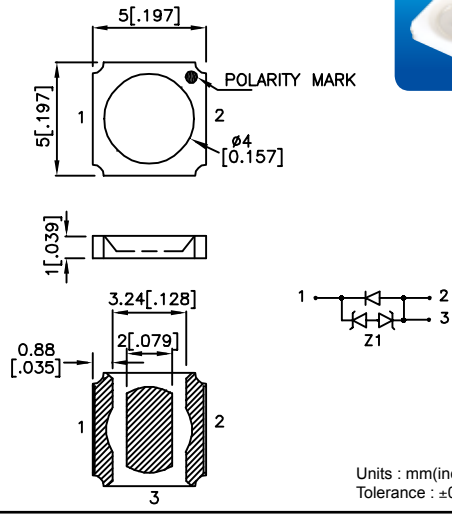
Units : mm(inch)
Tolerance : ±0.25(0.01)


KT-3535



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

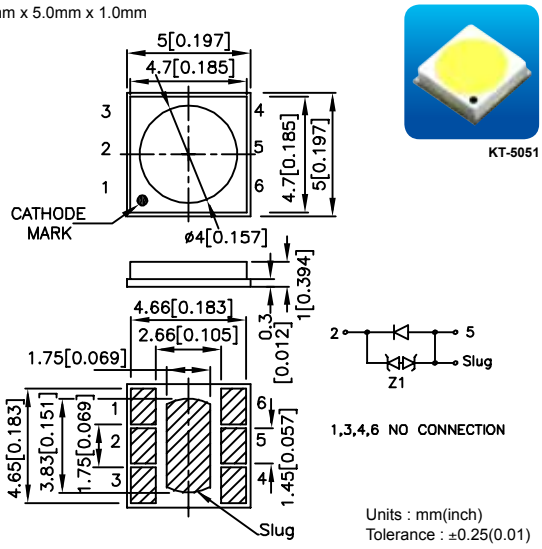

KT-5050

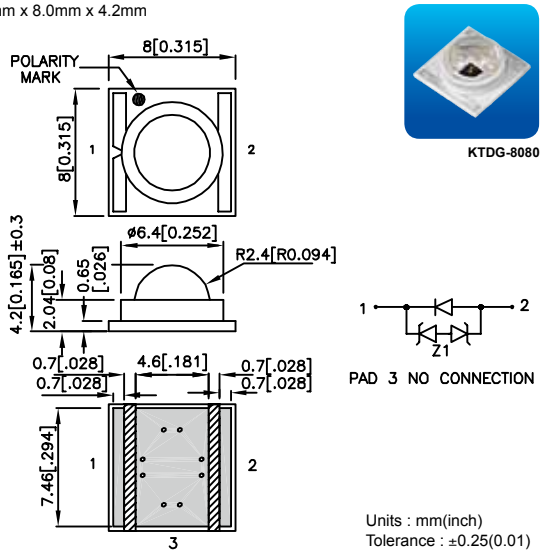


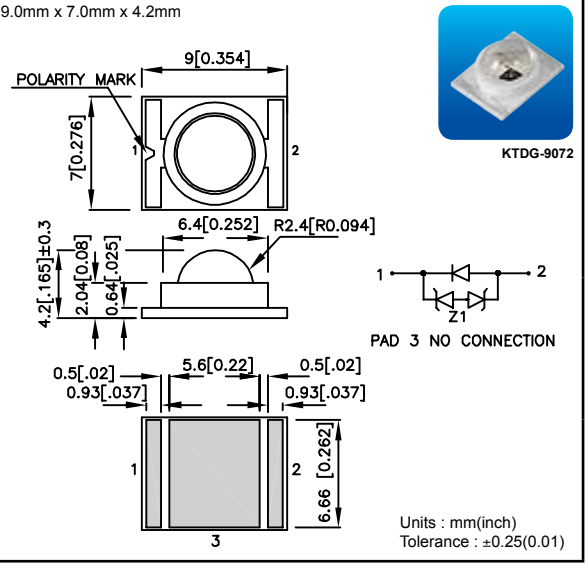
Units : mm(inch)
Tolerance : ±0.25(0.01)

0.5W /1W /2W

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	IF (mA)	Pd (W)	Φv (lm)	VIEWING ANGLE	DIMENSION
					TYP.	TYP.	2θ1/2	
KT-5051SEL1Z1S	AlGaInP	618	water clear	150	0.5	9.5	120°	5.0mm x 5.0mm x 1.0mm
KT-5051SYL1Z1S	AlGaInP	590	water clear	150	0.5	8.5	120°	
KT-5051ZG25Z1S	InGaN	525	water clear	150	0.5	25	120°	
KT-5051QB25Z1S	InGaN	450	water clear	150	0.5	5.2	120°	
KT-5051SE9Z1S	AlGaInP	623	water clear	350	1	24	120°	
KT-5051SY9Z1S	AlGaInP	591	water clear	350	1	25	120°	
KT-5051ZG10Z1S	AlGaInN	530	water clear	350	1	55	120°	
KT-5051QB10Z1S	AlGaInN	458	water clear	350	1	15	120°	
KTDG-8080SE9Z1S/2	AlGaInP	623	water clear	500	2	50	90°	8.0mm x 8.0mm x 4.2mm
KTDG-8080SY9Z1S/2	AlGaInP	591	water clear	500	2	53	90°	
KTDG-8080ZG10Z1S/2	AlGaInN	530	water clear	500	2	70	90°	
KTDG-8080QB10Z1S/2	AlGaInN	458	water clear	500	2	21	90°	
KTDG-9072SE9Z1S/2	AlGaInP	623	water clear	500	2	50	90°	9.0mm x 7.0mm x 4.2mm
KTDG-9072SY9Z1S/2	AlGaInP	591	water clear	500	2	53	90°	
KTDG-9072ZG10Z1S/2	AlGaInN	530	water clear	500	2	70	90°	
KTDG-9072QB10Z1S/2	AlGaInN	458	water clear	500	2	21	90°	



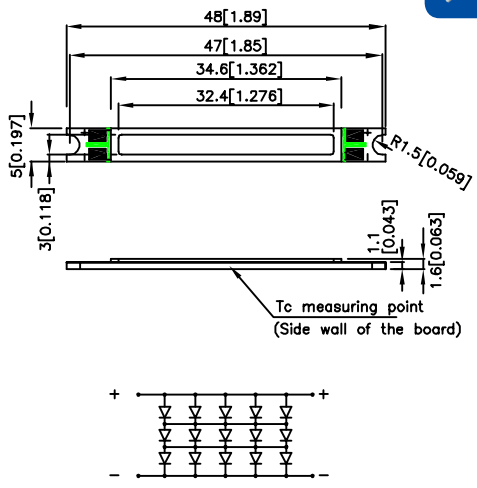




HIGH BRIGHTNESS LED LIGHT BAR

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	IF (mA)	Pd (W) TYP.	Φv (lm) TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KASL-4805ZGSX15/3	InGaN	525	water clear	350	4.55	35	120°	48mm x 5mm x 1.6mm
KASL-4805QBFSX15/3	InGaN	465	water clear	350	4.2	25	120°	
KASL-4805SEL1SX15/5	AlGaInP	618	water clear	500	4.6	100	120°	
KASL-4805SYL1SX15/5	AlGaInP	590	water clear	500	4.95	100	120°	
KASL-4805ZG25SX15/7	InGaN	525	water clear	700	8.12	260	120°	
KASL-4805QB25SX15/7	InGaN	450	water clear	700	8.12	53	120°	


KASL-4805

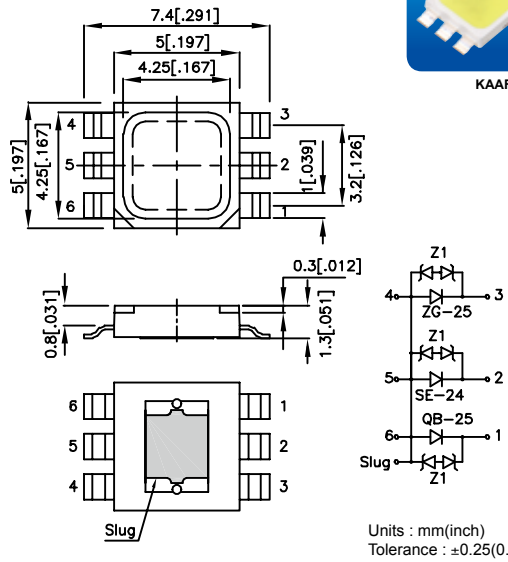


Units : mm(inch)
Tolerance : ±0.25(0.01)

FULL-COLOR SURFACE MOUNT LED LAMP

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	IF (mA)	Pd (W) TYP.	Φv (mlm) TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KAAF5051 QB25SE24ZG25Z1X3S	InGaN	450	water clear	150	0.6	4500	120°	5.0mm x 5.0mm x 1.3mm
	AlGaInP	624		150	0.45	11000		
	InGaN	525		150	0.6	20000		


KAAF5051



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

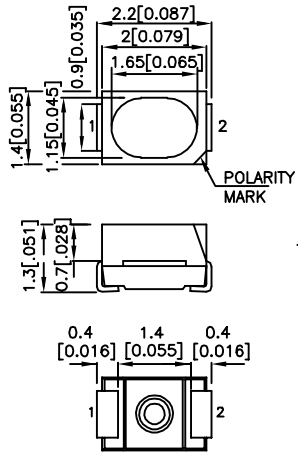
Kingbright

Optoelectronic Components

TOP-EMITTING PLCC SMD LED

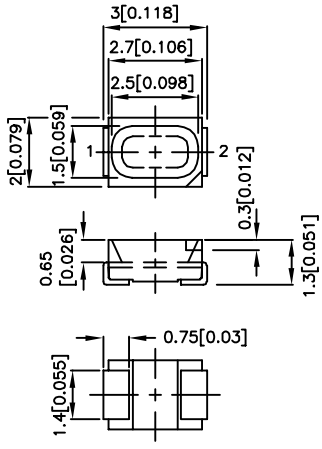
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KA-2214SURSK	AlGaInP	630	water clear	180	400	120°	2.2mm x 1.4mm
KA-2214SESK	AlGaInP	601	water clear	280	450	120°	
KA-2214MGS	AlGaInP	570	water clear	50	150	120°	
KA-2214CGSK	AlGaInP	570	water clear	50	100	120°	
KA-2214ZGS	InGaN	525	water clear	280	550	120°	
KA-2214QBS-G	InGaN	465	water clear	110	300	120°	
KA-3021SURCKT	AlGaInP	630	water clear	70	200	125°	3.0mm x 2.0mm (1208)
KA-3021SECKT	AlGaInP	601	water clear	180	400	125°	
KA-3021SYCKT	AlGaInP	590	water clear	110	200	125°	
KA-3021MGCT	AlGaInP	570	water clear	50	100	125°	
KA-3021CGCKT	AlGaInP	570	water clear	50	85	125°	
KA-3021ZGCT	InGaN	525	water clear	380	500	125°	
KA-3021ZGCT-E	InGaN	525	water clear	900	1500	125°	
KA-3021ZGCT-G	InGaN	525	water clear	1200	1600	125°	
KA-3021QBCT-D	InGaN	470	water clear	50	150	125°	
KA-3021QBCT-F	InGaN	465	water clear	110	250	125°	
KA-3021QBCT-G	InGaN	465	water clear	180	350	125°	
KA-3022ECT-4.5SF	GaAsP/GaP	625	water clear	7	30	90°	3.0mm x 2.2mm
KA-3022SRCT-4.5SF	GaAlAs	640	water clear	36	150	90°	
KA-3022YCT-4.5SF	GaAsP/GaP	588	water clear	4	15	90°	
KA-3022SGCT-4.5SF	GaP	568	water clear	7	20	90°	
KA-3022ZGCT-4.5SF	InGaN	525	water clear	280	500	90°	
KA-3022ZGCT-E-4.5SF	InGaN	525	water clear	380	800	90°	
KA-3022ZGCT-G-4.5SF	InGaN	525	water clear	480	900	90°	
KA-3022QBCT-D-4.5SF	InGaN	470	water clear	50	150	90°	
KA-3022QBCT-F-4.5SF	InGaN	465	water clear	70	180	90°	
KA-3022QBCT-G-4.5SF	InGaN	465	water clear	110	250	90°	


KA-2214



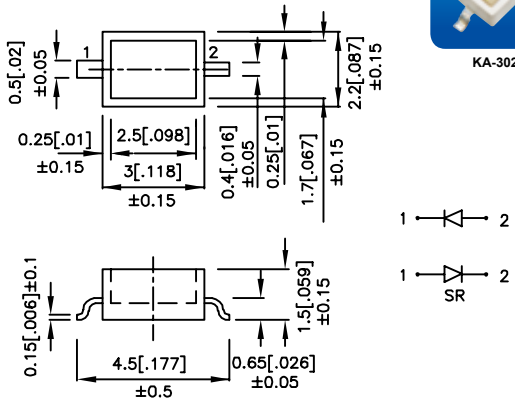
Units : mm(inch)
Tolerance : ±0.2(0.008)


KA-3021



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


KA-3022-4.5SF

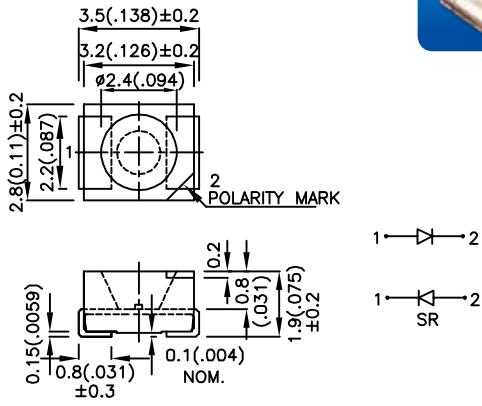


Units : mm(inch)
Tolerance : ±0.25(0.01)

TOP-EMITTING PLCC SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KA-3528ECT	GaAsP/GaP	625	water clear	7	30	120°	3.5mm x 2.8mm
KA-3528SRCT	GaAlAs	640	water clear	50	150	120°	
KA-3528SURCKT	AlGaInP	630	water clear	70	350	120°	
KA-3528SECKT	AlGaInP	601	water clear	110	400	120°	
KA-3528YCT	GaAsP/GaP	588	water clear	4	20	120°	
KA-3528SYCKT	AlGaInP	590	water clear	70	200	120°	
KA-3528SGCT	GaP	568	water clear	10	25	120°	
KA-3528MGCT	AlGaInP	570	water clear	50	150	120°	
KA-3528CGCKT	AlGaInP	570	water clear	36	100	120°	
KA-3528ZGCT	InGaN	525	water clear	380	600	120°	
KA-3528ZGCT-E	InGaN	525	water clear	480	900	120°	
KA-3528ZGCT-G	InGaN	525	water clear	650	1000	120°	
KA-3528QBCT-D	InGaN	470	water clear	50	150	120°	
KA-3528QBCT-F	InGaN	465	water clear	110	280	120°	
KA-3528QBCT-G	InGaN	465	water clear	180	370	120°	


KA-3528

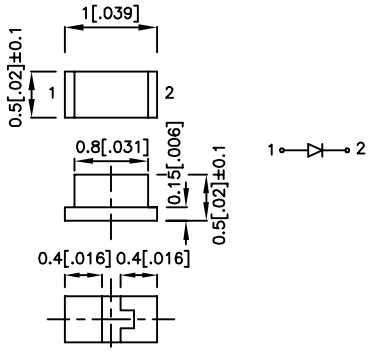


Units : mm(inch)
Tolerance : ±0.25(0.01)

TOP-EMITTING CHIP SMD LED

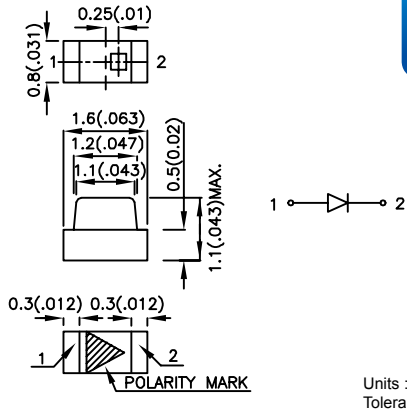
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPHHS-1005SURCK	AlGaInP	630	water clear	70	220	120°	1.0mm x 0.5mm x 0.5mm (0402)
KPHHS-1005SECK	AlGaInP	601	water clear	70	240	120°	
KPHHS-1005SYCK	AlGaInP	590	water clear	50	150	120°	
KPHHS-1005CGCK	AlGaInP	570	water clear	10	50	120°	
KPHHS-1005ZGC-V	InGaN	525	water clear	110	300	120°	
KPHHS-1005QBC-D-V	InGaN	470	water clear	36	100	120°	
KP-1608SURCK	AlGaInP	630	water clear	70	220	120°	1.6mm x 0.8mm x 1.1mm (0603)
KP-1608SECK	AlGaInP	601	water clear	70	240	120°	
KP-1608SYCK	AlGaInP	590	water clear	50	150	120°	
KP-1608MGC	AlGaInP	570	water clear	36	70	120°	
KP-1608CGCK	AlGaInP	570	water clear	10	50	120°	
KP-1608ZGC	InGaN	525	water clear	110	300	120°	
KP-1608ZGC-E	InGaN	525	water clear	280	650	120°	
KP-1608ZGC-G	InGaN	525	water clear	380	700	120°	
KP-1608QBC-D	InGaN	470	water clear	36	100	120°	
KP-1608QBC-F	InGaN	465	water clear	50	150	120°	
KP-1608QBC-G	InGaN	465	water clear	70	180	120°	


KPHHS-1005



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


KP-1608



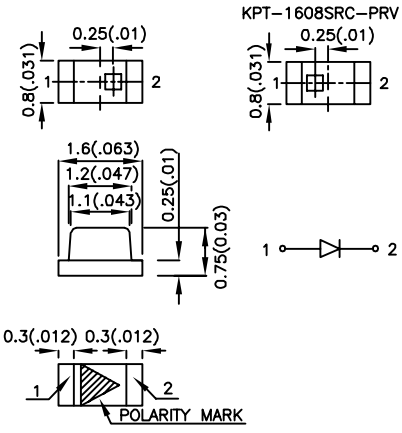
Units : mm(inch)
Tolerance : 0.1(0.004)

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

TOP-EMITTING CHIP SMD LED

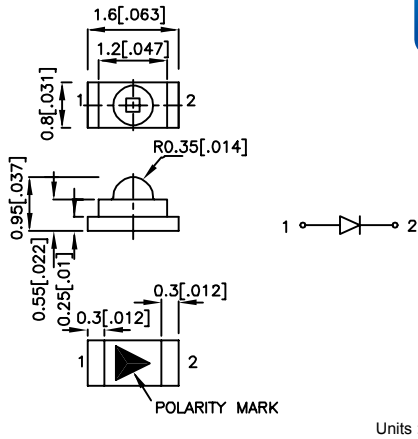
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPT-1608EC	GaAsP/GaP	625	water clear	4	15	120°	1.6mm x 0.8mm x 0.75mm (0603 Super Thin)
KPT-1608SRC-PRV	GaAlAs	640	water clear	36	100	120°	
KPT-1608SURCK	AlGaInP	630	water clear	70	220	120°	
KPT-1608SECK	AlGaInP	601	water clear	70	240	120°	
KPT-1608YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KPT-1608SYCK	AlGaInP	590	water clear	50	150	120°	
KPT-1608SGC	GaP	568	water clear	4	15	120°	
KPT-1608MGC	AlGaInP	570	water clear	36	70	120°	
KPT-1608CGCK	AlGaInP	570	water clear	10	50	120°	
KPT-1608ZGC	InGaN	525	water clear	110	300	120°	
KPT-1608ZGC-E	InGaN	525	water clear	280	650	120°	
KPT-1608ZGC-G	InGaN	525	water clear	380	700	120°	
KPT-1608QBC-D	InGaN	470	water clear	36	100	120°	
KPT-1608QBC-F	InGaN	465	water clear	50	150	120°	
KPT-1608QBC-G	InGaN	465	water clear	70	180	120°	
KPTD-1608SURCK	AlGaInP	630	water clear	480	700	60°	1.6mm x 0.8mm x 0.95mm (Dome Lens)
KPTD-1608SECK	AlGaInP	601	water clear	480	800	60°	
KPTD-1608SYCK	AlGaInP	590	water clear	280	480	60°	
KPTD-1608MGC	AlGaInP	570	water clear	110	250	60°	
KPTD-1608CGCK	AlGaInP	570	water clear	70	180	60°	
KPTD-1608ZGC	InGaN	525	water clear	380	780	60°	
KPTD-1608ZGC-E	InGaN	525	water clear	480	850	60°	
KPTD-1608ZGC-G	InGaN	525	water clear	650	1200	60°	
KPTD-1608QBC-D	InGaN	470	water clear	70	250	40°	
KPTD-1608QBC-F	InGaN	465	water clear	110	270	40°	
KPTD-1608QBC-G	InGaN	465	water clear	180	300	40°	
KP-2012EC	GaAsP/GaP	625	water clear	4	15	120°	2.0mm x 1.25mm x 1.1mm (0805)
KP-2012SRC-PRV	GaAlAs	640	water clear	36	100	120°	
KP-2012SURCK	AlGaInP	630	water clear	70	220	120°	
KP-2012SECK	AlGaInP	601	water clear	70	240	120°	
KP-2012YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KP-2012SYCK	AlGaInP	590	water clear	50	150	120°	
KP-2012SGC	GaP	568	water clear	4	15	120°	
KP-2012MGC	AlGaInP	570	water clear	36	70	120°	
KP-2012CGCK	AlGaInP	570	water clear	10	50	120°	
KP-2012ZGC	InGaN	525	water clear	110	300	120°	
KP-2012ZGC-E	InGaN	525	water clear	280	650	120°	
KP-2012ZGC-G	InGaN	525	water clear	380	700	120°	
KP-2012QBC-D	InGaN	470	water clear	36	100	120°	
KP-2012QBC-F	InGaN	465	water clear	50	150	120°	
KP-2012QBC-G	InGaN	465	water clear	70	180	120°	


KPT-1608



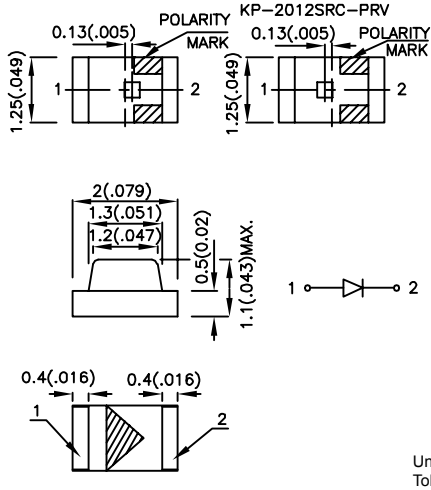
Units : mm(inch)
Tolerance : ±0.1(0.004)


KPTD-1608



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


KP-2012



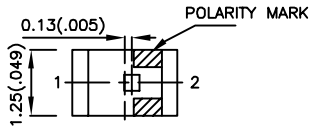
Units : mm(inch)
Tolerance : ±0.1(0.004)

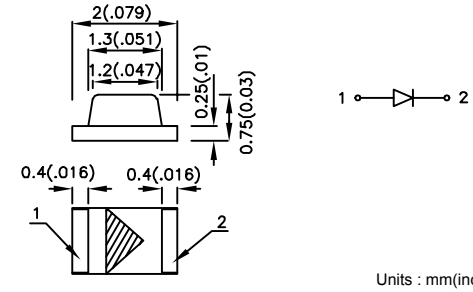
NOTE:
1.KP series custom-made is available upon request.

TOP-EMITTING CHIP SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPT-2012SURCK	AlGaInP	630	water clear	70	220	120°	2.0mm x 1.25mm x 0.75mm
KPT-2012SECK	AlGaInP	601	water clear	70	240	120°	
KPT-2012SYCK	AlGaInP	590	water clear	50	150	120°	
KPT-2012MGC	AlGaInP	570	water clear	36	70	120°	
KPT-2012CGCK	AlGaInP	570	water clear	10	50	120°	
KPT-2012ZGC	InGaN	525	water clear	110	300	120°	
KPT-2012ZGC-E	InGaN	525	water clear	280	650	120°	
KPT-2012ZGC-G	InGaN	525	water clear	380	700	120°	
KPT-2012QBC-D	InGaN	470	water clear	36	100	120°	
KPT-2012QBC-F	InGaN	465	water clear	50	150	120°	
KPT-2012QBC-G	InGaN	465	water clear	70	180	120°	
KPTC-2012SURCK	AlGaInP	630	water clear	70	220	120°	2.0mm x 1.25mm x 0.75mm
KPTC-2012SECK	AlGaInP	601	water clear	70	240	120°	
KPTC-2012SYCK	AlGaInP	590	water clear	50	150	120°	
KPTC-2012MGC	AlGaInP	570	water clear	36	70	120°	
KPTC-2012CGCK	AlGaInP	570	water clear	10	50	120°	
KPTC-2012ZGC	InGaN	525	water clear	110	300	120°	
KPTC-2012ZGC-E	InGaN	525	water clear	280	650	120°	
KPTC-2012ZGC-G	InGaN	525	water clear	380	700	120°	
KPTC-2012QBC-D	InGaN	470	water clear	36	100	120°	
KPTC-2012QBC-F	InGaN	465	water clear	50	150	120°	
KPTC-2012QBC-G	InGaN	465	water clear	70	180	120°	
KPHCM-2012SURCK	AlGaInP	630	water clear	70	220	110°	2.0mm x 1.25mm x 0.4mm (0805 Super Thin)
KPHCM-2012SECK	AlGaInP	601	water clear	70	240	110°	
KPHCM-2012SYCK	AlGaInP	590	water clear	50	150	110°	
KPHCM-2012CGCK	AlGaInP	570	water clear	10	50	110°	
KPHCM-2012ZGC	InGaN	525	water clear	110	300	110°	
KPHCM-2012ZGC-E	InGaN	525	water clear	280	650	110°	
KPHCM-2012ZGC-G	InGaN	525	water clear	380	700	110°	
KPHCM-2012QBC-D	InGaN	470	water clear	36	100	110°	
KPHCM-2012QBC-F	InGaN	465	water clear	50	150	110°	
KPHCM-2012QBC-G	InGaN	465	water clear	70	180	110°	

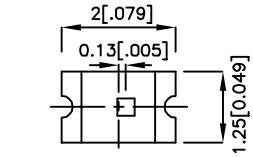

KPT-2012

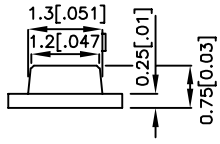


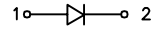


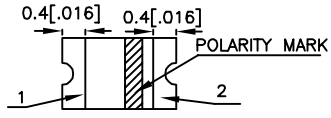
Units : mm(inch)
Tolerance : ±0.1(0.004)


KPTC-2012



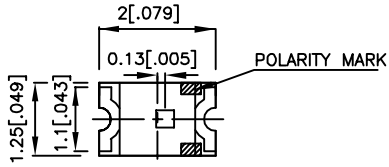


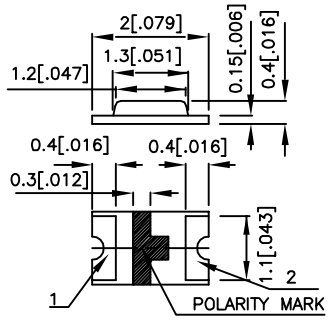


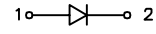


Units : mm(inch)
Tolerance : ±0.1(0.004)


KPHCM-2012







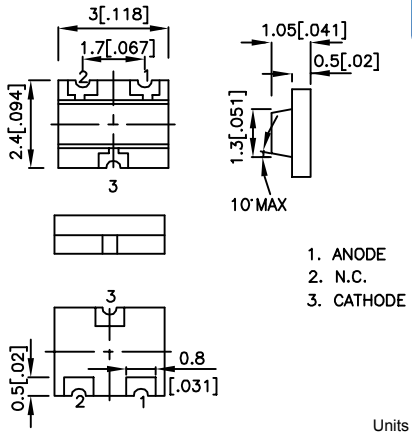
Units : mm(inch)
Tolerance : ±0.1(0.004)

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

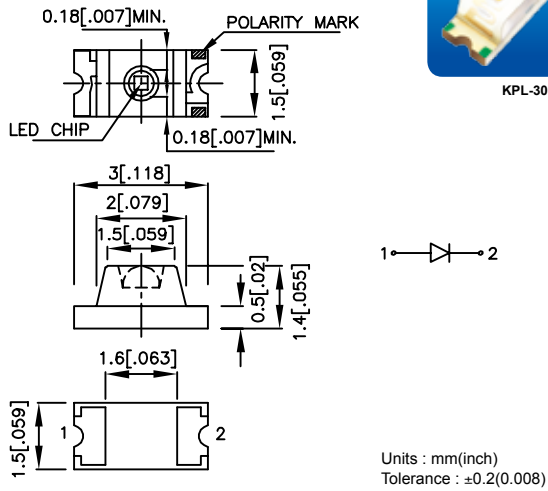
TOP-EMITTING CHIP SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KP-23SURCK-F	AlGaInP	630	water clear	70	220	120°	3.0mm x 2.4mm x 1.05mm
KP-23SECK-F	AlGaInP	601	water clear	70	240	120°	
KP-23SYCK-F	AlGaInP	590	water clear	50	150	120°	
KP-23MGC-F	AlGaInP	570	water clear	36	70	120°	
KP-23CGCK-F	AlGaInP	570	water clear	18	50	120°	
KP-23ZGC-F	InGaN	525	water clear	110	380	120°	
KP-23ZGC-E-F	InGaN	525	water clear	280	650	120°	
KP-23ZGC-G-F	InGaN	525	water clear	380	700	120°	
KP-23QBC-D-F	InGaN	470	water clear	36	100	120°	
KP-23QBC-F-F	InGaN	465	water clear	50	120	120°	
KP-23QBC-G-F	InGaN	465	water clear	70	180	120°	
KPL-3015SURCK	AlGaInP	630	water clear	280	500	70°	3.0mm x 1.5mm x 1.4mm (1106)
KPL-3015SECK	AlGaInP	601	water clear	280	550	70°	
KPL-3015SYCK	AlGaInP	590	water clear	110	300	70°	
KPL-3015MGC	AlGaInP	570	water clear	70	140	70°	
KPL-3015CGCK	AlGaInP	570	water clear	50	100	70°	
KPL-3015ZGC	InGaN	525	water clear	380	850	70°	
KPL-3015ZGC-E	InGaN	525	water clear	650	1300	70°	
KPL-3015ZGC-G	InGaN	525	water clear	900	1500	70°	
KPL-3015QBC-D	InGaN	470	water clear	70	180	70°	
KPL-3015QBC-F	InGaN	465	water clear	110	250	70°	
KPL-3015QBC-G	InGaN	465	water clear	180	320	70°	
KP-3216EC	GaAsP/GaP	625	water clear	4	15	120°	3.2mm x 1.6mm x 1.1mm (1206)
KP-3216SRC-PRV	GaAlAs	640	water clear	36	100	120°	
KP-3216SURCK	AlGaInP	630	water clear	70	220	120°	
KP-3216SECK	AlGaInP	601	water clear	70	240	120°	
KP-3216YC	GaAsP/GaP	588	water clear	2.6	8	120°	
KP-3216SYCK	AlGaInP	590	water clear	50	150	120°	
KP-3216SGC	GaP	568	water clear	4	15	120°	
KP-3216MGC	AlGaInP	570	water clear	36	70	120°	
KP-3216CGCK	AlGaInP	570	water clear	10	50	120°	
KP-3216ZGC	InGaN	525	water clear	110	300	120°	
KP-3216ZGC-E	InGaN	525	water clear	280	650	120°	
KP-3216ZGC-G	InGaN	525	water clear	380	700	120°	
KP-3216QBC-D	InGaN	470	water clear	36	100	120°	
KP-3216QBC-F	InGaN	465	water clear	50	150	120°	
KP-3216QBC-G	InGaN	465	water clear	70	180	120°	

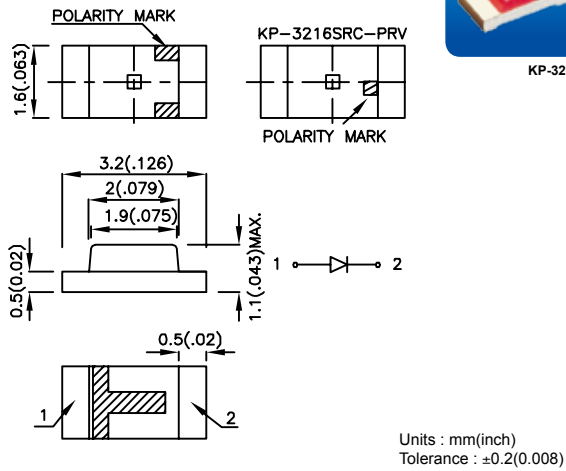

KP-23-F




KPL-3015




KP-3216

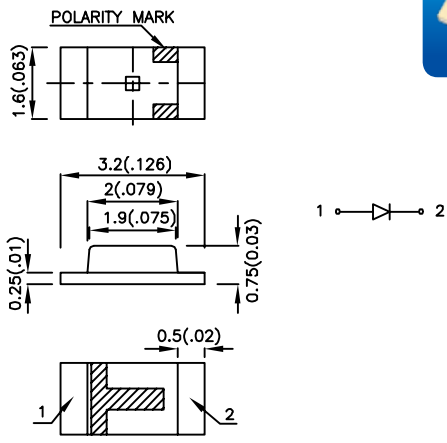


NOTE:
1.KP series custom-made is available upon request.

TOP-EMITTING CHIP SMD LED

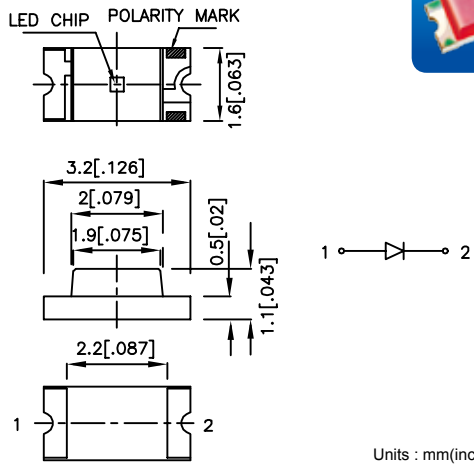
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPT-3216SURCK	AlGaInP	630	water clear	70	220	120°	3.2mm x 1.6mm x 0.75mm (1206 Super Thin)
KPT-3216SECK	AlGaInP	601	water clear	70	240	120°	
KPT-3216SYCK	AlGaInP	590	water clear	50	150	120°	
KPT-3216MGC	AlGaInP	570	water clear	36	70	120°	
KPT-3216CGCK	AlGaInP	570	water clear	10	50	120°	
KPT-3216ZGC	InGaN	525	water clear	110	300	120°	
KPT-3216ZGC-E	InGaN	525	water clear	280	650	120°	
KPT-3216ZGC-G	InGaN	525	water clear	380	700	120°	
KPT-3216QBC-D	InGaN	470	water clear	36	100	120°	
KPT-3216QBC-F	InGaN	465	water clear	50	150	120°	
KPT-3216QBC-G	InGaN	465	water clear	70	180	120°	
KPC-3216SURCK	AlGaInP	630	water clear	70	220	120°	3.2mm x 1.6mm x 1.1mm (1206)
KPC-3216SECK	AlGaInP	601	water clear	70	240	120°	
KPC-3216SYCK	AlGaInP	590	water clear	50	150	120°	
KPC-3216MGC	AlGaInP	570	water clear	36	70	120°	
KPC-3216CGCK	AlGaInP	570	water clear	10	50	120°	
KPC-3216ZGC	InGaN	525	water clear	110	300	120°	
KPC-3216ZGC-E	InGaN	525	water clear	280	650	120°	
KPC-3216ZGC-G	InGaN	525	water clear	380	700	120°	
KPC-3216QBC-D	InGaN	470	water clear	36	100	120°	
KPC-3216QBC-F	InGaN	465	water clear	50	150	120°	
KPC-3216QBC-G	InGaN	465	water clear	70	180	120°	
KPTL-3216SURCK	AlGaInP	630	water clear	280	550	70°	3.2mm x 1.6mm x 1.1mm (1206)
KPTL-3216SECK	AlGaInP	601	water clear	280	600	70°	
KPTL-3216SYCK	AlGaInP	590	water clear	110	350	70°	
KPTL-3216CGCK	AlGaInP	570	water clear	70	200	70°	
KPTL-3216ZGC	InGaN	525	water clear	480	1100	70°	
KPTL-3216ZGC-E	InGaN	525	water clear	650	1600	70°	
KPTL-3216ZGC-G	InGaN	525	water clear	900	1800	70°	
KPTL-3216QBC-D	InGaN	470	water clear	110	300	70°	
KPTL-3216QBC-F	InGaN	465	water clear	180	360	70°	
KPTL-3216QBC-G	InGaN	465	water clear	280	400	70°	


KPT-3216



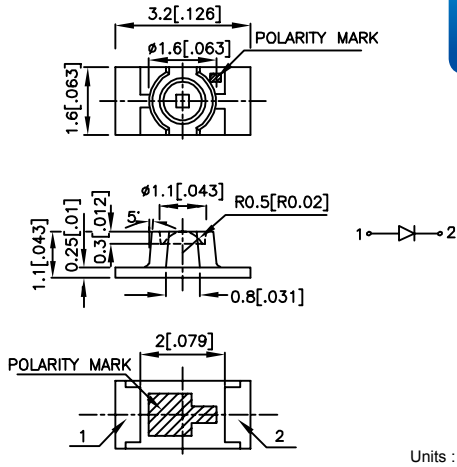
Units : mm(inch)
Tolerance : ±0.2(0.008)


KPC-3216



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


KPTL-3216



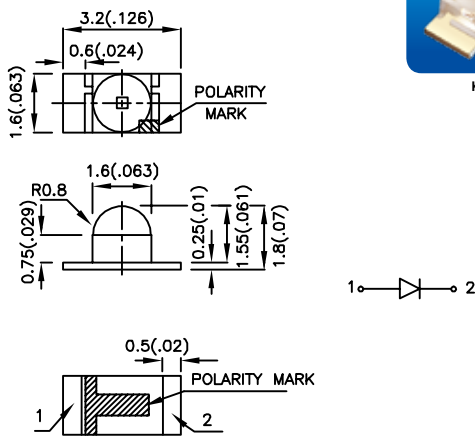
Units : mm(inch)
Tolerance : 0.1(0.004)

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

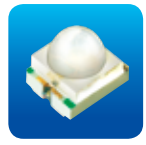
TOP-EMITTING CHIP SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPTD-3216SURCK	AlGaInP	630	water clear	480	1500	50°	3.2mm x 1.6mm x 1.8mm (1206 Dome Lens)
KPTD-3216SECK	AlGaInP	601	water clear	650	1600	50°	
KPTD-3216SYCK	AlGaInP	590	water clear	380	900	50°	
KPTD-3216MGC	AlGaInP	570	water clear	110	450	50°	
KPTD-3216CGCK	AlGaInP	570	water clear	110	300	50°	
KPTD-3216ZGC	InGaN	525	water clear	900	2000	50°	
KPTD-3216ZGC-E	InGaN	525	water clear	2200	3500	50°	
KPTD-3216ZGC-G	InGaN	525	water clear	2500	4000	50°	
KPTD-3216QBC-D	InGaN	470	water clear	280	500	40°	
KPTD-3216QBC-F	InGaN	465	water clear	380	850	40°	
KPTD-3216QBC-G	InGaN	465	water clear	480	900	40°	
KPD-3224SURCK	AlGaInP	630	water clear	650	2500	20°	3.2mm x 2.4mm x 2.4mm (Dome Lens)
KPD-3224SECK	AlGaInP	601	water clear	900	2600	20°	
KPD-3224SYCK	AlGaInP	590	water clear	480	1400	20°	
KPD-3224MGC	AlGaInP	570	water clear	380	700	20°	
KPD-3224CGCK	AlGaInP	570	water clear	280	700	20°	
KPD-3224ZGC	InGaN	525	water clear	1200	2400	20°	
KPD-3224ZGC-E	InGaN	525	water clear	2800	5000	20°	
KPD-3224ZGC-G	InGaN	525	water clear	3300	5300	20°	
KPD-3224QBC-D	InGaN	470	water clear	380	900	20°	
KPD-3224QBC-F	InGaN	465	water clear	480	1200	20°	
KPD-3224QBC-G	InGaN	465	water clear	650	1400	20°	
KPED-3528SURCK	AlGaInP	630	water clear	380	800	40°	3.5mm x 2.8mm x 3.2mm (Dome Lens)
KPED-3528SECK	AlGaInP	601	water clear	480	900	40°	
KPED-3528SYCK	AlGaInP	590	water clear	180	500	40°	
KPED-3528MGC	AlGaInP	570	water clear	110	250	40°	
KPED-3528CGCK	AlGaInP	570	water clear	70	200	40°	
KPED-3528ZGC	InGaN	525	water clear	480	1400	40°	
KPED-3528ZGC-E	InGaN	525	water clear	1800	2700	40°	
KPED-3528ZGC-G	InGaN	525	water clear	2200	3000	40°	
KPED-3528QBC-D	InGaN	470	water clear	180	500	40°	
KPED-3528QBC-F	InGaN	465	water clear	380	700	40°	
KPED-3528QBC-G	InGaN	465	water clear	480	800	40°	


KPTD-3216



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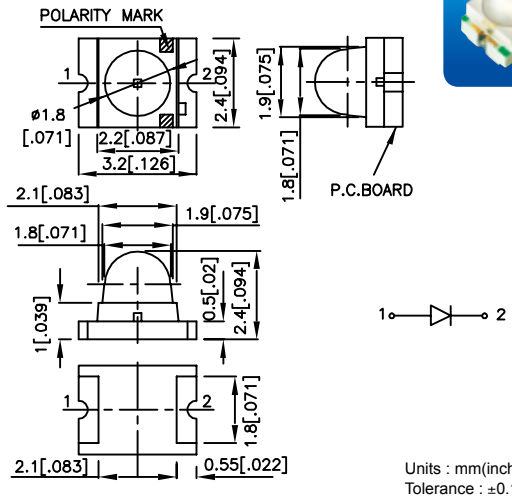
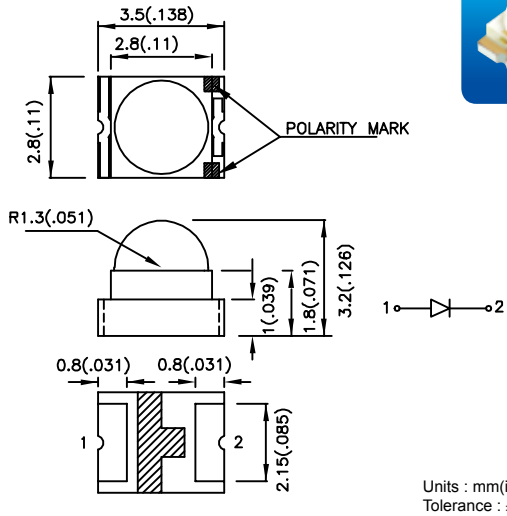


Units : mm(inch)
Tolerance : ±0.1(0.004)


KPED-3528

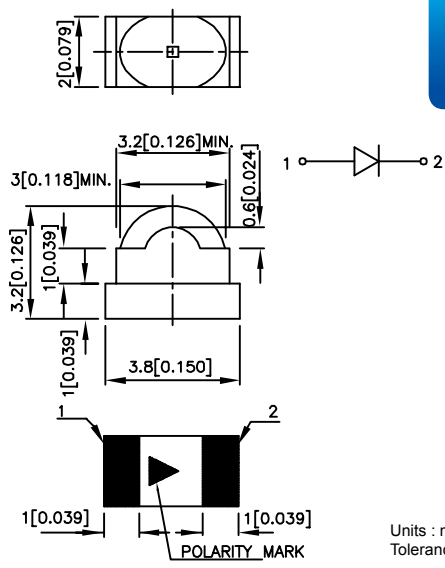


Units : mm(inch)
Tolerance : ±0.2(0.008)

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

TOP-EMITTING CHIP SMD LED

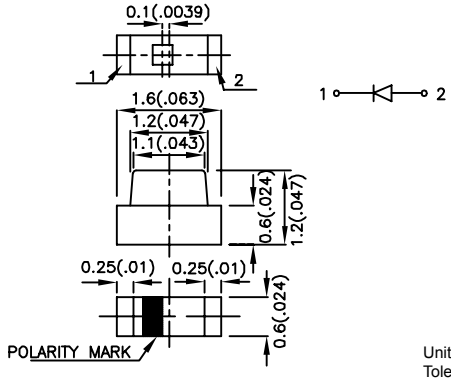
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPED-3820SURCK	AlGaInP	630	water clear	280	700	60°(H) 35°(V)	3.8mm x 2.0mm x 3.2mm (Dome Lens)
KPED-3820SECK	AlGaInP	601	water clear	280	800	60°(H) 35°(V)	
KPED-3820SYCK	AlGaInP	590	water clear	110	450	60°(H) 35°(V)	
KPED-3820MGC	AlGaInP	570	water clear	110	250	60°(H) 35°(V)	
KPED-3820CGCK	AlGaInP	570	water clear	70	170	60°(H) 35°(V)	
KPED-3820ZGC	InGaN	525	water clear	480	1200	60°(H) 35°(V)	
KPED-3820ZGC-E	InGaN	525	water clear	1500	2500	60°(H) 35°(V)	
KPED-3820ZGC-G	InGaN	525	water clear	1800	2700	60°(H) 35°(V)	
KPED-3820QBC-D	InGaN	470	water clear	110	300	60°(H) 35°(V)	
KPED-3820QBC-F	InGaN	465	water clear	280	450	60°(H) 35°(V)	
KPED-3820QBC-G	InGaN	465	water clear	380	650	60°(H) 35°(V)	



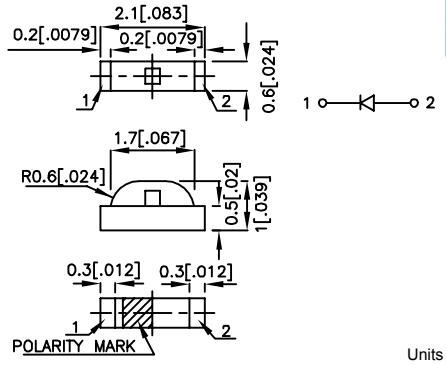
Units : mm(inch)
Tolerance : ±0.2(0.008)

RIGHT ANGLE SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPA-1606SURCK	AlGaInP	630	water clear	110	250	110°	1.6mm x 0.6mm x 1.2mm (0602 Right Angle)
KPA-1606SECK	AlGaInP	601	water clear	110	300	110°	
KPA-1606SYCK	AlGaInP	590	water clear	50	150	110°	
KPA-1606CGCK	AlGaInP	570	water clear	18	60	110°	
KPA-1606ZGC	InGaN	525	water clear	110	350	110°	
KPA-1606ZGC-E	InGaN	525	water clear	280	600	110°	
KPA-1606ZGC-G	InGaN	525	water clear	380	650	110°	
KPA-1606QBC-D	InGaN	470	water clear	36	90	110°	
KPA-1606QBC-F	InGaN	465	water clear	50	120	110°	
KPA-1606QBC-G	InGaN	465	water clear	70	150	110°	
KPA-2106SURCK	AlGaInP	630	water clear	110	250	120°	2.1mm x 0.6mm x 1.0mm (0802 Right Angle)
KPA-2106SECK	AlGaInP	601	water clear	110	300	120°	
KPA-2106SYCK	AlGaInP	590	water clear	50	150	120°	
KPA-2106MGC	AlGaInP	570	water clear	36	80	120°	
KPA-2106CGCK	AlGaInP	570	water clear	18	60	120°	
KPA-2106ZGC	InGaN	525	water clear	110	350	120°	
KPA-2106ZGC-E	InGaN	525	water clear	280	600	120°	
KPA-2106ZGC-G	InGaN	525	water clear	380	650	120°	
KPA-2106QBC-D	InGaN	470	water clear	36	90	120°	
KPA-2106QBC-F	InGaN	465	water clear	50	120	120°	
KPA-2106QBC-G	InGaN	465	water clear	70	150	120°	



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

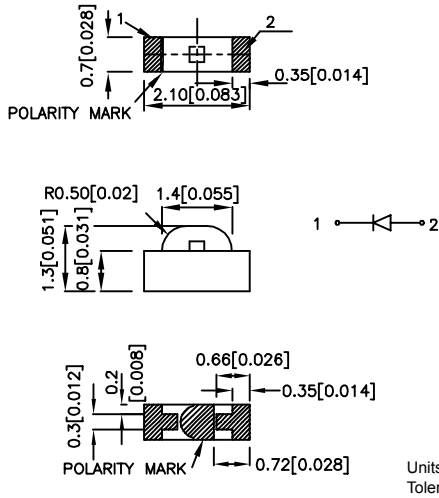


Units : mm(inch)
Tolerance : ±0.1(0.004)

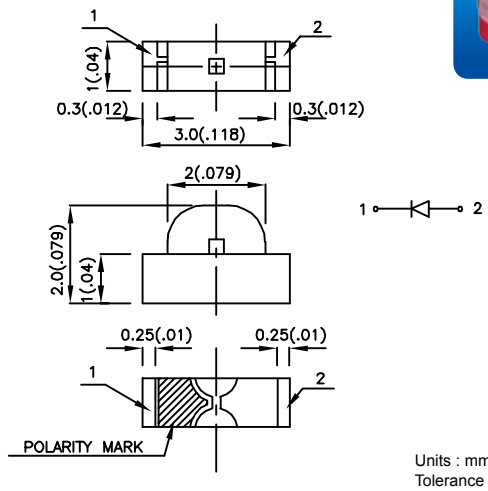
NOTE:
1.KP series custom-made is available upon request.

RIGHT ANGLE SMD LED

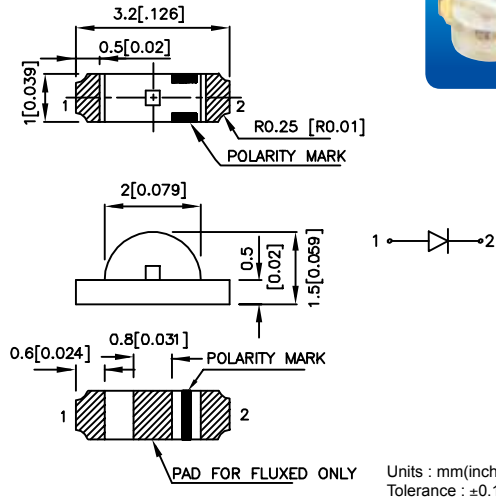
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPJA-2107SURCK	AlGaInP	630	water clear	110	250	120°	2.1mm x 0.7mm x 1.3mm (0802 Right Angle)
KPJA-2107SECK	AlGaInP	601	water clear	110	300	120°	
KPJA-2107SYCK	AlGaInP	590	water clear	50	150	120°	
KPJA-2107MGC	AlGaInP	570	water clear	36	80	120°	
KPJA-2107CGCK	AlGaInP	570	water clear	18	60	120°	
KPJA-2107ZGC	InGaN	525	water clear	110	350	120°	
KPJA-2107ZGC-E	InGaN	525	water clear	280	600	120°	
KPJA-2107ZGC-G	InGaN	525	water clear	380	650	120°	
KPJA-2107QBC-D	InGaN	470	water clear	36	90	120°	
KPJA-2107QBC-F	InGaN	465	water clear	50	120	120°	
KPJA-2107QBC-G	InGaN	465	water clear	70	150	120°	
KPA-3010SURCK	AlGaInP	630	water clear	110	250	120°	3.0mm x 1.0mm x 2.0mm (1104 Right Angle)
KPA-3010SECK	AlGaInP	601	water clear	110	300	120°	
KPA-3010SYCK	AlGaInP	590	water clear	50	150	120°	
KPA-3010MGC	AlGaInP	570	water clear	36	80	120°	
KPA-3010CGCK	AlGaInP	570	water clear	18	60	120°	
KPA-3010ZGC	InGaN	525	water clear	110	350	120°	
KPA-3010ZGC-E	InGaN	525	water clear	280	600	120°	
KPA-3010ZGC-G	InGaN	525	water clear	380	650	120°	
KPA-3010QBC-D	InGaN	470	water clear	36	90	120°	
KPA-3010QBC-F	InGaN	465	water clear	50	120	120°	
KPA-3010QBC-G	InGaN	465	water clear	70	150	120°	
KPA-3210SURCK	AlGaInP	630	water clear	110	250	120°	3.2mm x 1.0mm x 1.5mm (1304 Right Angle)
KPA-3210SECK	AlGaInP	601	water clear	110	300	120°	
KPA-3210SYCK	AlGaInP	590	water clear	50	150	120°	
KPA-3210MGC	AlGaInP	570	water clear	36	80	120°	
KPA-3210CGCK	AlGaInP	570	water clear	18	60	120°	
KPA-3210ZGC	InGaN	525	water clear	110	350	120°	
KPA-3210ZGC-E	InGaN	525	water clear	280	600	120°	
KPA-3210ZGC-G	InGaN	525	water clear	380	650	120°	
KPA-3210QBC-D	InGaN	470	water clear	36	90	120°	
KPA-3210QBC-F	InGaN	465	water clear	50	120	120°	
KPA-3210QBC-G	InGaN	465	water clear	70	150	120°	



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



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

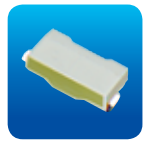


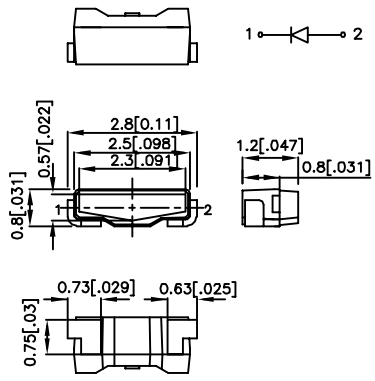
Units : mm(inch)
Tolerance : ±0.1(0.004)

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

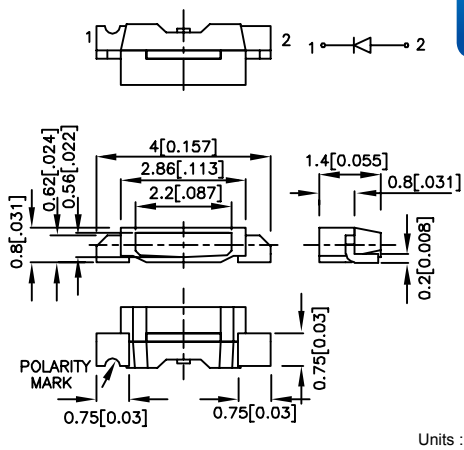
RIGHT ANGLE SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KA-2810ASURSK	AlGaInP	630	water clear	70	200	110°	2.8mm x 0.8mm Right Angle
KA-2810ASESK	AlGaInP	601	water clear	110	270	110°	
KA-2810ASYSK	AlGaInP	590	water clear	110	200	110°	
KA-2810ACGSK	AlGaInP	570	water clear	36	70	110°	
KA-2810AZGS	InGaN	525	water clear	380	750	110°	
KA-2810AZGS-E	InGaN	525	water clear	650	1300	110°	
KA-2810AZGS-G	InGaN	525	water clear	900	1500	110°	
KA-2810AQBS-D	InGaN	470	water clear	50	120	110°	
KA-2810AQBS-F	InGaN	465	water clear	110	250	110°	
KA-2810AQBS-G	InGaN	465	water clear	180	350	110°	
KA-4008SURSK	AlGaInP	630	water clear	110	300	120°	4.0mm x 0.8mm Right Angle
KA-4008SESK	AlGaInP	601	water clear	110	350	120°	
KA-4008SYSK	AlGaInP	590	water clear	70	250	120°	
KA-4008ZGS	InGaN	525	water clear	280	600	120°	
KA-4008ZGS-E	InGaN	525	water clear	650	1200	120°	
KA-4008ZGS-G	InGaN	525	water clear	900	1400	120°	
KA-4008QBS-D	InGaN	470	water clear	50	100	120°	
KA-4008QBS-F	InGaN	465	water clear	110	250	120°	
KA-4008QBS-G	InGaN	465	water clear	180	300	120°	
KA-4040SURCKT	AlGaInP	630	water clear	70	250	90°	4.0mm x 4.0mm Right Angle
KA-4040SECKT	AlGaInP	601	water clear	110	400	90°	
KA-4040SYCKT	AlGaInP	590	water clear	70	250	90°	
KA-4040MGCT	AlGaInP	570	water clear	50	100	90°	
KA-4040CGCKT	AlGaInP	570	water clear	36	70	90°	
KA-4040ZGCT	InGaN	525	water clear	380	600	90°	
KA-4040ZGCT-E	InGaN	525	water clear	480	1300	90°	
KA-4040ZGCT-G	InGaN	525	water clear	650	1500	90°	
KA-4040QBCT-D	InGaN	470	water clear	70	150	90°	
KA-4040QBCT-F	InGaN	465	water clear	110	220	90°	
KA-4040QBCT-G	InGaN	465	water clear	180	300	90°	

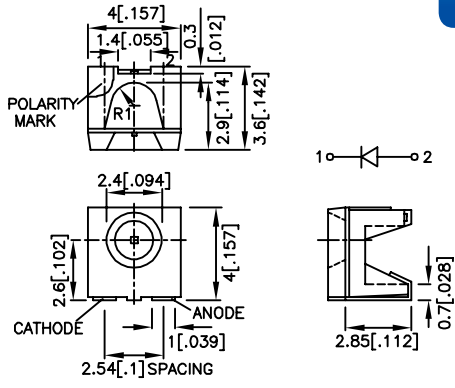




Units : mm(inch)
Tolerance : ±0.1(0.004)



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

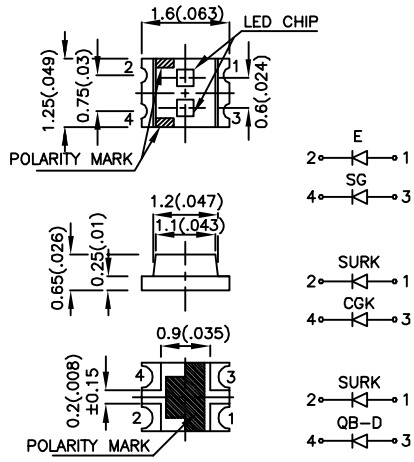


Units : mm(inch)
Tolerance : ±0.25(0.01)

MULTI-COLOR SMD LED

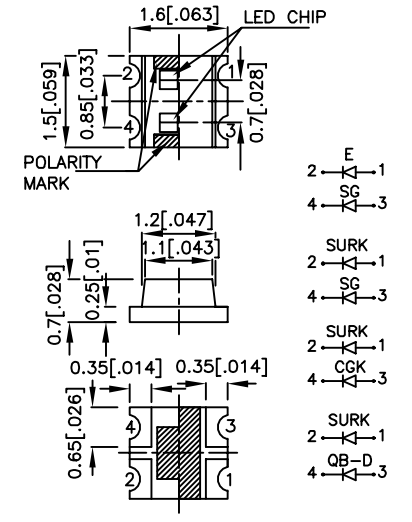
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA MIN.	Iv (mcd) @20mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KPTB-1612ESGC	GaAsP/GaP	625	water clear	4	15	120°	1.6mm x 1.25mm x 0.65mm (0605 Bi-Color)
	GaP	568		4	15		
KPTB-1612SURKCGKC	AlGaInP	630	water clear	70	220	120°	
	AlGaInP	570		18	50		
KPTB-1612SURKQBDC	AlGaInP	630	water clear	70	220	120°	
	InGaN	470		36	90		
KPTB-1612SYKCGKC	AlGaInP	590	water clear	50	150	120°	
	AlGaInP	570		18	50		
KPTB-1612QBDSEKC	InGaN	470	water clear	36	90	120°	
	AlGaInP	601		70	240		
KPTB-1615ESGC	GaAsP/GaP	625	water clear	4	15	120°	1.6mm x 1.5mm x 0.7mm (0606 Bi-Color)
	GaP	568		4	15		
KPTB-1615SURKSGC	AlGaInP	630	water clear	70	220	120°	
	GaP	568		4	15		
KPTB-1615SURKCGKC	AlGaInP	630	water clear	70	220	120°	
	AlGaInP	570		18	50		
KPTB-1615SURKQBDC	AlGaInP	630	water clear	70	220	120°	
	InGaN	470		36	90		
KPTB-1615YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
	GaP	568		4	15		
KPTB-1615SYKCGKC	AlGaInP	590	water clear	50	150	120°	
	AlGaInP	570		18	50		
KPTB-1615SGNC	GaP	568	water clear	4	15	120°	
	GaAsP/GaP	610		4	15		
KPHBM-2012SURKCGKC	AlGaInP	630	water clear	70	220	120°	2.0mm x 1.25mm x 0.45mm (Bi-Color)
	AlGaInP	570		18	50		
KPHBM-2012CGKSEKC	AlGaInP	570	water clear	18	50	120°	
	AlGaInP	601		110	250		
KPHBM-2012QBDSURKC	InGaN	470	water clear	36	90	120°	
	AlGaInP	630		70	220		
KPHBM-2012QBDCGKC	InGaN	470	water clear	36	90	120°	
	AlGaInP	570		18	50		


KPTB-1612



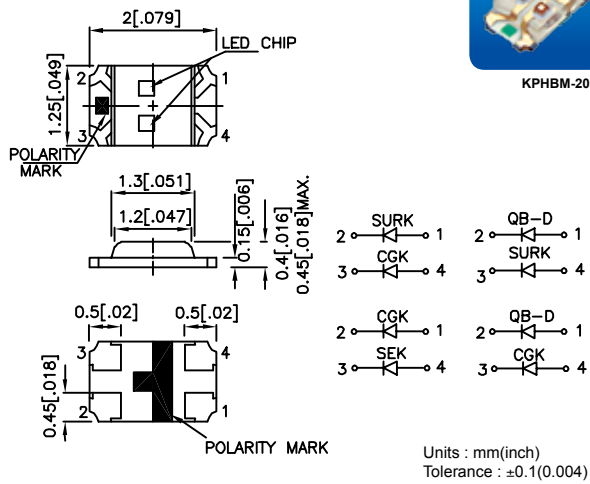
Units : mm(inch)
Tolerance : ±0.2(0.008)


KPTB-1615



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


KPHBM-2012

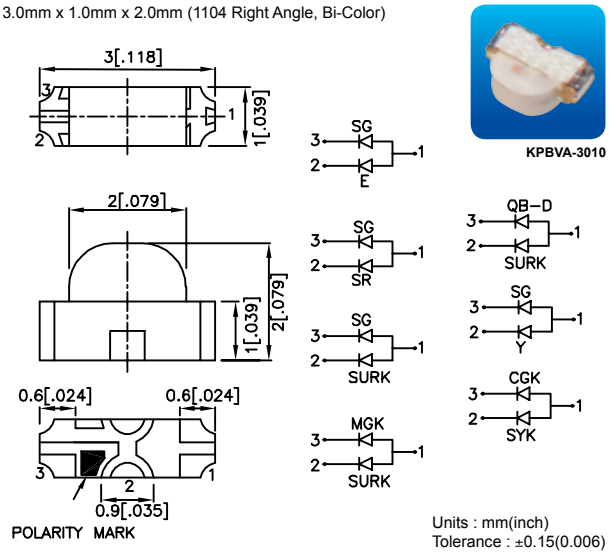


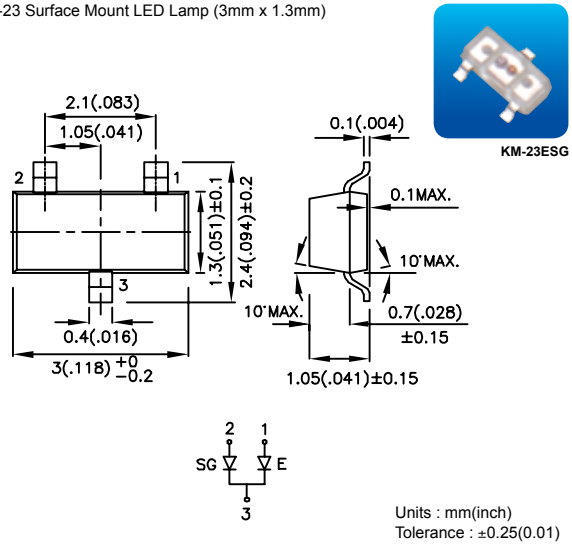
Units : mm(inch)
Tolerance : ±0.1(0.004)

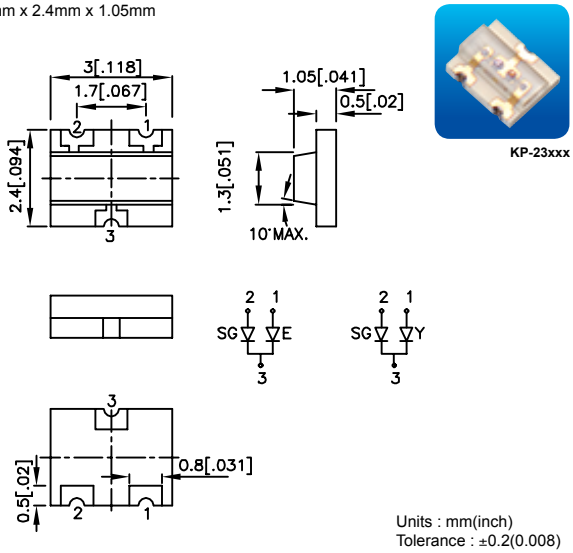
NOTE:
1.KP series custom-made is available upon request.

MULTI-COLOR SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA MIN.	Iv (mcd) @20mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KPBVA-3010ESGC	GaAsP/GaP	625	water clear	7	15	140°	3.0mm x 1.0mm x 2.0mm (1104 Right Angle, Bi-Color)
	GaP	568		7	15		
KPBVA-3010SRSGC-PRV	GaAlAs	640	water clear	50	140	140°	
	GaP	568		7	20		
KPBVA-3010SURKSGC	AlGaInP	630	water clear	110	300	140°	
	GaP	568		7	15		
KPBVA-3010SURKMGKC	AlGaInP	630	water clear	110	300	140°	
	AlGaInP	570		36	80		
KPBVA-3010SURKQBDC	AlGaInP	630	water clear	110	300	140°	
	InGaN	470		36	90		
KPBVA-3010YSGC	GaAsP/GaP	588	water clear	2.6	8	140°	
	GaP	568		7	15		
KPBVA-3010SYKCGKC	AlGaInP	590	water clear	50	150	140°	
	AlGaInP	570		18	50		
KM-23ESGW	GaAsP/GaP	625	white diffused	4	15	140°	SOT-23 Surface Mount LED Lamp (3mm x 1.3mm)
	GaP	568		4	15		
KM-23ESGC	GaAsP/GaP	625	water clear	4	15	140°	
	GaP	568		4	15		
KP-23ESGC	GaAsP/GaP	625	water clear	7	20	120°	3.0mm x 2.4mm x 1.05mm
	GaP	568		7	20		
KP-23YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
	GaP	568		7	20		





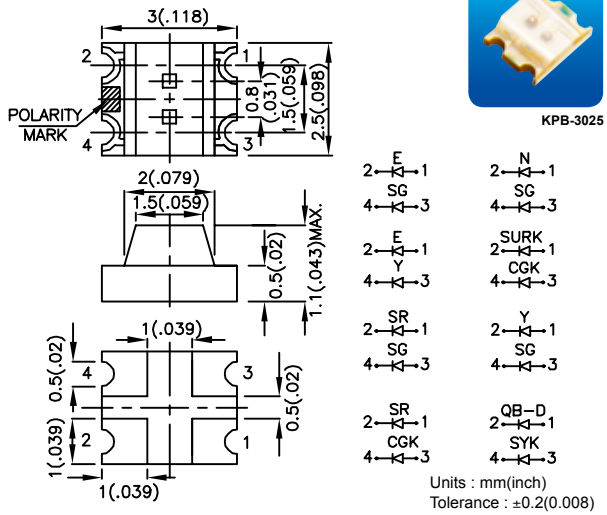


NOTE:
1.KP series custom-made is available upon request.

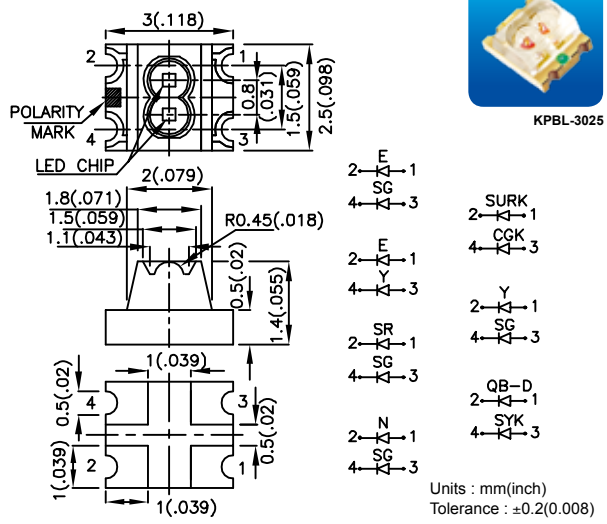
MULTI-COLOR SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPB-3025ESGC	GaAsP/GaP	625	water clear	4	15	120°	3.0mm x 2.5mm x 1.1mm (1109 Bi-Color)
	GaP	568		4	15		
KPB-3025EYC	GaAsP/GaP	625	water clear	4	15	120°	
	GaAsP/GaP	588		2.6	8		
KPB-3025SRSGC-PRV	GaAlAs	640	water clear	36	100	120°	
	GaP	568		4	15		
KPB-3025SRCGKC-PRV	GaAlAs	640	water clear	36	100	120°	
	AlGaInP	570		18	50		
KPB-3025NSGC	GaAsP/GaP	610	water clear	4	15	120°	
	GaP	568		4	15		
KPB-3025SURKCGKC	AlGaInP	630	water clear	70	220	120°	
	AlGaInP	570		18	50		
KPB-3025YSGC	GaAsP/GaP	588	water clear	2.6	8	120°	
	GaP	568		4	15		
KPB-3025QBDSYKC	InGaN	470	water clear	36	80	120°	
	AlGaInP	590		50	200		
KPBL-3025ESGC	GaAsP/GaP	625	water clear	7	20	100°	3.0mm x 2.5mm x 1.4mm (1109 Bi-Color)
	GaP	568		7	20		
KPBL-3025EYC	GaAsP/GaP	625	water clear	7	20	100°	
	GaAsP/GaP	588		4	15		
KPBL-3025SRSGC-PRV	GaAlAs	640	water clear	36	100	100°	
	GaP	568		7	20		
KPBL-3025NSGC	GaAsP/GaP	610	water clear	7	20	100°	
	GaP	568		7	20		
KPBL-3025SURKCGKC	AlGaInP	630	water clear	180	500	100°	
	AlGaInP	570		50	150		
KPBL-3025YSGC	GaAsP/GaP	588	water clear	4	15	100°	
	GaP	568		7	20		
KPBL-3025QBDSYKC	InGaN	470	water clear	50	180	100°	
	AlGaInP	590		70	150		
KPBD-3224ESGC	GaAsP/GaP	625	water clear	18	60	20°	3.2mm x 2.4mm x 2.4mm (Dome Lens)
	GaP	568		10	60		
KPBD-3224SURKSGC	AlGaInP	630	water clear	380	1200	20°	
	GaP	568		10	60		
KPBD-3224SURKCGKC	AlGaInP	630	water clear	380	1200	20°	
	AlGaInP	570		110	300		
KPBD-3224YSGC	GaAsP/GaP	588	water clear	4	15	20°	
	GaP	568		10	60		
KPBD-3224SYKCGKC	AlGaInP	590	water clear	110	500	20°	
	AlGaInP	570		110	300		

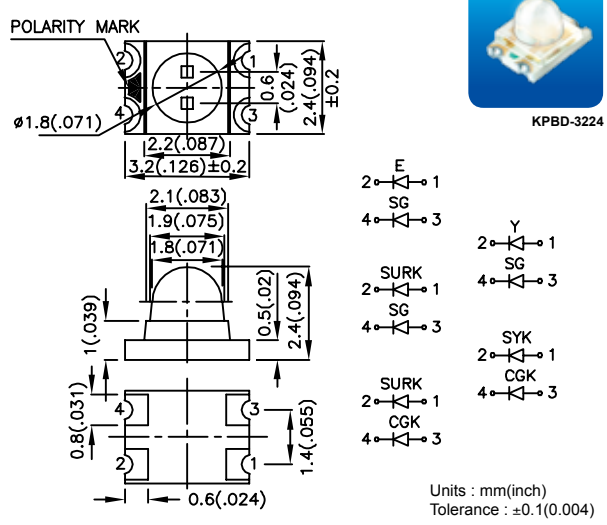

KPB-3025




KPBL-3025



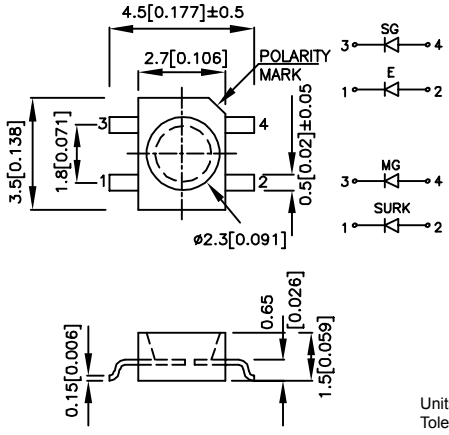

KPBD-3224

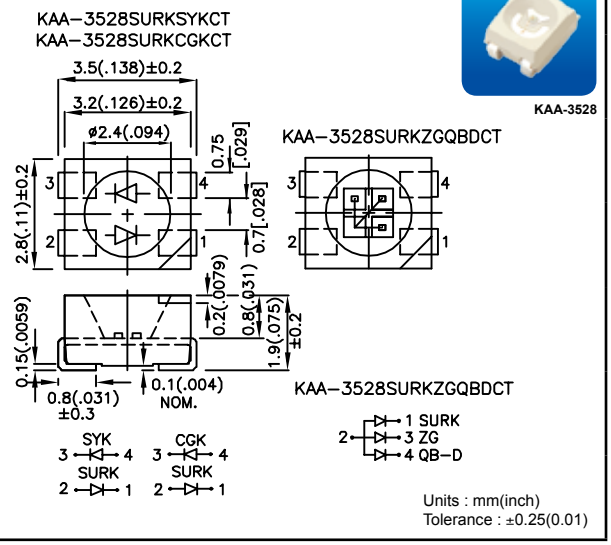


NOTE:
1.KP series custom-made is available upon request.

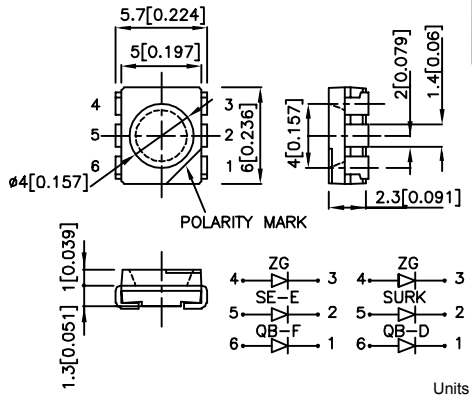
MULTI-COLOR SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA MIN.	Iv (mcd) @20mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KA-2735ESGCT	GaAsP/GaP	625	water clear	7	30	120°	2.7mm x 3.5mm (Bi-Color)
	GaP	568		7	30		
KA-2735SURKMGCT	AlGaInP	630	water clear	70	200	120°	
	AlGaInP	570		50	90		
KAA-3528SURKSYKCT	AlGaInP	630	water clear	110	350	120°	3.5mm x 2.8mm
	AlGaInP	590		70	250		
KAA-3528SURKCGKCT	AlGaInP	630	water clear	110	350	120°	
	AlGaInP	570		36	100		
KAA-3528SURKZGQBDCT	AlGaInP	630	water clear	110	350	120°	
	InGaN	525		380	600		
	InGaN	470		36	80		





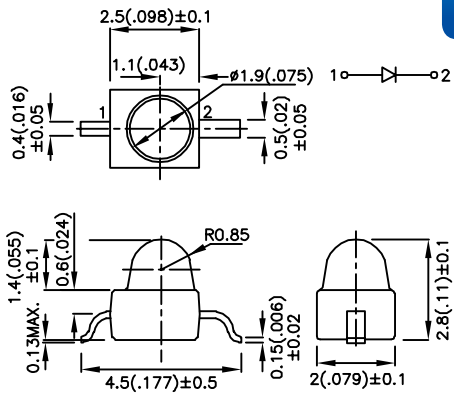
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @30mA *50mA MIN.	Iv (mcd) @30mA *50mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KAAF-5060QBDSURKZGCT	InGaN	470	water clear	110	250	100°	5.0mm x 6.0 mm x 2.3mm
	AlGaInP	630		*180	*350		
	InGaN	525		280	650		
KAAF-5060QBFSEEZGCT	InGaN	465	water clear	180	350	100°	
	AlGaInP	621		*650	*1000		
	InGaN	525		280	650		



SUBMINIATURE SMD LED

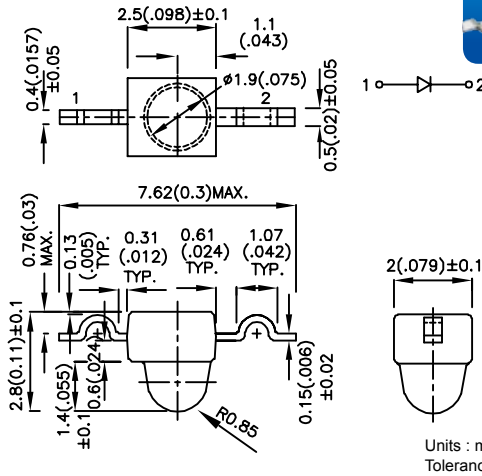
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KM2520SURCK03	AlGaInP	630	water clear	900	2400	20°	Subminiature Solid State Lamps Gull Wing Lead
KM2520SECK03	AlGaInP	601	water clear	900	2500	20°	
KM2520SYCK03	AlGaInP	590	water clear	900	2200	20°	
KM2520MGC03	AlGaInP	570	water clear	380	900	20°	
KM2520CGCK03	AlGaInP	570	water clear	280	700	20°	
KM2520ZGC03	InGaN	525	water clear	1200	2500	20°	
KM2520ZGC-E03	InGaN	525	water clear	2200	4000	20°	
KM2520ZGC-G03	InGaN	525	water clear	2800	5000	20°	
KM2520QBC-D03	InGaN	470	water clear	180	500	20°	
KM2520QBC-F03	InGaN	465	water clear	480	850	20°	
KM2520QBC-G03	InGaN	465	water clear	650	1300	20°	
KM2520SURCK08	AlGaInP	630	water clear	900	2400	20°	Subminiature Solid State Lamps Yoke Lead
KM2520SECK08	AlGaInP	601	water clear	900	2500	20°	
KM2520SYCK08	AlGaInP	590	water clear	900	2200	20°	
KM2520MGC08	AlGaInP	570	water clear	380	900	20°	
KM2520CGCK08	AlGaInP	570	water clear	280	700	20°	
KM2520ZGC08	InGaN	525	water clear	1200	2500	20°	
KM2520ZGC-E08	InGaN	525	water clear	2200	4000	20°	
KM2520ZGC-G08	InGaN	525	water clear	2800	5000	20°	
KM2520QBC-D08	InGaN	470	water clear	180	500	20°	
KM2520QBC-F08	InGaN	465	water clear	480	850	20°	
KM2520QBC-G08	InGaN	465	water clear	650	1300	20°	
KM2520SURCK09	AlGaInP	630	water clear	900	2400	20°	Subminiature Solid State Lamps Z-Bend Lead
KM2520SECK09	AlGaInP	601	water clear	900	2500	20°	
KM2520SYCK09	AlGaInP	590	water clear	900	2200	20°	
KM2520MGC09	AlGaInP	570	water clear	380	900	20°	
KM2520CGCK09	AlGaInP	570	water clear	280	700	20°	
KM2520ZGC09	InGaN	525	water clear	1200	2500	20°	
KM2520ZGC-E09	InGaN	525	water clear	2200	4000	20°	
KM2520ZGC-G09	InGaN	525	water clear	2800	5000	20°	
KM2520QBC-D09	InGaN	470	water clear	180	500	20°	
KM2520QBC-F09	InGaN	465	water clear	480	850	20°	
KM2520QBC-G09	InGaN	465	water clear	650	1300	20°	

KM2520xxx03



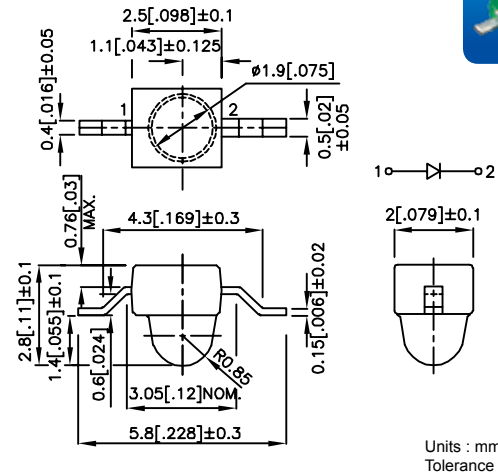
Units : mm(inch)
Tolerance : ±0.25(0.01)

KM2520xxx08



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

KM2520xxx09

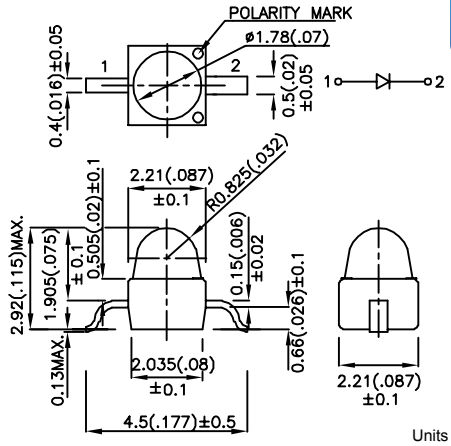


Units : mm(inch)
Tolerance : ±0.25(0.01)

SUBMINIATURE SMD LED

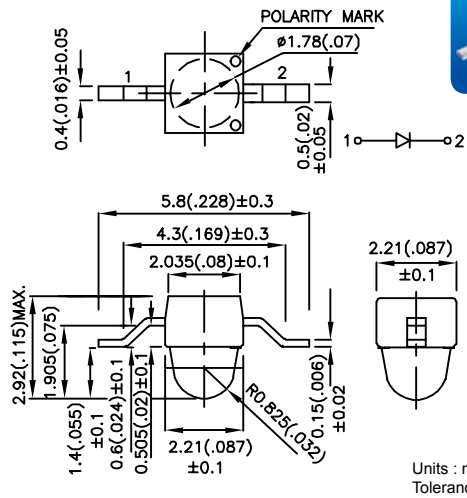
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KM-27SURCK-03	AlGaInP	630	water clear	900	2400	20°	Subminiature Solid State Lamps Gull Wing Lead
KM-27SECK-03	AlGaInP	601	water clear	900	2500	20°	
KM-27SYCK-03	AlGaInP	590	water clear	900	2200	20°	
KM-27MGC-03	AlGaInP	570	water clear	380	900	20°	
KM-27CGCK-03	AlGaInP	570	water clear	280	700	20°	
KM-27ZGC-03	InGaN	525	water clear	1200	2500	20°	
KM-27ZGC-E-03	InGaN	525	water clear	2200	4000	20°	
KM-27ZGC-G-03	InGaN	525	water clear	2800	5000	20°	
KM-27QBC-D-03	InGaN	470	water clear	180	500	20°	
KM-27QBC-F-03	InGaN	465	water clear	480	850	20°	
KM-27QBC-G-03	InGaN	465	water clear	650	1300	20°	
KM-27SURCK-09	AlGaInP	630	water clear	900	2400	20°	Subminiature Solid State Lamps Z-Bend Lead
KM-27SECK-09	AlGaInP	601	water clear	900	2500	20°	
KM-27SYCK-09	AlGaInP	590	water clear	900	2200	20°	
KM-27MGC-09	AlGaInP	570	water clear	380	900	20°	
KM-27CGCK-09	AlGaInP	570	water clear	280	700	20°	
KM-27ZGC-09	InGaN	525	water clear	1200	2500	20°	
KM-27ZGC-E-09	InGaN	525	water clear	2200	4000	20°	
KM-27ZGC-G-09	InGaN	525	water clear	2800	5000	20°	
KM-27QBC-D-09	InGaN	470	water clear	180	500	20°	
KM-27QBC-F-09	InGaN	465	water clear	480	850	20°	
KM-27QBC-G-09	InGaN	465	water clear	650	1300	20°	

KM-27-03



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

KM-27-09

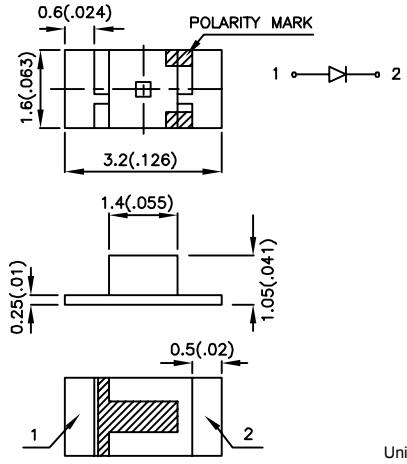


Units : mm(inch)
Tolerance : ±0.25(0.01)

REVERSE MOUNT SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KPTR-3216SURCK	AlGaInP	630	water clear	70	220	120°	3.2mm x 1.6mm x 1.05mm (1206 Reverse Mount)
KPTR-3216SECK	AlGaInP	601	water clear	70	240	120°	
KPTR-3216SYCK	AlGaInP	590	water clear	50	150	120°	
KPTR-3216MGC	AlGaInP	570	water clear	36	70	120°	
KPTR-3216CGCK	AlGaInP	570	water clear	10	50	120°	
KPTR-3216ZGC	InGaN	525	water clear	110	300	120°	
KPTR-3216ZGC-E	InGaN	525	water clear	280	650	120°	
KPTR-3216ZGC-G	InGaN	525	water clear	380	700	120°	
KPTR-3216QBC-D	InGaN	470	water clear	36	100	120°	
KPTR-3216QBC-F	InGaN	465	water clear	50	150	120°	
KPTR-3216QBC-G	InGaN	465	water clear	70	180	120°	


KPTR-3216



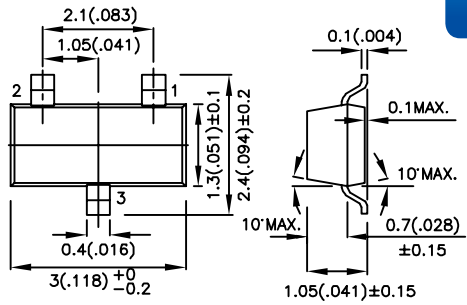
Units : mm(inch)
Tolerance : ±0.2(0.008)

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

SOT-23 SMD LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KM-23ID-F	GaAsP/GaP	625	red diffused	4	12	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	90	140°	
KM-23YD-F	GaAsP/GaP	588	yellow diffused	2.6	8.5	140°	
KM-23YC-F	GaAsP/GaP	588	water clear	2.6	10	140°	
KM-23SYD-F	AlGaInP	590	yellow diffused	50	100	140°	
KM-23SYC-F	AlGaInP	590	water clear	50	150	140°	
KM-23SGD-F	GaP	568	green diffused	2.6	8	140°	
KM-23SGC-F	GaP	568	water clear	4	15	140°	
KM-23CGCK-F	AlGaInP	570	water clear	18	50	140°	
KM-23ZGC-F	InGaN	525	water clear	70	250	140°	
KM-23ZGC-E-F	InGaN	525	water clear	110	450	140°	
KM-23ZGC-G-F	InGaN	525	water clear	280	500	140°	
KM-23QBC-D-F	InGaN	470	water clear	36	80	140°	
KM-23QBC-F-F	InGaN	465	water clear	50	100	140°	
KM-23QBC-G-F	InGaN	465	water clear	70	140	140°	


KM-23-F



KM−23xx−F
1. ANODE
2. N.C
3. CATHODE

KM−23SRx−F
1. CATHODE
2. N.C
3. ANODE

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

AMBIENT LIGHT SENSOR

PART NUMBER

KPS-3227SP1C

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector Emitter Breakdown Voltage	BVceo	60	-	-	V	Iceo=100μA
Emitter Collector Breakdown Voltage	BVeco	4	-	-	V	Ieco=100μA
Collector Dark Current	I_D	-	10	100	nA	V_{CE}=5V Ev=0Lx
Angle Of half Sensitivity	2θ1/2	-	120	-	°	-
Light Current(1)	I_{PH1}	-	6	-	μA	V_{CE}=5V,Ev=100 Lx[1]
Light Current(2)	I_{PH2}		130	-	μA	V_{CE}=5V,Ev=1000 Lx[1]
Light Current(3)	I_{PH3}	-	950	-	μA	V_{CE}=5V,Ev=1000 Lx[2]
Light Current(4)	I_{PH4}	-	420	-	μA	V_{CE}=5V,Ev=1000 Lx[3]
Saturation Output Voltage	Vo	4.5	4.7	-	V	V_{CC}=5V,Ev=1000Lx[1], R_L=75KΩ
Peak Wavelength	λP	-	580	-	nm	-
Response Wavelength	λ	390	-	700	nm	>10% Response
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	-	-	0.4	V	I_C=10 mA

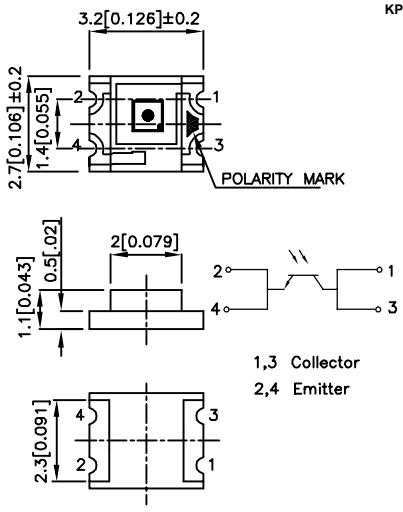
Notes:
1.White Fluorescent light (Color Temperature = 6200K) is used as light source.
2.Illuminance by CIE standard illuminant-A/2856K,incandescet lamp.
3.Sunlight (Color Temperature = 4600K) is used as light source.

DIMENSION

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

(AMBIENT LIGHT SENSOR)

KPS-3227SP1C



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

COLOR SENSOR

PART NUMBER

KPS-5130PD7C

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

PARAMETER	SYMBOL	CONDITION		MIN.	TYP.	MAX.	UNIT
Peak Sensitivity Wavelength	λP	Red		-	620	-	nm
		Green		-	550	-	
		Blue		-	470	-	
Light Current (1)	I_{L1}	100Lux [1] VR =5V	Red	-	0.039	-	μA
			Green	-	0.042	-	
			Blue	-	0.022	-	
Light Current (2)	I_{L2}	1000Lux [1] VR =5V	Red	-	0.427	-	V
			Green	-	0.498	-	
			Blue	-	0.262	-	
Diameter of the irradiation sensitive area	D			-	2.0	-	mm
Irradiation sensitive area per element	A			-	0.85	-	mm^2
Photo sensibility of the single color areas	S_{Max}	λ R=620 nm λ G=550 nm λ B=470 nm		-	0.33 0.25 0.18	-	A/W
Reverse Dark Current	I_D	VR =5V -		-	-	10	nA

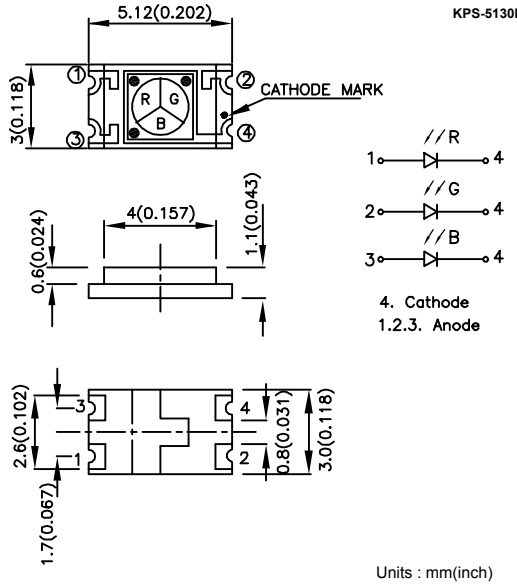
Note:
1.White fluorescent light (Color Temperature = 6500K) is used as light source.

DIMENSION

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

(RGB COLOR SENSOR)

KPS-5130PD7C



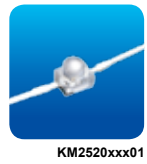
Units : mm(inch)
Tolerance : ±0.1(0.004)

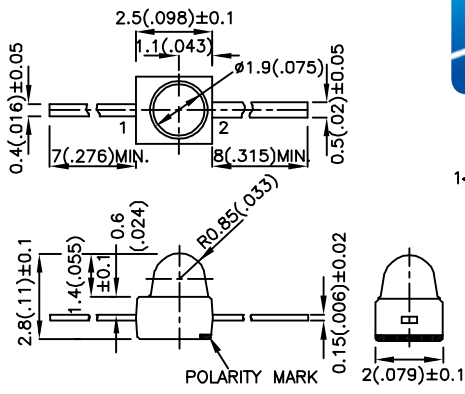
Kingbright

Optoelectronic Components

SUBMINIATURE LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KM2520SURCK01	AlGaInP	630	water clear	900	2400	20°	Subminiature Solid State Lamps
KM2520SECK01	AlGaInP	601	water clear	900	2500	20°	
KM2520SYCK01	AlGaInP	590	water clear	900	2200	20°	
KM2520MGC01	AlGaInP	570	water clear	380	900	20°	
KM2520CGCK01	AlGaInP	570	water clear	280	700	20°	
KM2520ZGC01	InGaN	525	water clear	1200	2500	20°	
KM2520ZGC-E01	InGaN	525	water clear	2200	4000	20°	
KM2520ZGC-G01	InGaN	525	water clear	2800	5000	20°	
KM2520QBC-D01	InGaN	470	water clear	180	500	20°	
KM2520QBC-F01	InGaN	465	water clear	480	850	20°	
KM2520QBC-G01	InGaN	465	water clear	650	1300	20°	

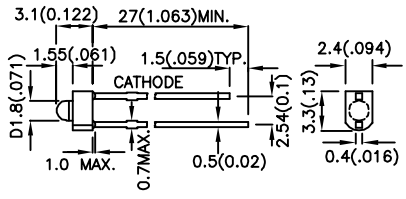

KM2520xxx01



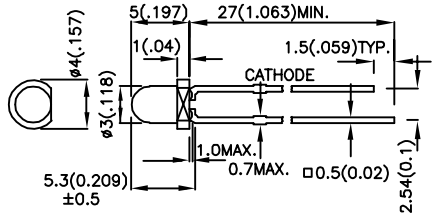
ROUND LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-2060ID	GaAsP/GaP	625	red diffused	8	15	70°	1.8mm Round
L-2060SRD	GaAlAs	640	red diffused	*70	*200	70°	
L-2060SRC	GaAlAs	640	water clear	*110	*300	30°	
L-2060ED	GaAsP/GaP	625	orange diffused	8	15	70°	
L-2060YD	GaAsP/GaP	588	yellow diffused	5	8	70°	
L-2060GD	GaP	568	green diffused	5	10	70°	
L-1154ID	GaAsP/GaP	625	red diffused	8	25	60°	T-1 (3mm) Round
L-1154IT	GaAsP/GaP	625	red transparent	18	60	50°	
L-1154ND	GaAsP/GaP	610	orange diffused	8	30	60°	
L-1154NT	GaAsP/GaP	610	orange transparent	18	50	50°	
L-1154YD	GaAsP/GaP	588	yellow diffused	5	15	60°	
L-1154YT	GaAsP/GaP	588	yellow transparent	8	20	50°	
L-1154GD	GaP	568	green diffused	8	15	60°	
L-1154GT	GaP	568	green transparent	18	40	50°	
L-1154PGD	GaP	555	green diffused	1.8	5	60°	
L-1154PGT	GaP	555	green transparent	3	10	50°	
L-132XID	GaAsP/GaP	625	red diffused	8	25	60°	T-1 (3mm) Round
L-132XIT	GaAsP/GaP	625	red transparent	18	60	50°	
L-132XND	GaAsP/GaP	610	orange diffused	8	30	60°	
L-132XNT	GaAsP/GaP	610	orange transparent	18	50	50°	
L-132XNC	GaAsP/GaP	610	water clear	18	50	50°	
L-132XYD	GaAsP/GaP	588	yellow diffused	5	15	60°	
L-132XYT	GaAsP/GaP	588	yellow transparent	8	20	50°	
L-132XYC	GaAsP/GaP	588	water clear	8	20	50°	
L-132XGD	GaP	568	green diffused	8	15	60°	
L-132XGT	GaP	568	green transparent	12	40	50°	
L-132XGC	GaP	568	water clear	12	40	50°	
L-132XPGD	GaP	555	green diffused	1.8	5	60°	
L-132XPGT	GaP	555	green transparent	3	10	50°	
L-132XPGC	GaP	555	water clear	3	10	50°	

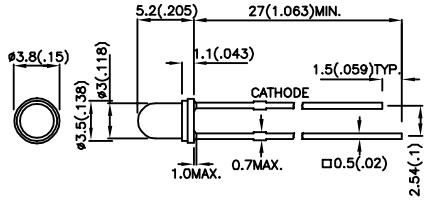

L-2060




L-1154




L-132X

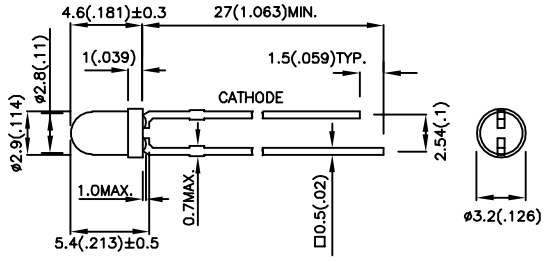


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

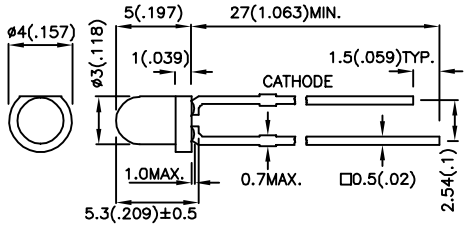
ROUND LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-7104ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Round
L-7104IT	GaAsP/GaP	625	red transparent	18	60	34°	
L-7104EC	GaAsP/GaP	625	water clear	18	60	34°	
L-7104ED	GaAsP/GaP	625	orange diffused	8	20	40°	
L-7104ND	GaAsP/GaP	610	orange diffused	8	30	40°	
L-7104NT	GaAsP/GaP	610	orange transparent	18	50	34°	
L-7104NC	GaAsP/GaP	610	water clear	18	50	34°	
L-7104YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104YT	GaAsP/GaP	588	yellow transparent	8	30	34°	
L-7104YC	GaAsP/GaP	588	water clear	8	30	34°	
L-7104GD	GaP	568	green diffused	8	20	40°	
L-7104GT	GaP	568	green transparent	18	60	34°	
L-7104GC	GaP	568	water clear	18	60	34°	
L-7104PGD	GaP	555	green diffused	1.8	5	40°	
L-7104PGT	GaP	555	green transparent	3	15	34°	
L-7104PGC	GaP	555	water clear	3	15	34°	
L-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	AlGaInP	630	water clear	*900	*1300	34°	
L-7104SECK	AlGaInP	601	water clear	*280	*900	34°	
L-7104SETK	AlGaInP	601	orange transparent	*280	*650	34°	
L-7104SEDK	AlGaInP	601	orange diffused	*180	*350	40°	
L-7104SEC-E	AlGaInP	621	water clear	*900	*2000	34°	
L-7104SEC-H	AlGaInP	630	water clear	*1800	*3500	34°	
L-7104SYCK	AlGaInP	590	water clear	*380	*1300	34°	
L-7104SYTK	AlGaInP	590	yellow transparent	*280	*700	34°	
L-7104SYDK	AlGaInP	590	yellow diffused	*70	*150	40°	
L-7104SYC-H	AlGaInP	589	water clear	*650	*2000	34°	
L-7104SGC	GaP	568	water clear	*70	*150	34°	
L-7104SGD	GaP	568	green diffused	*18	*40	40°	
L-7104CGCK	AlGaInP	570	water clear	*110	*350	34°	
L-7104ZGC	InGaN	525	water clear	*2800	*6500	34°	
L-7104ZGC-E	InGaN	525	water clear	*3800	*6800	34°	
L-7104QBC-D	InGaN	470	water clear	*650	*1500	20°	
L-7104QBC-F	InGaN	465	water clear	*1000	*1800	20°	
L-7104QBC-G	InGaN	465	water clear	*1100	*2300	20°	
L-34HD	GaP	660	red diffused	1	3	60°	T-1 (3mm) Round
L-34ID	GaAsP/GaP	625	red diffused	8	25	60°	
L-34YD	GaAsP/GaP	588	yellow diffused	1.8	6	60°	
L-34AD	GaAsP/GaP	588	amber diffused	3	12	60°	
L-34GD	GaP	568	green diffused	5	20	60°	
L-174XHT	GaP	660	red transparent	1.8	5	35°	3.2mm Round
L-174XIT	GaAsP/GaP	625	red transparent	8	30	35°	
L-174XSRT	GaAlAs	640	red transparent	*110	*400	35°	
L-174XYT	GaAsP/GaP	588	yellow transparent	8	30	35°	
L-174XGT	GaP	568	green transparent	8	30	35°	

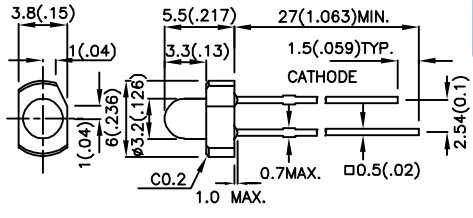
L-7104



L-34

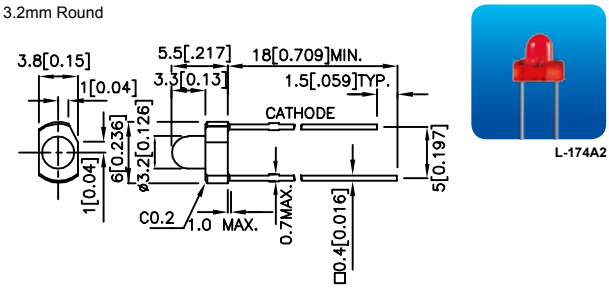
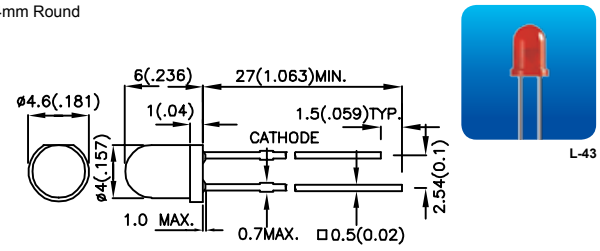
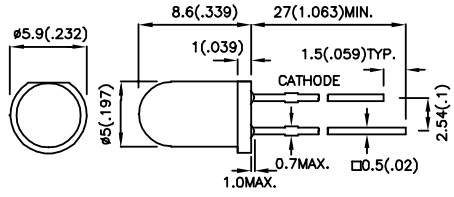


L-174X



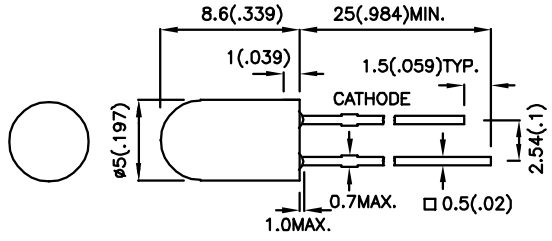
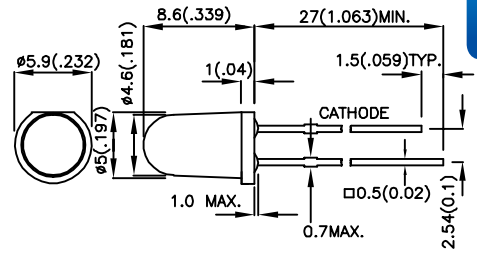
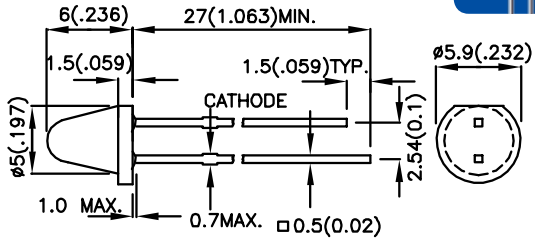
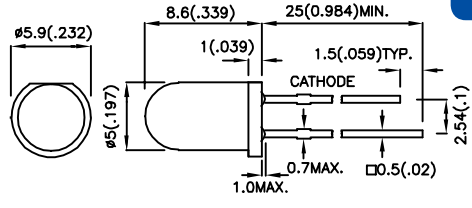
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

ROUND LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA MIN.	Iv (mcd) @10mA *20mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
L-174A2HT	GaP	660	red transparent	1.8	6	35°	3.2mm Round  L-174A2
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-43
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-7113ID	GaAsP/GaP	625	red diffused	8	45	30°	T-1 3/4 (5mm) Round  L-7113
L-7113IT	GaAsP/GaP	625	red transparent	28	80	20°	
L-7113ED	GaAsP/GaP	625	orange diffused	8	25	30°	
L-7113EC	GaAsP/GaP	625	water clear	28	80	20°	
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-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	AlGaInP	630	water clear	*1200	*1400	20°	
L-7113SURC-E	AlGaInP	630	water clear	*1500	*2200	20°	
L-7113SECK	AlGaInP	601	water clear	*650	*2400	20°	
L-7113SETK	AlGaInP	601	orange transparent	*650	*2400	20°	
L-7113SEDK	AlGaInP	601	orange diffused	*280	*600	30°	
L-7113SEC-E	AlGaInP	621	water clear	*1500	*5000	20°	
L-7113SEC-H	AlGaInP	630	water clear	*3800	*10000	20°	
L-7113SYCK	AlGaInP	590	water clear	*480	*1800	20°	
L-7113SYTK	AlGaInP	590	yellow transparent	*480	*1000	20°	
L-7113SYDK	AlGaInP	590	yellow diffused	*110	*380	30°	
L-7113SYC-H	AlGaInP	589	water clear	*1500	*3300	20°	
L-7113SGC	GaP	568	water clear	*70	*200	20°	
L-7113SGD	GaP	568	green diffused	*18	*40	30°	
L-7113CGCK	AlGaInP	570	water clear	*480	*1200	20°	
L-7113ZGC	InGaN	525	water clear	*3800	*6500	20°	
L-7113ZGC-E	InGaN	525	water clear	*7500	*15000	20°	
L-7113QBC-D	InGaN	470	water clear	*900	*2200	16°	
L-7113QBC-F	InGaN	465	water clear	*1800	*3300	16°	
L-7113QBC-G	InGaN	465	water clear	*2200	*4000	16°	

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

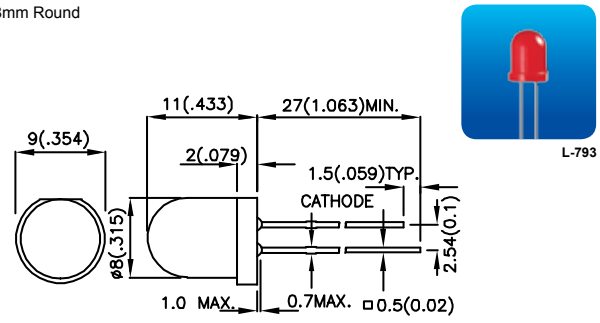
ROUND LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-1503ID	GaAsP/GaP	625	red diffused	8	30	60°	T-1 3/4 (5mm) Round  L-1503 
L-1503IT	GaAsP/GaP	625	red transparent	28	80	30°	
L-1503EC	GaAsP/GaP	625	water clear	28	80	30°	
L-1503SRD	GaAlAs	640	red diffused	*380	*700	60°	
L-1503SRC-D	GaAlAs	640	water clear	*900	*1500	30°	
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-1503SGT	GaP	568	green transparent	*70	*150	30°	
L-1503SGC	GaP	568	water clear	*70	*200	30°	
L-1513IT	GaAsP/GaP	625	red transparent	40	80	20°	T-1 3/4 (5mm) Round  L-1513 
L-1513EC	GaAsP/GaP	625	water clear	40	80	20°	
L-1513SURC	AlGaInP	630	water clear	*1200	*1800	20°	
L-1513SURC-E	AlGaInP	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-63 
L-63IT	GaAsP/GaP	625	red transparent	28	50	30°	
L-63SRD	GaAlAs	640	red diffused	*110	*300	60°	
L-63SRT	GaAlAs	640	red transparent	*280	*600	30°	
L-63SRC	GaAlAs	640	water clear	*180	*700	30°	
L-63YD	GaAsP/GaP	588	yellow diffused	1.8	6	60°	
L-63YT	GaAsP/GaP	588	yellow transparent	18	35	30°	
L-63GD	GaP	568	green diffused	5	12	60°	
L-63GT	GaP	568	green transparent	18	40	30°	
L-7143SRC-C	GaAlAs	640	water clear	*380	*600	30°	T-1 3/4 (5mm) Round  L-7143 
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.

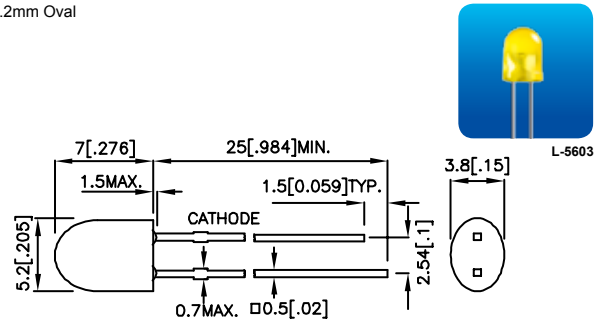
ROUND LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-793ID	GaAsP/GaP	625	red diffused	*36	*100	30°	8mm Round
L-793SRC-D	GaAlAs	640	water clear	*1500	*1700	15°	
L-793SRC-E	GaAlAs	640	water clear	*1800	*2700	15°	
L-793SRD-C	GaAlAs	640	red diffused	*180	*250	30°	
L-793SRD-D	GaAlAs	640	red diffused	*280	*350	30°	
L-793SRD-E	GaAlAs	640	red diffused	*380	*450	30°	
L-793ED	GaAsP/GaP	625	orange diffused	*36	*100	30°	
L-793YD	GaAsP/GaP	588	yellow diffused	*18	*50	30°	
L-793GD	GaP	568	green diffused	*18	*60	30°	
L-813ID	GaAsP/GaP	625	red diffused	*36	*100	30°	10mm Round
L-813SRC-D	GaAlAs	640	water clear	*1500	*1700	15°	
L-813SRD-C	GaAlAs	640	red diffused	*180	*250	30°	
L-813SRD-D	GaAlAs	640	red diffused	*280	*350	30°	
L-813SRD-E	GaAlAs	640	red diffused	*380	*450	30°	
L-813ED	GaAsP/GaP	625	orange diffused	*36	*100	30°	
L-813YD	GaAsP/GaP	588	yellow diffused	*10	*50	30°	
L-813GD	GaP	568	green diffused	*18	*60	30°	
DLA/6ID	GaAsP/GaP	625	red diffused	12	50	120°	20mm
DLC/6ID	GaAsP/GaP	625	red diffused	12	50	120°	
DLA/6SRD	GaAlAs	640	red diffused	*110	*400	120°	
DLC/6SRD	GaAlAs	640	red diffused	*110	*400	120°	
DLA/6YD	GaAsP/GaP	588	yellow diffused	12	50	120°	
DLC/6YD	GaAsP/GaP	588	yellow diffused	12	50	120°	
DLA/6GD	GaP	568	green diffused	18	80	120°	
DLC/6GD	GaP	568	green diffused	18	80	120°	
DLA/6SGD	GaP	568	green diffused	*70	*200	120°	
DLC/6SGD	GaP	568	green diffused	*70	*200	120°	



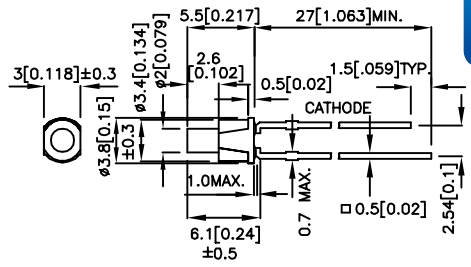
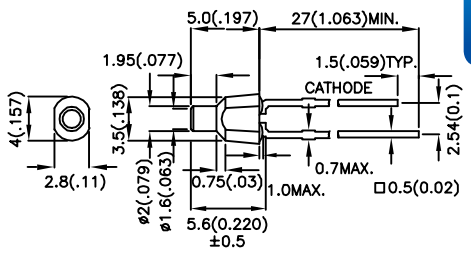
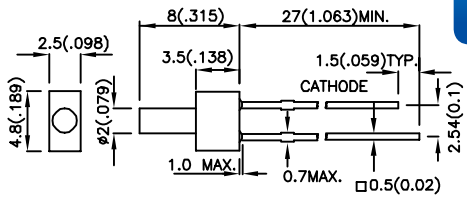
OVAL LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-5603SIDL/SD-H	AlGaInP	630	red semi diffused	650	2500	100°(H) 50°(V)	5.2mm Oval
L-5603SYDL/SD-H	AlGaInP	589	yellow semi diffused	380	750	100°(H) 50°(V)	
L-5603ZGDL/SD-E	InGaN	525	green semi diffused	1800	3100	100°(H) 50°(V)	
L-5603ZGDL/SD-G	InGaN	525	green semi diffused	2200	3500	100°(H) 50°(V)	
L-5603QBDL/SD-F	InGaN	465	blue semi diffused	380	1300	100°(H) 50°(V)	
L-5603QBDL/SD-G	InGaN	465	blue semi diffused	480	1500	100°(H) 50°(V)	

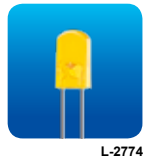
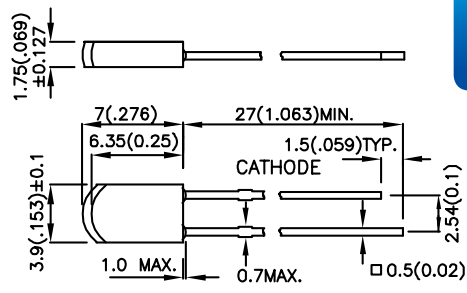


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

FLAT TOP LED

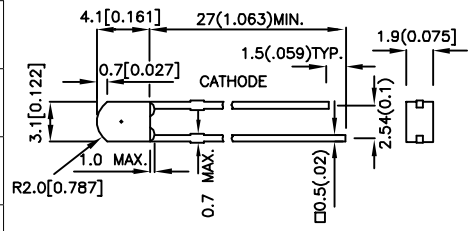
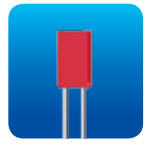
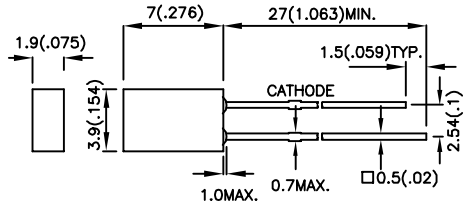
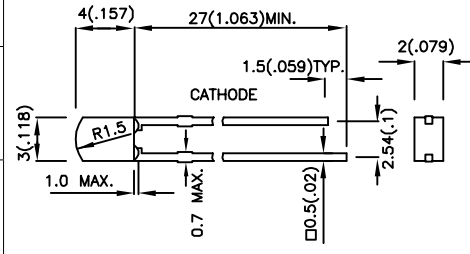
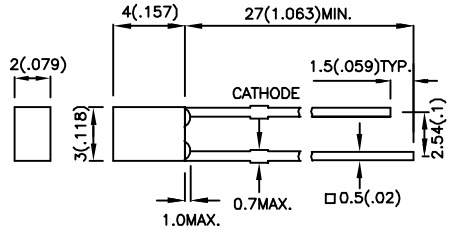
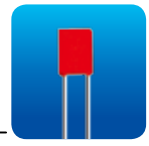
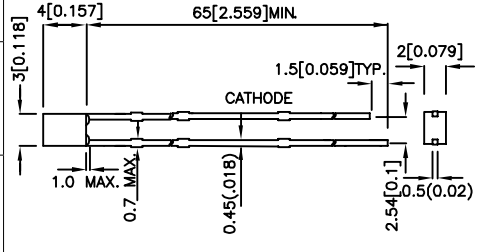
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-1394HDT	GaP	660	red diffused	0.4	1	120°	2mm Flat Top   L-1394
L-1394IDT	GaAsP/GaP	625	red diffused	5	8	120°	
L-1394YDT	GaAsP/GaP	588	yellow diffused	1.8	5	120°	
L-1394GDT	GaP	568	green diffused	3	5	120°	
L-1034HDT	GaP	660	red diffused	0.4	1	70°	2mm Flat Top   L-1034
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-13
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°	

RECTANGULAR LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-2774HD	GaP	660	red diffused	0.3	0.9	70°	1.75mm x 3.9mm Rectangular   L-2774
L-2774ID	GaAsP/GaP	625	red diffused	3	12	70°	
L-2774ED	GaAsP/GaP	625	orange diffused	3	15	70°	
L-2774ND	GaAsP/GaP	610	orange diffused	3	13	70°	
L-2774YD	GaAsP/GaP	588	yellow diffused	1.8	7	70°	
L-2774GD	GaP	568	green diffused	1.8	9	70°	

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

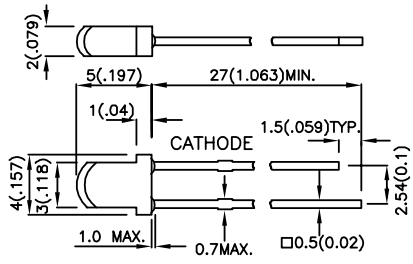
RECTANGULAR LED

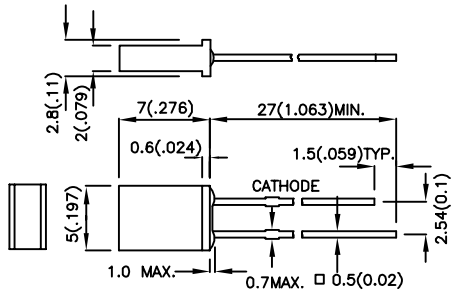
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA MIN.	Iv (mcd) @10mA *20mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
L-292XIT	GaAsP/GaP	625	red transparent	5	14	90°	1.9mm x 3.1mm Rectangular   L-292X
L-292XYD	GaAsP/GaP	588	yellow diffused	1.8	8	110°	
L-292XYT	GaAsP/GaP	588	yellow transparent	1.8	9	90°	
L-292XGD	GaP	568	green diffused	5	12	110°	
L-292XGT	GaP	568	green transparent	5	14	90°	
L-144HDT	GaP	660	red diffused	0.4	1	110°	1.9mm x 3.9mm Rectangular   L-144
L-144IDT	GaAsP/GaP	625	red diffused	3	6	110°	
L-144EDT	GaAsP/GaP	625	orange diffused	3	6	110°	
L-144SRDT	GaAlAs	640	red diffused	*36	*70	110°	
L-144YDT	GaAsP/GaP	588	yellow diffused	1	3	110°	
L-144GDT	GaP	568	green diffused	1	4	110°	
L-2914ID	GaAsP/GaP	625	red diffused	3	10	50°	2mm x 3mm Rectangular   L-2914
L-2914YD	GaAsP/GaP	588	yellow diffused	5	13	50°	
L-2914GD	GaP	568	green diffused	5	15	50°	
L-914HDT	GaP	660	red diffused	0.2	1	100°	2mm x 3mm Rectangular   L-914
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-91A7IDT	GaAsP/GaP	625	red diffused	3	8	60°	2mm x 3mm Rectangular   L-91A7
L-91A7YDT	GaAsP/GaP	588	yellow diffused	1	3.5	60°	
L-91A7GDT	GaP	568	green diffused	3	7	60°	

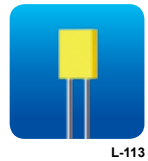
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

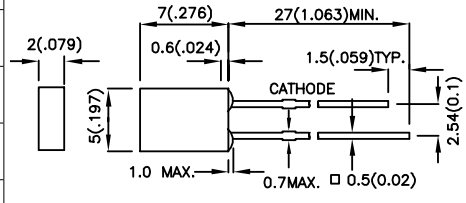
RECTANGULAR LED

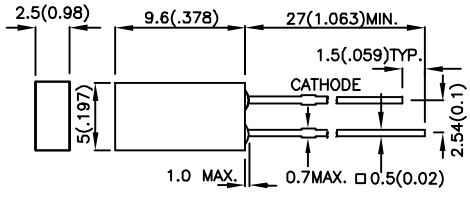
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-169XHD	GaP	660	red diffused	1	3	60°	2mm x 3mm Rectangular
L-169XHT	GaP	660	red transparent	1.8	5	50°	
L-169XID	GaAsP/GaP	625	red diffused	8	15	60°	
L-169XIT	GaAsP/GaP	625	red transparent	12	30	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-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-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-383EDT	GaAsP/GaP	625	orange diffused	3	5	110°	
L-383SRWT	GaAlAs	640	white diffused	*36	*70	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-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°	

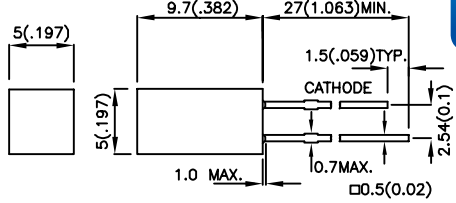








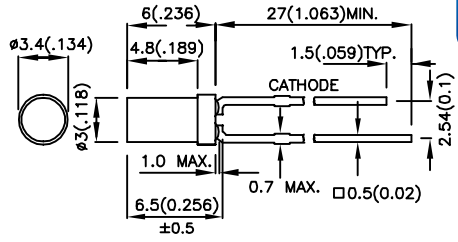


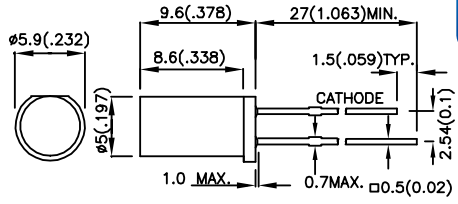


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

CYLINDRICAL LED

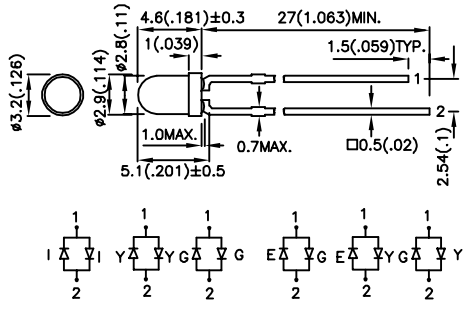
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-424HDT	GaP	660	red diffused	0.4	1	100°	T-1 (3mm) Cylindrical
L-424IDT	GaAsP/GaP	625	red diffused	3	5	100°	
L-424SRDT	GaAlAs	640	red diffused	*36	*100	100°	
L-424EDT	GaAsP/GaP	625	orange diffused	3	5	100°	
L-424YDT	GaAsP/GaP	588	yellow diffused	1	4	100°	
L-424GDT	GaP	568	green diffused	1	4	100°	
L-483HDT	GaP	660	red diffused	0.4	1	100°	T-1 3/4 (5mm) Cylindrical
L-483IDT	GaAsP/GaP	625	red diffused	1.8	5	100°	
L-483EDT	GaAsP/GaP	625	orange diffused	3	7	100°	
L-483YDT	GaAsP/GaP	588	yellow diffused	0.7	3	100°	
L-483GDT	GaP	568	green diffused	1	4	100°	

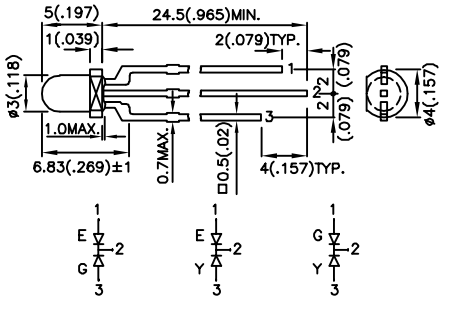




MULTI-COLOR LED

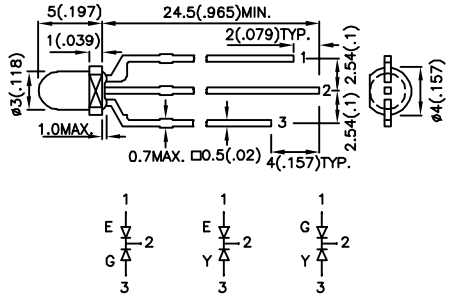
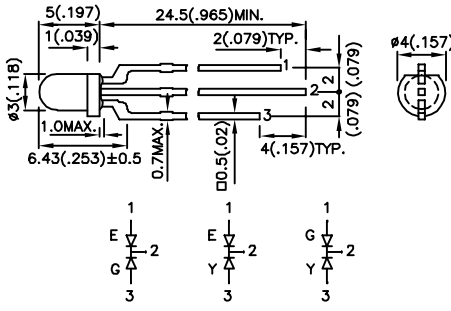
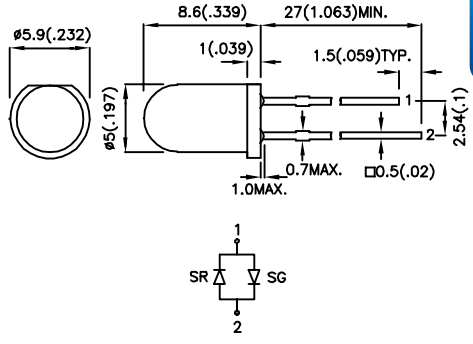
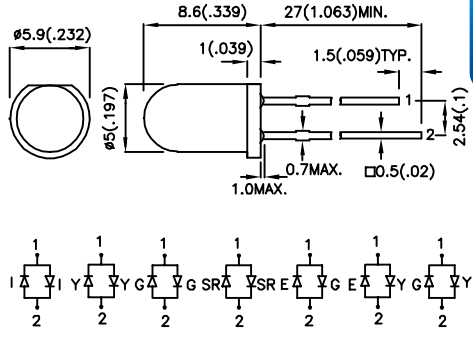
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-937IID	GaAsP/GaP	625	red diffused	7	20	60°	T-1 (3mm) Round
	GaAsP/GaP	625		7	20		
L-937YYD	GaAsP/GaP	588	yellow diffused	4	10	60°	
	GaAsP/GaP	588		4	10		
L-937GGD	GaP	568	green diffused	4	15	60°	
	GaP	568		4	15		
L-937EGW	GaAsP/GaP	625	white diffused	7	20	60°	
	GaP	568		7	16		
L-937EYW	GaAsP/GaP	625	white diffused	7	20	60°	
	GaAsP/GaP	588		1.6	7		
L-937GYW	GaP	568	white diffused	7	16	60°	
	GaAsP/GaP	588		1.6	7		
L-115VEGW	GaAsP/GaP	625	white diffused	10	50	60°	T-1 (3mm) Round
	GaP	568		10	30		
L-115VEYW	GaAsP/GaP	625	white diffused	10	50	60°	
	GaAsP/GaP	588		7	15		
L-115VGYW	GaP	568	white diffused	10	30	60°	
	GaAsP/GaP	588		7	15		





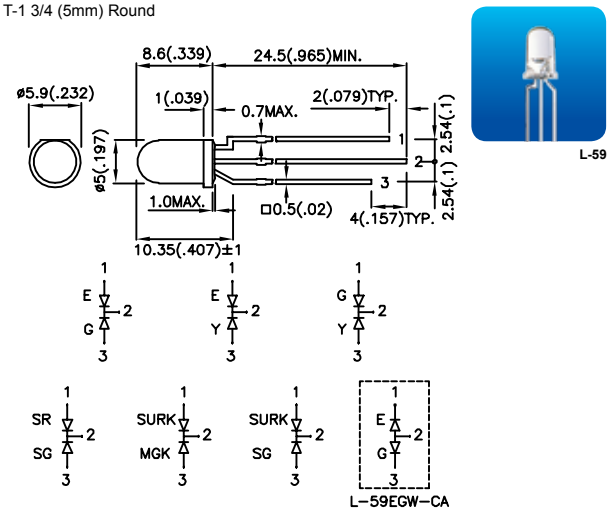
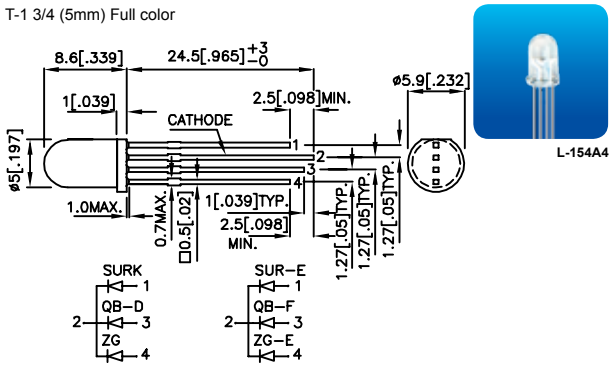
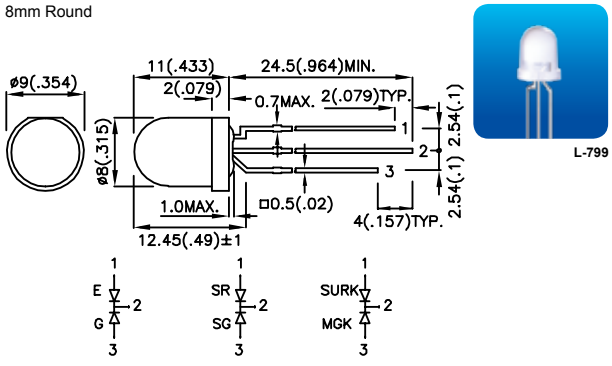
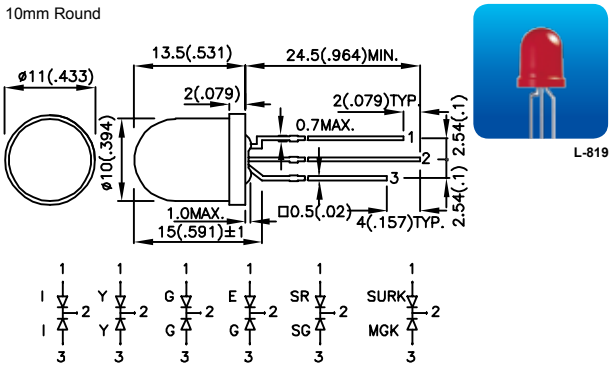
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

MULTI-COLOR LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-115WEGW	GaAsP/GaP	625	white diffused	10	40	60°	T-1 (3mm) Round  L-115W 
	GaP	568		10	35		
L-115WEYW	GaAsP/GaP	625	white diffused	10	40	60°	
	GaAsP/GaP	588		7	20		
L-115WGYW	GaP	568	white diffused	10	35	60°	
	GaAsP/GaP	588		7	20		
L-3VEGW	GaAsP/GaP	625	white diffused	10	40	60°	T-1 (3mm) Round  L-3V 
	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		
L-7113SRSGW	GaAlAs	640	white diffused	110	200	35°	T-1 3/4 (5mm) Round  L-7113SRSG 
	GaP	568		18	60		
L-57IID	GaAsP/GaP	625	red diffused	7	20	60°	T-1 3/4 (5mm) Round  L-57 
	GaAsP/GaP	625		7	20		
L-57YYD	GaAsP/GaP	588	yellow diffused	4	10	60°	
	GaAsP/GaP	588		4	10		
L-57GGD	GaP	568	green diffused	4	10	60°	
	GaP	568		4	10		
L-57SRSRD	GaAlAs	640	red diffused	70	150	60°	
	GaAlAs	640		70	150		
L-57EGW	GaAsP/GaP	625	white diffused	10	30	60°	
	GaP	568		10	20		
L-57EYW	GaAsP/GaP	625	white diffused	10	30	60°	
	GaAsP/GaP	588		4	10		
L-57GYW	GaP	568	white diffused	10	20	60°	
	GaAsP/GaP	588		4	10		

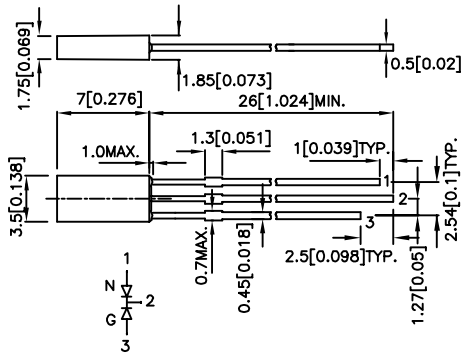
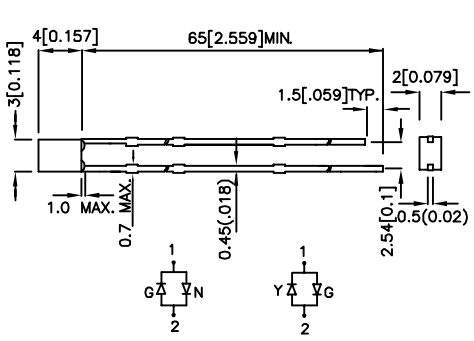
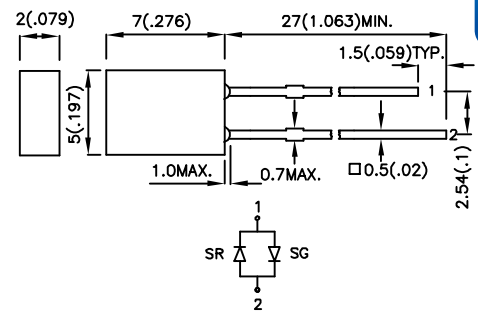
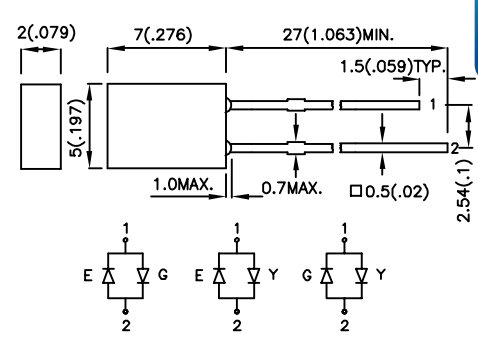
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

MULTI-COLOR LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA MIN.	Iv (mcd) @20mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
L-59EGW	GaAsP/GaP	625	white diffused	18	60	60°	T-1 3/4 (5mm) Round 
	GaP	568		18	50		
L-59EGW-CA	GaAsP/GaP	625	white diffused	2.6	5	60°	
	GaP	568		1.6	5		
L-59EYW	GaAsP/GaP	625	white diffused	18	60	60°	
	GaAsP/GaP	588		18	40		
L-59GYW	GaP	568	white diffused	18	50	60°	
	GaAsP/GaP	588		18	40		
L-59SRSGW-CC	GaAlAs	640	white diffused	110	220	60°	
	GaP	568		18	50		
L-59SURKMGKW	AlGaInP	630	white diffused	280	700	60°	
	AlGaInP	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	AlGaInP	630	water clear	900	2800	24°	
	GaP	568		70	200		
L-154A4SURKQBDZGC	AlGaInP	630	water clear	380	700	50°	T-1 3/4 (5mm) Full color 
	InGaN	470		480	1000		
	InGaN	525		480	1300		
L-154A4SURKQBDZGW	AlGaInP	630	white diffused	280	500	60°	
	InGaN	470		110	350		
	InGaN	525		280	750		
L-154A4SUREQBFZGEC	AlGaInP	630	water clear	650	1200	50°	
	InGaN	465		1200	1700		
	InGaN	525		2800	3800		
L-154A4SUREQBFZGEW	AlGaInP	630	white diffused	380	750	60°	
	InGaN	465		280	420		
	InGaN	525		900	1700		
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	AlGaInP	630	white diffused	380	600	50°	
	AlGaInP	570		50	130		
L-819IID	GaAsP/GaP	625	red diffused	36	80	50°	10mm Round 
	GaAsP/GaP	625		36	80		
L-819YYD	GaAsP/GaP	588	yellow diffused	10	30	50°	
	GaAsP/GaP	588		10	30		
L-819GGD	GaP	568	green diffused	10	40	50°	
	GaP	568		10	40		
L-819EGW	GaAsP/GaP	625	white diffused	36	80	50°	
	GaP	568		18	50		
L-819SRSGW-CC	GaAlAs	640	white diffused	110	300	50°	
	GaP	568		36	50		
L-819SURKMGKW	AlGaInP	630	white diffused	380	750	50°	
	AlGaInP	570		50	130		

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

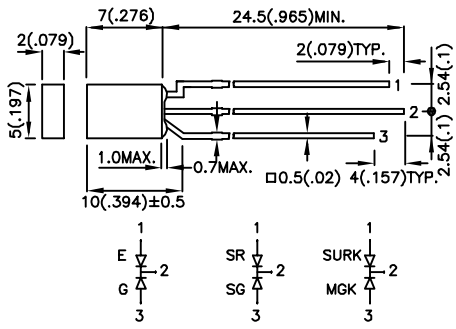
MULTI-COLOR LED

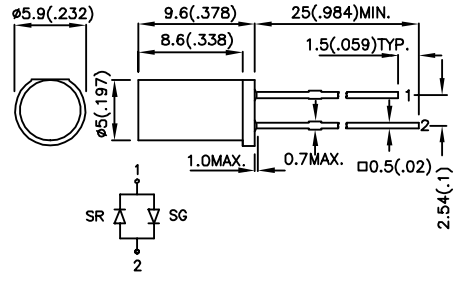
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-283A9NGWT/TG	GaAsP/GaP	610	white diffused	2.6	15	120°	1.75mm x 3.5mm Rectangular  L-283A9 
	GaP	568		4	10		
L-91A6GNWT	GaP	568	white diffused	1.6	4	110°	2mm x 3mm Rectangular  L-91A6 
	GaAsP/GaP	610		4	10		
L-91A6YGWT	GaAsP/GaP	588	white diffused	1.6	4	110°	
	GaP	568		1.6	4		
L-113SRSGWT	GaAlAs	640	white diffused	36	70	110°	2mm x 5mm Rectangular  L-113SRSG 
	GaP	568		7	10		
L-117EGWT	GaAsP/GaP	625	white diffused	4	10	110°	2mm x 5mm Rectangular  L-117 
	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		

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

MULTI-COLOR LED

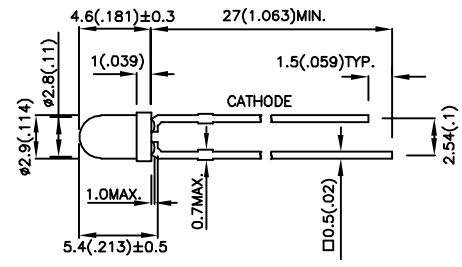
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-119EGWT	GaAsP/GaP	625	white diffused	7	20	110°	2mm x 5mm Rectangular
	GaP	568		4	12		
L-119SRSGWT-CC	GaAlAs	640	white diffused	18	60	110°	
	GaP	568		4	12		
L-119SURKMGKWT	AlGaInP	630	white diffused	70	170	110°	
	AlGaInP	570		10	30		
L-483SRSGWT	GaAlAs	640	white diffused	18	50	80°	T-1 3/4 (5mm) Cylindrical
	GaP	568		4	10		

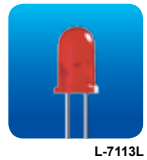


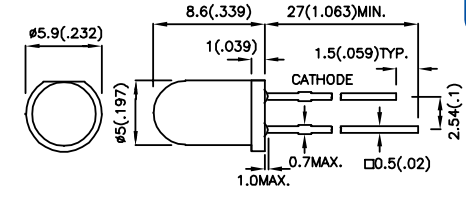


LOW CURRENT LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @2mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-7104LID	GaAsP/GaP	625	red diffused	0.7	3	40°	T-1 (3mm) Round
L-7104LSRD	GaAlAs	640	red diffused	8	20	40°	
L-7104LYD	GaAsP/GaP	588	yellow diffused	0.7	1.5	40°	
L-7104LGD	GaP	568	green diffused	0.7	2	40°	
L-7113LID	GaAsP/GaP	625	red diffused	0.7	5	30°	T-1 3/4 (5mm) Round
L-7113LSRD	GaAlAs	640	red diffused	8	20	30°	
L-7113LYD	GaAsP/GaP	588	yellow diffused	0.7	2	30°	
L-7113LGD	GaP	568	green diffused	0.7	2	30°	



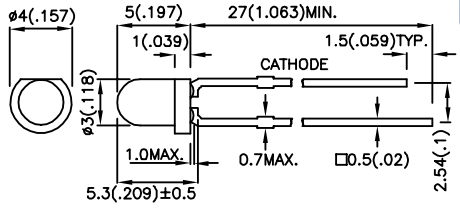


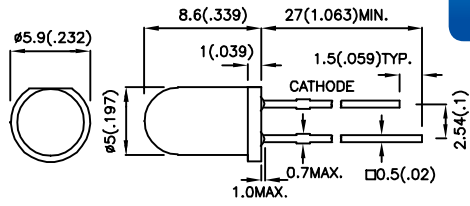


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

BLINKING LED

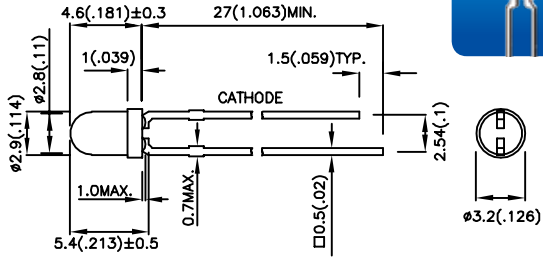
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) V=9V MIN.	Iv (mcd) V=9V TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
L-36BHD	GaP	660	red diffused	1	2	60°	T-1 (3mm) Round
L-36BID	GaAsP/GaP	625	red diffused	12	20	60°	
L-36BSRD-B	GaAlAs	640	red diffused	110	200	60°	
L-36BYD	GaAsP/GaP	588	yellow diffused	5	10	60°	
L-36BGD	GaP	568	green diffused	5	15	60°	
L-56BHD	GaP	660	red diffused	0.7	4	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°	

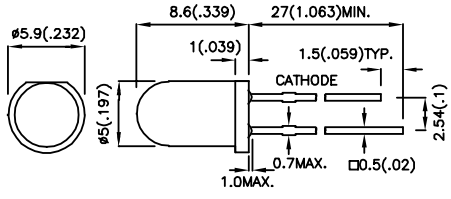




RESISTOR LED

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) V=5V *V=12V **V=14V MIN.	Iv (mcd) V=5V *V=12V **V=14V TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
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-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°	

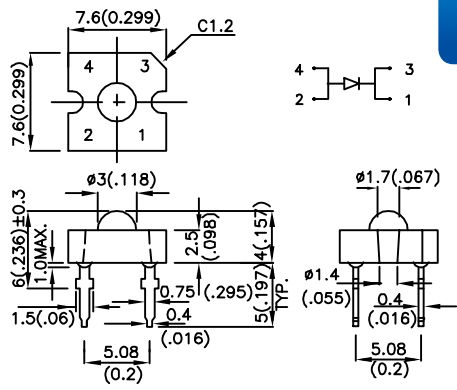


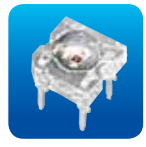


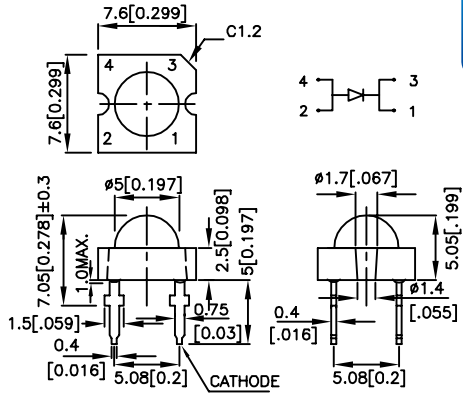
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SUPER FLUX LED

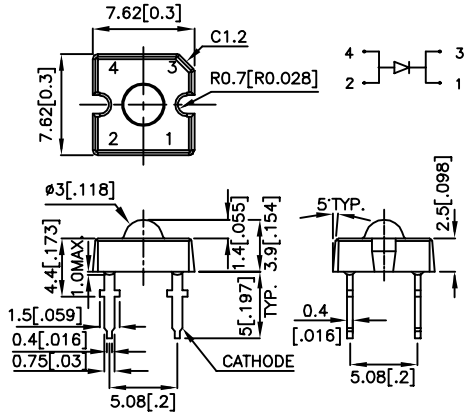
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-7676CSURC-G	AlGaInP	630	water clear	380	750	70°	7.6mm x 7.6mm
L-7676CSEC-H	AlGaInP	630	water clear	480	1300	70°	
L-7676CSYC-H	AlGaInP	589	water clear	280	450	70°	
L-7676CZGC-E	InGaN	525	water clear	900	2000	70°	
L-7676CZGC-G	InGaN	525	water clear	1200	2200	70°	
L-7676CQBC-G	InGaN	465	water clear	380	780	70°	
L-76765CSURC-G	AlGaInP	630	water clear	180	650	70°	7.6mm x 7.6mm
L-76765CSEC-H	AlGaInP	630	water clear	650	1800	70°	
L-76765CSYC-H	AlGaInP	589	water clear	110	400	70°	
L-76765CZGC-E	InGaN	525	water clear	650	1600	70°	
L-76765CZGC-G	InGaN	525	water clear	900	1800	70°	
L-76765CQBC-G	InGaN	465	water clear	280	620	70°	







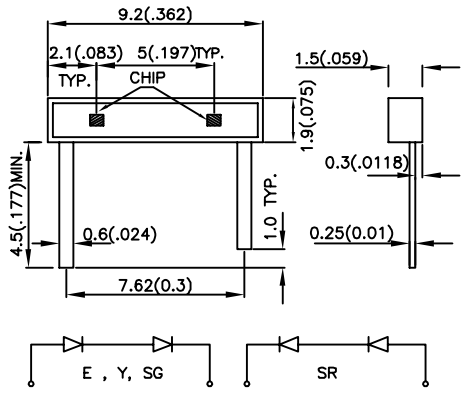
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @70mA *30mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-7679C1SURC-G	AlGaInP	630	water clear	1800	3000	70°	7.62mm x 7.62mm
L-7679C1SEC-H	AlGaInP	630	water clear	6500	8000	70°	
L-7679C1SYC-H	AlGaInP	589	water clear	1200	4000	70°	
L-7679C1ZGC	InGaN	525	water clear	*1200	*2500	70°	
L-7679C1QBC-D	InGaN	470	water clear	*380	*700	70°	

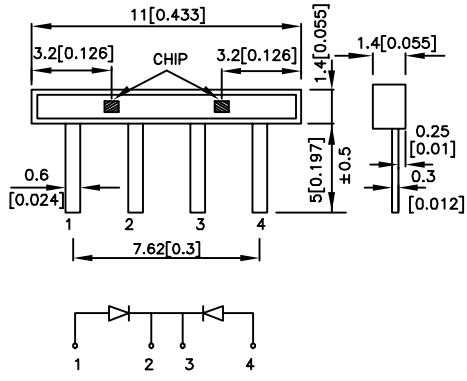


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SIDE VIEW

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KA-9219/2EC	GaAsP/GaP	625	water clear	18	50	100°	9.2mm x 1.9mm
KA-9219/2SRC	GaAlAs	640	water clear	70	200	100°	
KA-9219/2YC	GaAsP/GaP	588	water clear	10	20	100°	
KA-9219/2SGC	GaP	568	water clear	7	40	100°	
KA-1114/2EC-CC-L5	GaAsP/GaP	625	water clear	4	9	120°	11mm x 1.4mm
KA-1114/2YC-CC-L5	GaAsP/GaP	588	water clear	4	10	120°	
KA-1114/2SYC-CC-L5	AlGaInP	590	water clear	50	100	120°	
KA-1114/2SGC-CC-L5	GaP	568	water clear	7	16	120°	
KA-1114/2QBC-D-CC-L5	InGaN	470	water clear	70	130	120°	

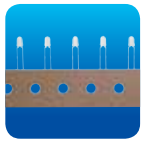




NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

TAPE AND REEL SELECTIONS

L-7104-TNR2.54



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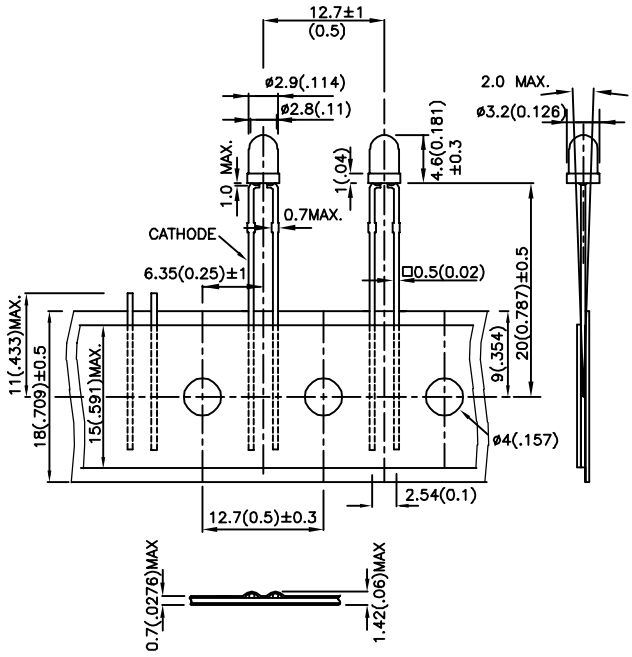

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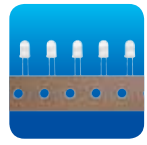

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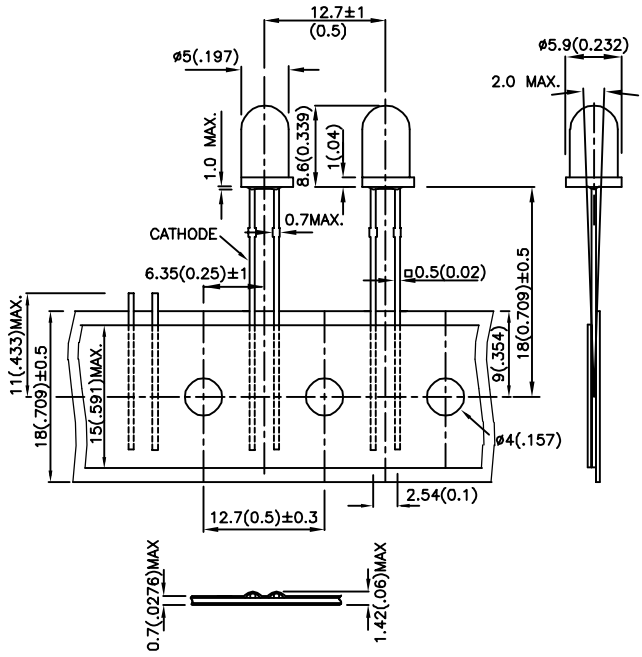
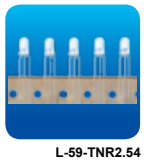


L-59-TNR2.54



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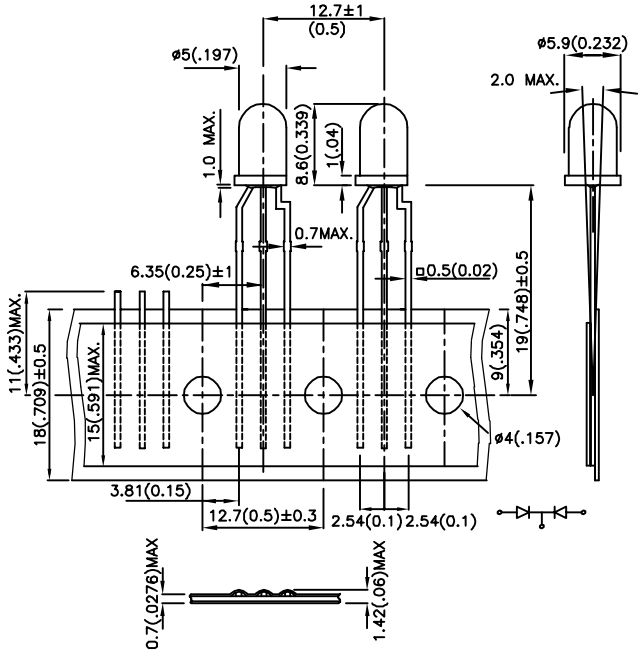
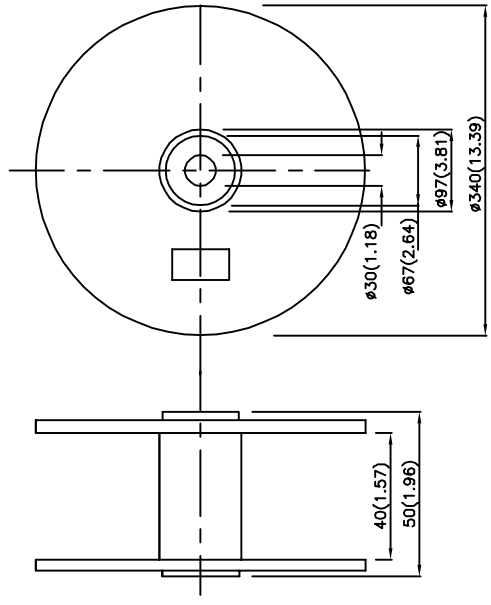


REEL DIMENSION



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

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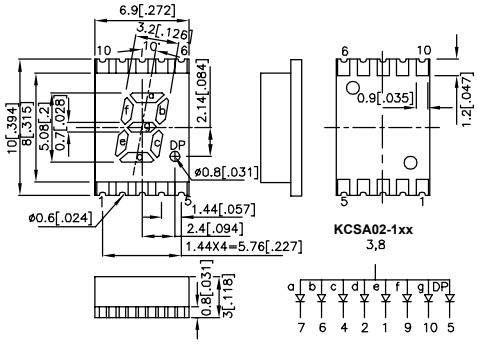
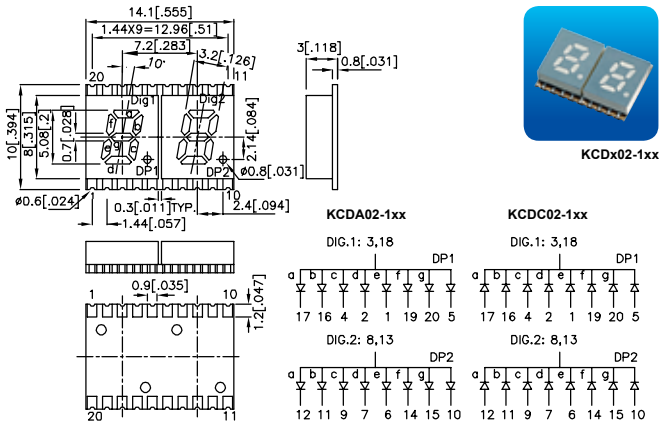
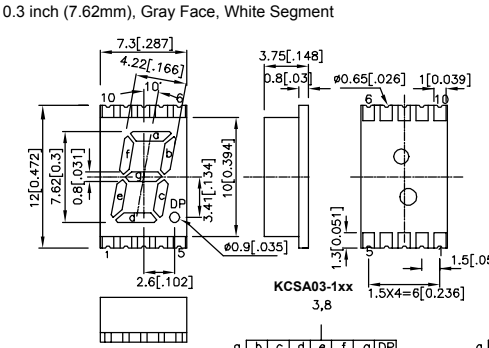
Optoelectronic Components

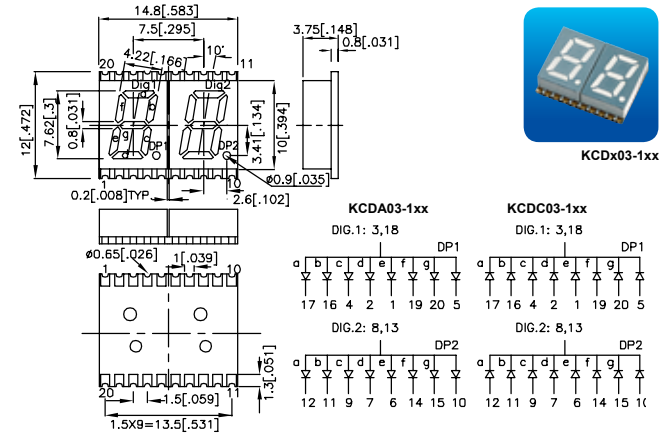
7-SEGMENT SMD DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
KCSA02-105 KCDA02-105	KCSC02-105 KCDC02-105	AlGaInP	630	8000	30400	0.2 inch (5.08mm), Gray Face, White Segment
KCSA02-106 KCDA02-106	KCSC02-106 KCDC02-106	AlGaInP	601	12000	37200	
KCSA02-107 KCDA02-107	KCSC02-107 KCDC02-107	AlGaInP	590	12000	34000	
KCSA02-123 KCDA02-123	KCSC02-123 KCDC02-123	AlGaInP	570	4700	26000	
KCSA03-105 KCDA03-105	KCSC03-105 KCDC03-105	AlGaInP	630	8000	27000	0.3 inch (7.62mm), Gray Face, White Segment
KCSA03-106 KCDA03-106	KCSC03-106 KCDC03-106	AlGaInP	601	18000	46000	
KCSA03-107 KCDA03-107	KCSC03-107 KCDC03-107	AlGaInP	590	18000	36000	
KCSA03-123 KCDA03-123	KCSC03-123 KCDC03-123	AlGaInP	570	4700	16000	





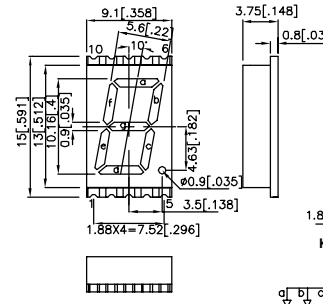


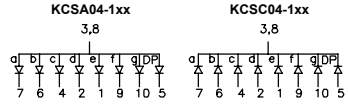


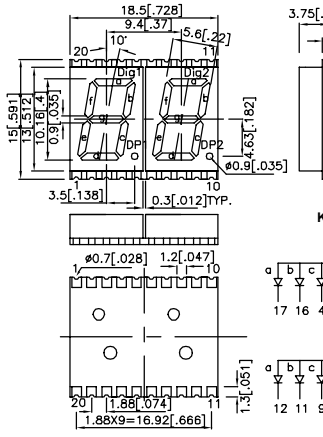
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

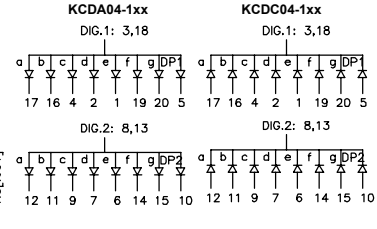
7-SEGMENT SMD DISPLAY

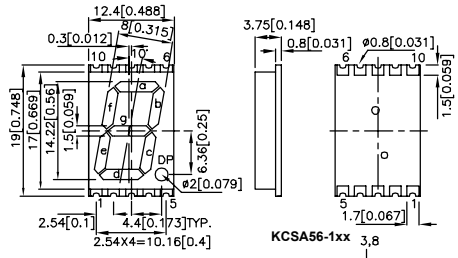
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
KCSA04-105 KCDA04-105	KCSC04-105 KCDC04-105	AlGaInP	630	8000	27000	0.4 inch (10.16mm) Gray Face, White Segment
KCSA04-106 KCDA04-106	KCSC04-106 KCDC04-106	AlGaInP	601	18000	60000	
KCSA04-107 KCDA04-107	KCSC04-107 KCDC04-107	AlGaInP	590	12000	35400	
KCSA04-123 KCDA04-123	KCSC04-123 KCDC04-123	AlGaInP	570	4700	11000	
KCSA56-105 KCDA56-105	KCSC56-105 KCDC56-105	AlGaInP	630	18000	44000	0.56 inch (14.22mm), Gray Face, White Segment
KCSA56-106 KCDA56-106	KCSC56-106 KCDC56-106	AlGaInP	601	18000	78000	
KCSA56-107 KCDA56-107	KCSC56-107 KCDC56-107	AlGaInP	590	18000	76000	
KCSA56-123 KCDA56-123	KCSC56-123 KCDC56-123	AlGaInP	570	8000	35500	
KCSA56-131 KCDA56-131	KCSC56-131 KCDC56-131	InGaN	470	4700	14800	

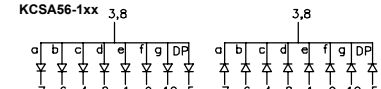


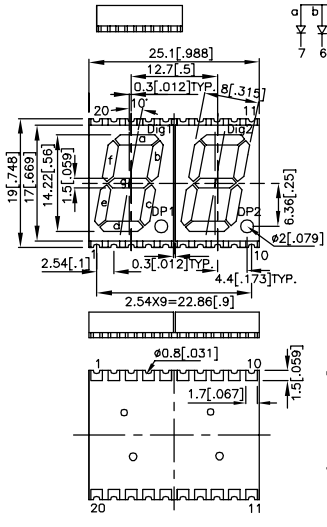


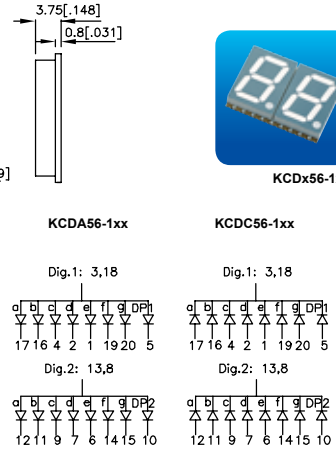










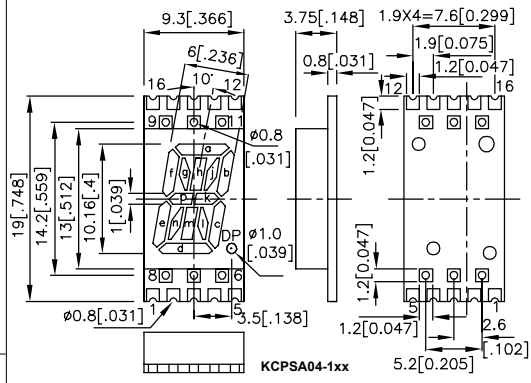


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

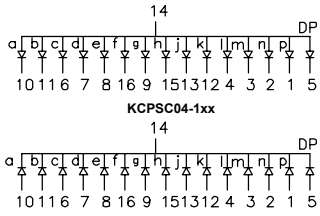
ALPHANUMERIC SMD DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
KCPSA04-105 KCPDA04-105	KCPSC04-105 KCPDC04-105	AlGaInP	630	8000	36000	0.4 inch (10.16mm), Gray Face, White Segment
KCPSA04-106 KCPDA04-106	KCPSC04-106 KCPDC04-106	AlGaInP	601	12000	44000	
KCPSA04-107 KCPDA04-107	KCPSC04-107 KCPDC04-107	AlGaInP	590	12000	45500	
KCPSA04-123 KCPDA04-123	KCPSC04-123 KCPDC04-123	AlGaInP	570	4700	18500	


KCPSx04-1xx

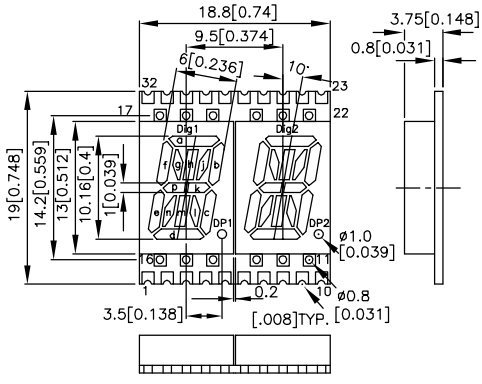


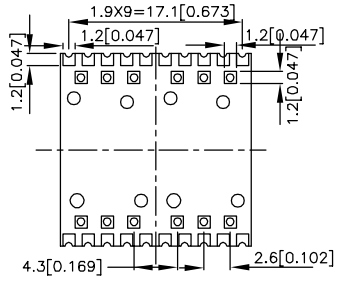
KCPSA04-1xx

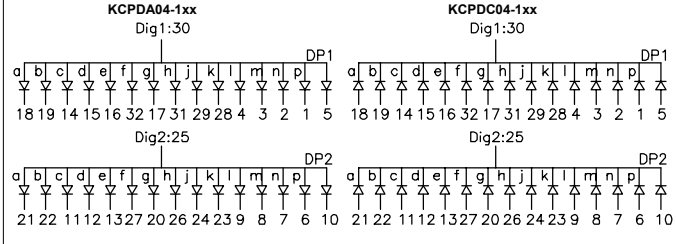


KCPSC04-1xx


KCPDx04-1xx







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

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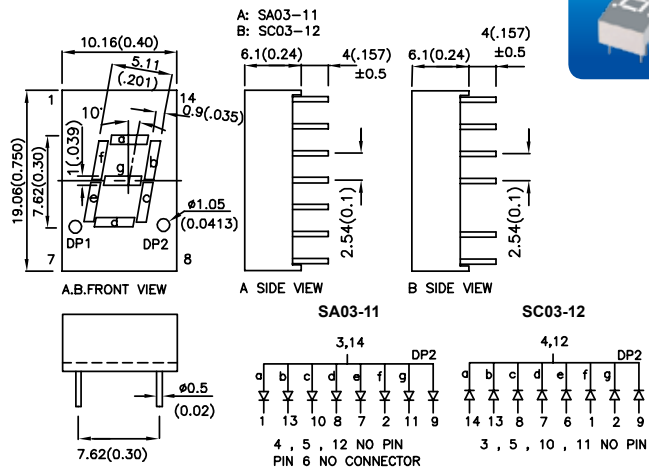
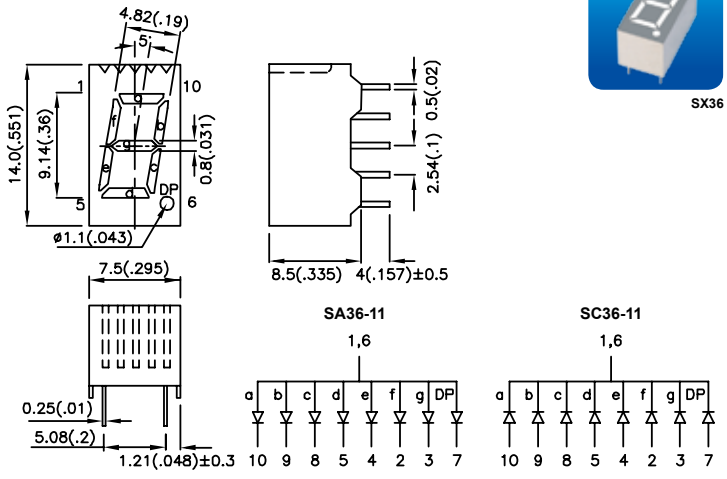
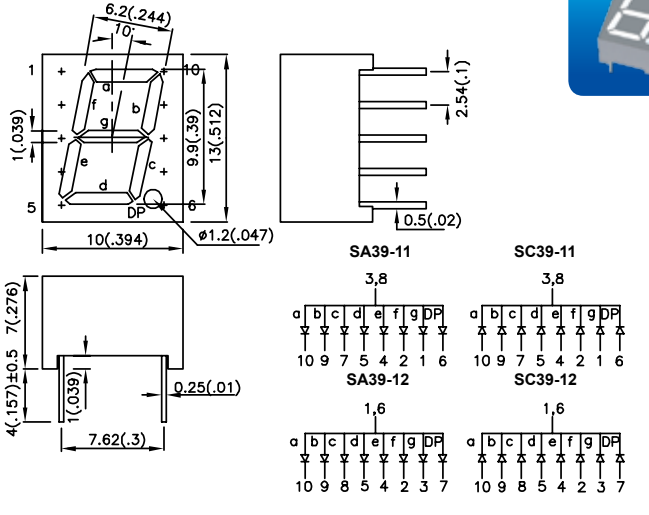
Optoelectronic Components

SINGLE DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
SA03-11SEKWA	SC03-12SEKWA	AlGaInP	601	44000	154400	0.3 inch (7.62mm), Gray Face, White Segment
SA03-11SURKWA	SC03-12SURKWA	AlGaInP	630	12000	47000	
SA03-11SYKWA	SC03-12SYKWA	AlGaInP	590	44000	103500	
SA03-11CGKWA	SC03-12CGKWA	AlGaInP	570	12000	46000	
SA36-11SEKWA	SC36-11SEKWA	AlGaInP	601	18000	37000	0.36 inch (9.14mm), Gray Face, White Segment
SA36-11SURKWA	SC36-11SURKWA	AlGaInP	630	12000	23000	
SA36-11SYKWA	SC36-11SYKWA	AlGaInP	590	18000	34800	
SA36-11CGKWA	SC36-11CGKWA	AlGaInP	570	8000	13800	
SA39-11SEKWA SA39-12SEKWA	SC39-11SEKWA SC39-12SEKWA	AlGaInP	601	18000	58500	0.39 inch (9.9mm), Gray Face, White Segment
SA39-11SURKWA SA39-12SURKWA	SC39-11SURKWA SC39-12SURKWA	AlGaInP	630	12000	26000	
SA39-11SYKWA SA39-12SYKWA	SC39-11SYKWA SC39-12SYKWA	AlGaInP	590	12000	34000	
SA39-11CGKWA SA39-12CGKWA	SC39-11CGKWA SC39-12CGKWA	AlGaInP	570	8000	20800	



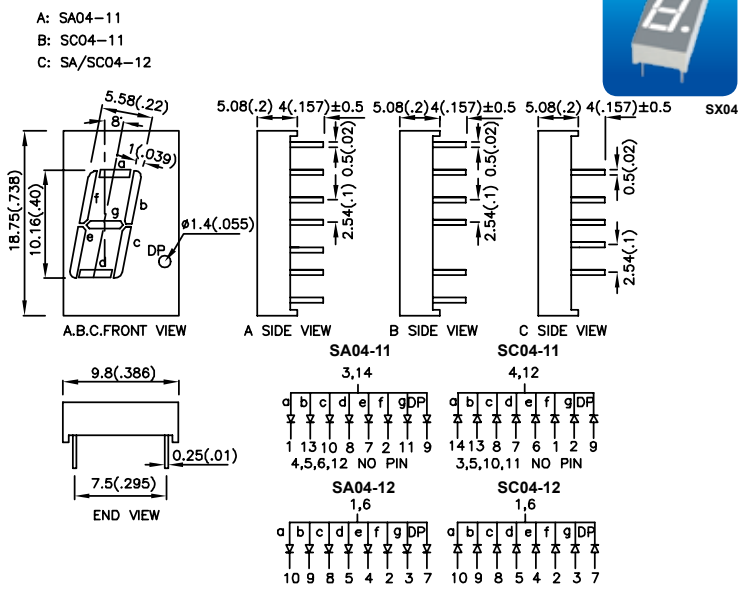


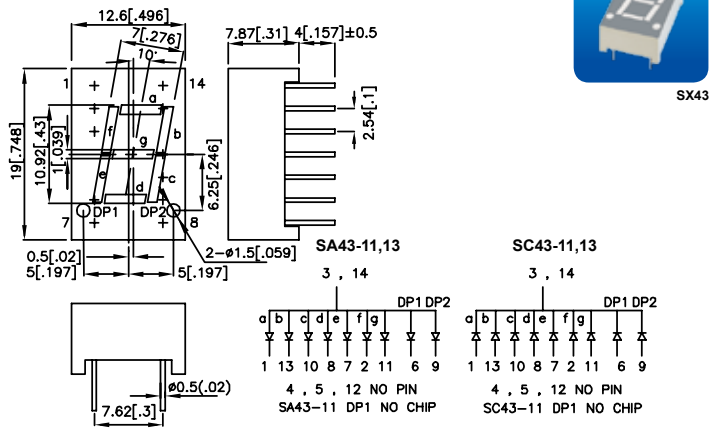


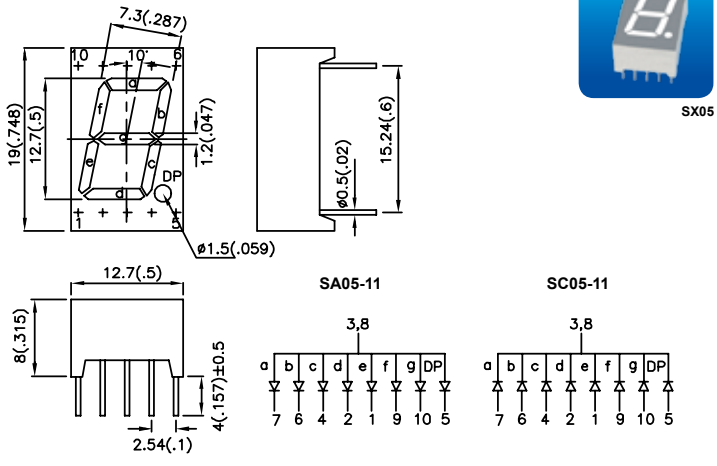
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SINGLE DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
SA04-11SEKWA SA04-12SEKWA	SC04-11SEKWA SC04-12SEKWA	AlGaInP	601	44000	160700	0.4 inch (10.16mm), Gray Face, White Segment
SA04-11SURKWA SA04-12SURKWA	SC04-11SURKWA SC04-12SURKWA	AlGaInP	630	12000	31600	
SA04-11SYKWA SA04-12SYKWA	SC04-11SYKWA SC04-12SYKWA	AlGaInP	590	44000	92400	
SA04-11CGKWA SA04-12CGKWA	SC04-11CGKWA SC04-12CGKWA	AlGaInP	570	8000	25000	
SA43-11SEKWA SA43-13SEKWA	SC43-11SEKWA SC43-13SEKWA	AlGaInP	601	44000	153500	0.43 inch (10.92mm), Gray Face, White Segment
SA43-11SURKWA SA43-13SURKWA	SC43-11SURKWA SC43-13SURKWA	AlGaInP	630	12000	55700	
SA43-11SYKWA SA43-13SYKWA	SC43-11SYKWA SC43-13SYKWA	AlGaInP	590	18000	95300	
SA43-11CGKWA SA43-13CGKWA	SC43-11CGKWA SC43-13CGKWA	AlGaInP	570	12000	38700	
SA05-11SEKWA	SC05-11SEKWA	AlGaInP	601	18000	64900	0.5 inch (12.7mm), Gray Face, White Segment
SA05-11SURKWA	SC05-11SURKWA	AlGaInP	630	18000	30000	
SA05-11SYKWA	SC05-11SYKWA	AlGaInP	590	44000	116400	
SA05-11CGKWA	SC05-11CGKWA	AlGaInP	570	12000	34100	



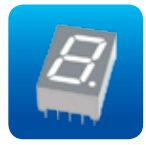


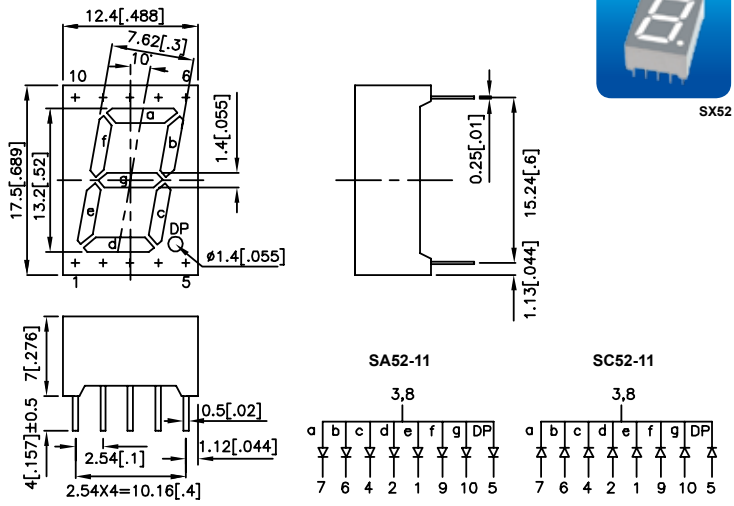


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

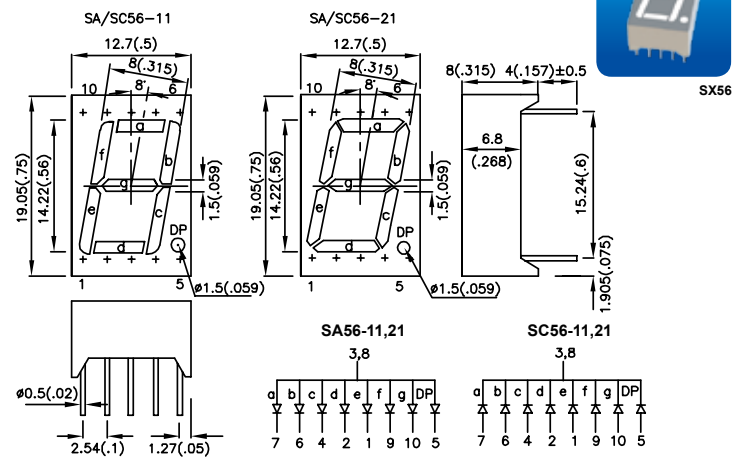
SINGLE DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
SA52-11SEKWA	SC52-11SEKWA	AlGaInP	601	26000	159700	0.52 inch (13.2mm), Gray Face, White Segment
SA52-11SURKWA	SC52-11SURKWA	AlGaInP	630	18000	35000	
SA52-11SYKWA	SC52-11SYKWA	AlGaInP	590	18000	65600	
SA52-11CGKWA	SC52-11CGKWA	AlGaInP	570	12000	45700	
SA56-11SEKWA SA56-21SEKWA	SC56-11SEKWA SC56-21SEKWA	AlGaInP	601	26000	114800	0.56 inch (14.2mm), Gray Face, White Segment
SA56-11SURKWA SA56-21SURKWA	SC56-11SURKWA SC56-21SURKWA	AlGaInP	630	12000	39100	
SA56-11SYKWA SA56-21SYKWA	SC56-11SYKWA SC56-21SYKWA	AlGaInP	590	18000	54000	
SA56-11CGKWA SA56-21CGKWA	SC56-11CGKWA SC56-21CGKWA	AlGaInP	570	12000	35000	
SA08-11SEKWA SA08-12SEKWA	SC08-11SEKWA SC08-12SEKWA	AlGaInP	601	18000	80000	0.8 inch (20.32mm), Gray Face, White Segment
SA08-11SURKWA SA08-12SURKWA	SC08-11SURKWA SC08-12SURKWA	AlGaInP	630	18000	60600	
SA08-11SYKWA SA08-12SYKWA	SC08-11SYKWA SC08-12SYKWA	AlGaInP	590	26000	66500	
SA08-11CGKWA SA08-12CGKWA	SC08-11CGKWA SC08-12CGKWA	AlGaInP	570	12000	34400	

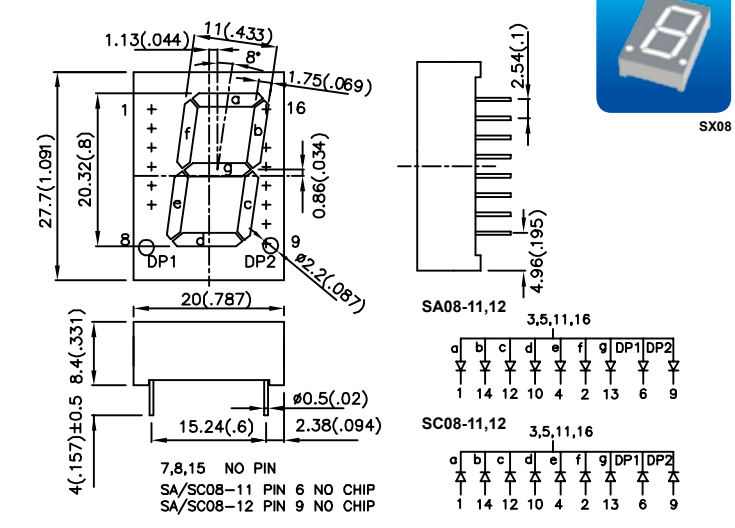

SX52




SX56



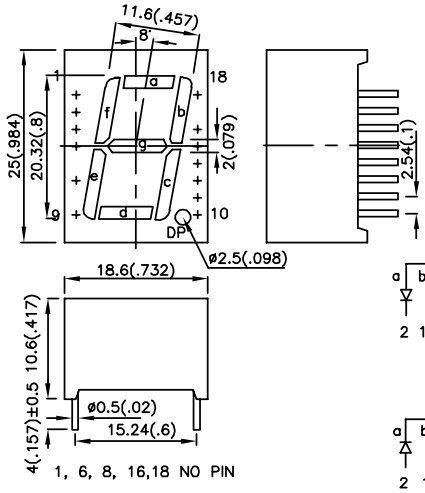

SX08

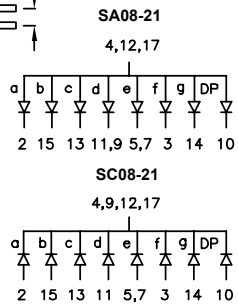


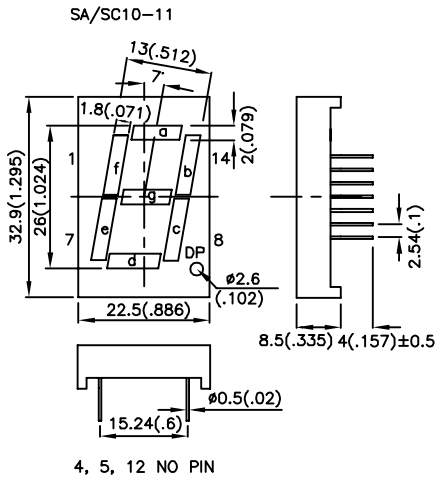
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

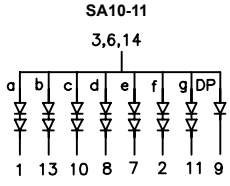
SINGLE DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

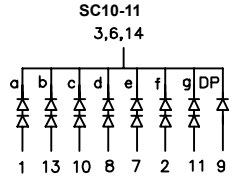
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
SA08-21SEKWA	SC08-21SEKWA	AlGaInP	601	18000	75900	0.8 inch (20.32mm), Gray Face, White Segment
SA08-21SURKWA	SC08-21SURKWA	AlGaInP	630	12000	31000	
SA08-21SYKWA	SC08-21SYKWA	AlGaInP	590	26000	49500	
SA08-21CGKWA	SC08-21CGKWA	AlGaInP	570	12000	34400	
SA10-11SEKWA SA10-21SEKWA	SC10-11SEKWA SC10-21SEKWA	AlGaInP	601	128000	443300	1.0 inch (25.4mm), Gray Face, White Segment
SA10-11SURKWA SA10-21SURKWA	SC10-11SURKWA SC10-21SURKWA	AlGaInP	630	26000	102900	
SA10-11SYKWA SA10-21SYKWA	SC10-11SYKWA SC10-21SYKWA	AlGaInP	590	128000	403000	
SA10-11CGKWA SA10-21CGKWA	SC10-11CGKWA SC10-21CGKWA	AlGaInP	570	12000	62400	

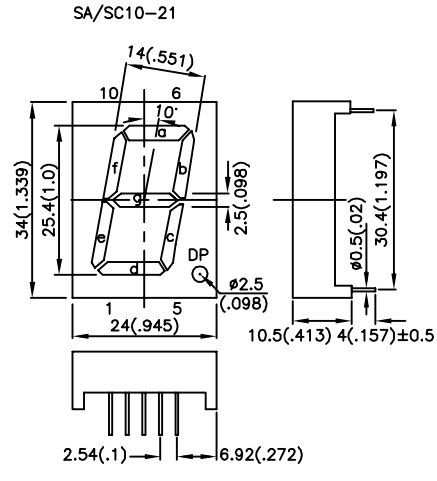


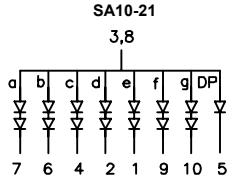


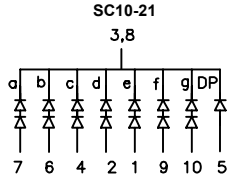








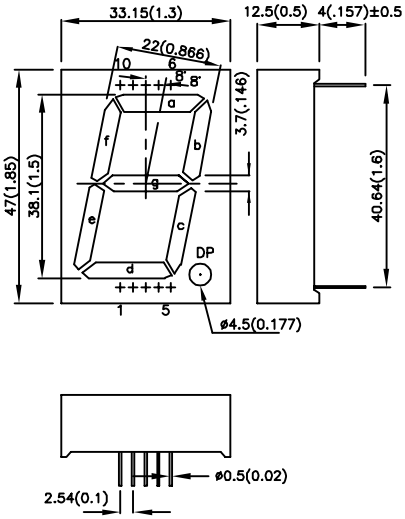


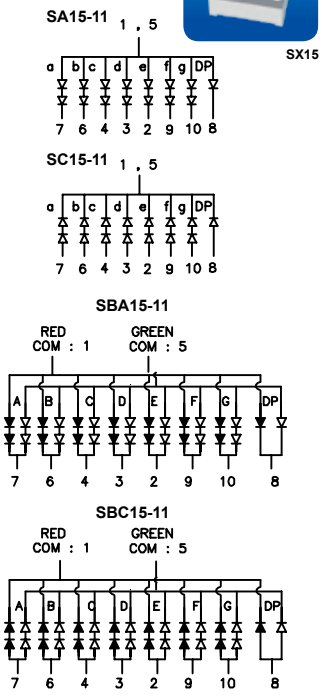


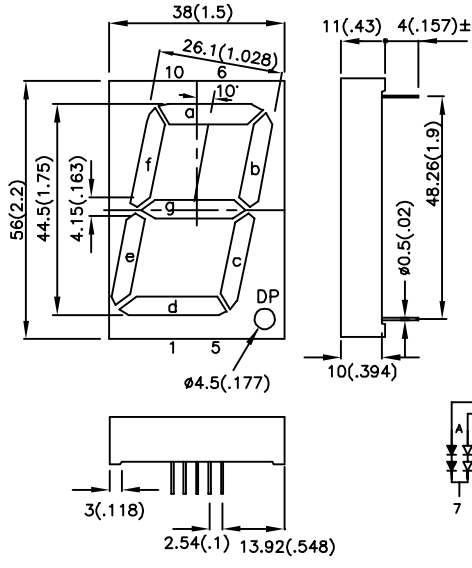
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

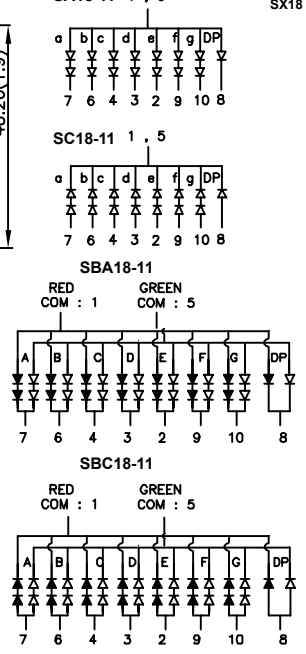
SINGLE DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
SA15-11SEKWA	SC15-11SEKWA	AlGaInP	601	128000	419300	1.5 inch (38.1mm), Gray Face, White Segment
SA15-11SURKWA	SC15-11SURKWA	AlGaInP	630	44000	205500	
SA15-11SYKWA	SC15-11SYKWA	AlGaInP	590	128000	405000	
SA15-11CGKWA	SC15-11CGKWA	AlGaInP	570	26000	100200	
SBA15-11 SURKCGKWA	SBC15-11 SURKCGKWA	AlGaInP	630	12000	43000	
		AlGaInP	570	26000	100200	
SA18-11SEKWA	SC18-11SEKWA	AlGaInP	601	75000	400000	1.75 inch (44.5mm), Gray Face, White Segment
SA18-11SURKWA	SC18-11SURKWA	AlGaInP	630	44000	277000	
SA18-11SYKWA	SC18-11SYKWA	AlGaInP	590	75000	387000	
SA18-11CGKWA	SC18-11CGKWA	AlGaInP	570	44000	186900	
SBA18-11 SURKCGKWA	SBC18-11 SURKCGKWA	AlGaInP	630	44000	277000	
		AlGaInP	570	44000	190000	





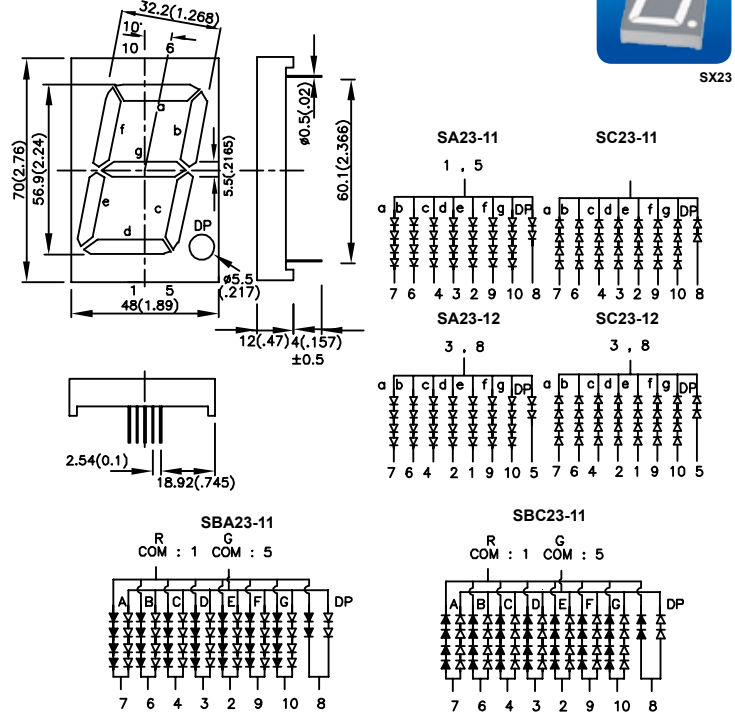


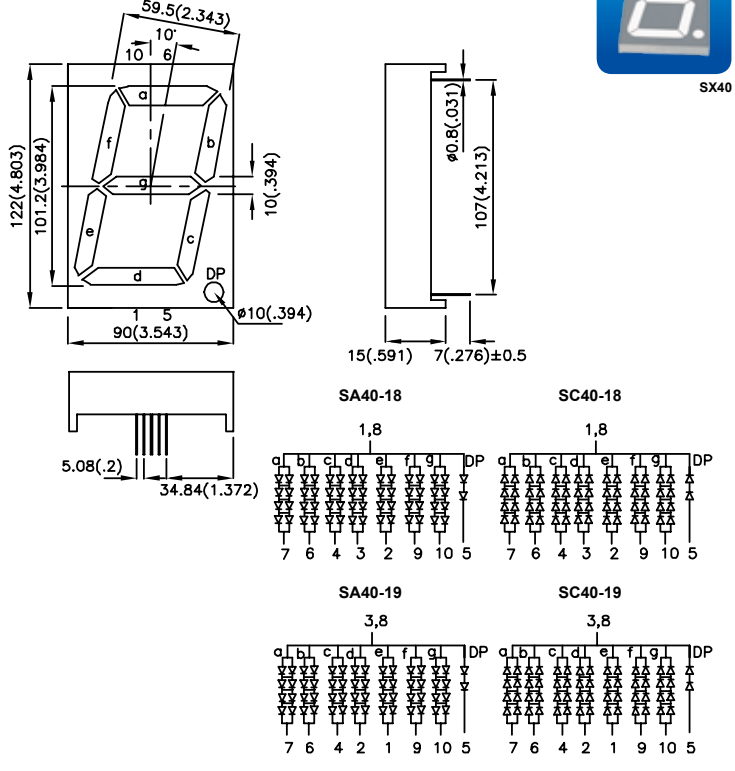


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

SINGLE DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
SA23-11SEKWA SA23-12SEKWA	SC23-11SEKWA SC23-12SEKWA	AlGaInP	601	75000	368000	2.24 inch (56.9mm), Gray Face, White Segment
SA23-11SURKWA SA23-12SURKWA	SC23-11SURKWA SC23-12SURKWA	AlGaInP	630	26000	270000	
SA23-11SYKWA SA23-12SYKWA	SC23-11SYKWA SC23-12SYKWA	AlGaInP	590	75000	287000	
SA23-11CGKWA SA23-12CGKWA	SC23-11CGKWA SC23-12CGKWA	AlGaInP	570	44000	200300	
SBA23-11 SURKCGKWA	SBC23-11 SURKCGKWA	AlGaInP	630	44000	270000	
		AlGaInP	570	44000	200300	
SA40-18SEKWA SA40-19SEKWA	SC40-18SEKWA SC40-19SEKWA	AlGaInP	601	75000	310000	3.984 inch (101.2mm), Gray Face, White Segment
SA40-18SURKWA SA40-19SURKWA	SC40-18SURKWA SC40-19SURKWA	AlGaInP	630	26000	123000	
SA40-18SYKWA SA40-19SYKWA	SC40-18SYKWA SC40-19SYKWA	AlGaInP	590	44000	129000	
SA40-18CGKWA SA40-19CGKWA	SC40-18CGKWA SC40-19CGKWA	AlGaInP	570	26000	101000	



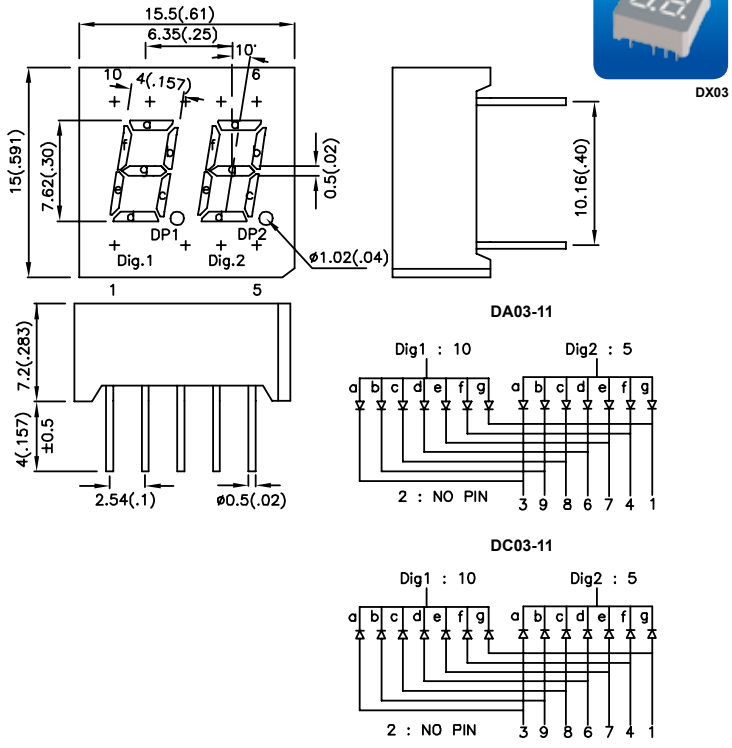


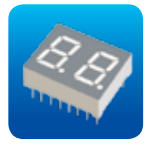
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

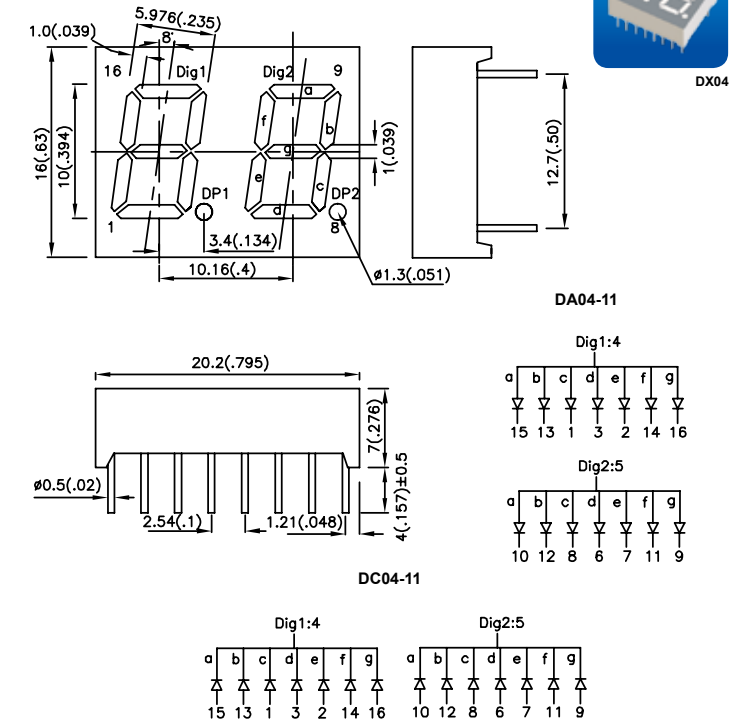
DUAL DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
DA03-11SEKWA	DC03-11SEKWA	AlGaInP	601	44000	154400	0.3 inch (7.62mm), Gray Face, White Segment
DA03-11SURKWA	DC03-11SURKWA	AlGaInP	630	12000	18500	
DA03-11SYKWA	DC03-11SYKWA	AlGaInP	590	44000	103500	
DA03-11CGKWA	DC03-11CGKWA	AlGaInP	570	12000	46000	
DA04-11SEKWA	DC04-11SEKWA	AlGaInP	601	44000	160700	0.394 inch (10mm), Gray Face, White Segment
DA04-11SURKWA	DC04-11SURKWA	AlGaInP	630	12000	31600	
DA04-11SYKWA	DC04-11SYKWA	AlGaInP	590	44000	92400	
DA04-11CGKWA	DC04-11CGKWA	AlGaInP	570	8000	25000	


DX03




DX04

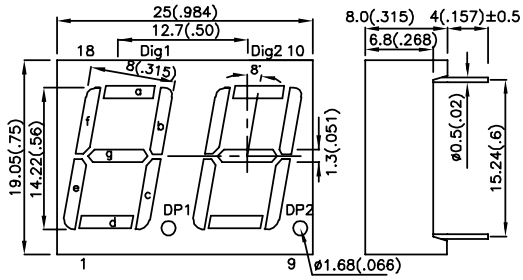


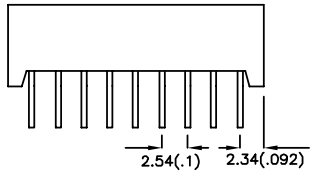
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

DUAL DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

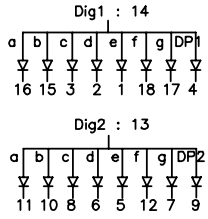
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
DA56-11SEKWA	DC56-11SEKWA	AlGaInP	601	18000	78700	0.56 inch (14.22mm), Gray Face, White Segment
DA56-11SURKWA	DC56-11SURKWA	AlGaInP	630	12000	51900	
DA56-11SYKWA	DC56-11SYKWA	AlGaInP	590	18000	54000	
DA56-11CGKWA	DC56-11CGKWA	AlGaInP	570	12000	35000	
DA56-51SEKWA	DC56-51SEKWA	AlGaInP	601	44000	175300	0.56 inch (14.22mm), Gray Face, White Segment
DA56-51SURKWA	DC56-51SURKWA	AlGaInP	630	18000	43900	
DA56-51SYKWA	DC56-51SYKWA	AlGaInP	590	18000	44000	
DA56-51CGKWA	DC56-51CGKWA	AlGaInP	570	12000	35000	


DX56-11

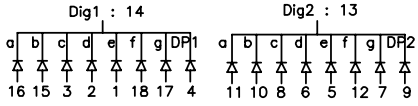


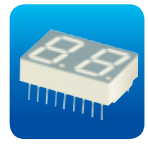


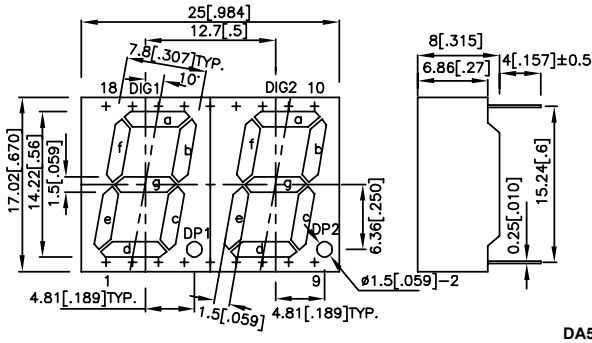
DA56-11



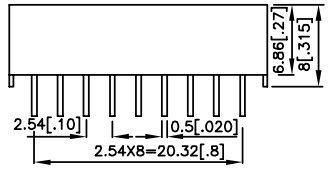
DC56-11

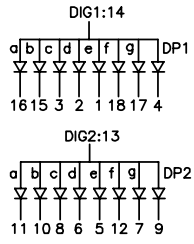



DX56-51

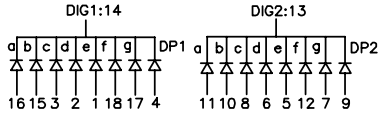


DA56-51





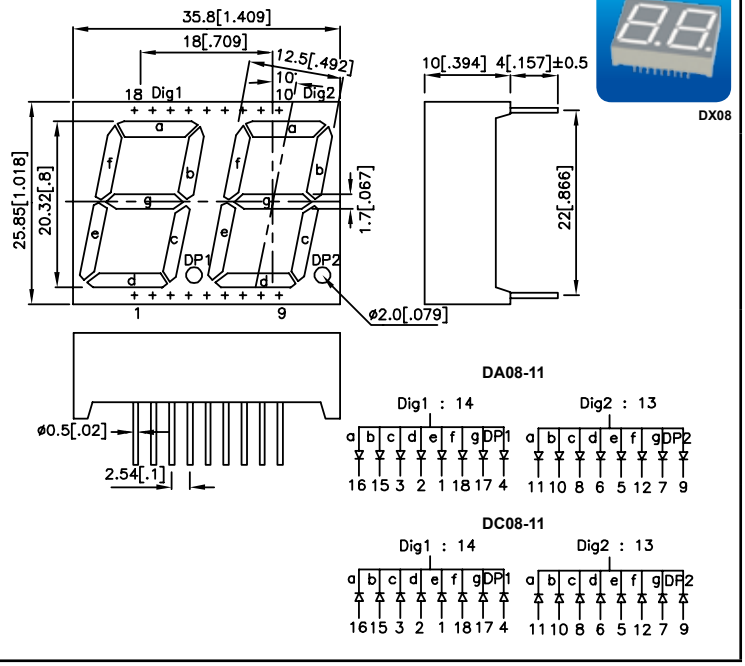
DC56-51



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

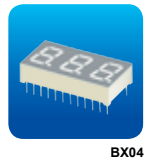
DUAL DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

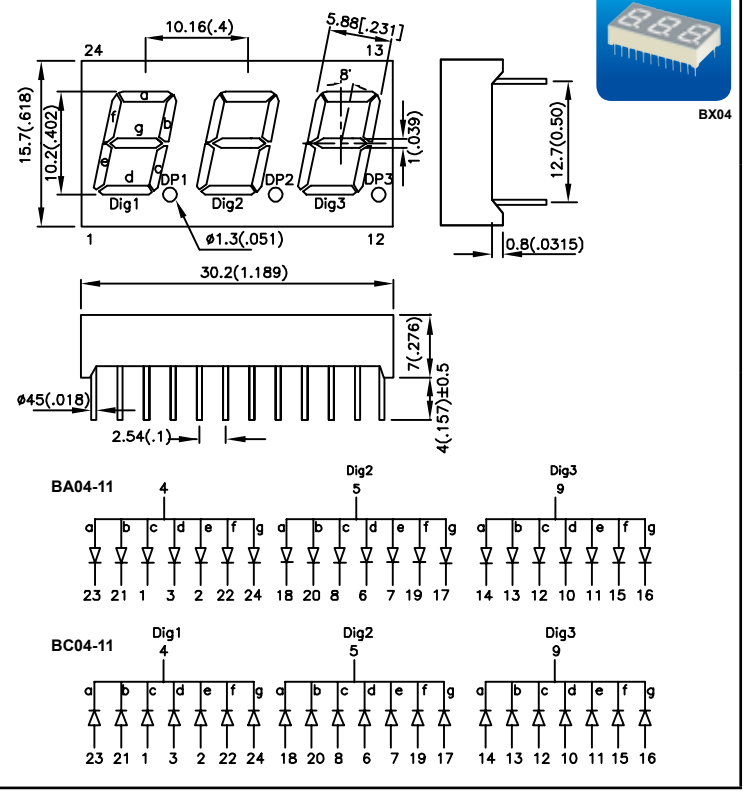
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
DA08-11SEKWA	DC08-11SEKWA	AlGaInP	601	44000	197500	0.8 inch (20.32mm), Gray Face, White Segment
DA08-11SURKWA	DC08-11SURKWA	AlGaInP	630	18000	60600	
DA08-11SYKWA	DC08-11SYKWA	AlGaInP	590	26000	78000	
DA08-11CGKWA	DC08-11CGKWA	AlGaInP	570	12000	34400	



THREE DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
BA04-11SEKWA	BC04-11SEKWA	AlGaInP	601	18000	160700	0.4 inch (10.2mm), Gray Face, White Segment
BA04-11SURKWA	BC04-11SURKWA	AlGaInP	630	12000	44900	
BA04-11SYKWA	BC04-11SYKWA	AlGaInP	590	44000	92400	
BA04-11CGKWA	BC04-11CGKWA	AlGaInP	570	8000	25000	

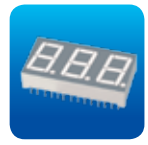




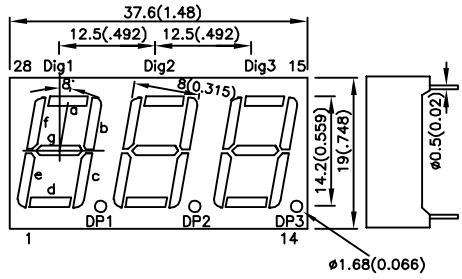
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

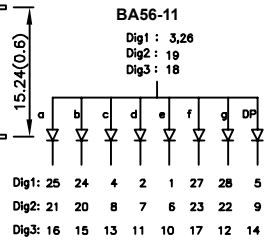
THREE DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

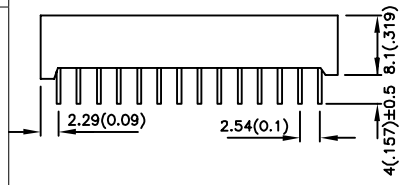
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
BA56-11SEKWA BA56-12SEKWA BA56-13SEKWA	BC56-11SEKWA BC56-12SEKWA BC56-13SEKWA	AlGaInP	601	26000	114800	0.56 inch (14.22mm), Gray Face, White Segment
BA56-11SURKWA BA56-12SURKWA BA56-13SURKWA	BC56-11SURKWA BC56-12SURKWA BC56-13SURKWA	AlGaInP	630	12000	49000	
BA56-11SYKWA BA56-12SYKWA BA56-13SYKWA	BC56-11SYKWA BC56-12SYKWA BC56-13SYKWA	AlGaInP	590	18000	54000	
BA56-11CGKWA BA56-12CGKWA BA56-13CGKWA	BC56-11CGKWA BC56-12CGKWA BC56-13CGKWA	AlGaInP	570	12000	35000	

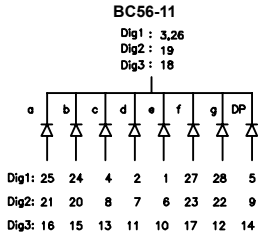


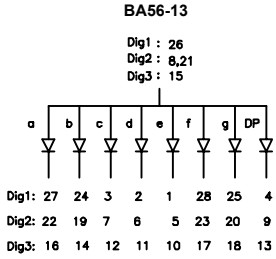
BA56/BC56−11
BA56/BC56−13

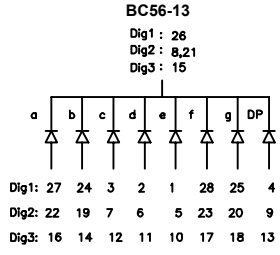




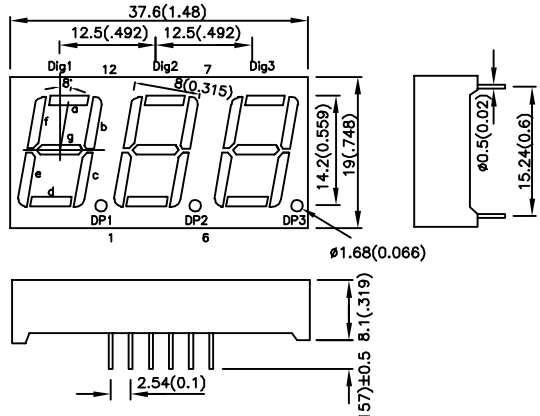


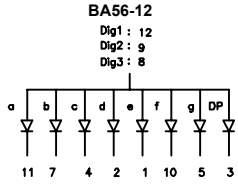


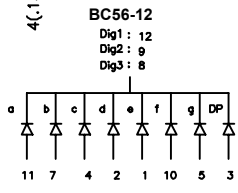




BA56/BC56−12



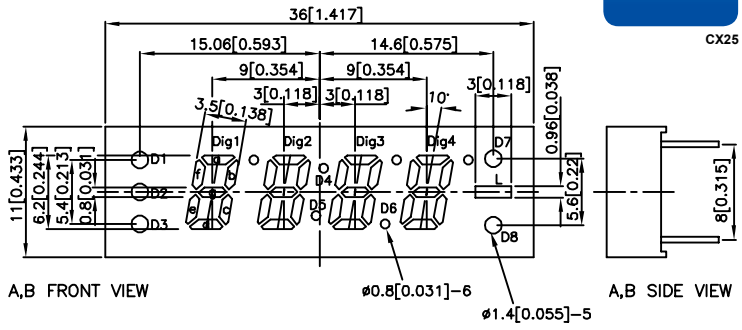


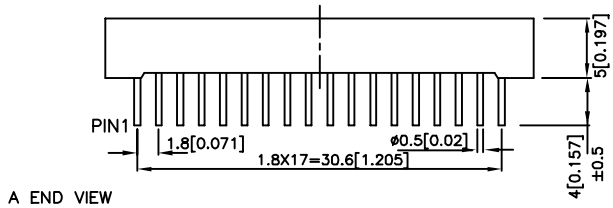


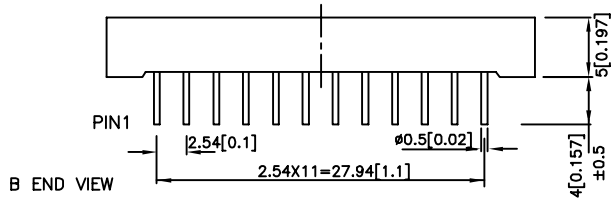
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

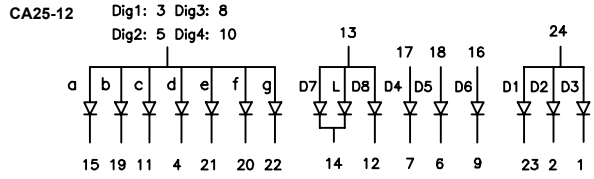
FOUR DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

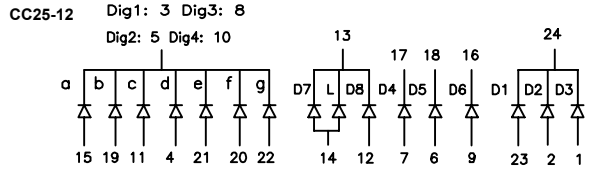
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
CA25-11SEKWA CA25-12SEKWA	CC25-11SEKWA CC25-12SEKWA	AlGaInP	601	44000	159400	0.244 inch (6.2mm), Gray Face, White Segment A: CA/CC25−11 B: CA/CC25−12
CA25-11SURKWA CA25-12SURKWA	CC25-11SURKWA CC25-12SURKWA	AlGaInP	630	12000	32000	
CA25-11SYKWA CA25-12SYKWA	CC25-11SYKWA CC25-12SYKWA	AlGaInP	590	44000	111500	
CA25-11CGKWA CA25-12CGKWA	CC25-11CGKWA CC25-12CGKWA	AlGaInP	570	12000	34000	

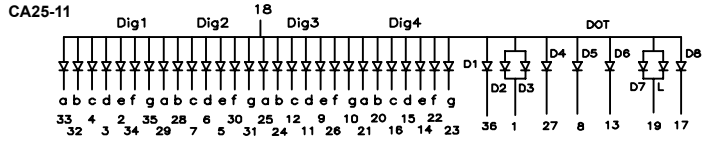


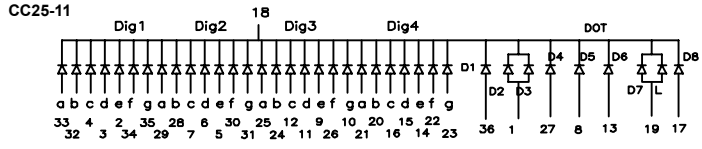








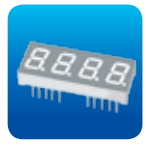


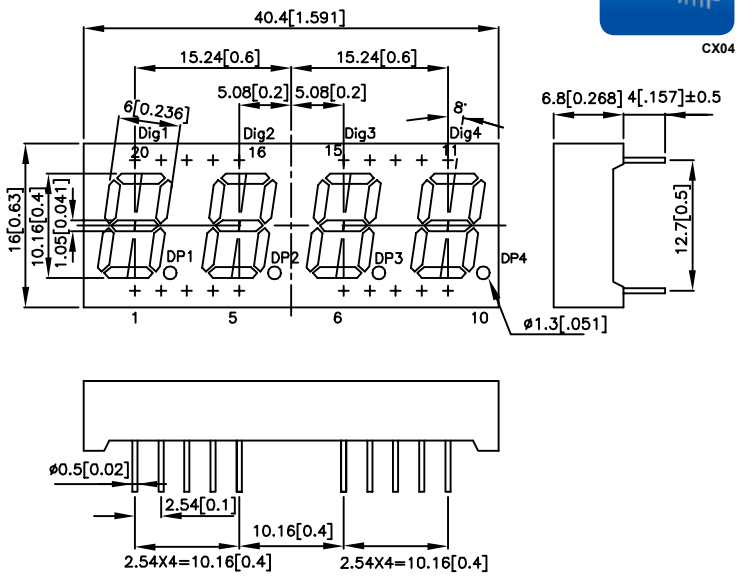


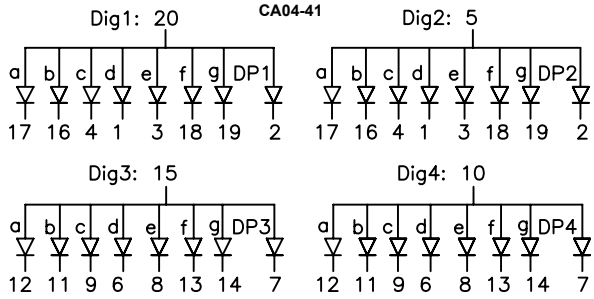
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

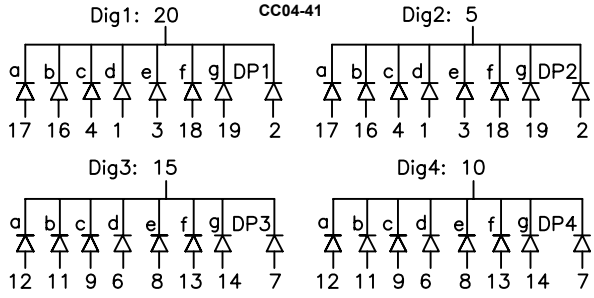
FOUR DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
CA04-41SEKWA	CC04-41SEKWA	AlGaInP	601	44000	135000	0.4 inch (10.16mm), Gray Face, White Segment
CA04-41SURKWA	CC04-41SURKWA	AlGaInP	630	26000	87000	
CA04-41SYKWA	CC04-41SYKWA	AlGaInP	590	44000	110000	
CA04-41CGKWA	CC04-41CGKWA	AlGaInP	570	8000	33000	









NOTES:
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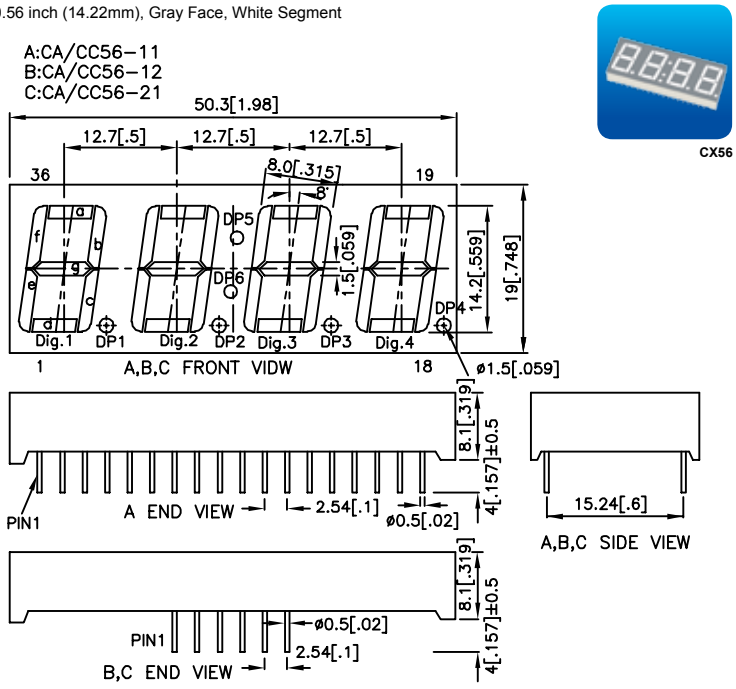
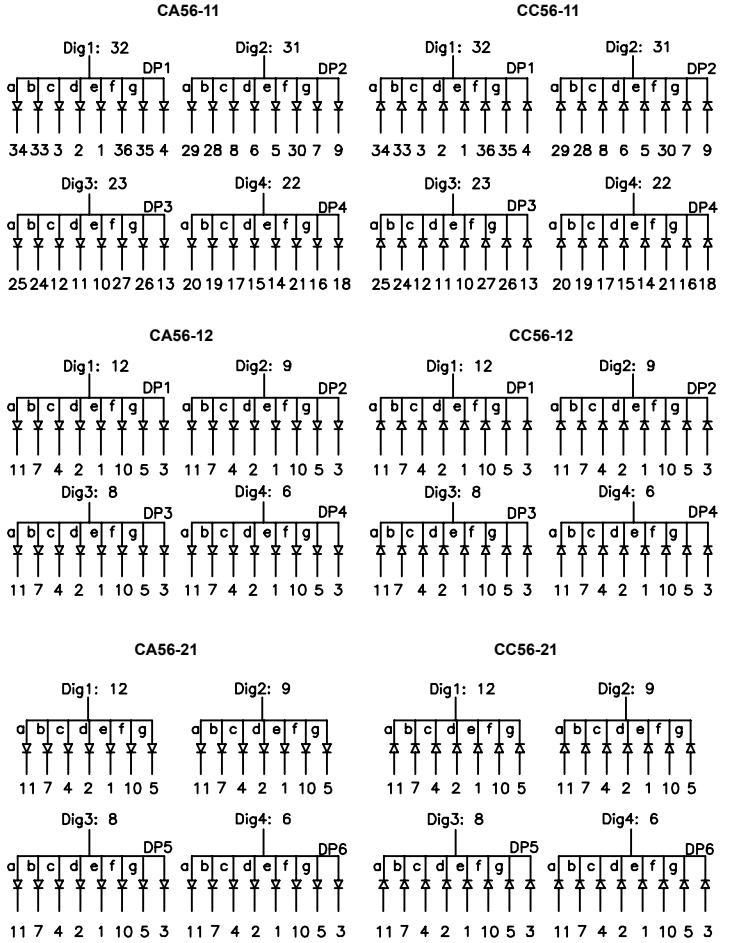
FOUR DIGIT 7-SEGMENT THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
CA56-11SEKWA CA56-12SEKWA CA56-21SEKWA	CC56-11SEKWA CC56-12SEKWA CC56-21SEKWA	AlGaInP	601	26000	114800	0.56 inch (14.22mm), Gray Face, White Segment
CA56-11SURKWA CA56-12SURKWA CA56-21SURKWA	CC56-11SURKWA CC56-12SURKWA CC56-21SURKWA	AlGaInP	630	12000	58500	
CA56-11SYKWA CA56-12SYKWA CA56-21SYKWA	CC56-11SYKWA CC56-12SYKWA CC56-21SYKWA	AlGaInP	590	12000	59000	
CA56-11CGKWA CA56-12CGKWA CA56-21CGKWA	CC56-11CGKWA CC56-12CGKWA CC56-21CGKWA	AlGaInP	570	8000	35000	





NOTES:
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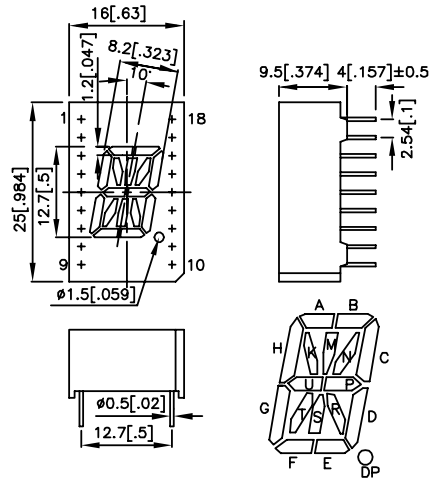
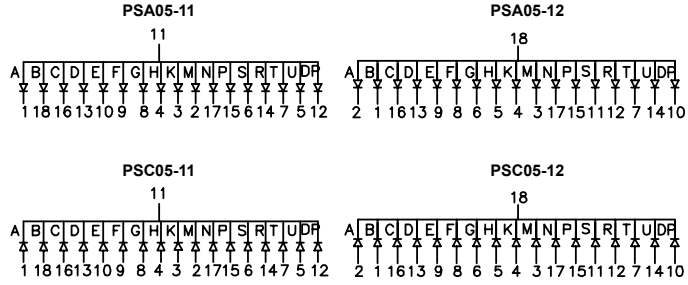
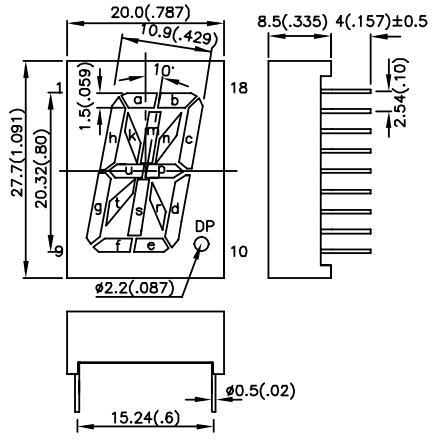
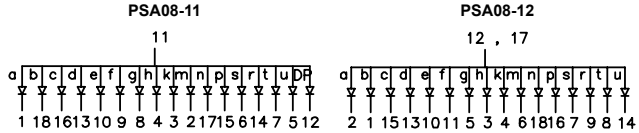
ALPHANUMERIC THROUGH-HOLE DISPLAY

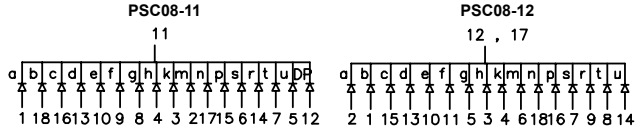
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
PSA05-11SEKWA PSA05-12SEKWA	PSC05-11SEKWA PSC05-12SEKWA	AlGaInP	601	18000	64900	0.5 inch (12.7mm), Gray Face, White Segment
PSA05-11SURKWA PSA05-12SURKWA	PSC05-11SURKWA PSC05-12SURKWA	AlGaInP	630	12000	23800	
PSA05-11SYKWA PSA05-12SYKWA	PSC05-11SYKWA PSC05-12SYKWA	AlGaInP	590	12000	44000	
PSA05-11CGKWA PSA05-12CGKWA	PSC05-11CGKWA PSC05-12CGKWA	AlGaInP	570	8000	22400	
PSA08-11SEKWA PSA08-12SEKWA	PSC08-11SEKWA PSC08-12SEKWA	AlGaInP	601	26000	102000	0.8 inch (20.32mm), Gray Face, White Segment
PSA08-11SURKWA PSA08-12SURKWA	PSC08-11SURKWA PSC08-12SURKWA	AlGaInP	630	12000	39700	
PSA08-11SYKWA PSA08-12SYKWA	PSC08-11SYKWA PSC08-12SYKWA	AlGaInP	590	26000	84000	
PSA08-11CGKWA PSA08-12CGKWA	PSC08-11CGKWA PSC08-12CGKWA	AlGaInP	570	8000	31700	









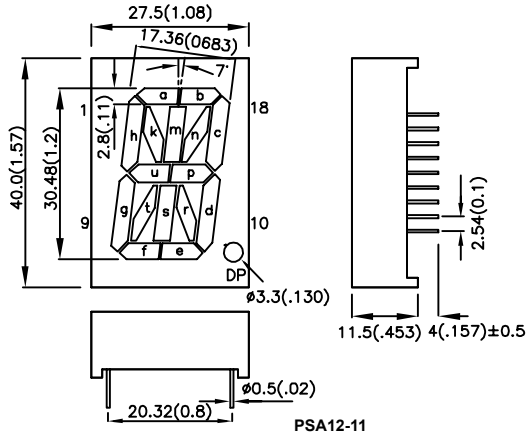


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

ALPHANUMERIC THROUGH-HOLE DISPLAY

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
PSA12-11SEKWA	PSC12-11SEKWA	AlGaInP	601	26000	107000	1.2 inch (30.48mm), Gray Face, White Segment
PSA12-11SURKWA	PSC12-11SURKWA	AlGaInP	630	18000	63200	
PSA12-11SYKWA	PSC12-11SYKWA	AlGaInP	590	26000	101000	
PSA12-11CGKWA	PSC12-11CGKWA	AlGaInP	570	12000	37200	
PSA23-11SEKWA	PSC23-11SEKWA	AlGaInP	601	44000	163000	2.24 inch (56.8mm), Gray Face, White Segment
PSA23-11SURKWA	PSC23-11SURKWA	AlGaInP	630	18000	73000	
PSA23-11SYKWA	PSC23-11SYKWA	AlGaInP	590	44000	173300	
PSA23-11CGKWA	PSC23-11CGKWA	AlGaInP	570	8000	17000	


PSX12



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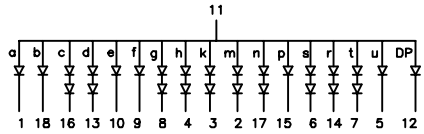
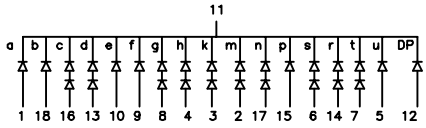


PSC12-11

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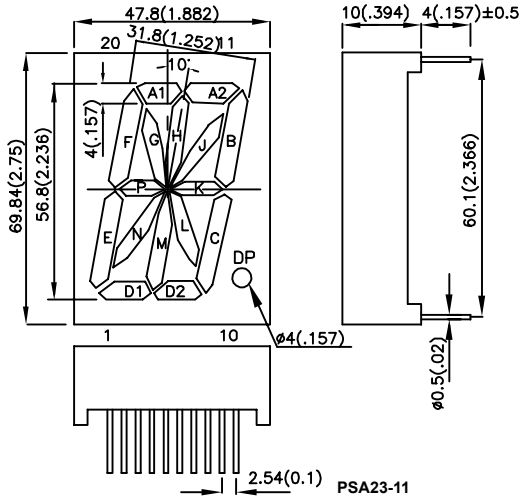
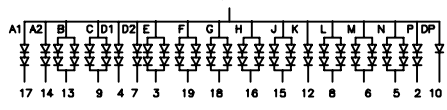
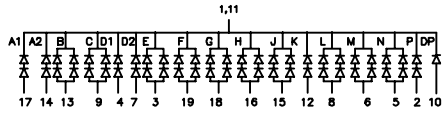


PSA23-11



PSC23-11



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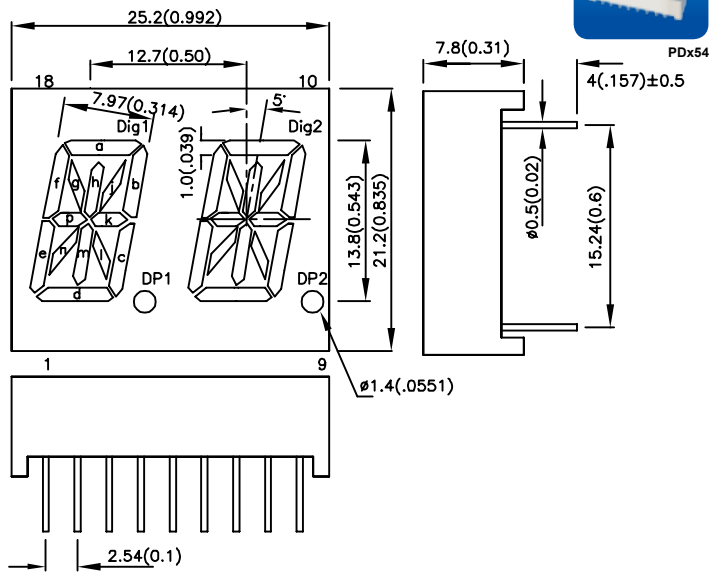
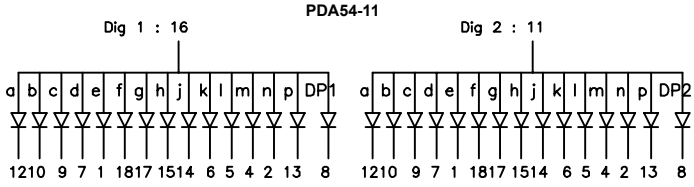
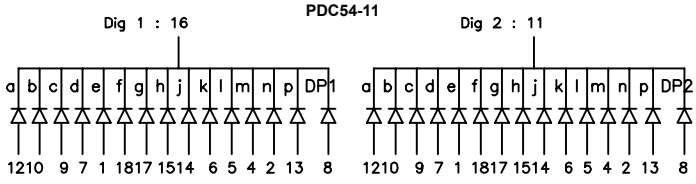
ALPHANUMERIC THROUGH-HOLE DISPLAY

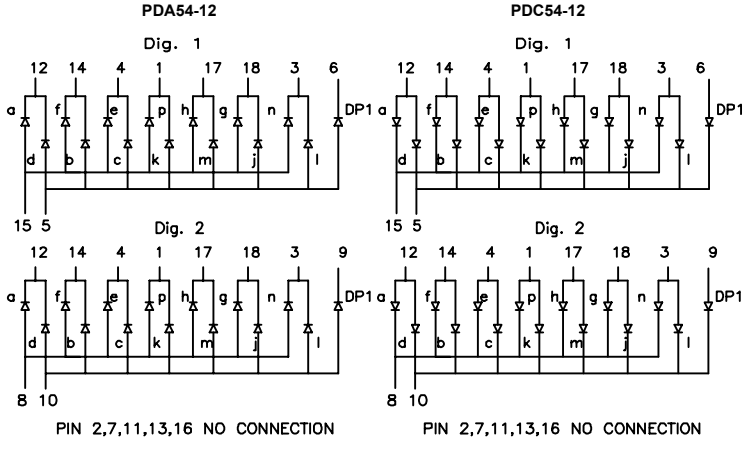
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COMMON ANODE	COMMON CATHODE			MIN.	TYP.	
PDA54-11SEKWA PDA54-12SEKWA	PDC54-11SEKWA PDC54-12SEKWA	AlGaInP	601	18000	77800	0.543inch (13.8mm), Gray Face, White Segment
PDA54-11SURKWA PDA54-12SURKWA	PDC54-11SURKWA PDC54-12SURKWA	AlGaInP	630	12000	46000	
PDA54-11SYKWA PDA54-12SYKWA	PDC54-11SYKWA PDC54-12SYKWA	AlGaInP	590	12000	45600	
PDA54-11CGKWA PDA54-12CGKWA	PDC54-11CGKWA PDC54-12CGKWA	AlGaInP	570	8000	27800	

PDx54









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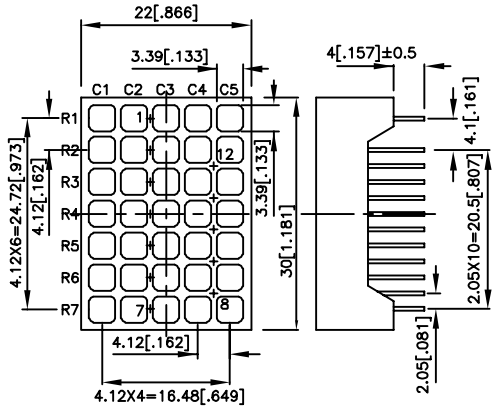
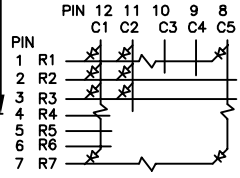
DOT MATRIX

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA12-41SEKWB	TC12-41SEKWB	AlGaInP	601	75000	238900	1.107 inch (28.11mm), 5x7, Black Face, White Dot
TA12-41SURKWB	TC12-41SURKWB	AlGaInP	630	44000	139300	
TA12-41SYKWB	TC12-41SYKWB	AlGaInP	590	75000	235600	
TA12-41CGKWB	TC12-41CGKWB	AlGaInP	570	26000	65300	
TA13-11SEKWB	TC13-11SEKWB	AlGaInP	601	75000	159800	1.2 inch (30.5mm), 6x7, Black Face, White Dot
TA13-11SURKWB	TC13-11SURKWB	AlGaInP	630	44000	108700	
TA13-11SYKWB	TC13-11SYKWB	AlGaInP	590	44000	156300	
TA13-11CGKWB	TC13-11CGKWB	AlGaInP	570	18000	46300	

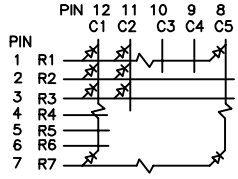

TX12-41



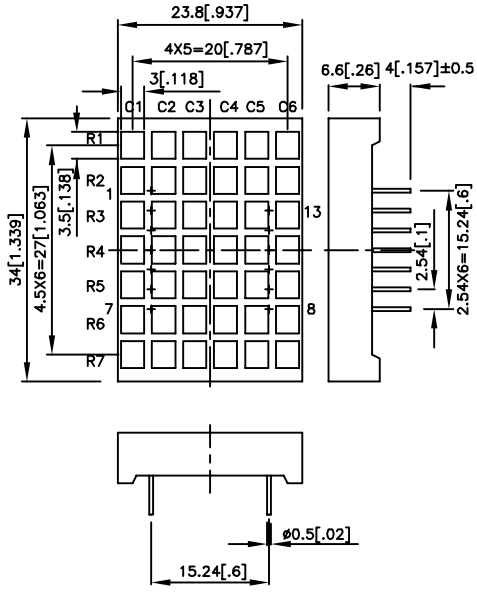
TA12-41



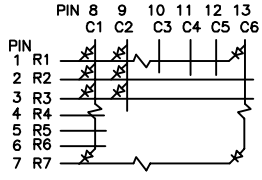
TC12-41




TX13



TA13-11



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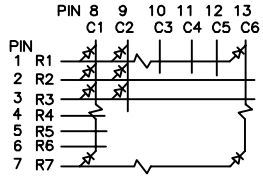

NOTES:
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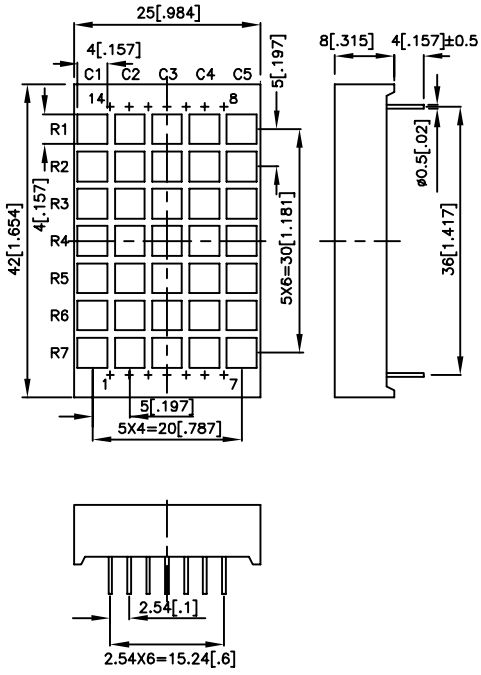
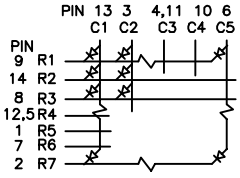
DOT MATRIX

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA16-31SEKWB	TC16-31SEKWB	AlGaInP	601	75000	169700	1.338 inch (34mm), 5x7, Black Face, White Dot
TA16-31SURKWB	TC16-31SURKWB	AlGaInP	630	44000	100000	
TA16-31SYKWB	TC16-31SYKWB	AlGaInP	590	44000	168000	
TA16-31CGKWB	TC16-31CGKWB	AlGaInP	570	18000	42300	

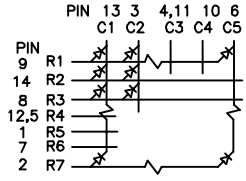
TX16-31



TA16-31



TC16-31

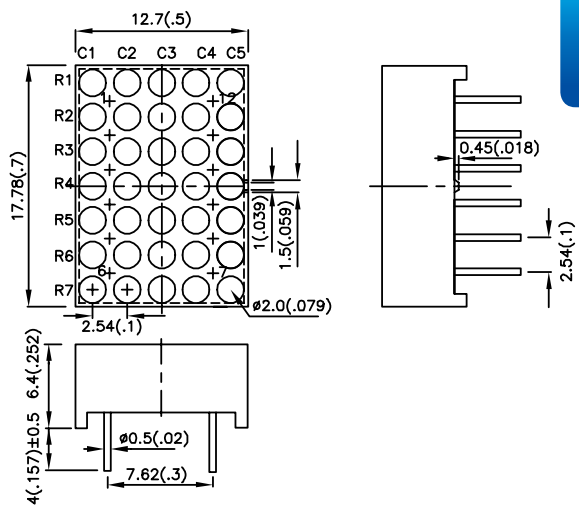


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

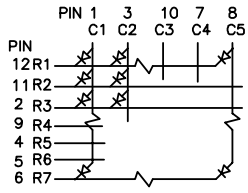
DOT MATRIX

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA07-11SEKWA	TC07-11SEKWA	AlGaInP	601	26000	116400	0.7 inch (18mm), 5x7, Gray Face, White Dot
TA07-11SURKWA	TC07-11SURKWA	AlGaInP	630	18000	40600	
TA07-11SYKWA	TC07-11SYKWA	AlGaInP	590	18000	45100	
TA07-11CGKWA	TC07-11CGKWA	AlGaInP	570	12000	38100	
TA16-11SEKWA	TC16-11SEKWA	AlGaInP	601	26000	128500	1.38 inch (35.2mm), 5x8, Gray Face, White Dot
TA16-11SURKWA	TC16-11SURKWA	AlGaInP	630	12000	58600	
TA16-11SYKWA	TC16-11SYKWA	AlGaInP	590	18000	115000	
TA16-11CGKWA	TC16-11CGKWA	AlGaInP	570	12000	54000	

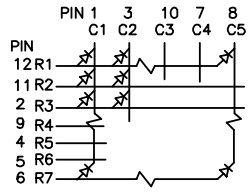

TX07



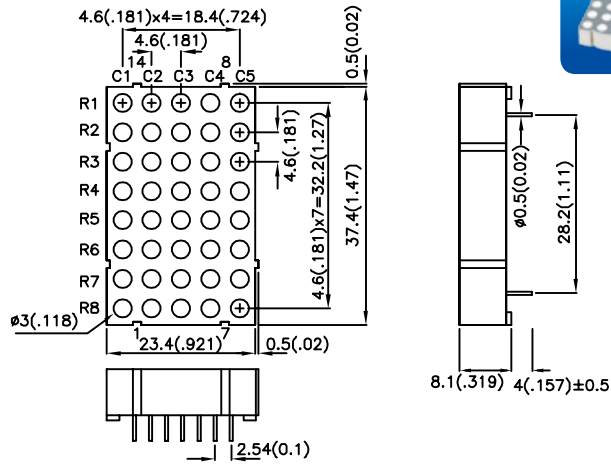
TA07-11



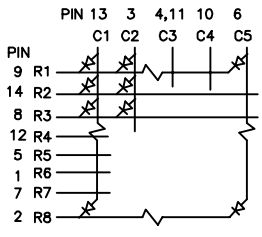
TC07-11



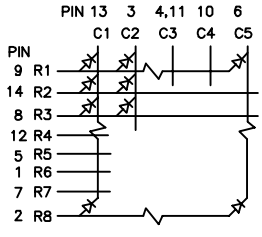

TX16



TA16-11



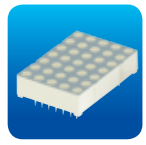
TC16-11



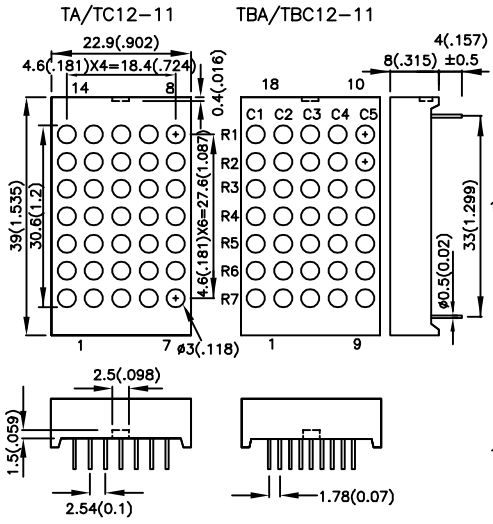
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

DOT MATRIX

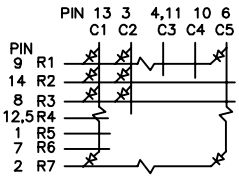
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA12-11SEKWA	TC12-11SEKWA	AlGaInP	601	26000	127000	1.2 inch (30mm), 5x7, Gray Face, White Dot
TA12-11SURKWA	TC12-11SURKWA	AlGaInP	630	18000	66800	
TA12-11SYKWA	TC12-11SYKWA	AlGaInP	590	18000	86500	
TA12-11CGKWA	TC12-11CGKWA	AlGaInP	570	18000	50200	
TBA12-11 SURKCGKWA	TBC12-11 SURKCGKWA	AlGaInP	630	18000	66800	
		AlGaInP	570	18000	50200	
TBA12-12 SURKCGKWA	TBC12-12 SURKCGKWA	AlGaInP	630	18000	66800	
		AlGaInP	570	18000	50200	



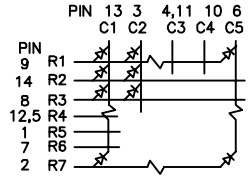
TX12-11



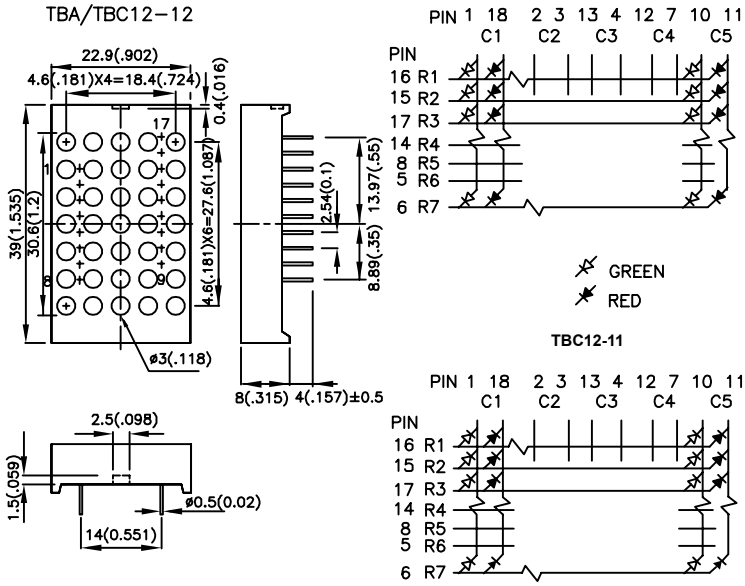
TA12-11



TC12-11

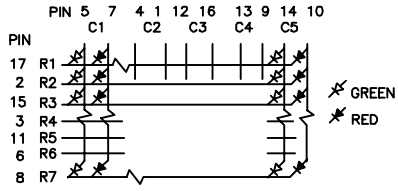


TBA12-11

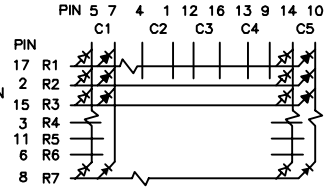


TBC12-11

TBA12-12



TBC12-12



NOTES:
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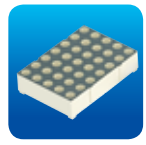
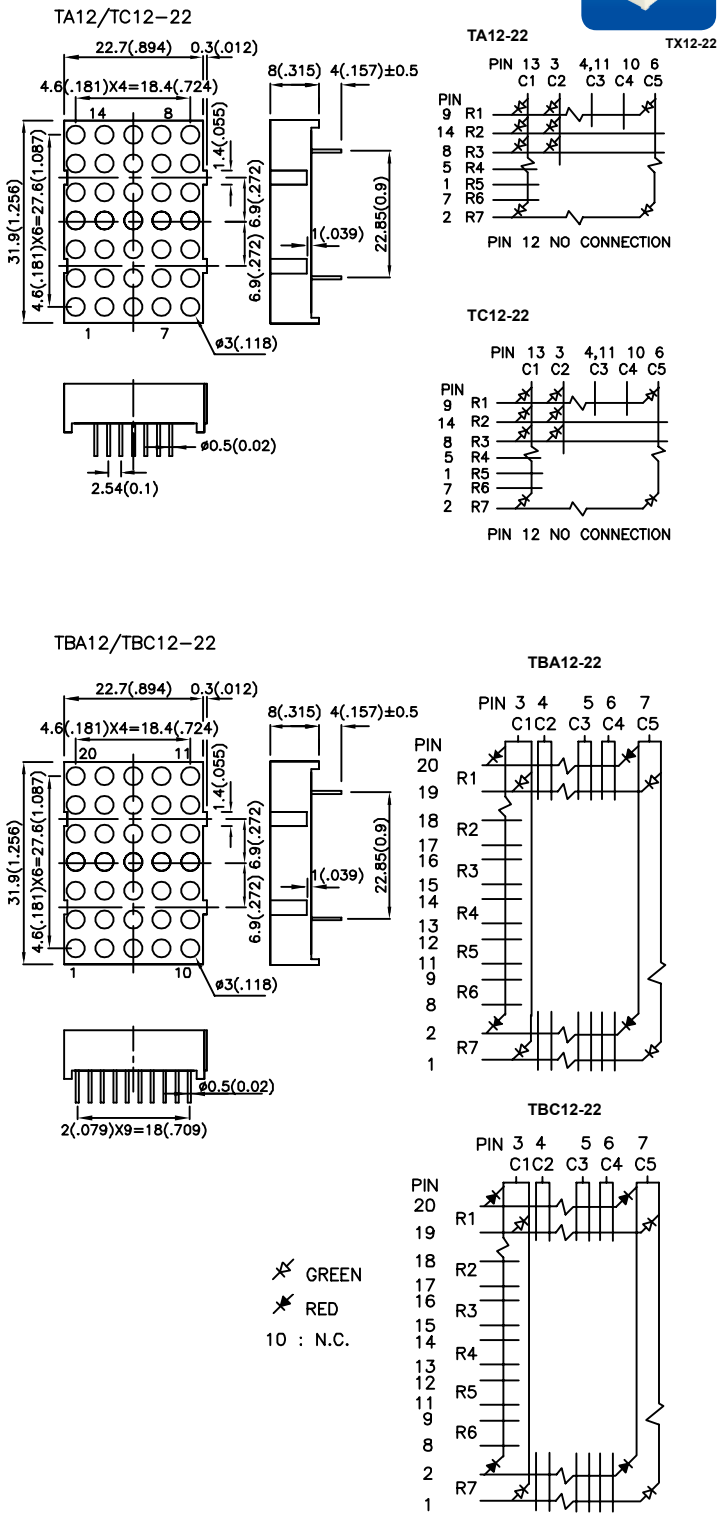
DOT MATRIX

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA12-22SEKWA	TC12-22SEKWA	AlGaInP	601	26000	127000	1.2 inch (30mm), 5x7, Gray Face, White Dot
TA12-22SURKWA	TC12-22SURKWA	AlGaInP	630	18000	66800	
TA12-22SYKWA	TC12-22SYKWA	AlGaInP	590	18000	86500	
TA12-22CGKWA	TC12-22CGKWA	AlGaInP	570	18000	50200	
TBA12-22 SURKCGKWA	TBC12-22 SURKCGKWA	AlGaInP	630	18000	66800	
		AlGaInP	570	18000	50200	

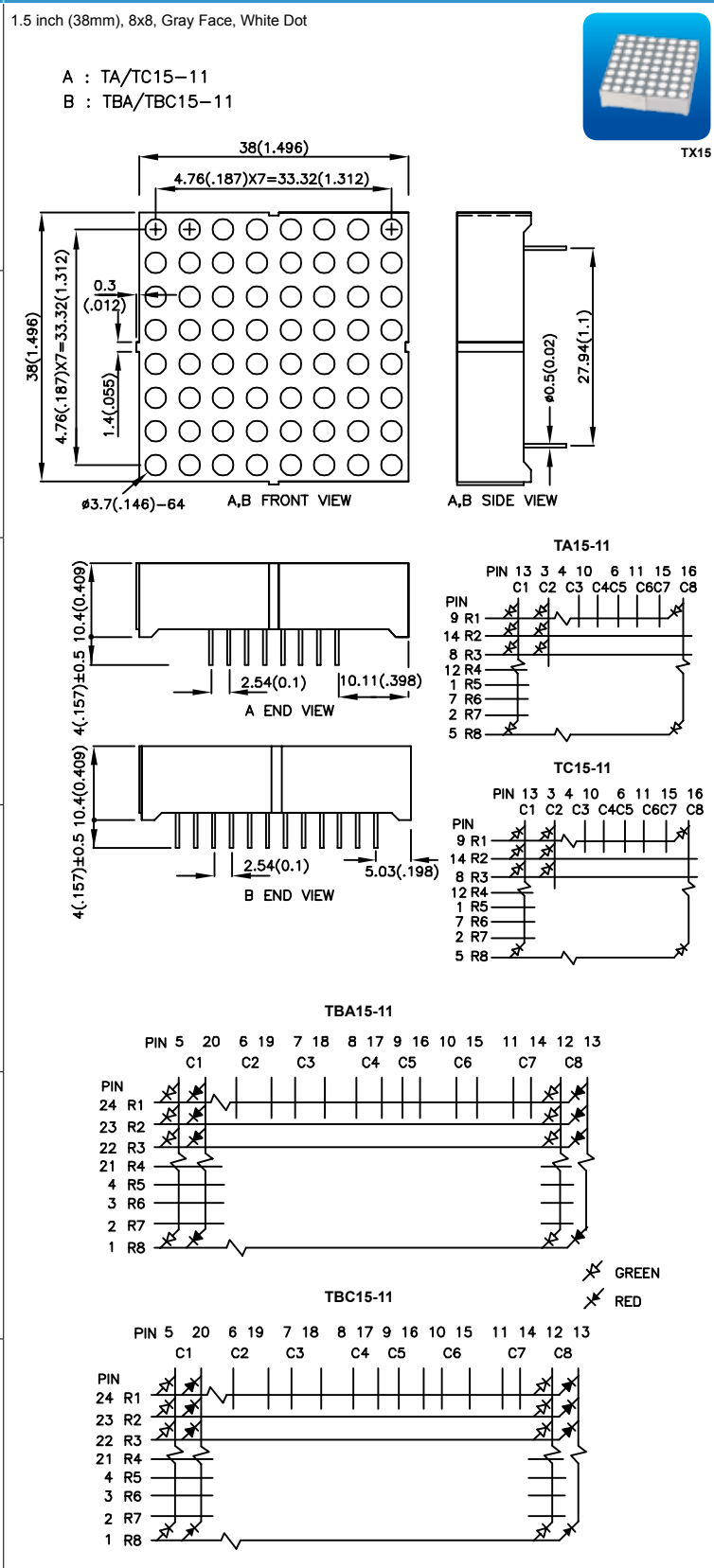




NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

DOT MATRIX

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA15-11SEKWA	TC15-11SEKWA	AlGaInP	601	26000	137000	
TA15-11SURKWA	TC15-11SURKWA	AlGaInP	630	18000	68800	
TA15-11SYKWA	TC15-11SYKWA	AlGaInP	590	44000	162000	
TA15-11CGKWA	TC15-11CGKWA	AlGaInP	570	18000	54200	
TBA15-11 SURKCGKWA	TBC15-11 SURKCGKWA	AlGaInP	630	18000	68800	
		AlGaInP	570	18000	54200	



NOTES:
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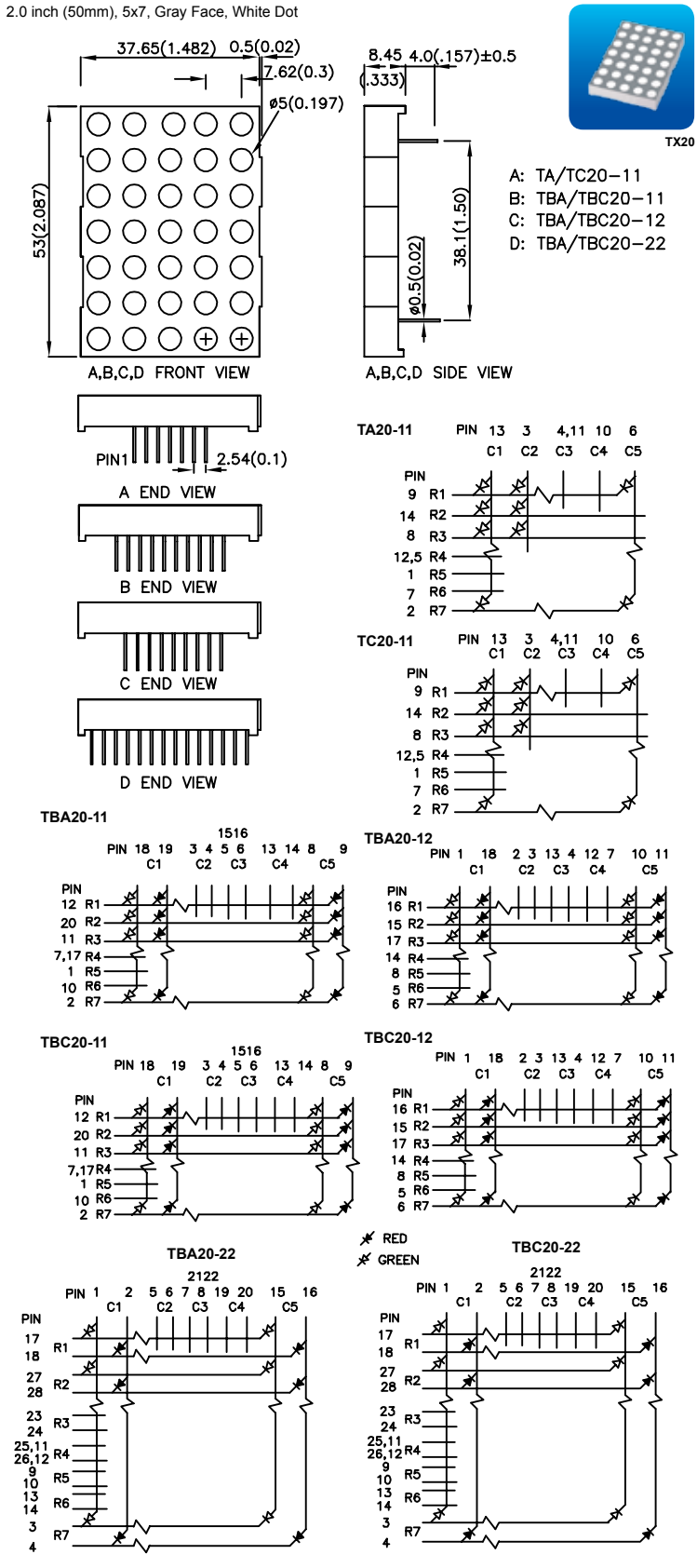
DOT MATRIX

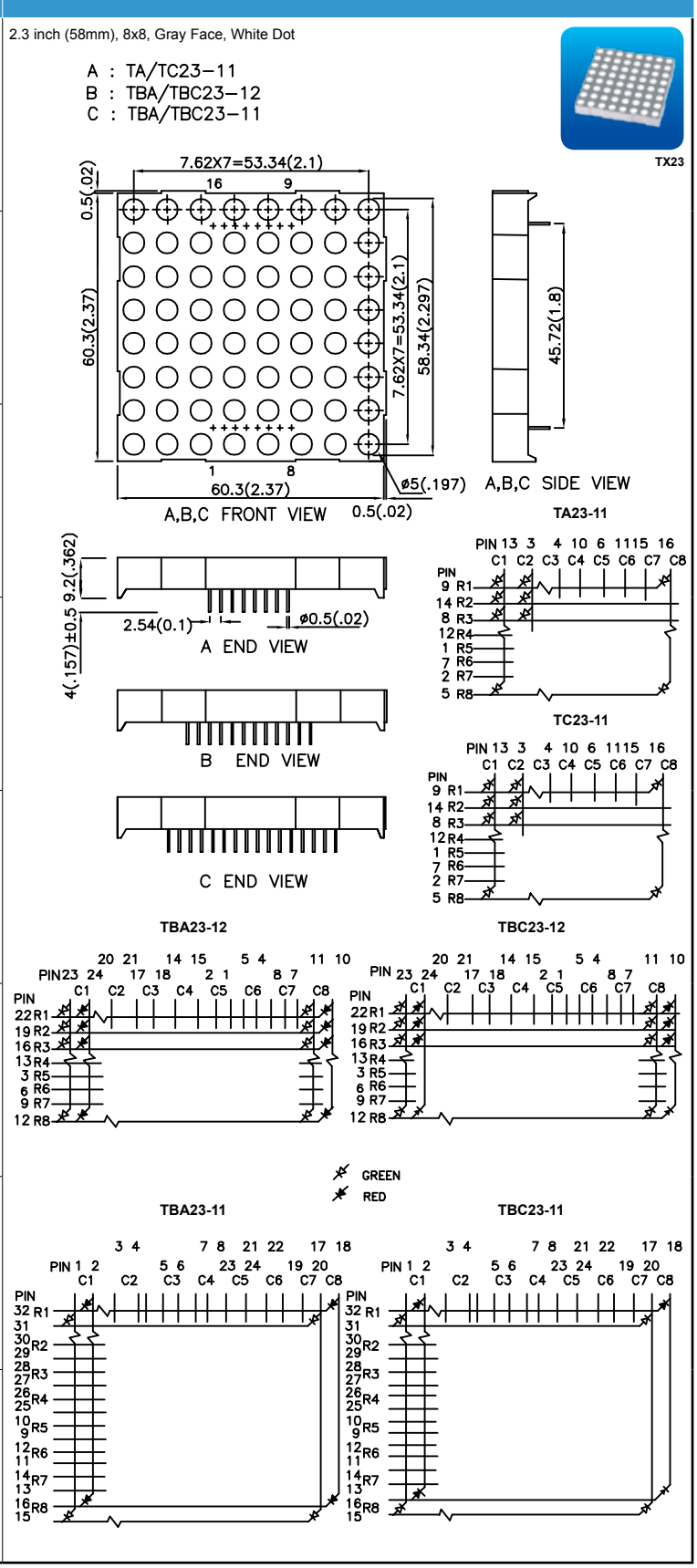
PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA20-11SEKWA	TC20-11SEKWA	AlGaInP	601	26000	115000	
TA20-11SURKWA	TC20-11SURKWA	AlGaInP	630	18000	60000	
TA20-11SYKWA	TC20-11SYKWA	AlGaInP	590	18000	120000	
TA20-11CGKWA	TC20-11CGKWA	AlGaInP	570	18000	66200	
TBA20-11 SURKCGKWA	TBC20-11 SURKCGKWA	AlGaInP	630	18000	60000	
		AlGaInP	570	18000	66200	
TBA20-12 SURKCGKWA	TBC20-12 SURKCGKWA	AlGaInP	630	18000	60000	
		AlGaInP	570	18000	66200	
TBA20-22 SURKCGKWA	TBC20-22 SURKCGKWA	AlGaInP	630	18000	60000	
		AlGaInP	570	18000	66200	



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

DOT MATRIX

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA23-11SEKWA	TC23-11SEKWA	AlGaInP	601	75000	183300	
TA23-11SURKWA	TC23-11SURKWA	AlGaInP	630	26000	107300	
TA23-11SYKWA	TC23-11SYKWA	AlGaInP	590	26000	80500	
TA23-11CGKWA	TC23-11CGKWA	AlGaInP	570	18000	73700	
TBA23-11 SURKCGKWA	TBC23-11 SURKCGKWA	AlGaInP	630	26000	107300	
		AlGaInP	570	18000	73700	
TBA23-12 SURKCGKWA	TBC23-12 SURKCGKWA	AlGaInP	630	26000	107300	
		AlGaInP	570	18000	73700	



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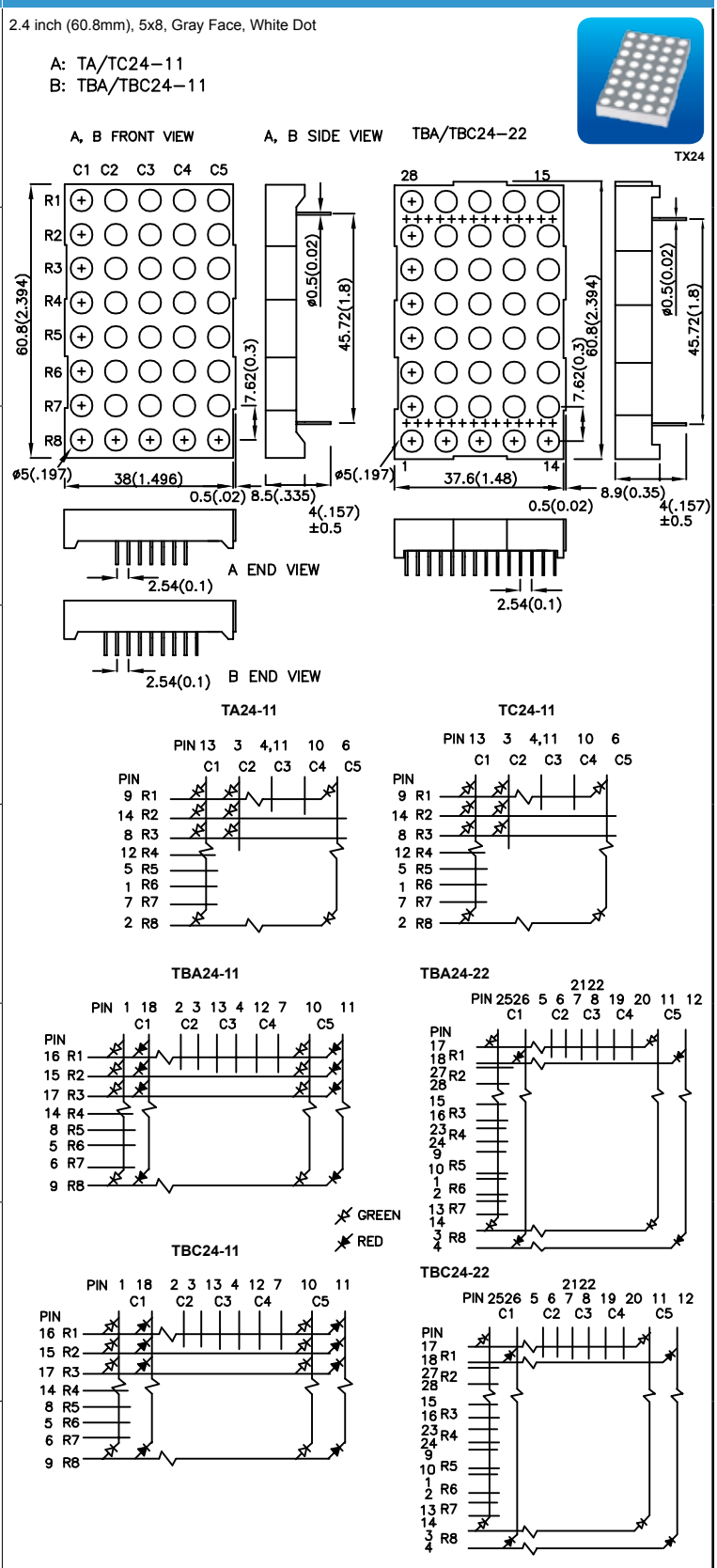
DOT MATRIX

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA24-11SEKWA	TC24-11SEKWA	AlGaInP	601	44000	250700	
TA24-11SURKWA	TC24-11SURKWA	AlGaInP	630	44000	120000	
TA24-11SYKWA	TC24-11SYKWA	AlGaInP	590	44000	230400	
TA24-11CGKWA	TC24-11CGKWA	AlGaInP	570	26000	61600	
TBA24-11 SURKCGKWA	TBC24-11 SURKCGKWA	AlGaInP	630	44000	120000	
		AlGaInP	570	26000	61600	
TBA24-22 SURKCGKWA	TBC24-22 SURKCGKWA	AlGaInP	630	44000	120000	
		AlGaInP	570	26000	61600	



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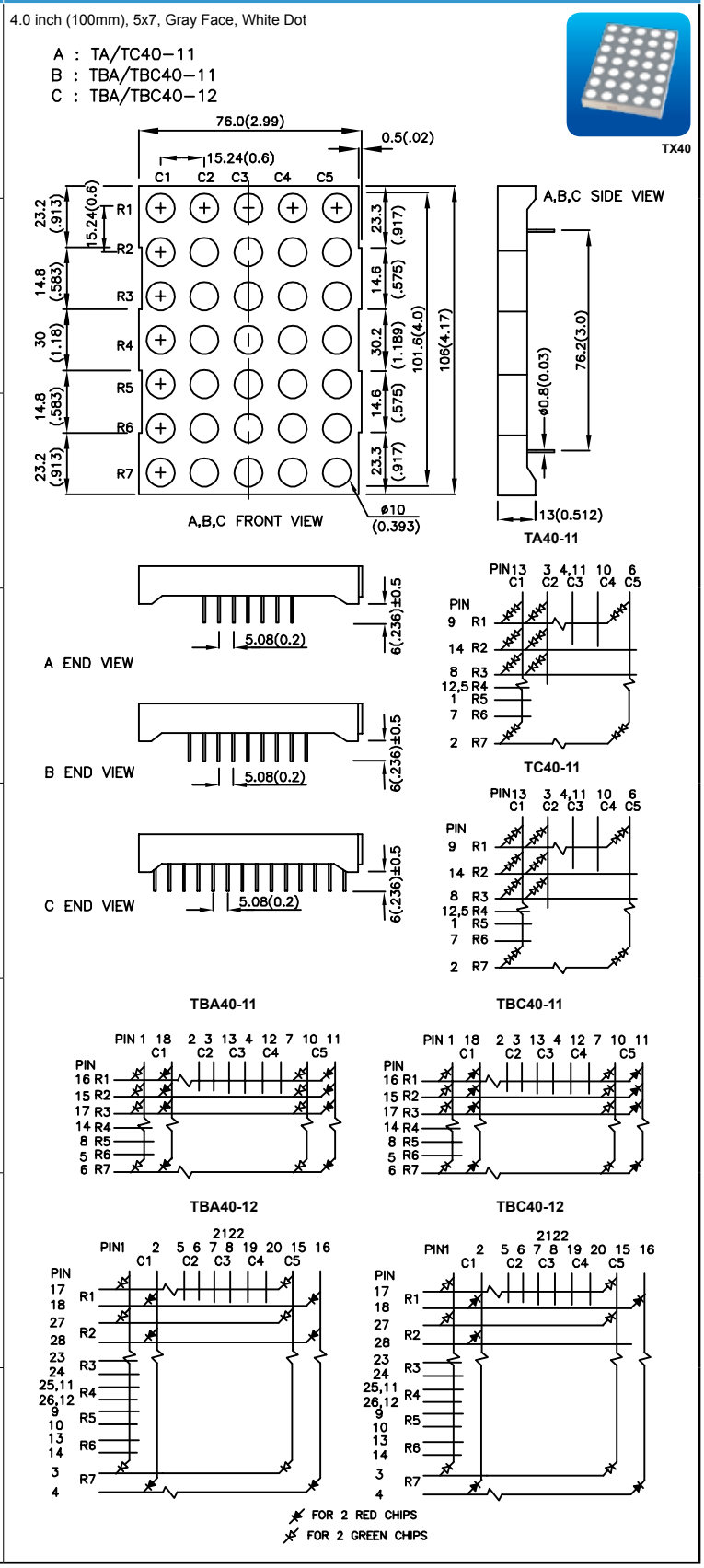
DOT MATRIX

PART NUMBER		MATERIAL	λ D (nm)	Iv (ucd) @10mA		DIMENSION
COLUMN ANODE	COLUMN CATHODE			MIN.	TYP.	
TA40-11SEKWA	TC40-11SEKWA	AlGaInP	601	75000	306000	
TA40-11SURKWA	TC40-11SURKWA	AlGaInP	630	26000	97500	
TA40-11SYKWA	TC40-11SYKWA	AlGaInP	590	75000	302000	
TA40-11CGKWA	TC40-11CGKWA	AlGaInP	570	26000	90000	
TBA40-11 SURKCGKWA	TBC40-11 SURKCGKWA	AlGaInP	630	26000	97500	
		AlGaInP	570	26000	90000	
TBA40-12 SURKCGKWA	TBC40-12 SURKCGKWA	AlGaInP	630	26000	97500	
		AlGaInP	570	26000	90000	



NOTES:
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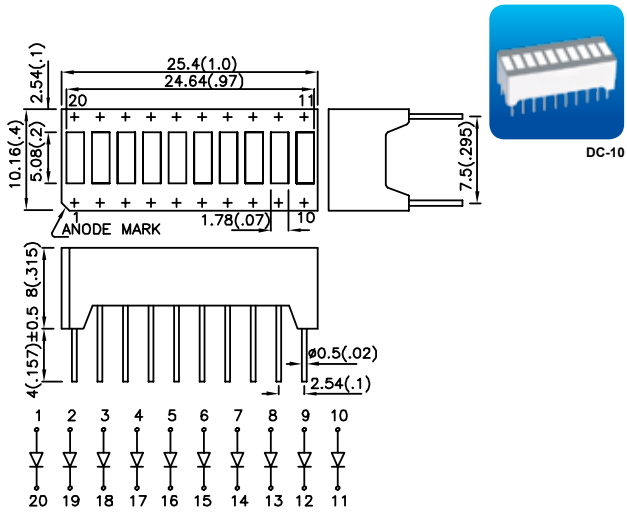
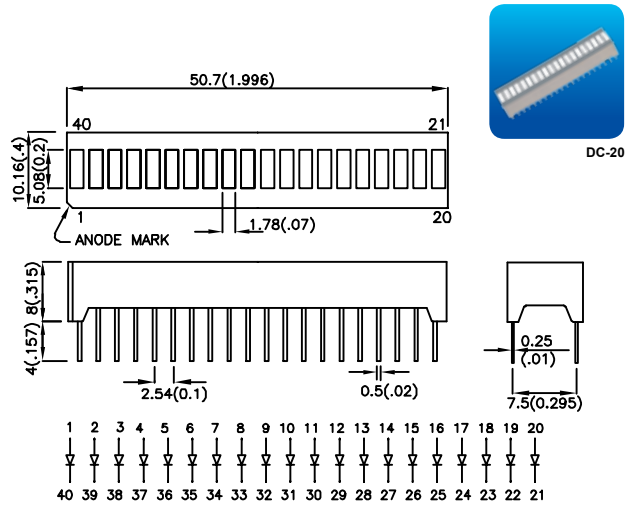
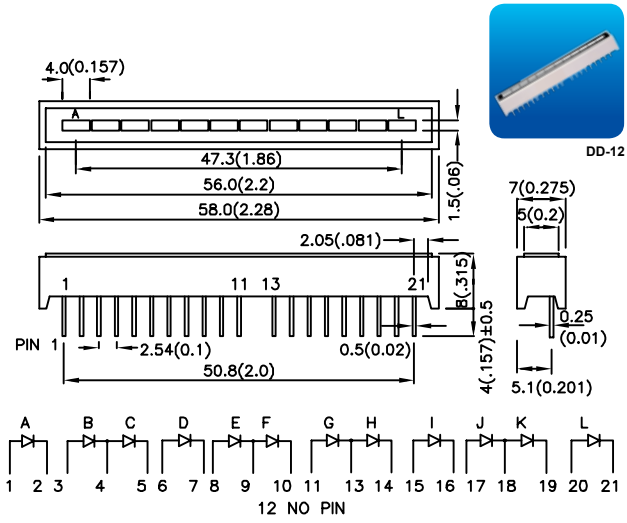
Kingbright

Optoelectronic Components

BAR GRAPH ARRAY

PART NUMBER	EMITTING COLOR + λ D (nm) + MATERIAL	Iv (ucd) @10mA		DESCRIPTION	DIMENSION
		MIN.	TYP.		
DC-10SEKWA	Super Bright Orange 601 AlGaInP	44000	114000	10 Segments Bar graph-Display Gray Face White Segment	 DC-10
DC-10SURKWA	Hyper Red 630 AlGaInP	8000	40000		
DC-10SYKWA	Super Bright Yellow 590 AlGaInP	26000	104000		
DC-10CGKWA	Green 570 AlGaInP	8000	30900		
DC-20/20SEKWA	Super Bright Orange 601 AlGaInP	44000	114000	20 Segments Bar graph-Display Gray Face White Segment	 DC-20
DC-20/20SURKWA	Hyper Red 630 AlGaInP	8000	40000		
DC-20/20SYKWA	Super Bright Yellow 590 AlGaInP	26000	104000		
DC-20/20CGKWA	Green 570 AlGaInP	8000	30900		
DD-12SEKWB	Super Bright Orange 601 AlGaInP	44000	184300	12 Segments Bar graph-Display Black Face White Segment	 DD-12
DD-12SURKWB	Hyper Red 630 AlGaInP	26000	84300		
DD-12SYKWB	Super Bright Yellow 590 AlGaInP	44000	128300		
DD-12CGKWB	Green 570 AlGaInP	18000	45000		

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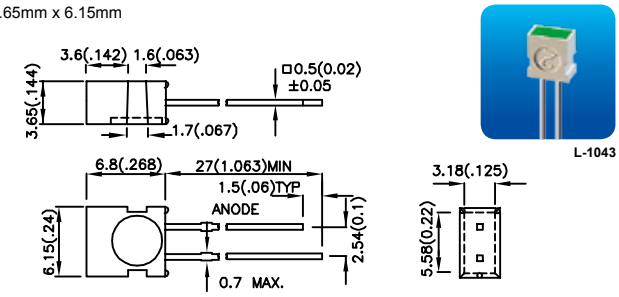
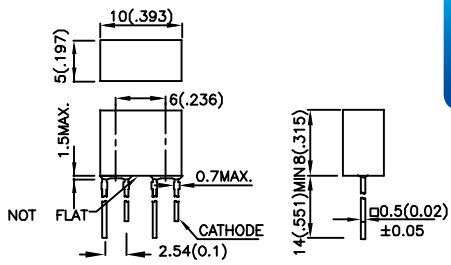
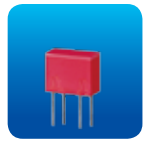
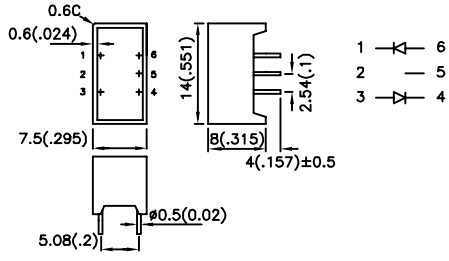
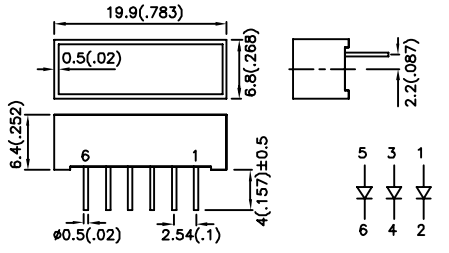
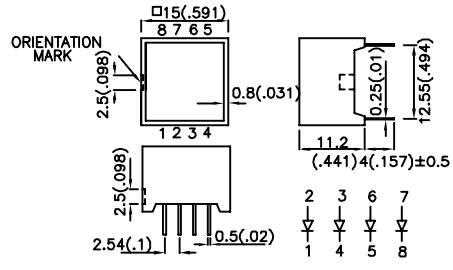
LIGHT BAR

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-1043SEDTK	AlGaInP	601	orange diffused	50	180	100°	3.65mm x 6.15mm  L-1043
L-1043SURDTK	AlGaInP	630	red diffused	70	350	100°	
L-1043SYDTK	AlGaInP	590	yellow diffused	18	55	100°	
L-1043CGDTK	AlGaInP	570	green diffused	7	20	100°	
L-835/2SEDTK	AlGaInP	601	orange diffused	80	300	120°	5mm x 10mm   L-835/2
L-835/2SURDTK	AlGaInP	630	red diffused	36	80	120°	
L-835/2SYDTK	AlGaInP	590	yellow diffused	10	25	120°	
L-835/2CGDTK	AlGaInP	570	green diffused	7	30	120°	

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		DIMENSION
				MIN.	TYP.	
DE/2SEKD	AlGaInP	601	orange diffused	380	660	7.5mm x 14mm   DE/2
DE/2SURKD	AlGaInP	630	red diffused	280	550	
DE/2SYKD	AlGaInP	590	yellow diffused	380	600	
DE/2CGKD	AlGaInP	570	green diffused	110	200	
DF-3SEKD	AlGaInP	601	orange diffused	480	800	6.8mm x 19.9mm   DF-3
DF-3SURKD	AlGaInP	630	red diffused	160	500	
DF-3SYKD	AlGaInP	590	yellow diffused	360	935	
DF-3CGKD	AlGaInP	570	green diffused	70	235	
DE/4SEKD	AlGaInP	601	orange diffused	650	1550	15mm x 15mm   DE/4
DE/4SURKD	AlGaInP	630	red diffused	380	730	
DE/4SYKD	AlGaInP	590	yellow diffused	480	955	
DE/4CGKD	AlGaInP	570	green diffused	110	230	

NOTES:
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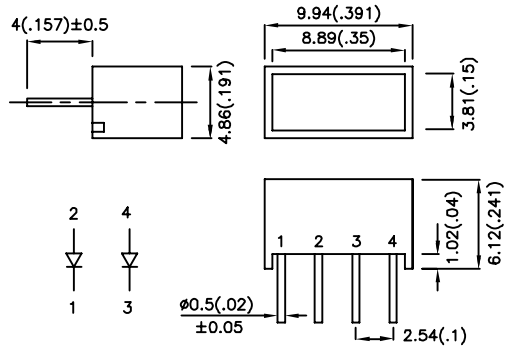
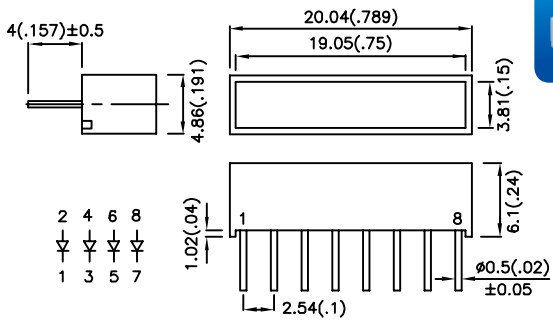
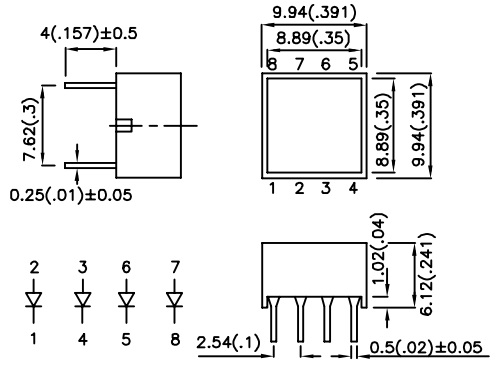
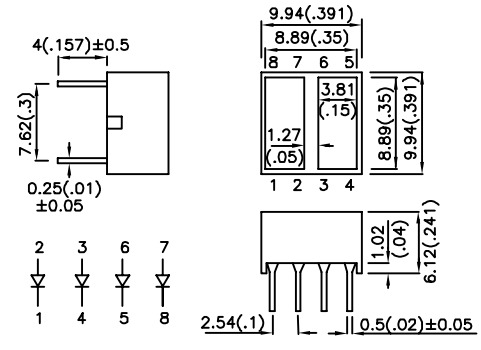
LIGHT BAR

PART NUMBER	EMITTING COLOR + MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		DIMENSION
				MIN.	TYP.	
KB-2300SEKW	Super Bright Orange AlGaInP	601	white diffused	280	470	8.89mm x 3.81mm Size of Light Emitting Areas  KB-2300SEKW 
KB-A100SURKW	Hyper Red AlGaInP	630	white diffused	50	175	
KB-2400SYKW	Super Bright Yellow AlGaInP	590	white diffused	18	80	
KB-2500CGKD	Green AlGaInP	570	green diffused	18	60	
KB-2350SEKW	Super Bright Orange AlGaInP	601	white diffused	180	400	19.05mm x 3.81mm Size of Light Emitting Areas  KB-2350SEKW 
KB-B100SURKW	Hyper Red AlGaInP	630	white diffused	70	305	
KB-2450SYKW	Super Bright Yellow AlGaInP	590	white diffused	180	430	
KB-2550CGKD	Green AlGaInP	570	green diffused	50	185	
KB-2655SEKW	Super Bright Orange AlGaInP	601	white diffused	280	600	8.89mm x 8.89mm Size of Light Emitting Areas  KB-2655SEKW 
KB-C100SURKW	Hyper Red AlGaInP	630	white diffused	280	525	
KB-2755SYKW	Super Bright Yellow AlGaInP	590	white diffused	70	260	
KB-2855CGKD	Green AlGaInP	570	green diffused	110	270	
KB-2600SEKW	Super Bright Orange AlGaInP	601	white diffused	280	465	8.89mm x 3.81mm Size of Light Emitting Areas  KB-2600SEKW 
KB-D100SURKW	Hyper Red AlGaInP	630	white diffused	110	265	
KB-2700SYKW	Super Bright Yellow AlGaInP	590	white diffused	110	315	
KB-2800CGKD	Green AlGaInP	570	green diffused	36	80	

NOTES:
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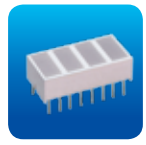
LIGHT BAR

PART NUMBER	EMITTING COLOR + MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		DIMENSION
				MIN.	TYP.	
KB-2620SEKW	Super Bright Orange AlGaInP	601	white diffused	180	425	8.89mm x 3.81mm Size of Light Emitting Areas
KB-E100SURKW	Hyper Red AlGaInP	630	white diffused	70	210	
KB-2720SYKW	Super Bright Yellow AlGaInP	590	white diffused	110	375	
KB-2820CGKD	Green AlGaInP	570	green diffused	18	60	
KB-2635SEKW	Super Bright Orange AlGaInP	601	white diffused	180	355	3.81mm x 19.05mm Size of Light Emitting Areas
KB-F100SURKW	Hyper Red AlGaInP	630	white diffused	110	205	
KB-2735SYKW	Super Bright Yellow AlGaInP	590	white diffused	110	280	
KB-2835CGKD	Green AlGaInP	570	green diffused	36	70	
KB-2670SEKW	Super Bright Orange AlGaInP	601	white diffused	280	415	8.89mm x 8.89mm Size of Light Emitting Areas
KB-G100SURKW	Hyper Red AlGaInP	630	white diffused	110	205	
KB-2770SYKW	Super Bright Yellow AlGaInP	590	white diffused	110	315	
KB-2870CGKD	Green AlGaInP	570	green diffused	36	75	
KB-2685SEKW	Super Bright Orange AlGaInP	601	white diffused	280	450	8.89mm x 19.05mm Size of Light Emitting Areas
KB-H100SURKW	Hyper Red AlGaInP	630	white diffused	70	315	
KB-2785SYKW	Super Bright Yellow AlGaInP	590	white diffused	180	410	
KB-2885CGKD	Green AlGaInP	570	green diffused	70	205	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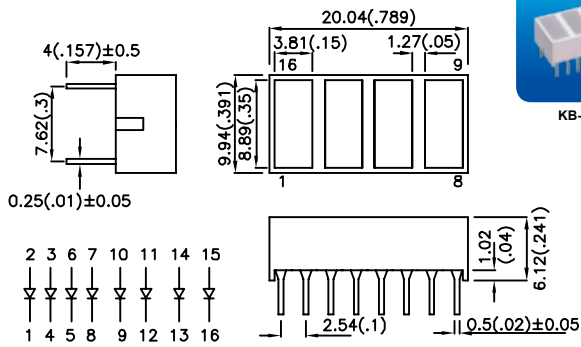

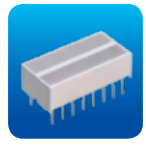
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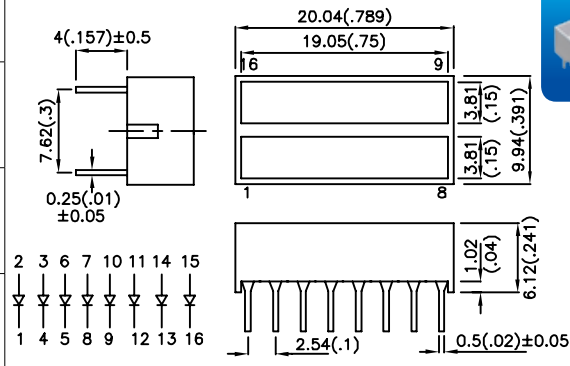

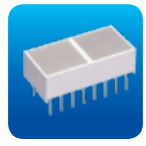
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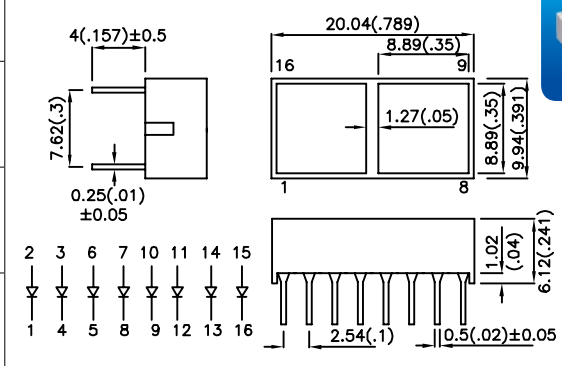


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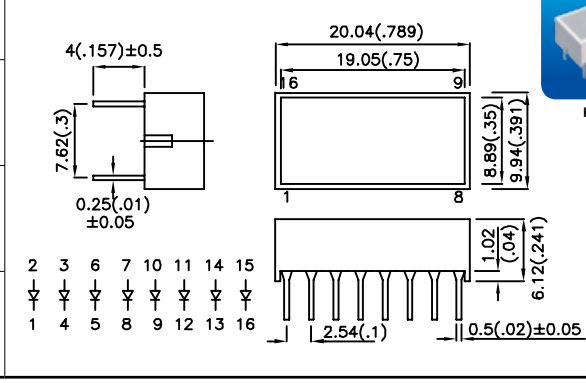

NOTES:
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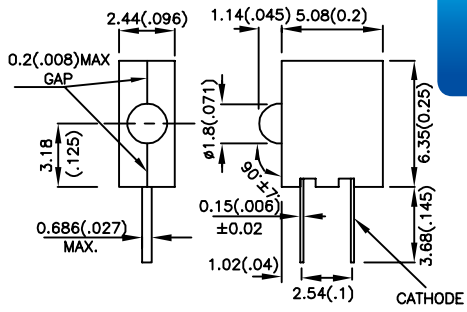
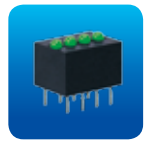
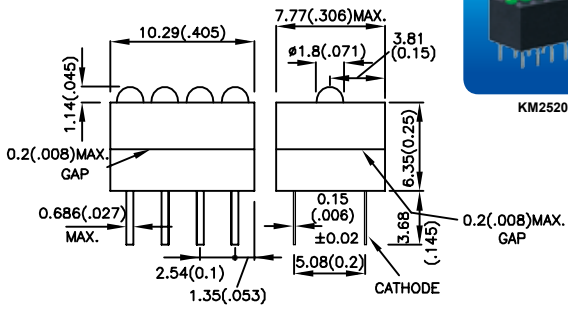
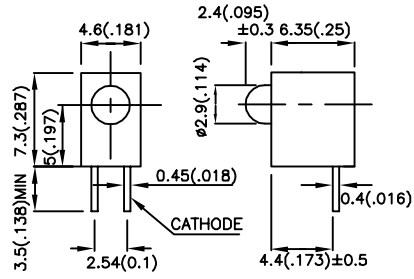
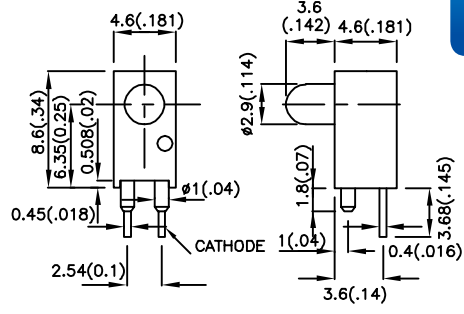
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Kingbright

Optoelectronic Components

SINGLE-LEVEL CBI

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA *V=5V		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
KM2520EH/1ID	GaAsP/GaP	625	red diffused	7	30	40°	Subminiature Solid State Lamps  KM2520EH/1 
KM2520EH/1ID-5V	GaAsP/GaP	625	red diffused	*1.8	*8	40°	
KM2520EH/1YD	GaAsP/GaP	588	yellow diffused	2.6	10	40°	
KM2520EH/1YD-5V	GaAsP/GaP	588	yellow diffused	*1	*3	40°	
KM2520EH/1SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EH/1SGD-5V	GaP	568	green diffused	*1.8	*8	40°	
KM2520EG/4ID	GaAsP/GaP	625	red diffused	7	30	40°	Subminiature Solid State Lamps  KM2520EG/4 
KM2520EG/4ID-5V	GaAsP/GaP	625	red diffused	*1.8	*8	40°	
KM2520EG/4YD	GaAsP/GaP	588	yellow diffused	2.6	10	40°	
KM2520EG/4YD-5V	GaAsP/GaP	588	yellow diffused	*1	*3	40°	
KM2520EG/4SGD	GaP	568	green diffused	2.6	10	40°	
KM2520EG/4SGD-5V	GaP	568	green diffused	*1.8	*8	40°	

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-710A8CB/1ID	GaAsP/GaP	625	red diffused	12	25	40°	T-1 (3mm) Right Angle  L-710A8CB/1 
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-710A8RS/1ID	GaAsP/GaP	625	red diffused	12	25	40°	T-1 (3mm) Right Angle  L-710A8RS/1 
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°	

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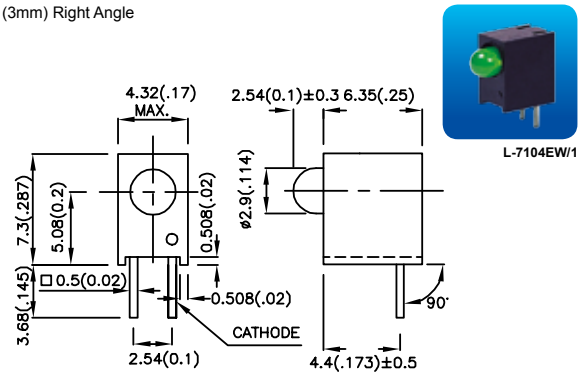
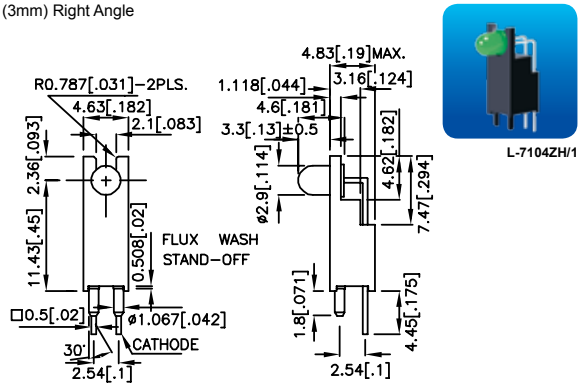
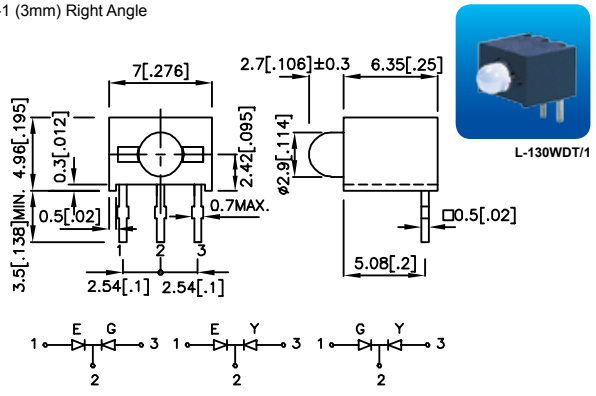
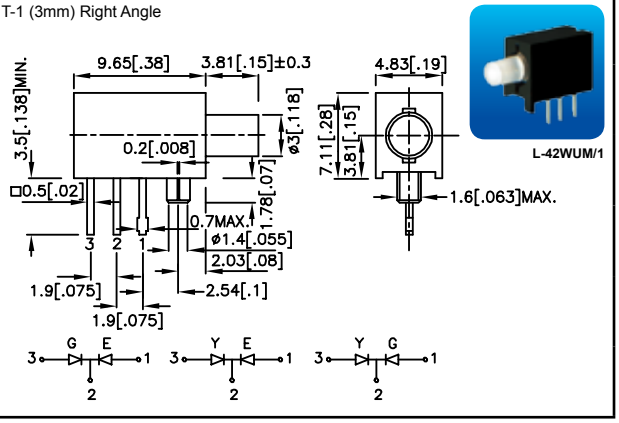
SINGLE-LEVEL CBI

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-7104EW/1ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Right Angle
L-7104EW/1SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104EW/1YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104EW/1GD	GaP	568	green diffused	8	20	40°	
L-7104ZH/1ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Right Angle
L-7104ZH/1SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104ZH/1YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104ZH/1GD	GaP	568	green diffused	8	20	40°	
L-130WDT/1EGW	GaAsP/GaP	625	white diffused	*7	*30	60°	T-1 (3mm) Right Angle
	GaP	568		*7	*25		
L-130WDT/1EYW	GaAsP/GaP	625	white diffused	*7	*30	60°	
	GaAsP/GaP	588		*7	*20		
L-130WDT/1GYW	GaP	568	white diffused	*7	*25	60°	
	GaAsP/GaP	588		*7	*20		
L-42WUM/1EGWT	GaAsP/GaP	625	white diffused	*4	*13	100°	T-1 (3mm) Right Angle
	GaP	568		*4	*13		
L-42WUM/1EYWT	GaAsP/GaP	625	white diffused	*4	*13	100°	
	GaAsP/GaP	588		*2.6	*6		
L-42WUM/1GYWT	GaP	568	white diffused	*4	*13	100°	
	GaAsP/GaP	588		*2.6	*6		









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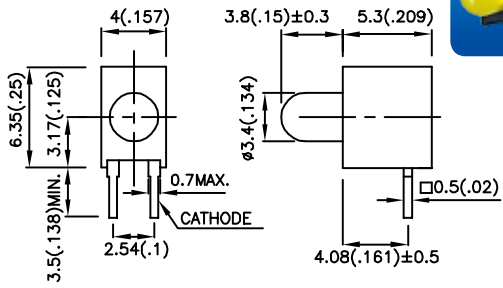
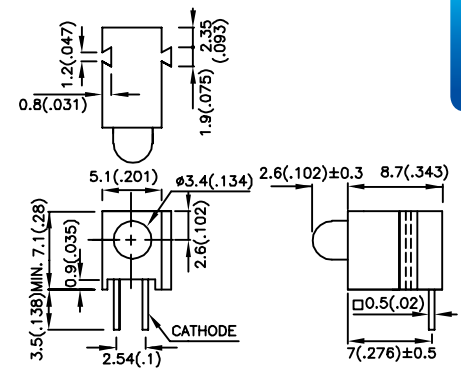
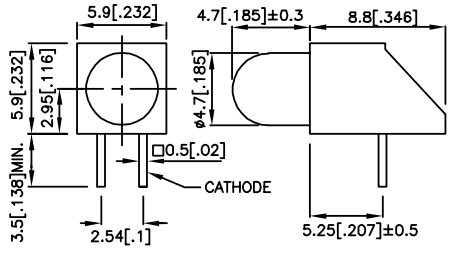
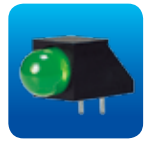
SINGLE-LEVEL CBI

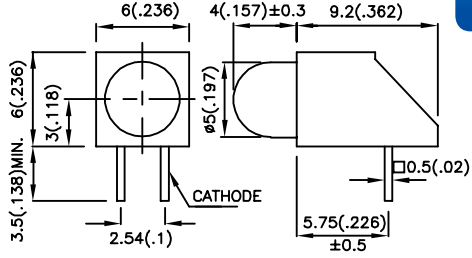
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-1384AD/1ID	GaAsP/GaP	625	red diffused	12	20	60°	3.4mm Right Angle
L-1384AD/1SRD	GaAlAs	640	red diffused	*70	*200	60°	
L-1384AD/1YD	GaAsP/GaP	588	yellow diffused	8	15	60°	
L-1384AD/1GD	GaP	568	green diffused	8	15	60°	
L-1384AL/1ID	GaAsP/GaP	625	red diffused	12	20	60°	3.4mm Right Angle
L-1384AL/1SRD	GaAlAs	640	red diffused	*70	*200	60°	
L-1384AL/1YD	GaAsP/GaP	588	yellow diffused	8	15	60°	
L-1384AL/1GD	GaP	568	green diffused	8	15	60°	
L-1533BQ/1ID	GaAsP/GaP	625	red diffused	8	30	60°	4.7mm Right Angle
L-1533BQ/1SRD	GaAlAs	640	red diffused	*110	*400	60°	
L-1533BQ/1YD	GaAsP/GaP	588	yellow diffused	5	18	60°	
L-1533BQ/1GD	GaP	568	green diffused	5	20	60°	
L-1503CB/1ID	GaAsP/GaP	625	red diffused	8	30	60°	T-1 3/4 (5mm) Right Angle
L-1503CB/1SRD	GaAlAs	640	red diffused	*380	*700	60°	
L-1503CB/1YD	GaAsP/GaP	588	yellow diffused	5	20	60°	
L-1503CB/1GD	GaP	568	green diffused	5	20	60°	











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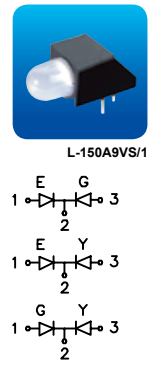
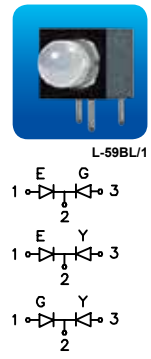
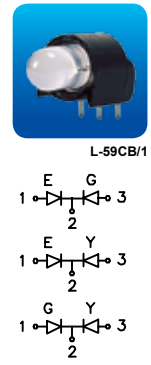
SINGLE-LEVEL CBI

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-150A9VS/1EGW	GaAsP/GaP	625	white diffused	18	50	30°	T-1 3/4 (5mm) Right Angle
	GaP	568		10	45		
L-150A9VS/1EYW	GaAsP/GaP	625	white diffused	18	50	30°	
	GaAsP/GaP	588		7	30		
L-150A9VS/1GYW	GaP	568	white diffused	10	45	30°	
	GaAsP/GaP	588		7	30		
L-59BL/1EGW	GaAsP/GaP	625	white diffused	18	60	60°	T-1 3/4 (5mm) Right Angle
	GaP	568		18	50		
L-59BL/1EYW	GaAsP/GaP	625	white diffused	18	60	60°	
	GaAsP/GaP	588		18	40		
L-59BL/1GYW	GaP	568	white diffused	18	50	60°	
	GaAsP/GaP	588		18	40		
L-59CB/1EGW	GaAsP/GaP	625	white diffused	18	60	60°	T-1 3/4 (5mm) Right Angle
	GaP	568		18	50		
L-59CB/1EYW	GaAsP/GaP	625	white diffused	18	60	60°	
	GaAsP/GaP	588		18	40		
L-59CB/1GYW	GaP	568	white diffused	18	50	60°	
	GaAsP/GaP	588		18	40		

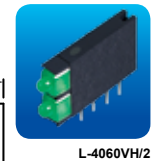






BI-LEVEL CBI

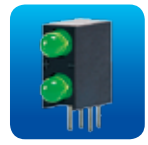
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-4060VH/2ID	GaAsP/GaP	625	red diffused	8	15	70°	1.8mm Bi-Level
L-4060VH/2SRD	GaAlAs	640	red diffused	*70	*200	70°	
L-4060VH/2YD	GaAsP/GaP	588	yellow diffused	1.8	5	70°	
L-4060VH/2GD	GaP	568	green diffused	5	10	70°	

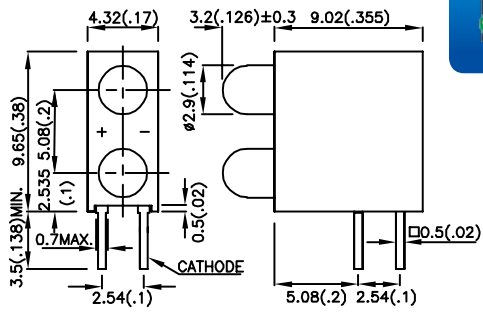


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

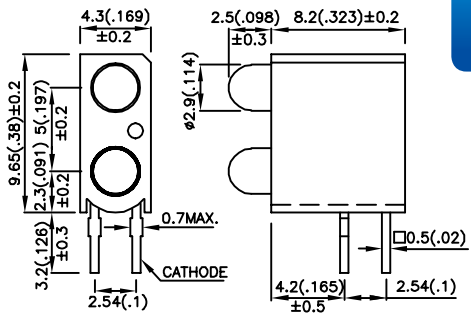
BI-LEVEL CBI

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-7104EB/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104EB/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104EB/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104EB/2GD	GaP	568	green diffused	8	20	40°	
L-7104FG/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104FG/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104FG/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104FG/2GD	GaP	568	green diffused	8	20	40°	
L-7104FO/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104FO/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104FO/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104FO/2GD	GaP	568	green diffused	8	20	40°	
L-7104GE/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104GE/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104GE/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104GE/2GD	GaP	568	green diffused	8	20	40°	

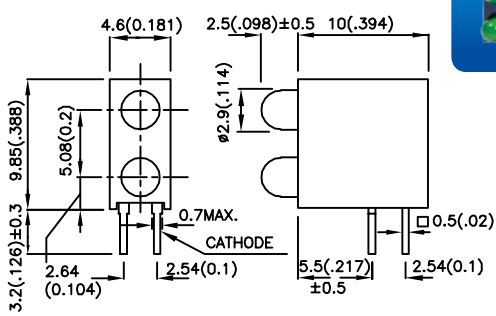

L-7104EB/2



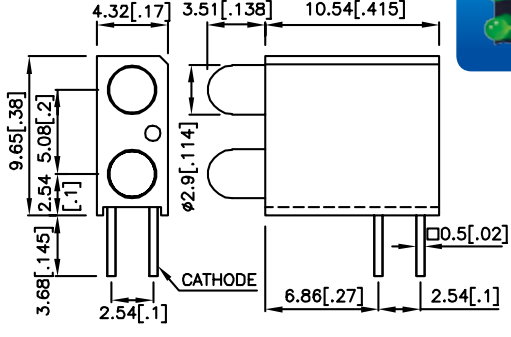

L-7104FG/2




L-7104FO/2




L-7104GE/2



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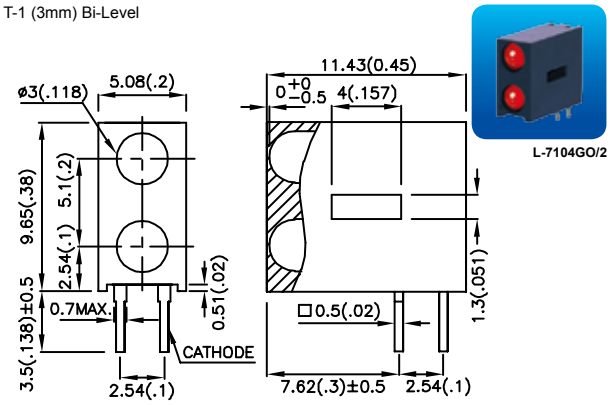
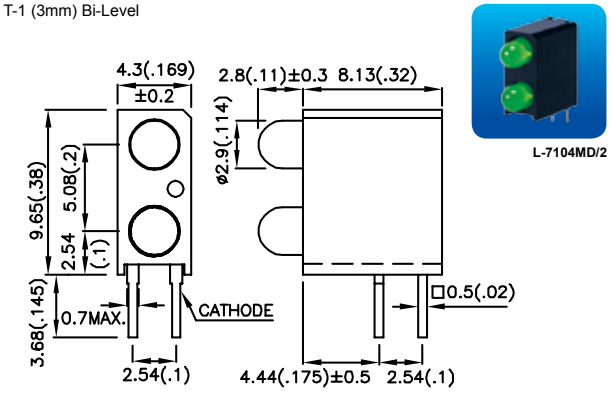
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

BI-LEVEL CBI

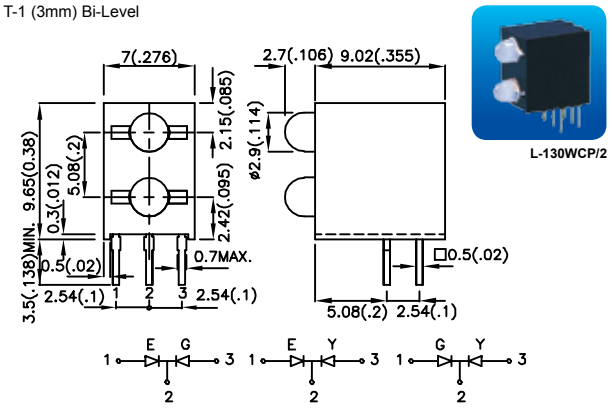
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA MIN.	Iv (mcd) @10mA *20mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
L-7104GO/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104GO/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104GO/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104GO/2GD	GaP	568	green diffused	8	20	40°	
L-7104MD/2ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Bi-Level
L-7104MD/2SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104MD/2YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104MD/2GD	GaP	568	green diffused	8	20	40°	
L-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-73EB/2IDA	GaAsP/GaP	625	red diffused	8	30	60°	4.8mm Bi-Level
L-73EB/2SRDA	GaAlAs	640	red diffused	*110	*300	60°	
L-73EB/2YDA	GaAsP/GaP	588	yellow diffused	5	20	60°	
L-73EB/2GDA	GaP	568	green diffused	8	20	60°	



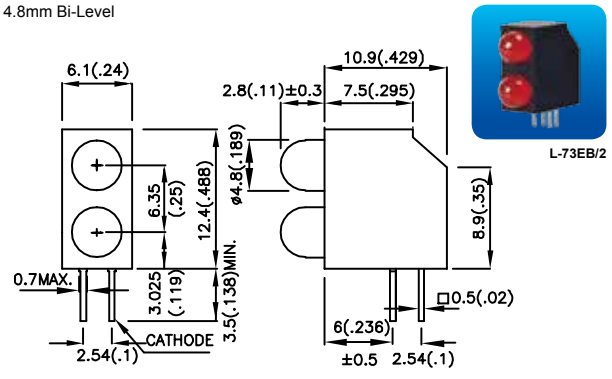
L-7104GO/2



L-7104MD/2



L-130WCP/2



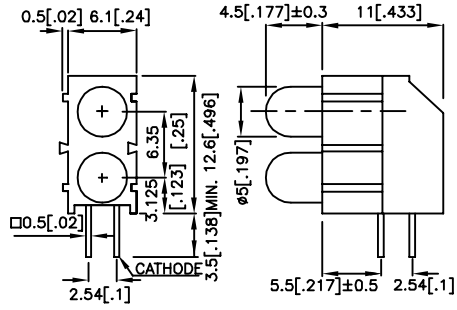
L-73EB/2

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

BI-LEVEL CBI

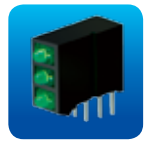
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-1503EB/2ID	GaAsP/GaP	625	red diffused	8	30	60°	T-1 3/4 (5mm) Bi-Level
L-1503EB/2SRD	GaAlAs	640	red diffused	*380	*700	60°	
L-1503EB/2YD	GaAsP/GaP	588	yellow diffused	5	20	60°	
L-1503EB/2GD	GaP	568	green diffused	5	20	60°	

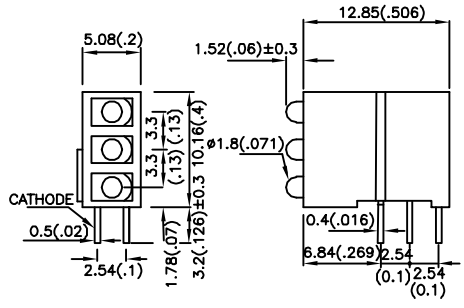

L-1503EB/2



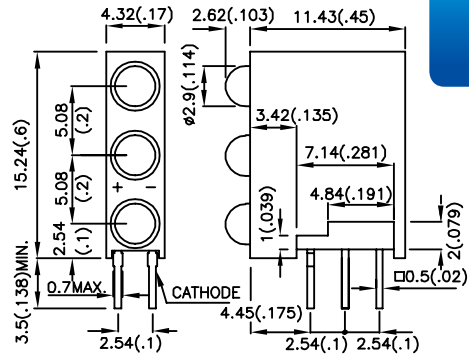
TRI-LEVEL CBI

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-4060XH/3ID	GaAsP/GaP	625	red diffused	8	15	70°	1.8mm Tri-Level
L-4060XH/3SRD	GaAlAs	640	red diffused	*70	*200	70°	
L-4060XH/3YD	GaAsP/GaP	588	yellow diffused	1.8	5	70°	
L-4060XH/3GD	GaP	568	green diffused	5	10	70°	
L-7104SA/3ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Tri-Level
L-7104SA/3SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104SA/3YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104SA/3GD	GaP	568	green diffused	8	20	40°	


L-4060XH/3



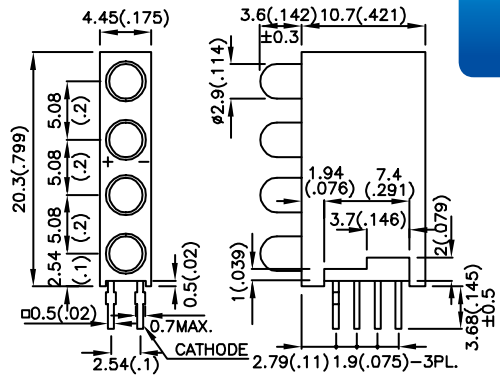

L-7104SA/3

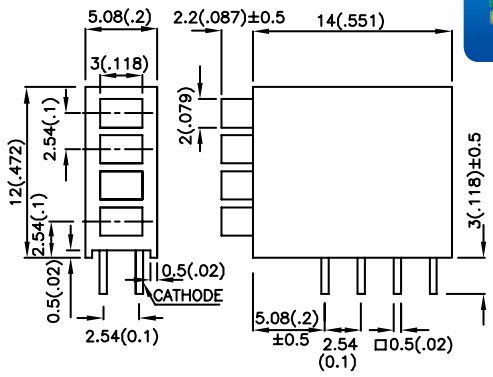


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

QUAD-LEVEL CBI

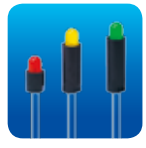
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-7104SB/4ID	GaAsP/GaP	625	red diffused	8	20	40°	T-1 (3mm) Quad-Level
L-7104SB/4SRD	GaAlAs	640	red diffused	*110	*300	40°	
L-7104SB/4YD	GaAsP/GaP	588	yellow diffused	5	15	40°	
L-7104SB/4GD	GaP	568	green diffused	8	20	40°	
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°	

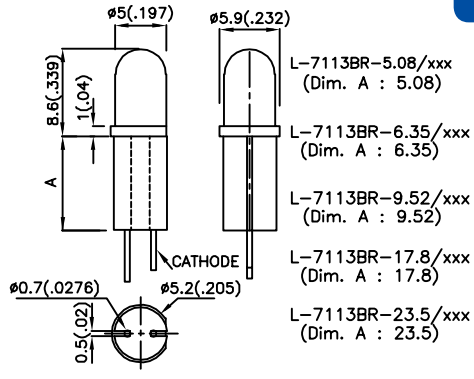




WITH SPACER

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA		VIEWING ANGLE	DIMENSION
				MIN.	TYP.	2θ1/2	
L-7113BR-5.08/ID L-7113BR-6.35/ID L-7113BR-9.52/ID L-7113BR-17.8/ID L-7113BR-23.5/ID	GaAsP/GaP	625	red diffused	8	45	30°	T-1 3/4 (5mm) With Spacer
L-7113BR-5.08/SRD L-7113BR-6.35/SRD L-7113BR-9.52/SRD L-7113BR-17.8/SRD L-7113BR-23.5/SRD	GaAlAs	640	red diffused	*110	*300	30°	
L-7113BR-5.08/YD L-7113BR-6.35/YD L-7113BR-9.52/YD L-7113BR-17.8/YD L-7113BR-23.5/YD	GaAsP/GaP	588	yellow diffused	5	20	30°	
L-7113BR-5.08/GD L-7113BR-6.35/GD L-7113BR-9.52/GD L-7113BR-17.8/GD L-7113BR-23.5/GD	GaP	568	green diffused	5	20	30°	
L-7113BR-5.08/SGD L-7113BR-6.35/SGD L-7113BR-9.52/SGD L-7113BR-17.8/SGD L-7113BR-23.5/SGD	GaP	568	green diffused	*18	*40	30°	



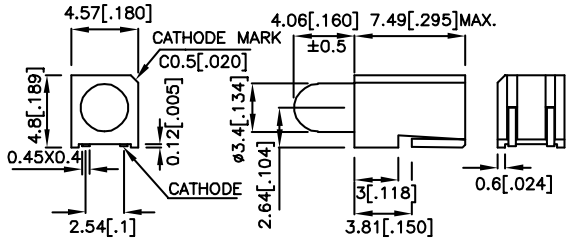


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

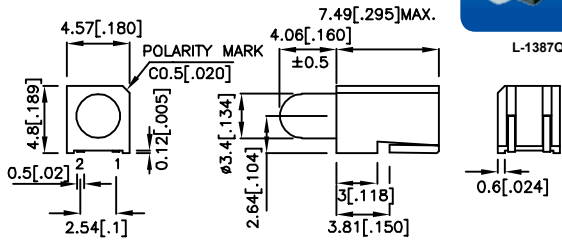
SMD CBI

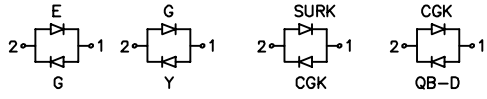
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) @10mA *20mA MIN.	Iv (mcd) @10mA *20mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
L-138A8QMP/1ID	GaAsP/GaP	625	red diffused	12	20	60°	3.4mm Right Angle
L-138A8QMP/1SRD	GaAlAs	640	red diffused	*110	*250	60°	
L-138A8QMP/1YD	GaAsP/GaP	588	yellow diffused	8	15	60°	
L-138A8QMP/1GD	GaP	568	green diffused	8	15	60°	
L-1387QMP/1EGW	GaAsP/GaP	625	white diffused	*7	*20	60°	3.4mm Right Angle
	GaP	568		*7	*20		
L-1387QMP/1GYW	GaP	568	white diffused	*7	*20	60°	
	GaAsP/GaP	588		*4	*10		
L-1387QMP/1 SURKCGKW	AlGaInP	630	white diffused	*70	*300	60°	
	AlGaInP	570		*50	*120		
L-1387QMP/1 CGKQBDW	AlGaInP	570	white diffused	*50	*120	60°	
	InGaN	470		*50	*130		

L-138A8QMP/1



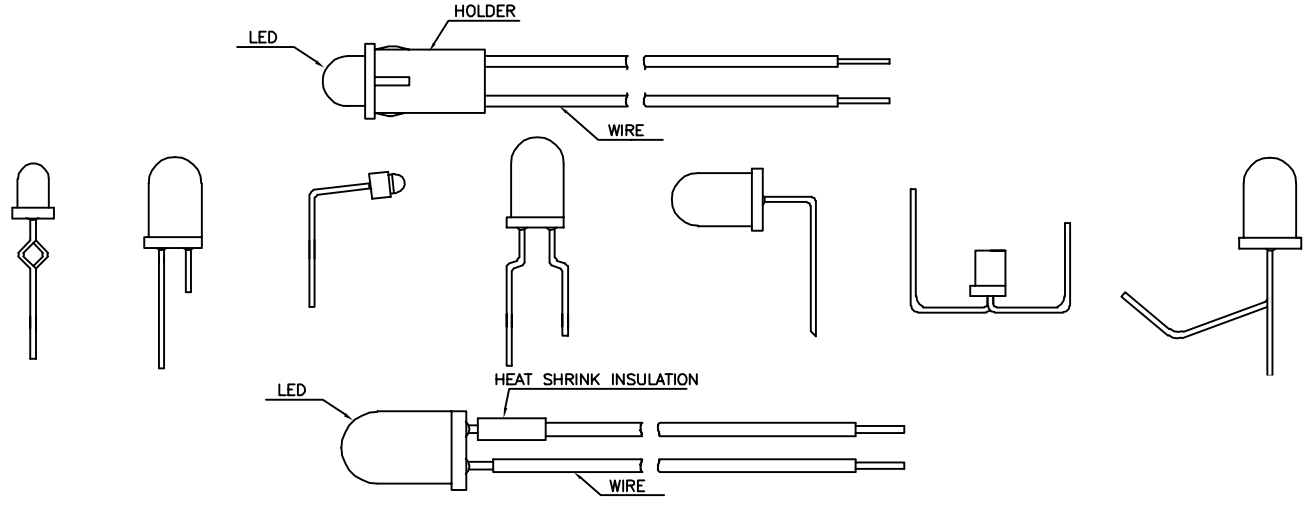
L-1387QMP/1





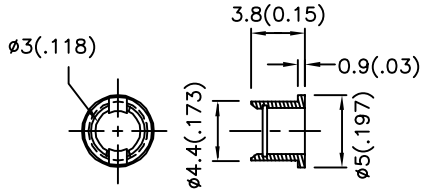
VALUE ADDED LED LAMPS

LED lamp with forming/wire leads available

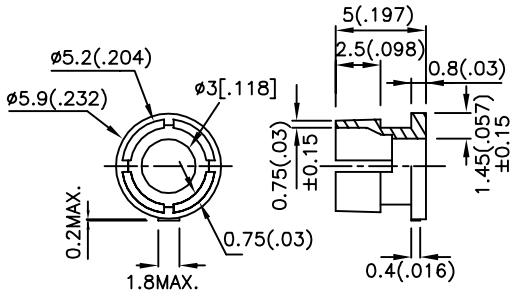


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

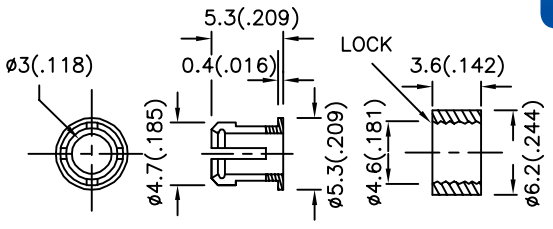
RTC-31



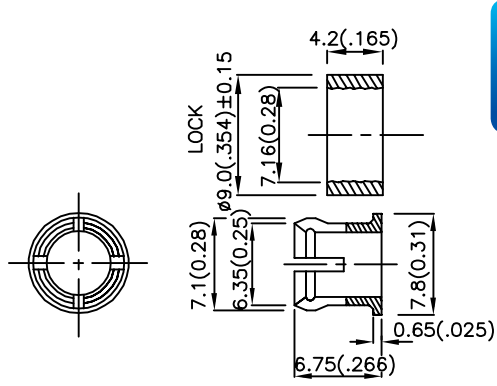
CB-30



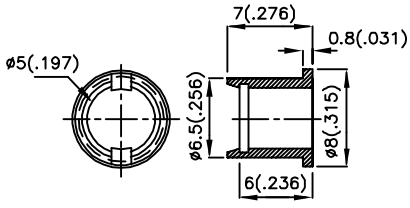
RTC-32



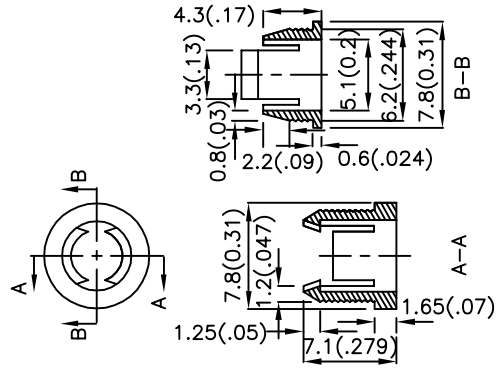
CB-50



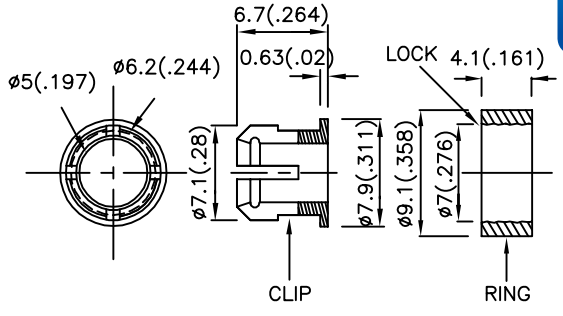
RTC-51



CB-55

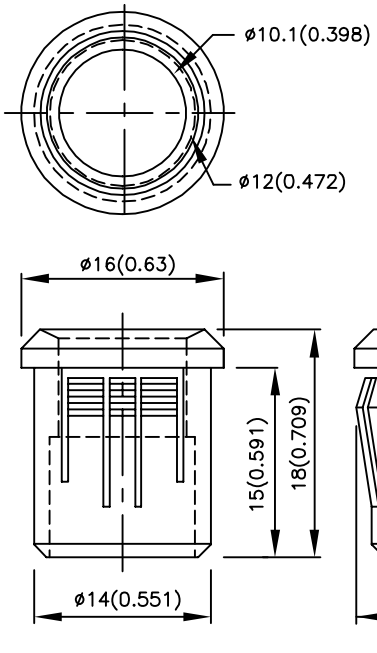


RTC-52

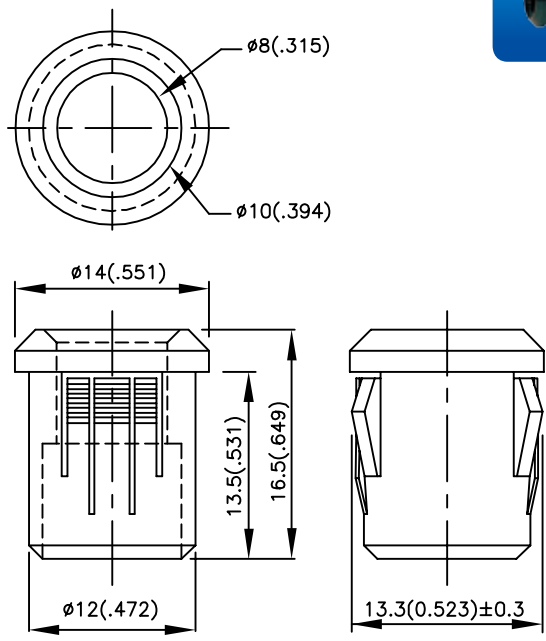


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

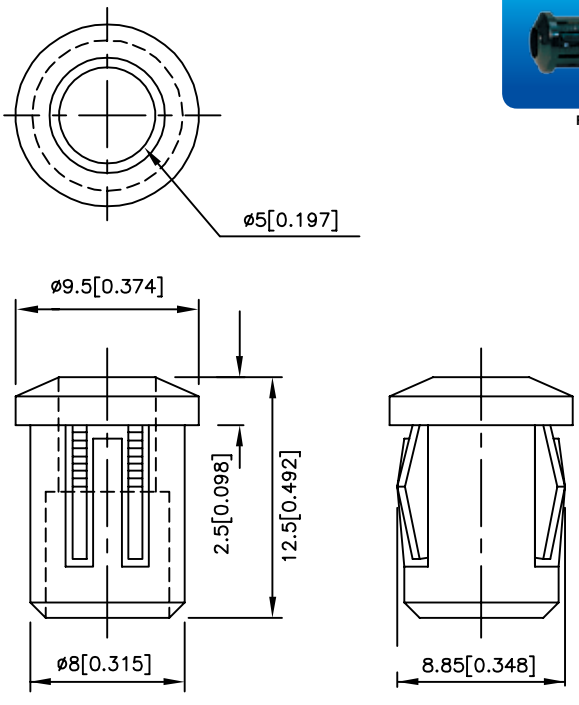
RTF-1090



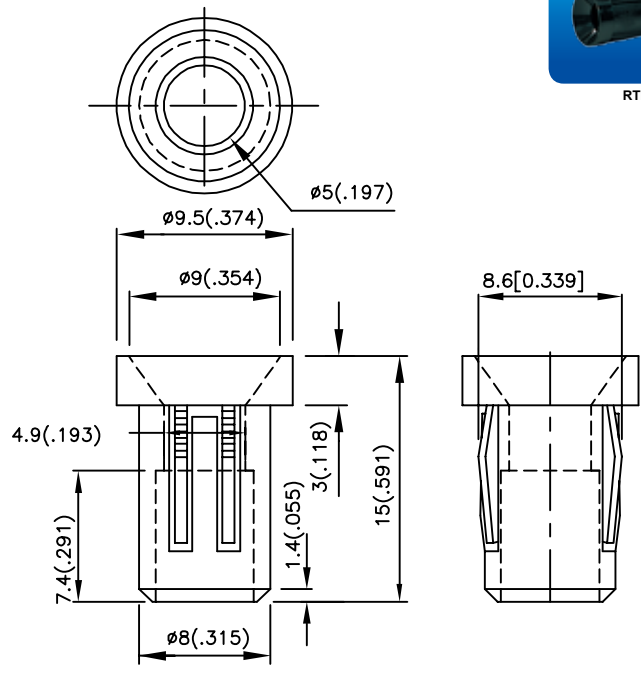
RTF-8080



RTF-5010



RTF-5020

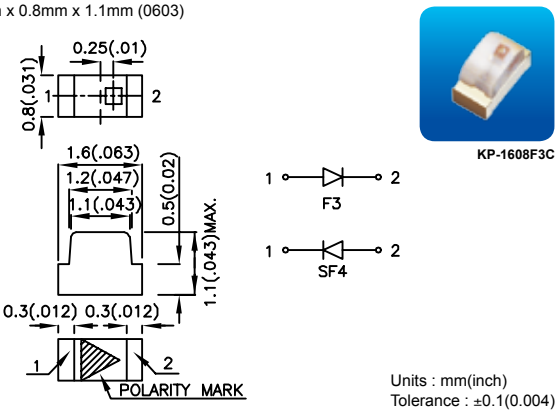
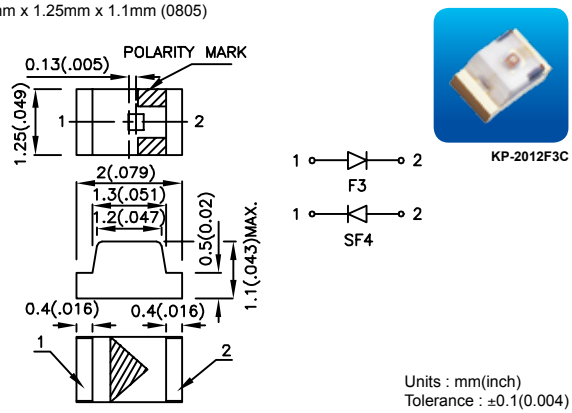
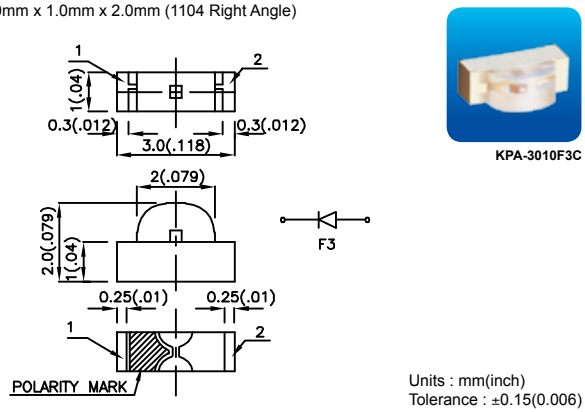
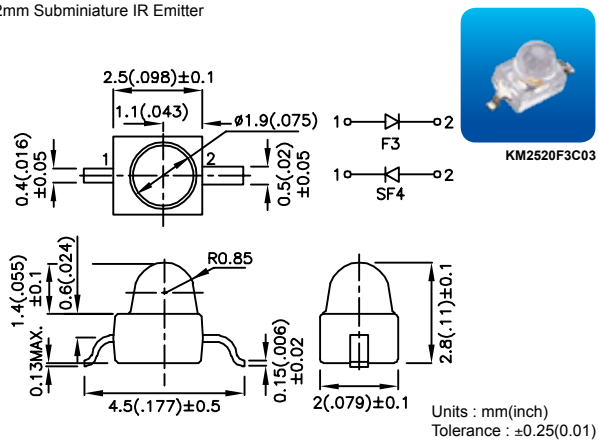


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Kingbright

Optoelectronic Components

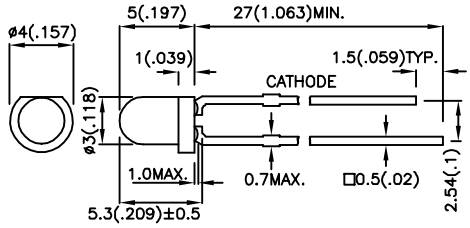
INFRARED EMITTING DIODE

PART NUMBER	MATERIAL	λP (nm)	LENS TYPE	Po (mW/sr) @20mA *50mA MIN.	Po (mW/sr) @20mA *50mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
KP-1608F3C	GaAs	940	water clear	0.7	3	120°	1.6mm x 0.8mm x 1.1mm (0603) 
KP-1608SF4C	GaAlAs	880	water clear	0.4	1.5	120°	
KP-2012F3C	GaAs	940	water clear	0.7	3	120°	2.0mm x 1.25mm x 1.1mm (0805) 
KP-2012SF4C	GaAlAs	880	water clear	0.4	1.5	120°	
KPA-3010F3C	GaAs	940	water clear	0.7	2	120°	3.0mm x 1.0mm x 2.0mm (1104 Right Angle) 
KM2520F3C03	GaAs	940	water clear	1.6	8	20°	2mm Subminiature IR Emitter 
				*10	*15		
KM2520SF4C03	GaAlAs	880	water clear	1.6	4	20°	
				*2.6	*8		

INFRARED EMITTING DIODE

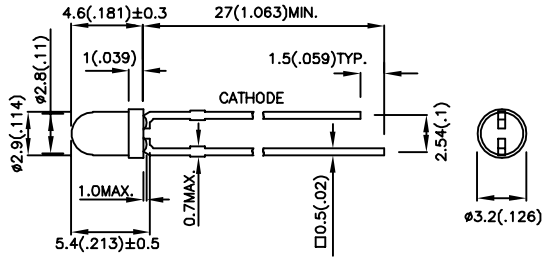
PART NUMBER	MATERIAL	λP (nm)	LENS TYPE	Po (mW/sr) @20mA *50mA MIN.	Po (mW/sr) @20mA *50mA TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
L-34F3C	GaAs	940	water clear	7	40	50°	T-1 (3mm) Round
				*18	*55	50°	
L-34F3BT	GaAs	940	blue transparent	4	40	50°	
				*7	*50	50°	
L-34SF4C	GaAlAs	880	water clear	7	40	50°	
				*18	*55	50°	
L-34SF4BT	GaAlAs	880	blue transparent	4	40	50°	
				*7	*50	50°	
L-34SF6C	GaAlAs	860	water clear	7	15	50°	
				*10	*40	50°	
L-34SF6BT	GaAlAs	860	blue transparent	7	15	50°	
				*10	*40	50°	
L-34SF7C	GaAlAs	850	water clear	7	18	50°	
				*10	*45	50°	
L-34SF7BT	GaAlAs	850	blue transparent	7	18	50°	
				*10	*45	50°	
L-7104F3C	GaAs	940	water clear	7	30	34°	T-1 (3mm) Round
				*18	*80	34°	
L-7104F3BT	GaAs	940	blue transparent	7	28	34°	
				*18	*70	34°	
L-7113F3C	GaAs	940	water clear	7	30	20°	T-1 3/4 (5mm) Round
				*18	*85	20°	
L-7113F3BT	GaAs	940	blue transparent	4	20	20°	
				*7	*30	20°	
L-7113SF4C	GaAlAs	880	water clear	7	20	20°	
				*10	*30	20°	
L-7113SF4BT	GaAlAs	880	blue transparent	4	20	20°	
				*7	*30	20°	
L-7113SF6C	GaAlAs	860	water clear	10	40	20°	
				*50	*100	20°	
L-7113SF6BT	GaAlAs	860	blue transparent	10	40	20°	
				*50	*100	20°	
L-7113SF7C	GaAlAs	850	water clear	10	40	20°	
				*50	*100	20°	
L-7113SF7BT	GaAlAs	850	blue transparent	10	40	20°	
				*50	*100	20°	

L-34F3C



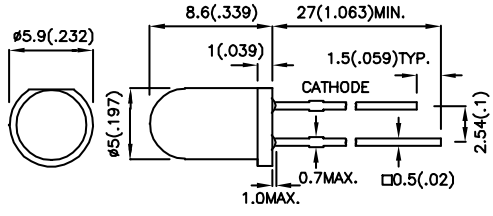
Units : mm(inch)
Tolerance : ±0.25(0.01)

L-7104F3C



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

L-7113F3C



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

PHOTOTRANSISTOR

PART NUMBER	LENS TYPE
KP-1608P1C	WATER CLEAR
KP-2012P3C	WATER CLEAR
KP-3216P3C	WATER CLEAR
KPA-3010P3C	WATER CLEAR

ELECTRICAL AND RADIANT CHARACTERISTICS T_A =25°C

PARAMETER	SYMBOL	PART NUMBER	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector-to-Emitter Breakdown Voltage	$V_{BR\ CEO}$	-	30	-	-	V	I_C=100μA Ee=0mW/cm²
Emitter-to-Collector Breakdown Voltage	$V_{BR\ ECO}$	-	5	-	-	V	I_E=100μA Ee=0mW/cm²
Collector-to-Emitter Saturation Voltage	$V_{CE\ (SAT)}$	-	-	-	0.8	V	I_C=2mA Ee=20mW/cm²
Collector Dark Current	I_{CEO}	-	-	-	100	nA	V_{CE}=10V Ee=0mW/cm²
Rise Time (10% to 90%)	T_R	-	-	15	-	μs	V_{CE}=5V I_C=1mA R_L=1KΩ
Fall Time (90% to 10%)	T_F	-	-	15	-	μs	
On State Collector Current	$I_{(ON)}$	KP-1608P1C	0.1	0.3	-	mA	V_{CE}=5V, Ee=1mW/cm² λ=940nm
		KP-2012P3C	0.1	0.3			
		KP-3216P3C	0.1	0.3			
		KPA-3010P3C	0.1	0.3			

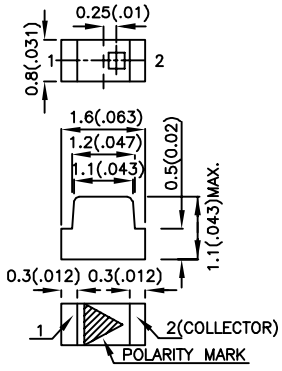
ABSOLUTE MAXIMUM RATING T_A =25°C

PARAMETER	MAXIMUM RATINGS
Collector-to-Emitter Voltage	30V
Emitter-to-Collector Voltage	5V
Power Dissipation at (or below) 25°C Free Air Temperature	100mW
Operating Temperature Range	-40°C~ +85°C
Storage Temperature Range	-40°C~ +85°C

DIMENSION

1.6mm x 0.8mm x 1.1mm (0603)

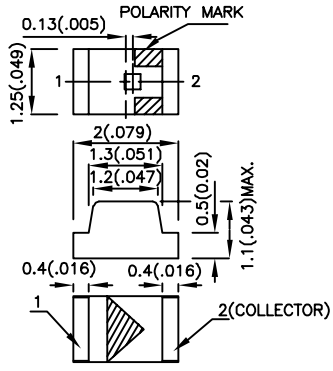
KP-1608P1C



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

2.0mm x 1.25mm x 1.1mm (0805)

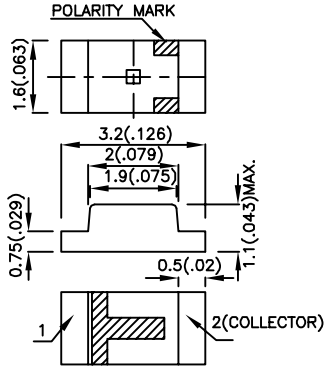
KP-2012P3C



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

3.2mm x 1.6mm x 1.1mm (1206)

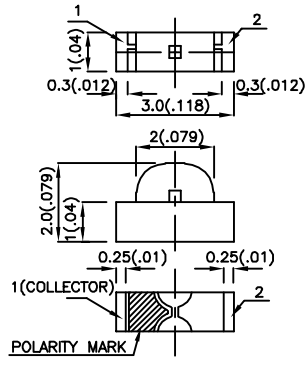
KP-3216P3C



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

3.0mm x 1.0mm x 2.0mm (1104)

KPA-3010P3C



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

PHOTOTRANSISTOR

PART NUMBER	LENS TYPE
L-3DP3BT	BLUE TRANSPARENT
L-7113P3C	WATER CLEAR

ELECTRICAL AND RADIANT CHARACTERISTICS T_A =25°C

PARAMETER	SYMBOL	PART NUMBER	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector-to-Emitter Breakdown Voltage	$V_{BR\ CEO}$	-	30	-	-	V	I_C=100μA Ee=0mW/cm²
Emitter-to-Collector Breakdown Voltage	$V_{BR\ ECO}$	-	5	-	-	V	I_E=100μA Ee=0mW/cm²
Collector-to-Emitter Saturation Voltage	$V_{CE\ (SAT)}$	-	-	-	0.8	V	I_C=2mA Ee=20mW/cm²
Collector Dark Current	I_{CEO}	-	-	-	100	nA	V_{CE}=10V Ee=0mW/cm²
Rise Time (10% to 90%)	T_R	-	-	15	-	μs	V_{CE}=5V I_C=1mA R_L=1KΩ
Fall Time (90% to 10%)	T_F	-	-	15	-	μs	
On State Collector Current	$I_{(ON)}$	L-3DP3BT	0.2	0.5	-	mA	V_{CE}=5V, Ee=1mW/cm² λ=940nm
		L-7113P3C	0.1	0.5			

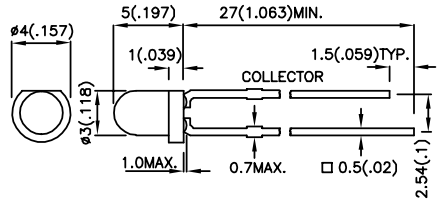
ABSOLUTE MAXIMUM RATING T_A =25°C

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

DIMENSION

T-1 (3mm) PHOTOTRANSISTOR

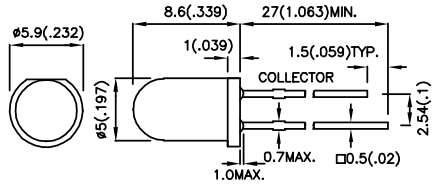
L-3DP3BT



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

T-1 3/4 (5mm) PHOTOTRANSISTOR

L-7113P3C



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

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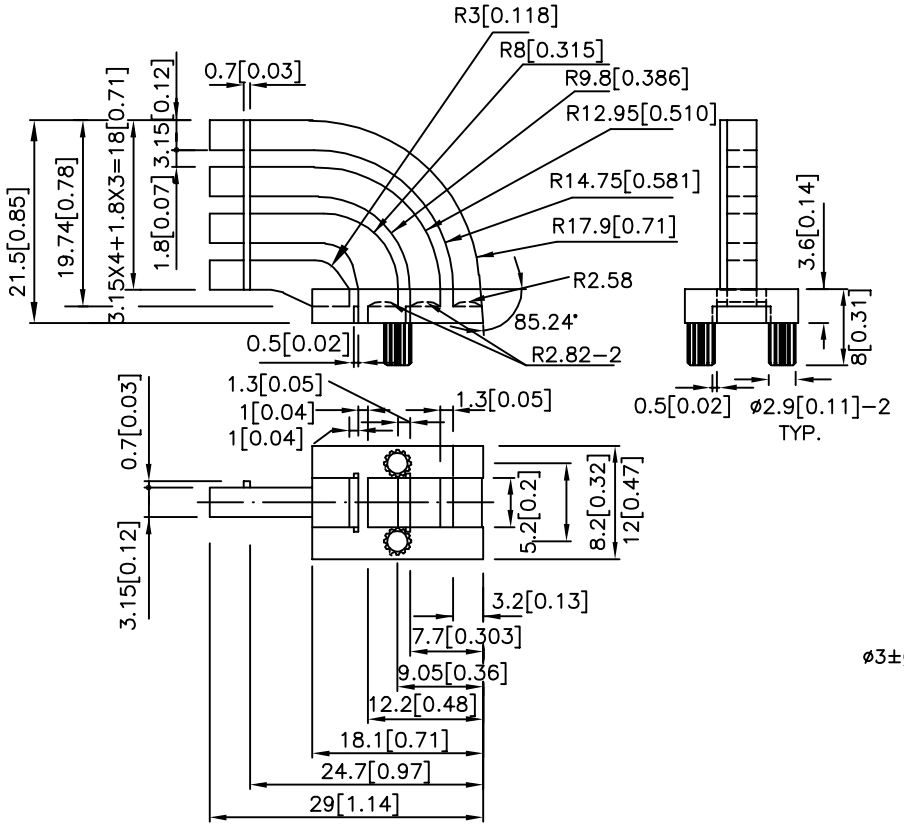
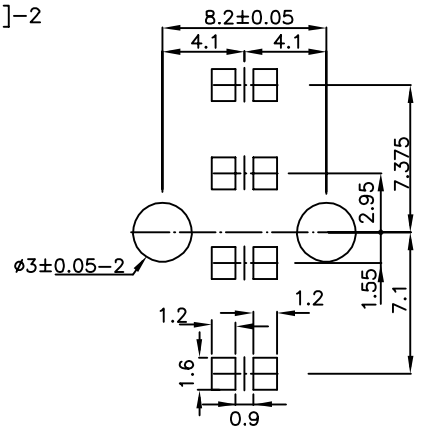
Optoelectronic Components

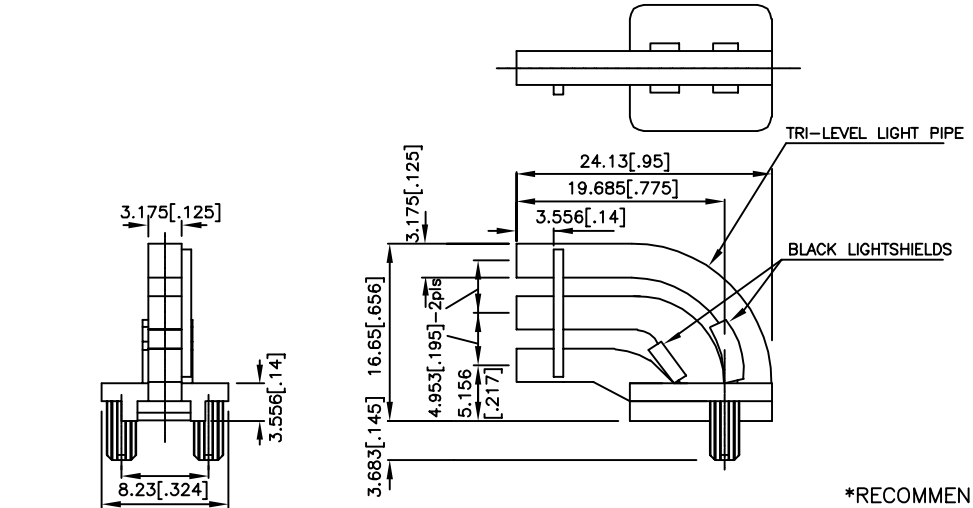
KL-05

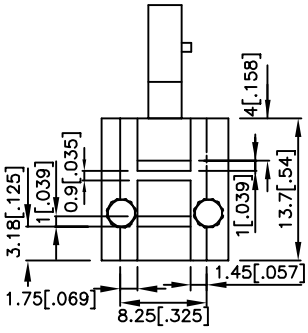


*RECOMMENDED FOOTPRINT

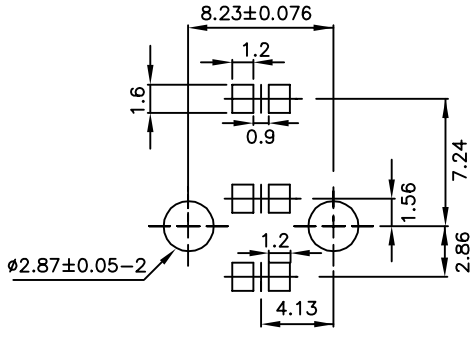


KL-07LS





*RECOMMENDED FOOTPRINT

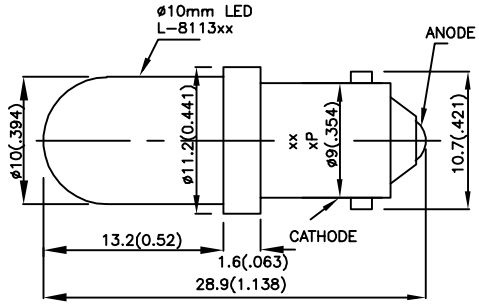


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

BAYONET BASE

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) *V=12V **V=28V MIN.	Iv (mcd) *V=12V **V=28V TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
BLB101SURC-E-6V-P	AlGaInP	630	water clear	1800	3300	20°	10mm Bayonet Base
BLB101SURC-E-12V-P	AlGaInP	630	water clear	*1500	*2500	20°	
BLB101SURC-E-28V-P	AlGaInP	630	water clear	**1200	**2100	20°	
BLB101SYC-6V-P	AlGaInP	590	water clear	1500	2500	20°	
BLB101SYC-12V-P	AlGaInP	590	water clear	*900	*1800	20°	
BLB101SYC-28V-P	AlGaInP	590	water clear	**650	**1400	20°	
BLB101MGC-6V-P	AlGaInP	570	water clear	380	900	20°	
BLB101MGC-12V-P	AlGaInP	570	water clear	*280	*800	20°	
BLB101MGC-28V-P	AlGaInP	570	water clear	**180	**600	20°	

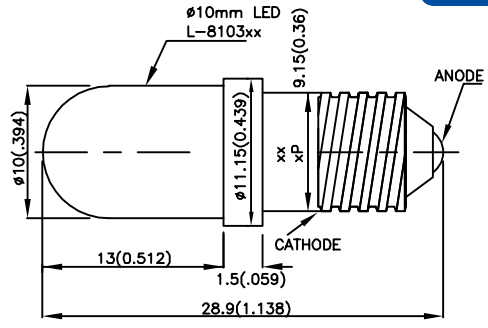
BLB101



SCREW BASE

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd) *V=12V **V=28V MIN.	Iv (mcd) *V=12V **V=28V TYP.	VIEWING ANGLE 2θ1/2	DIMENSION
BLS101SURC-E-6V-P	AlGaInP	630	water clear	1800	3100	20°	10mm Screw Base
BLS101SURC-E-12V-P	AlGaInP	630	water clear	*1200	*2500	20°	
BLS101SURC-E-28V-P	AlGaInP	630	water clear	**900	**2100	20°	
BLS101SYC-6V-P	AlGaInP	590	water clear	1500	2800	20°	
BLS101SYC-12V-P	AlGaInP	590	water clear	*1200	*2300	20°	
BLS101SYC-28V-P	AlGaInP	590	water clear	**650	**1800	20°	
BLS101MGC-6V-P	AlGaInP	570	water clear	480	1100	20°	
BLS101MGC-12V-P	AlGaInP	570	water clear	*380	*1000	20°	
BLS101MGC-28V-P	AlGaInP	570	water clear	**280	**800	20°	

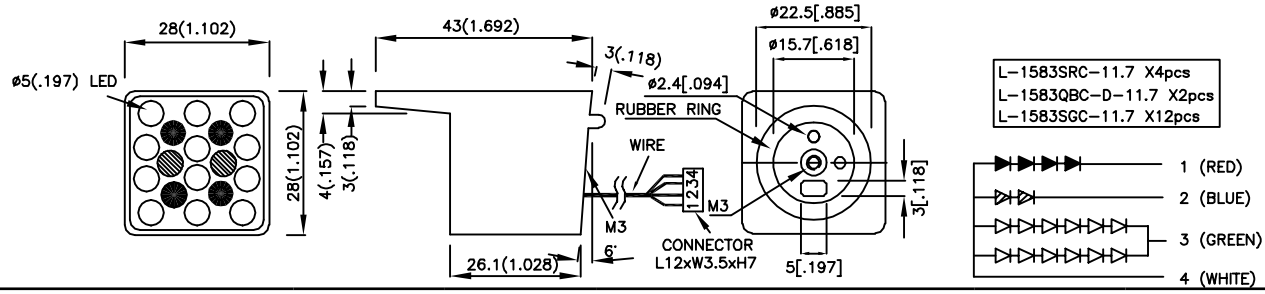
BLS101



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

28mmX28mm

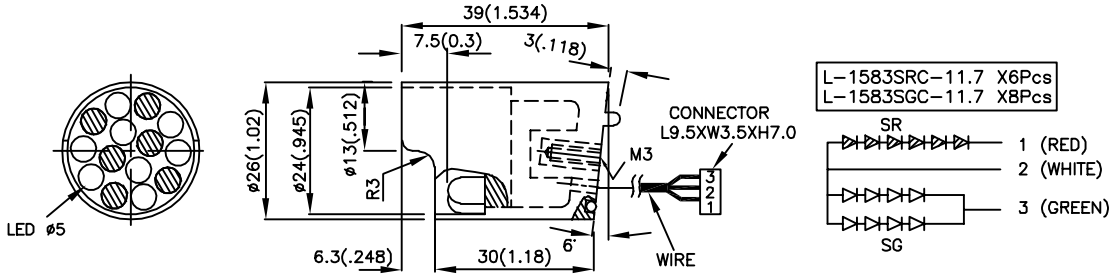
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd)		VIEWING ANGLE	IF(mA)
				MIN.	TYP.	2θ1/2	
BL0709-18-462	GaAlAs	640	water clear	900	1800	40°	20
	InGaN	470	water clear	280	650	40°	20
	GaP	568	water clear	650	1200	40°	40




BL0709-18-462

26mm

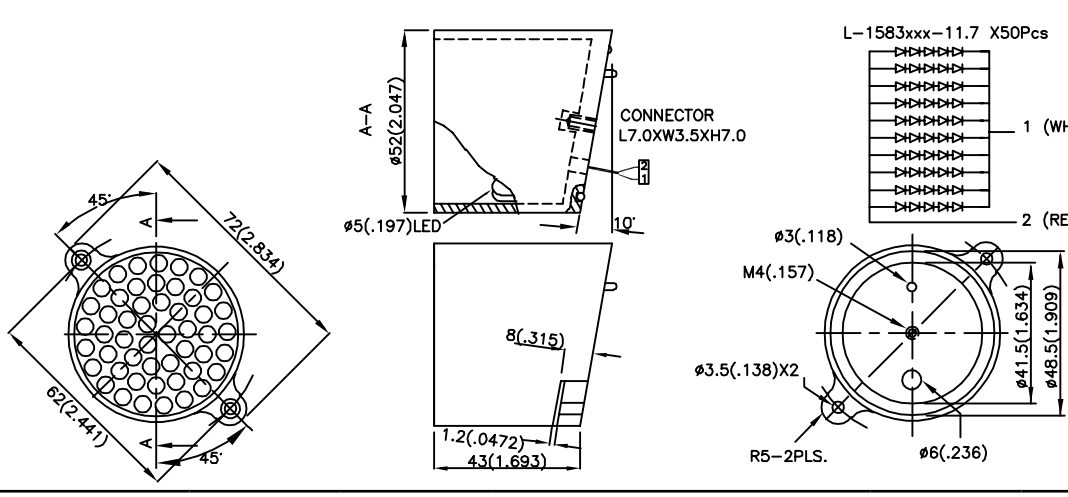
PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd)		VIEWING ANGLE	IF(mA)
				MIN.	TYP.	2θ1/2	
BL0102-14-34	GaAlAs	640	water clear	1500	2800	40°	20
	GaP	568	water clear	650	1600	40°	40

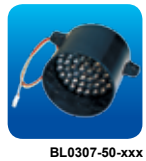



BL0102-14-34

52mm

PART NUMBER	MATERIAL	λD (nm)	LENS TYPE	Iv (mcd)		VIEWING ANGLE	IF(mA)
				MIN.	TYP.	2θ1/2	
BL0307-50-360	AlGaInP	570	water clear	7500	12000	40°	200
BL0307-50-374	AlGaInP	590	water clear	7500	15000	40°	200
BL0307-50-433	AlGaInP	630	water clear	8000	16000	40°	200




BL0307-50-xxx

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

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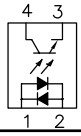
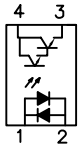
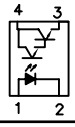
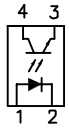
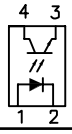
Optoelectronic Components

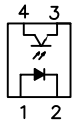
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=±1mA, V_{CE}=5V		IF=±20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP.	MAX.	TR	TF
KB814		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage AC input response	5000	35	20	300	0.1	0.2	4	3

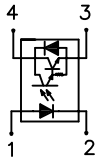
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=±1mA, V_{CE}=2V		IF=±20mA, I_C=5mA		V_{CE}=2V, I_C=10mA, R_L=100Ω	
						MIN.	MAX.	TYP.	MAX.	TR	TF
KB8141		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High sensitivity AC input response	5000	35	600	7500	0.8	1	60	53

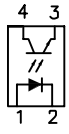
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=1mA, V_{CE}=2V		IF=20mA, I_C=5mA		V_{CE}=2V, I_C=10mA, R_L=100Ω	
						MIN.	MAX.	TYP.	MAX.	TR	TF
KB815		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High sensitivity	5000	35	600	7500	0.8	1	60	53

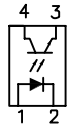
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=5mA, V_{CE}=5V		IF=20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP.	MAX.	TR	TF
KB816		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage High collector-emitter voltage	5000	70	50	600	0.1	0.2	4	3

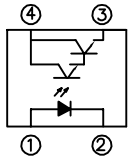
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=5mA, V_{CE}=5V		IF=20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP	MAX.	TR	TF
KB817		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage	5000	35	50	600	0.1	0.2	4	3

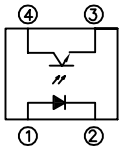
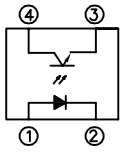
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=5mA, V_{CE}=5V		IF=20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP	MAX.	TR	TF
KB851		VDE0884. NO.40006364	High collector-emitter Voltage	5000	350	-	-	0.1	0.3	4	3

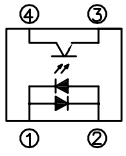
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=1mA, V_{CE}=2V		IF=20mA, I_C=100mA		V_{CE}=2V, I_C=20mA, R_L=1000Ω	
						MIN.	MAX.	TYP	MAX.	TR	TF
KB852		VDE0884. NO.40006364	High collector-emitter voltage High sensitivity	5000	350	1000	15000	-	1.2	100	20

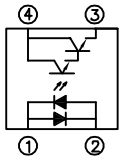
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=5mA, V_{CE}=5V		IF=20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP	MAX.	TR	TF
KB817-B		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage SMD Type	5000	35	50	600	0.1	0.2	4	3

PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=5mA, V_{CE}=5V		IF=20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP	MAX.	TR	TF
KB817-M		UL NO.E225308 & VDE0884. NO.40006364	High isolation voltage	5000	35	50	600	0.1	0.2	4	3

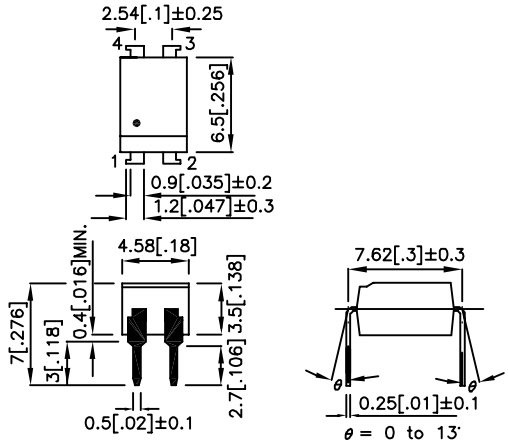
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=1mA, V_{CE}=2V		IF=20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP	MAX.	TR	TF
KB355NT		UL NO.E225308 & VDE0884. NO.40017614	High current transfer ratio Small package size	3750	35	600	7500	0.8	1.0	60	53

PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=5mA, V_{CE}=5V		IF=20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP	MAX.	TR	TF
KB356NT		UL NO.E225308 & VDE0884. NO.40017614	High collector-emitter Voltage Small package size	3750	80	50	600	0.1	0.2	6	8
KB357NT			Small package size	3750	35	50	600	-	0.2	4	3

PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=±1mA, V_{CE}=5V		IF=±20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP.	MAX.	TR	TF
KB354NT		UL NO.E225308 & VDE0884. NO.40017614	AC.input response Small package size	3750	35	20	400	0.1	0.2	4	3

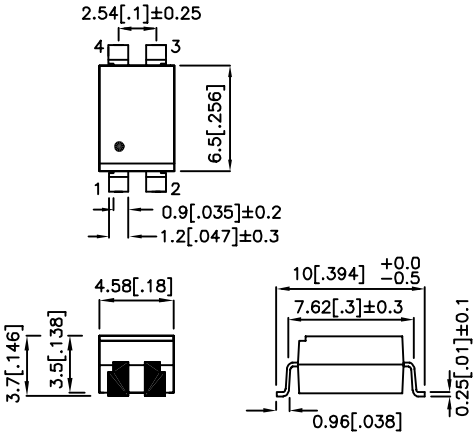
PART NUMBER	PIN CONFIGURATION	SAFETY STANDARDS	FEATURES	ABSOLUTE MAXIMUM RATINGS		ELECTRICAL CHARACTERISTICS					
				ISOLATION VOLTAGE(AC) VISO(Vrms)	COLLECTOR EMITTER VOLTAGE V_{CEO}(V)	CTR(%)		V(sat) (V)		RESPONSE TIME (μs) TYP.	
						IF=±1mA, V_{CE}=2V		IF=±20mA, I_C=1mA		V_{CE}=2V, I_C=2mA, R_L=100Ω	
						MIN.	MAX.	TYP.	MAX.	TR	TF
KB3541NT		UL NO.E225308 & VDE0884. NO.40017614	AC.input response High sensitivity Small package size	3750	35	450	7400	0.8	1.0	60	53

KB814, KB8141, KB815, KB816, KB817, KB851, KB852



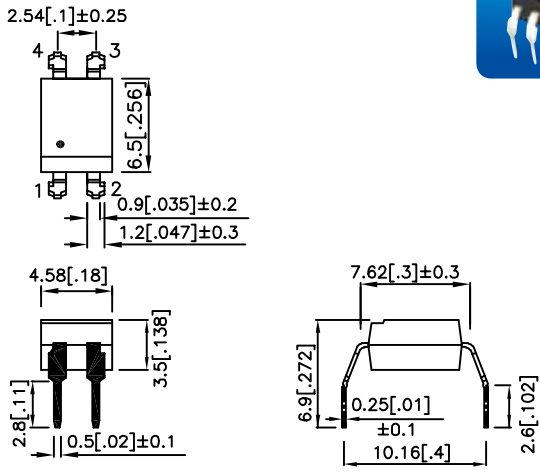
KB817-B


KB817-B

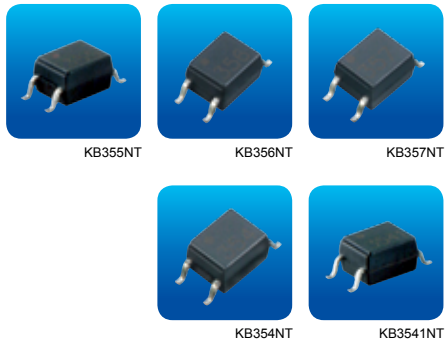


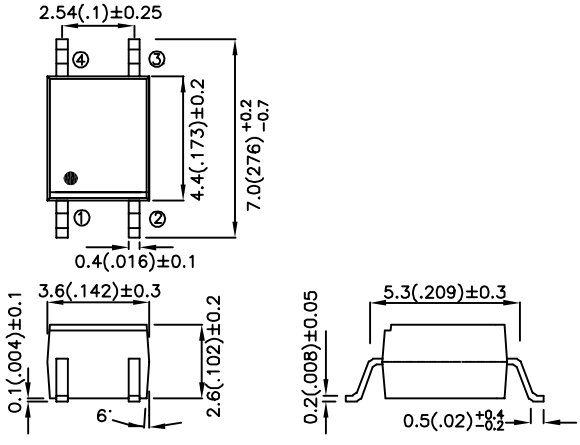
KB817-M


KB817-M

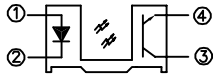
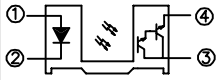
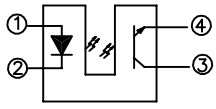
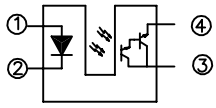


KB355NT, KB356NT, KB357NT, KB354NT, KB3541NT



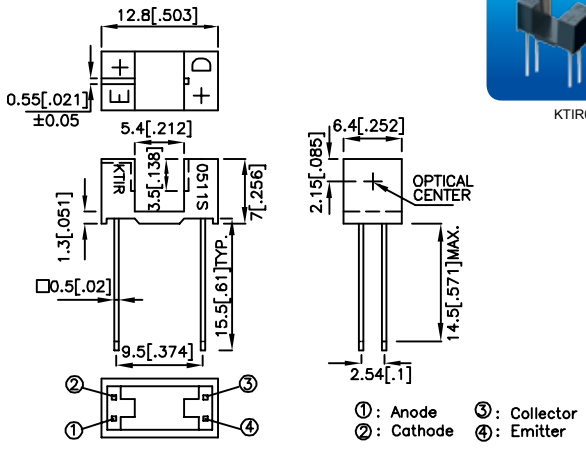


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.5mm(0.02 ") unless otherwise noted.

PART NUMBER	PIN CONFIGURATION	MATERIAL	λ P (nm)	CTR			$V_{CE(SAT)}$			RISE TIME (μs)	FALL TIME (μs)
				IF(mA)	V_{CE}(V)	TYP.(%)	IF(mA)	IC(mA)	MAX.(V)	TYP.	TYP.
KTIR0511S		GaAs/SiC	940	20	5	10	40	1	0.4	5	4
KTIR0521DS		GaAs/SiC	940	1	2	180	2	1	1	90	80
KTIR0611S		GaAs/SiC	940	20	5	14	40	1	0.4	5	4
KTIR0621DS		GaAs/SiC	940	1	2	200	2	1	1	90	80

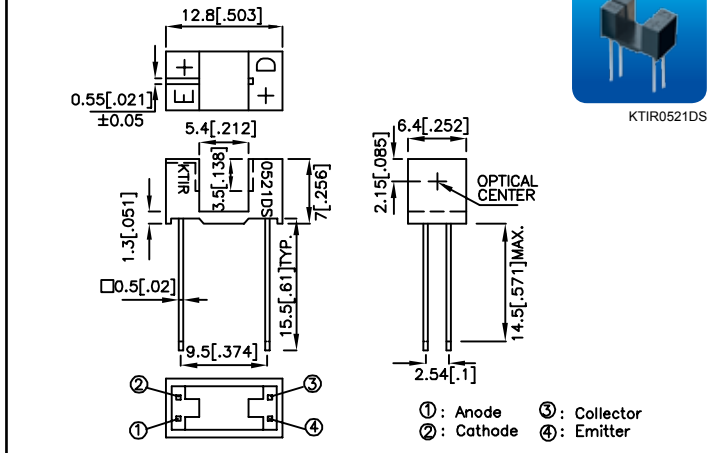
KTIR0511S

KTIR0511S



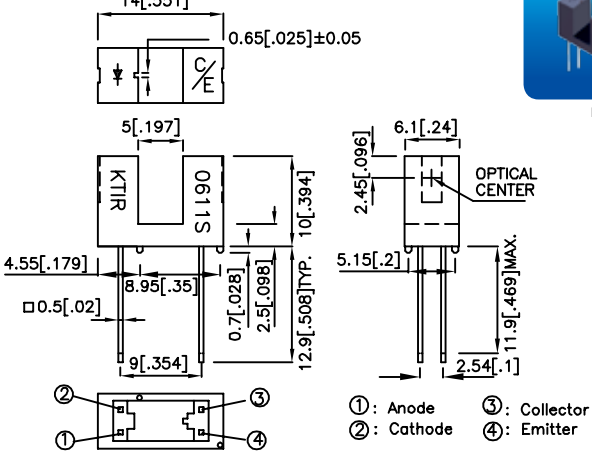
KTIR0521DS

KTIR0521DS



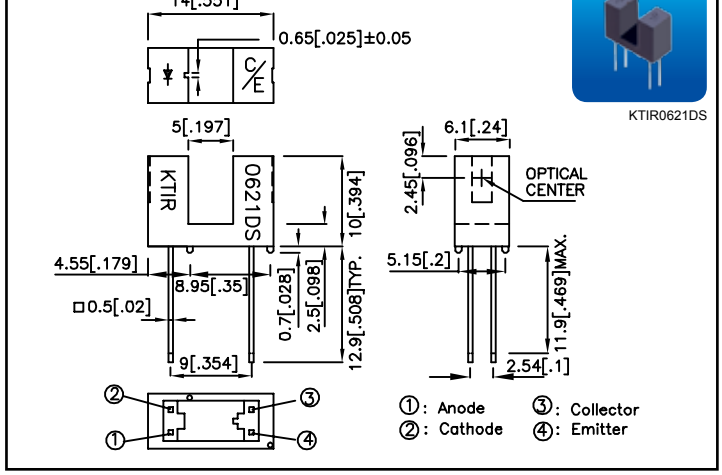
KTIR0611S

KTIR0611S

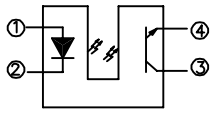
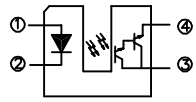
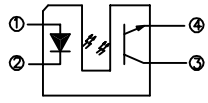
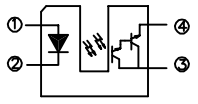


KTIR0621DS

KTIR0621DS

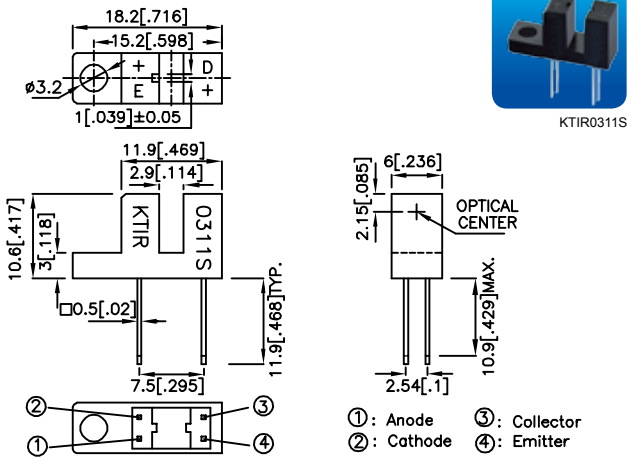


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

PART NUMBER	PIN CONFIGURATION	MATERIAL	λ P (nm)	CTR			$V_{CE(SAT)}$			RISE TIME (μs)	FALL TIME (μs)
				IF(mA)	V_{CE}(V)	TYP.(%)	IF(mA)	IC(mA)	MAX.(V)	TYP.	TYP.
KTIR0311S		GaAs/SiC	940	20	5	38	40	1	0.4	5	4
KTIR0321DS		GaAs/SiC	940	1	2	650	2	1	1	90	80
KTIR0411S		GaAs/SiC	940	20	5	38	40	1	0.4	5	4
KTIR0421DS		GaAs/SiC	940	1	2	650	2	1	1	90	80

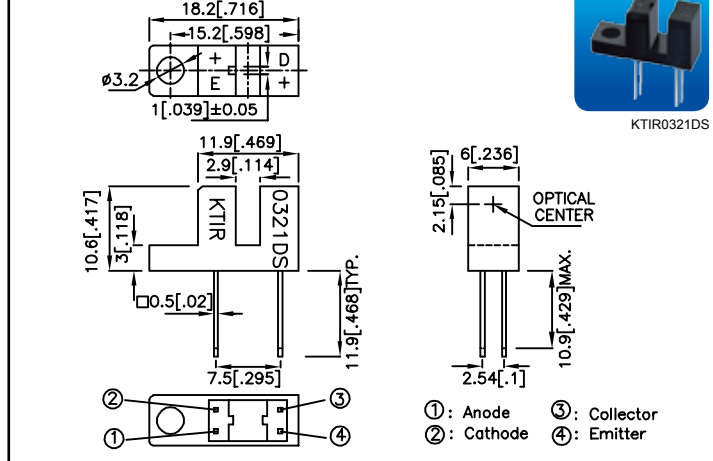
KTIR0311S

KTIR0311S



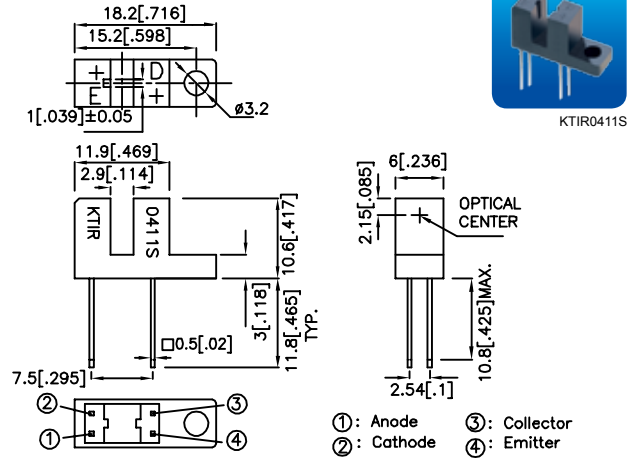
KTIR0321DS

KTIR0321DS



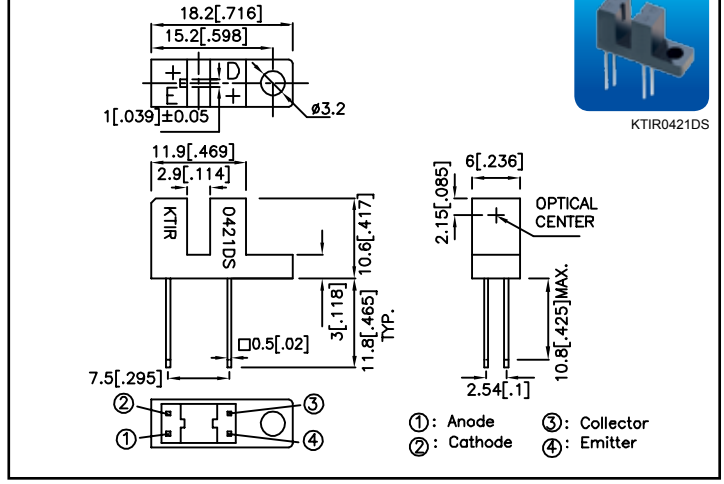
KTIR0411S

KTIR0411S

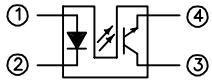
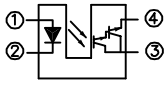
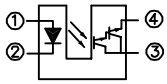
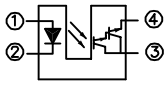


KTIR0421DS

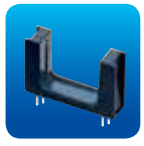
KTIR0421DS



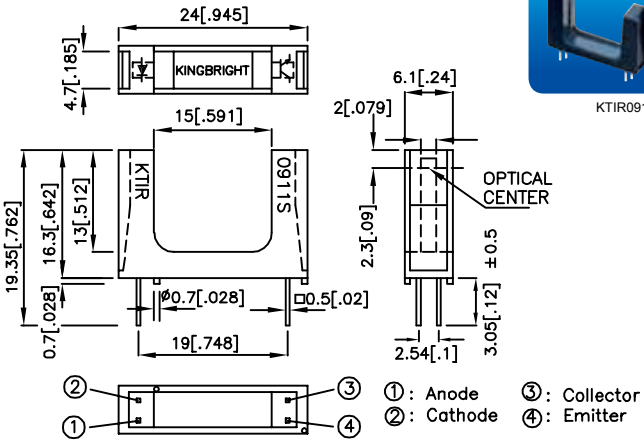
NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

PART NUMBER	PIN CONFIGURATION	MATERIAL	λ P (nm)	CTR			$V_{CE(SAT)}$			RISE TIME (μs)	FALL TIME (μs)
				IF(mA)	V_{CE}(V)	TYP.(%)	IF(mA)	IC(mA)	MAX.(V)	TYP.	TYP.
KTIR0911S		GaAs/SiC	940	20	5	9.5	40	1	0.4	5	4
KTIR0921DS		GaAs/SiC	940	1	2	120	2	1	1	90	80
KTIR0121DS		GaAs/SiC	940	1	2	600	2	1	1	90	80
KTIR0221DS		GaAs/SiC	940	1	2	600	2	1	1	90	80

KTIR0911S

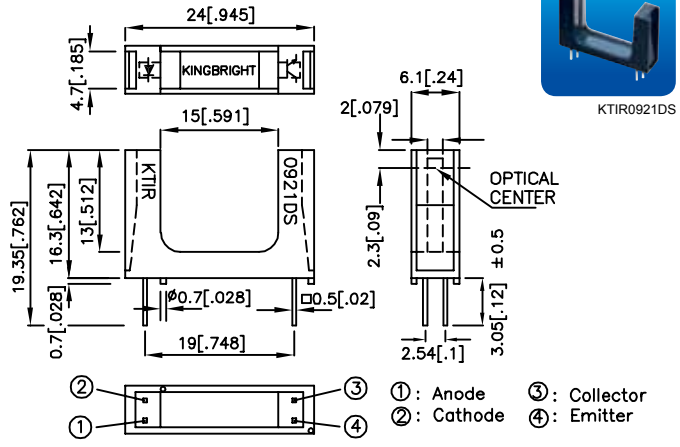


KTIR0911S



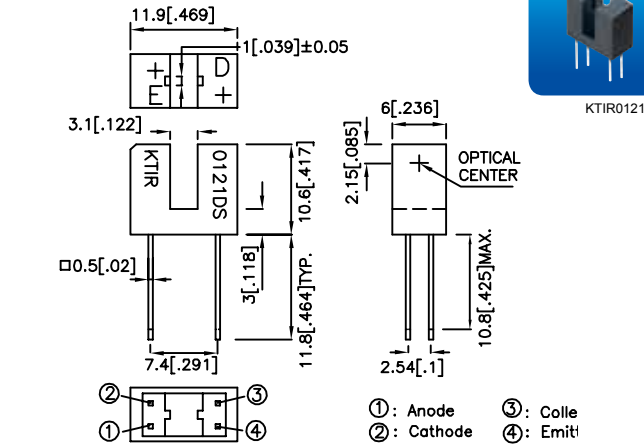
KTIR0921DS

KTIR0921DS



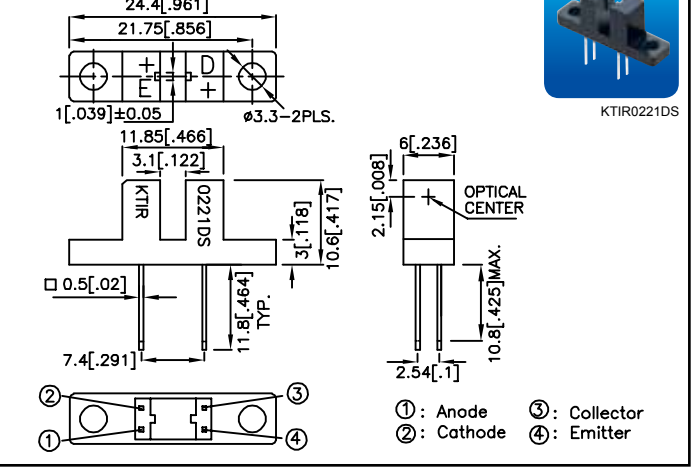
KTIR0121DS

KTIR0121DS

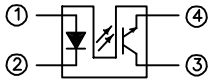
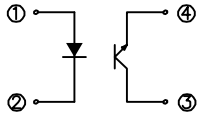
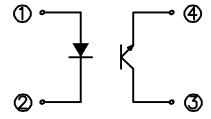
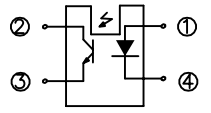


KTIR0221DS

KTIR0221DS

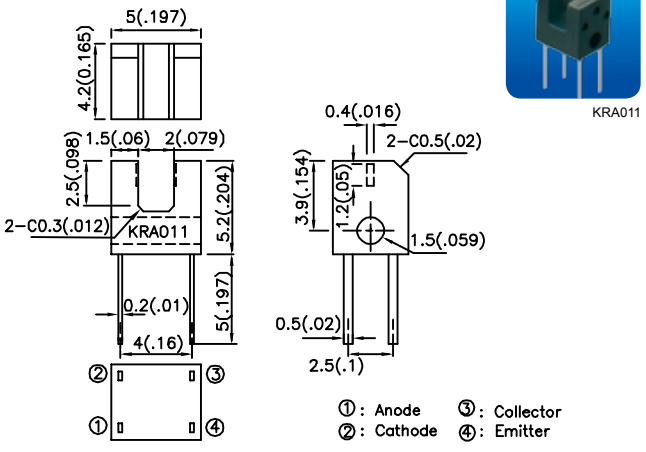


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

PART NUMBER	PIN CONFIGURATION	MATERIAL	λ P (nm)	CTR			$V_{CE(SAT)}$			RISE TIME (μs)	FALL TIME (μs)
				IF(mA)	V_{CE}(V)	TYP.(%)	IF(mA)	IC(mA)	MAX.(V)	TYP.	TYP.
KRA011		GaAs/SiC	940	5	5	8	10	0.04	0.4	50	50
KRA021		GaAs/SiC	940	10	2	18	20	0.25	0.4	15	15
KRA031		GaAs/SiC	940	5	2	10	10	0.15	0.4	15	15
KRA041		GaAs/SiC	940	5	2	6	10	0.4	0.4	15	15

KRA011

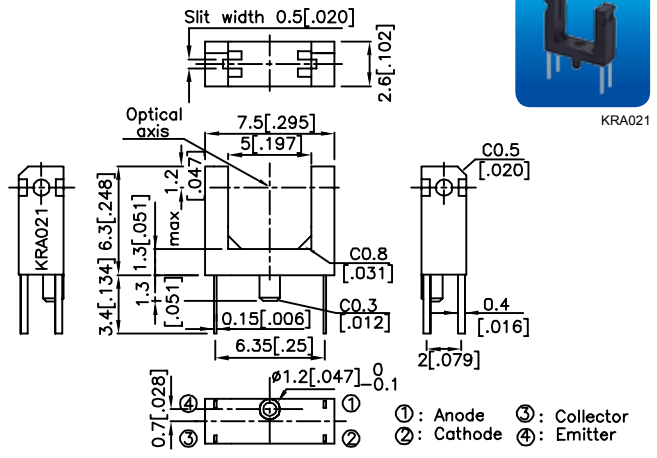
KRA011



KRA021

Tolerance : ±0.15(0.006)

KRA021

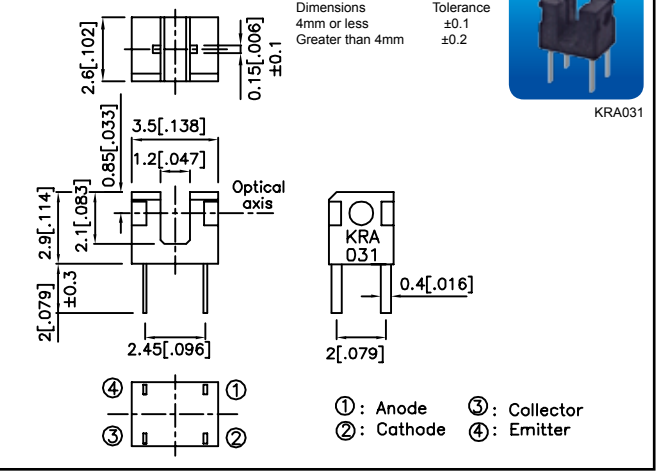


KRA031

Tolerances are listed below unless otherwise specified.

Dimensions	Tolerance
4mm or less	±0.1
Greater than 4mm	±0.2

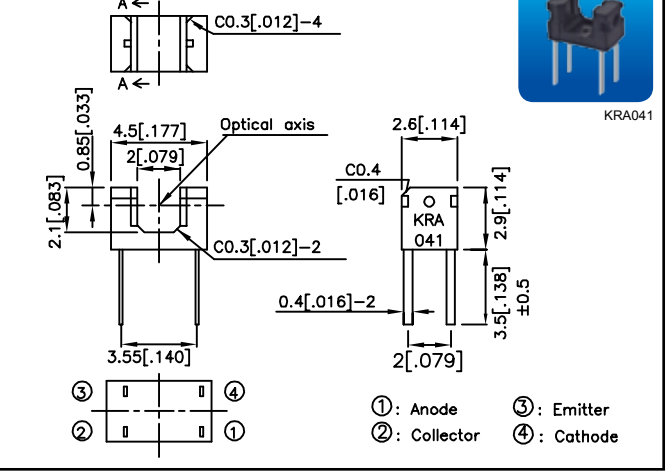
KRA031



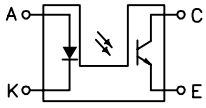
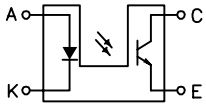
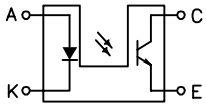
KRA041

Tolerance : ±0.15(0.006)

KRA041

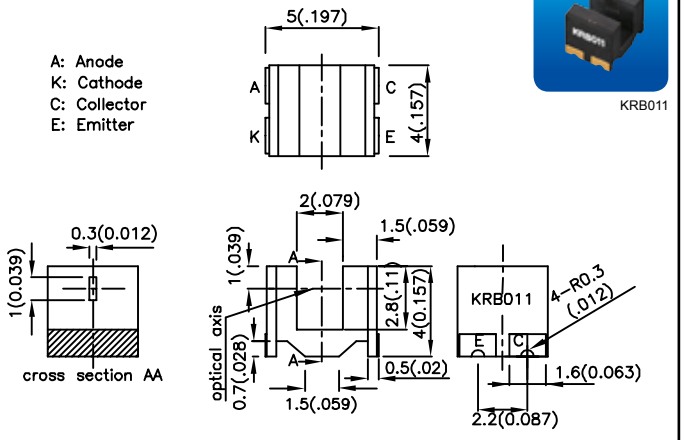


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

PART NUMBER	PIN CONFIGURATION	MATERIAL	λ P (nm)	CTR			$V_{CE(SAT)}$			RISE TIME (μs)	FALL TIME (μs)
				IF(mA)	V_{CE}(V)	TYP.(%)	IF(mA)	IC(mA)	MAX.(V)	TYP.	TYP.
KRB011		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10
KRB021		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10
KRB031		GaAs/SiC	940	5	5	3	20	0.05	0.4	8	10

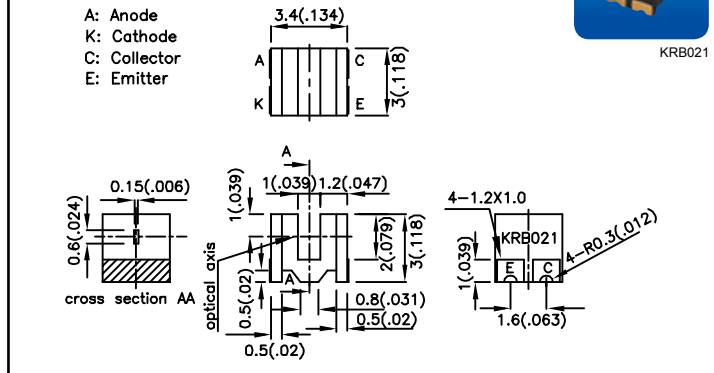
KRB011

KRB011



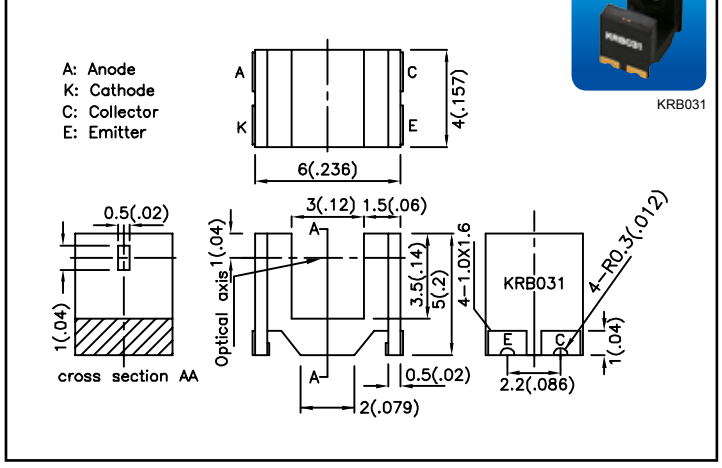
KRB021

KRB021

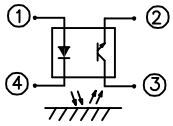
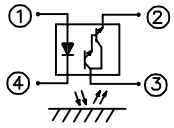
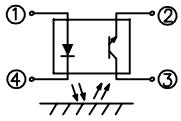
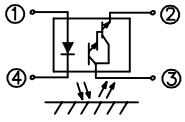


KRB031

KRB031

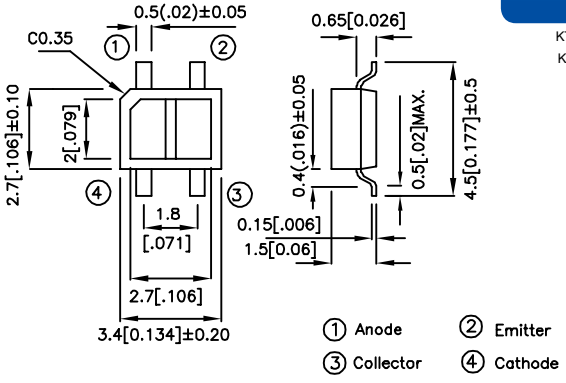


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.15mm(0.006") unless otherwise noted.

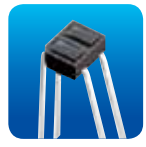
PART NUMBER	PIN CONFIGURATION	MATERIAL	λ P (nm)	IC (μA) V_{CE}=2V, IF=4mA			$V_{CE(SAT)}$			RISE TIME (μs)	FALL TIME (μs)
				MIN.	TYP.	MAX.	IF(mA)	IC(mA)	MAX.(V)	TYP.	TYP.
KTIR0711S		GaAs/SiC	940	10	-	400	-	-	-	20	20
KTIR0721DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70
KTIR0811S		GaAs/SiC	940	10	-	400	-	-	-	20	20
KTIR0821DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70

KTIR0711S & KTIR0721DS

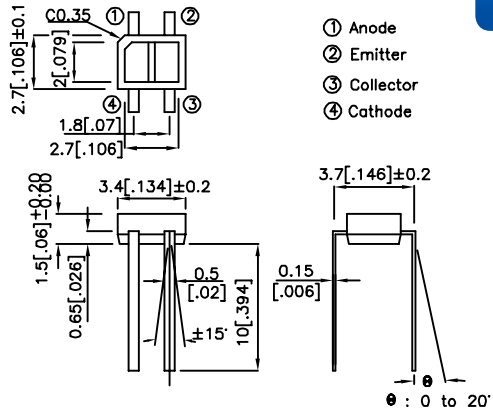
KTIR0711S &
KTIR0721DS



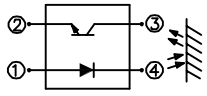
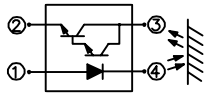
KTIR0811S & KTIR0821DS

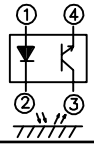


KTIR0811S &
KTIR0821DS

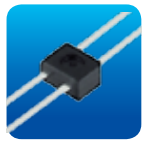


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

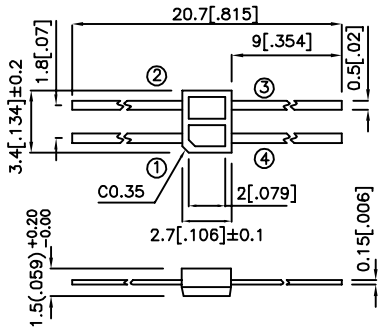
PART NUMBER	PIN CONFIGURATION	MATERIAL	λ P (nm)	IC (μA) V_{CE}=2V, IF=4mA			$V_{CE(SAT)}$			RISE TIME (μs)	FALL TIME (μs)
				MIN.	TYP.	MAX.	IF(mA)	IC(mA)	MAX.(V)	TYP.	TYP.
KTIR0A11S		GaAs/SiC	940	10	-	400	-	-	-	20	20
KTIR0A21DS		GaAs/SiC	940	-	3000	-	-	-	-	80	70

PART NUMBER	PIN CONFIGURATION	MATERIAL	λ P (nm)	IC (μA) V_{CE}=5V, IF=20mA			$V_{CE(SAT)}$			RISE TIME (μs)	FALL TIME (μs)
				MIN.	TYP.	MAX.	IF(mA)	IC(mA)	Max.(V)	Typ.	Typ.
KRC011		GaAs/SiC	940	10	-	300	-	-	-	20	20

KTIR0A11S & KTIR0A21DS

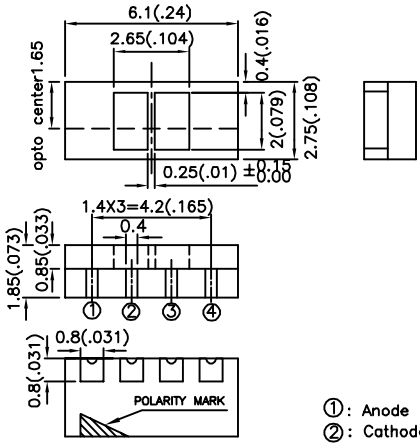


KTIR0A11S & KTIR0A21DS



KRC011

KRC011

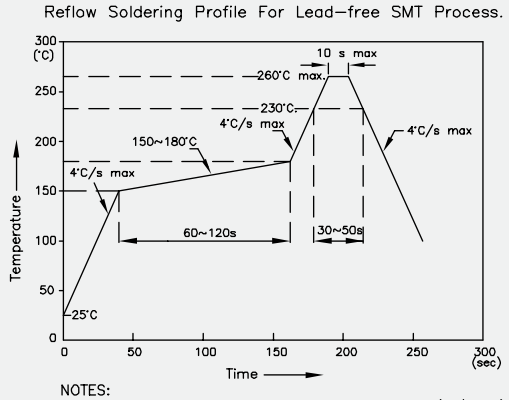


NOTES:
1. All dimensions are in millimeters(inches).
2. Tolerance is ±0.25mm(0.01") unless otherwise noted.

Kingbright

Optoelectronic Components

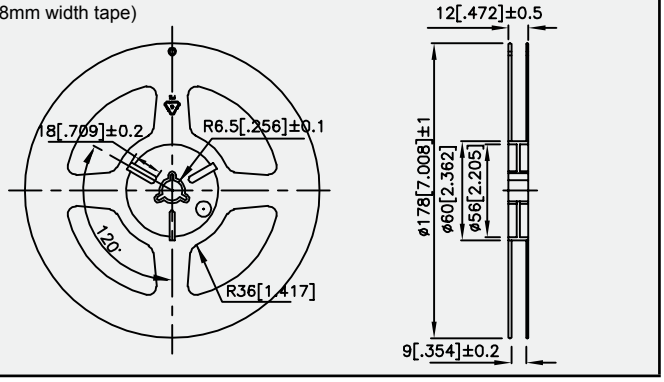
SMT Reflow Soldering Instructions



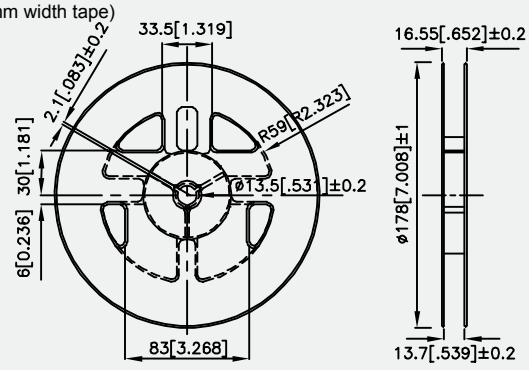
NOTES:
1. We recommend the reflow temperature 245°C(+/−5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

PART NUMBER	REEL DIMENSIONS
KPHHS-1005, KP-1608, KPT-1608, KPTD-1608, KP-2012, KPT-2012, KPTC-2012, KPHCM-2012, KP-23, KP-3216, KPT-3216, KPC-3216, KPTR-3216, KPA-1606, KPA-2106, KPJA-2107, KPA-3010, KPA-3210, KPL-3015, KPTL-3216, KPTD-3216, KPD-3224, KPTB-1612, KPTB-1615, KPBVA-3010, KPB-3025, KPBL-3025, KPBD-3224, , KM-23, KPHBM-2012, KA-2810A, KA-2214, KA-3021, KT-2117, KT-2520, KT-3020, KT-3228	7"(for 8mm width tape)
KA-2735, KA-3022-4.5SF, KA-3528, KA-3529, KA-3535, KA-4040, KA-4008, KAAF-5060, KM2520xxx03, KM2520xxx08, KM2520xxx09, KM-27xxx-03, KM-27xxx-09, KT-3535, KT-5050, KT-5051, KPED-3528, KPED-3820	7"(for 12mm width tape)
KTDG-9072	13"(for 16mm width tape)
KAD1-1010, KAD1-9090, KA-8080, KADG1-8080, KA-8070, KADS-8070, KCSX02, KCDX02, KCSX03, KCDX03, KCSX04	13"(for 24mm width tape)
KCDX04, KCPDX04, KCPSX04, KCSX56	13"(for 32mm width tape)
KCDX56	13"(for 44mm width tape)
KAAF5051	15"(for 16mm width tape)

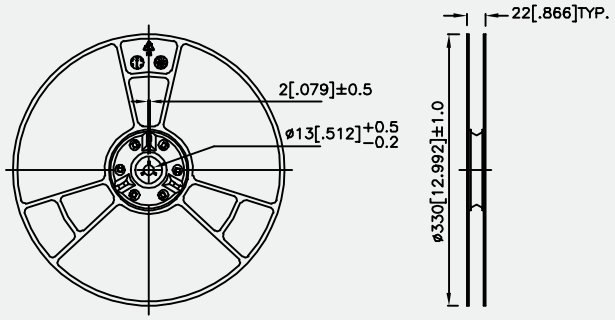
7"(for 8mm width tape)



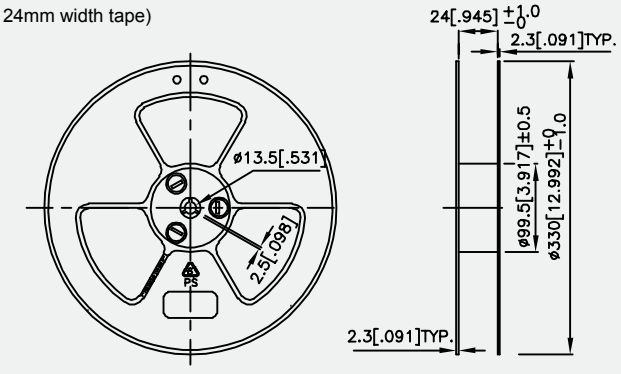
7"(for 12mm width tape)



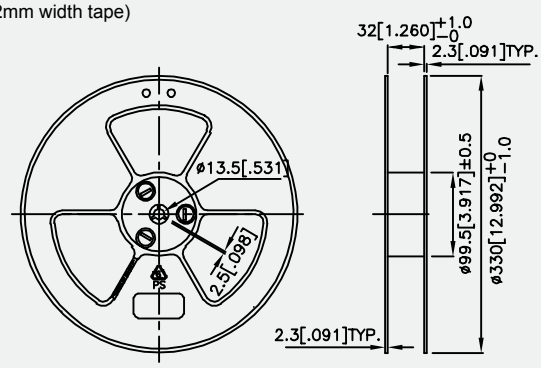
13"(for 16mm width tape)



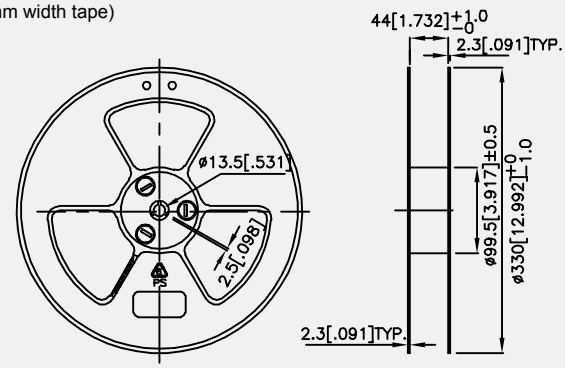
13"(for 24mm width tape)



13"(for 32mm width tape)

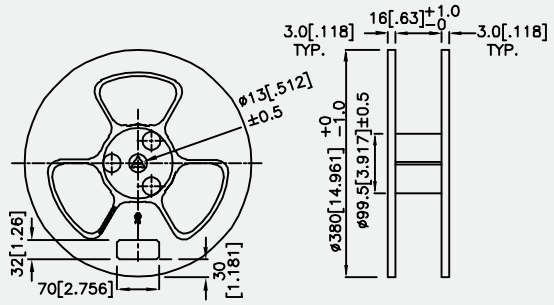


13"(for 44mm width tape)

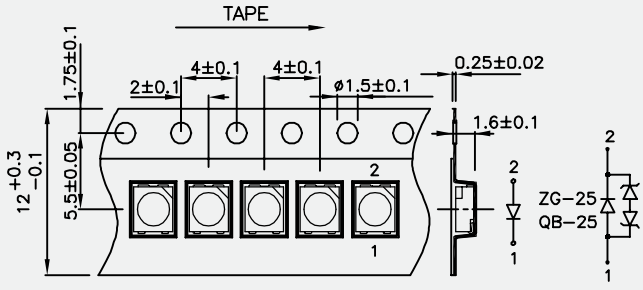


NOTE: 1. All dimensions are in millimeters(inches).

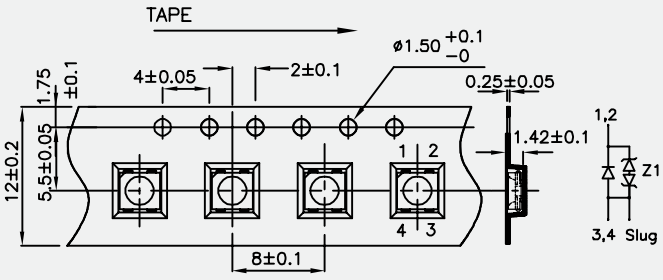
15"(for 16mm width tape)



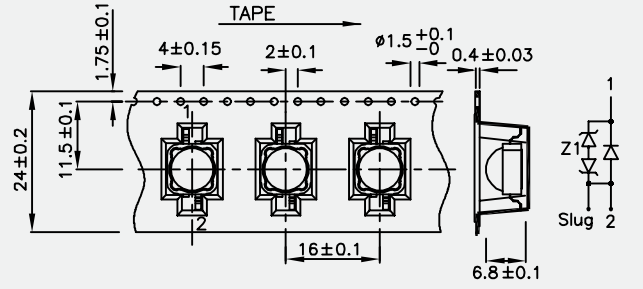
KA-3529 **PACKAGE: 1500PCS / REEL**



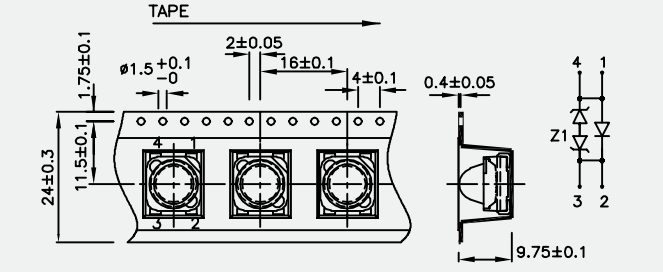
KA-3535 **PACKAGE: 2000PCS / REEL**



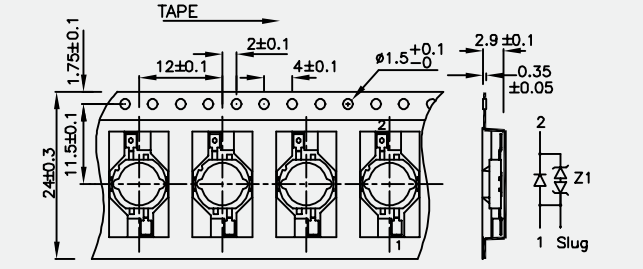
KAD1-9090 **PACKAGE: 500PCS / REEL**



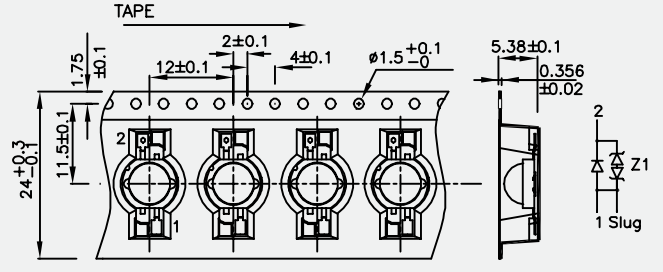
KAD1-1010 **PACKAGE: 300PCS / REEL**



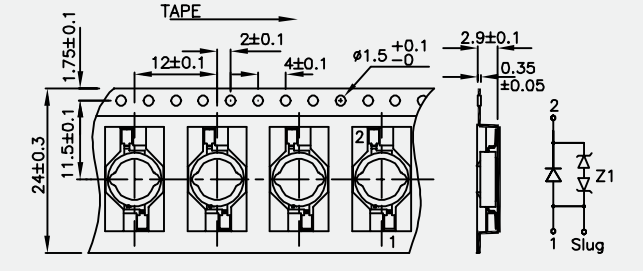
KA-8070 **PACKAGE: 500PCS / REEL**



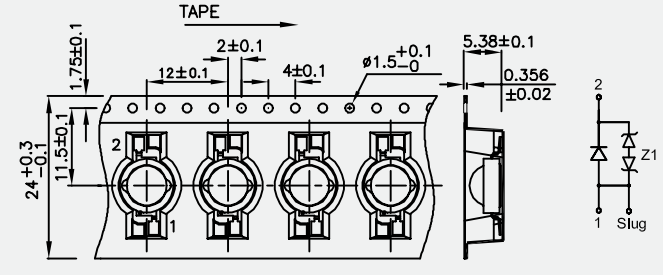
KADS-8070 **PACKAGE: 500PCS / REEL**



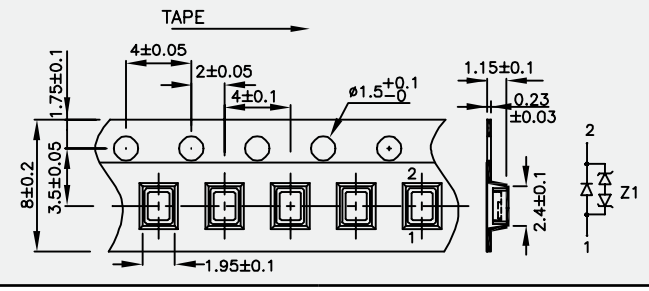
KA-8080 **PACKAGE: 500PCS / REEL**



KADG1-8080 **PACKAGE: 500PCS / REEL**

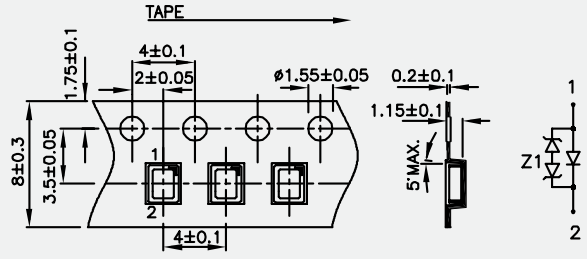


KT-2117 **PACKAGE: 2000PCS / REEL**

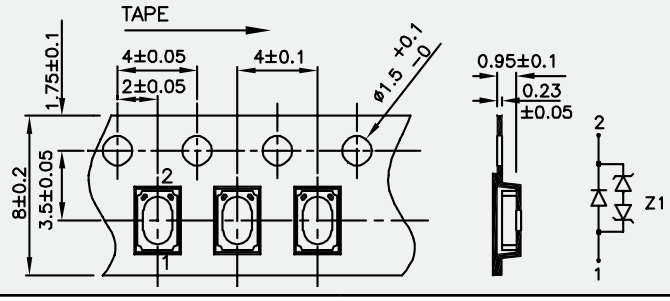


NOTE: 1. All dimensions are in millimeters.

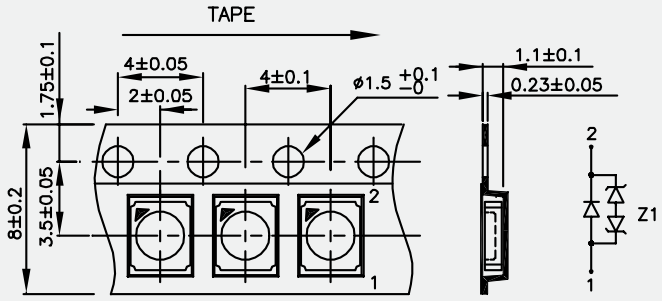
KT-2520 PACKAGE: 2000PCS / REEL



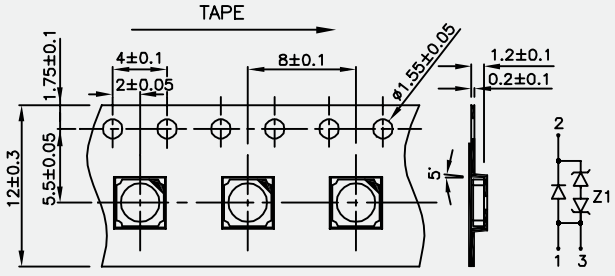
KT-3020 PACKAGE: 2000PCS / REEL



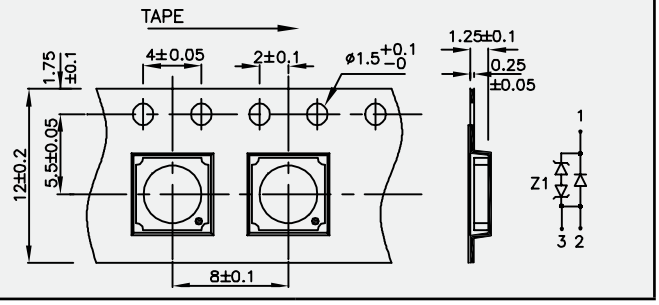
KT-3228 PACKAGE: 2000PCS / REEL



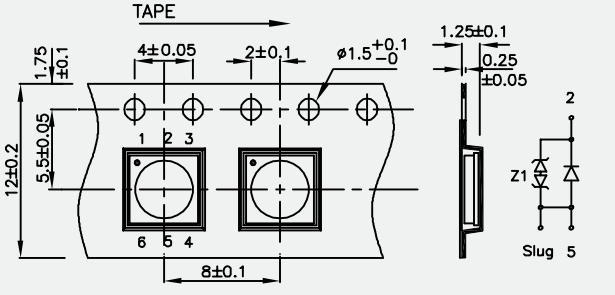
KT-3535 PACKAGE: 2000PCS / REEL



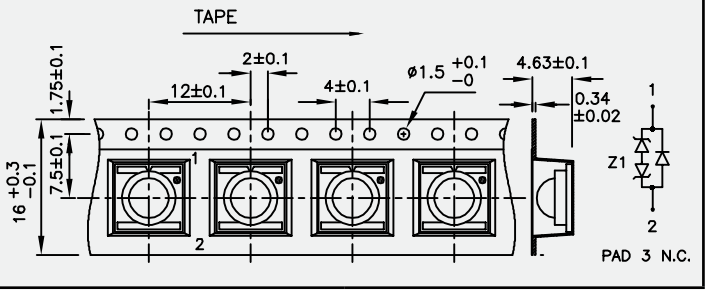
KT-5050 PACKAGE: 1000PCS / REEL



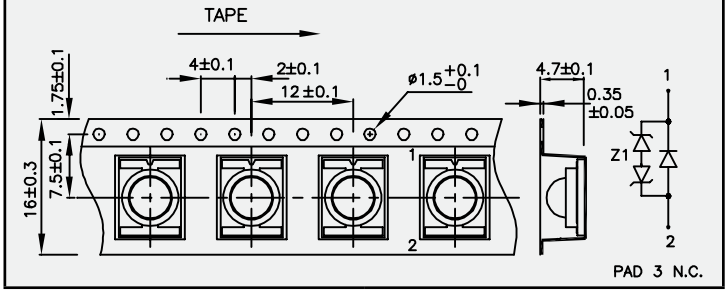
KT-5051 PACKAGE: 1000PCS / REEL



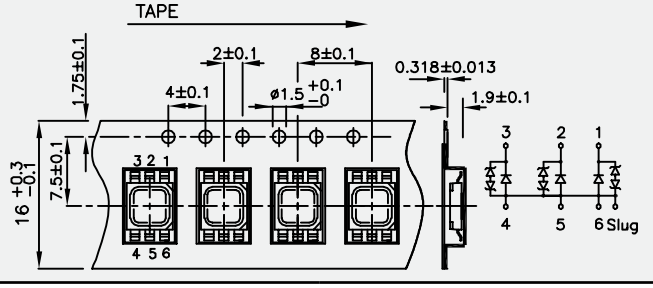
KTDG-8080 PACKAGE: 500PCS / REEL



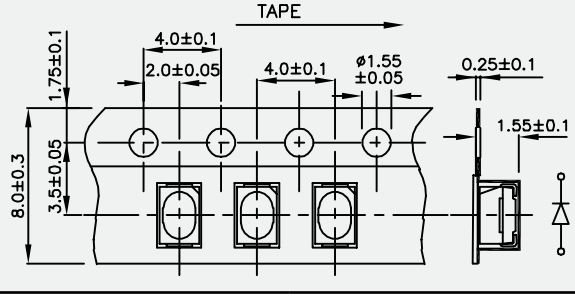
KTDG-9072 PACKAGE: 500PCS / REEL



KAAF5051 PACKAGE: 500PCS / REEL

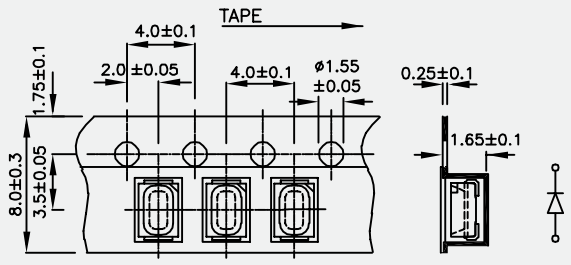


KA-2214 PACKAGE: 2000PCS / REEL

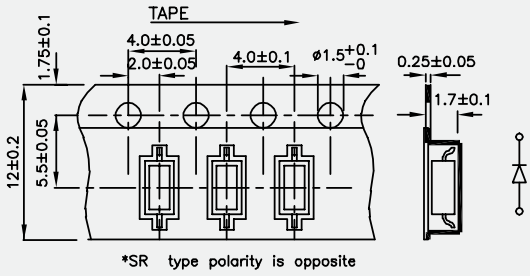


NOTE: 1. All dimensions are in millimeters.

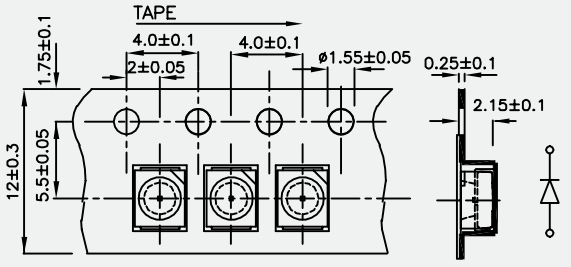
KA-3021 PACKAGE: 2000PCS / REEL



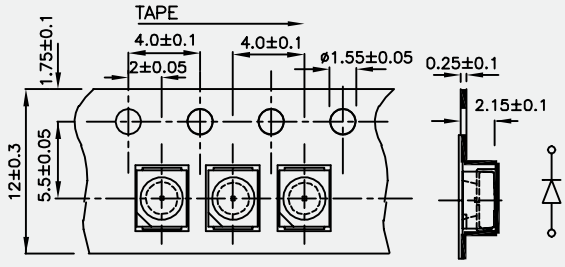
KA-3022-4.5SF PACKAGE: 1500PCS / REEL



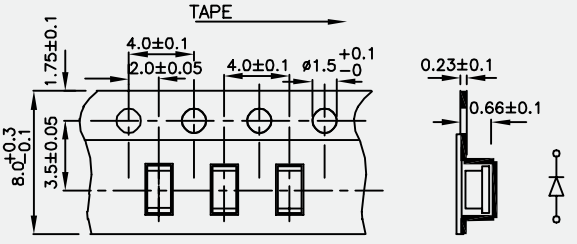
KA-3528 PACKAGE: 1500PCS / REEL



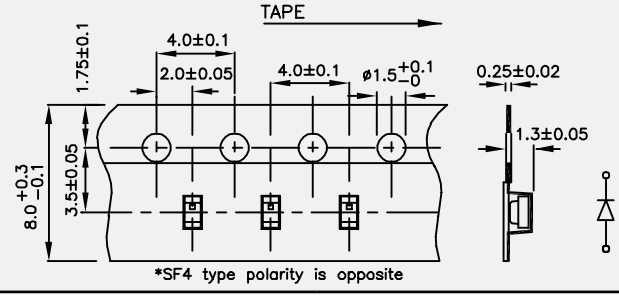
KA-3528SR PACKAGE: 1500PCS / REEL



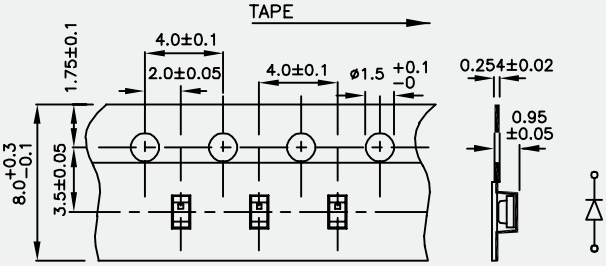
KPHHS-1005 PACKAGE: 2000PCS / REEL



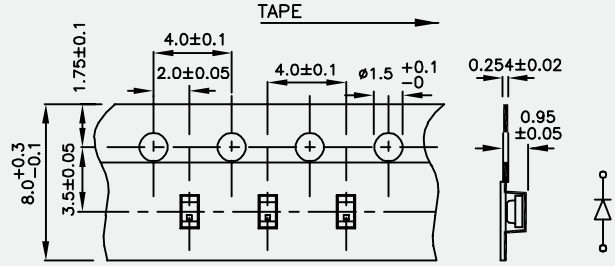
KP-1608 PACKAGE: 2000PCS / REEL



KPT-1608 PACKAGE: 2000PCS / REEL



KPT-1608SRC-PRV PACKAGE: 2000PCS / REEL



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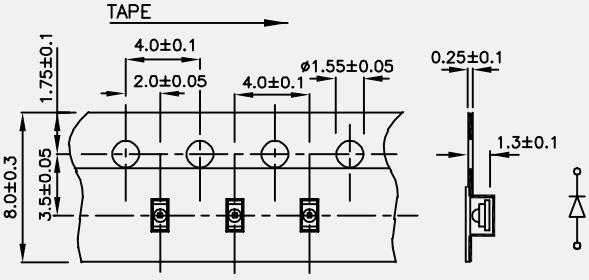
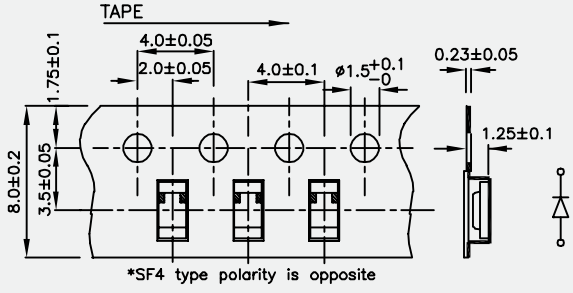
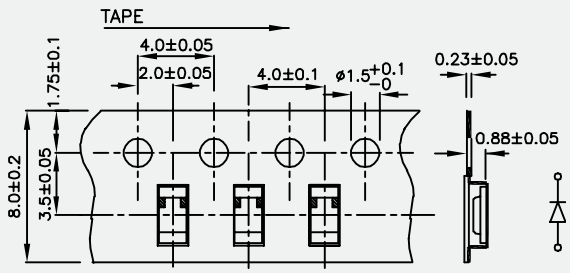


KP-2012 PACKAGE: 2000PCS / REEL

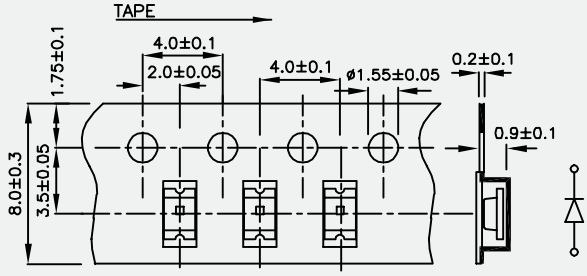


NOTE: 1. All dimensions are in millimeters.

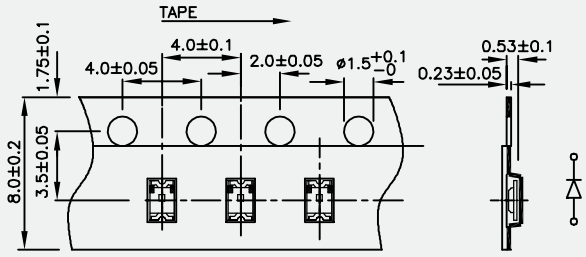
KPT-2012 PACKAGE: 2000PCS / REEL



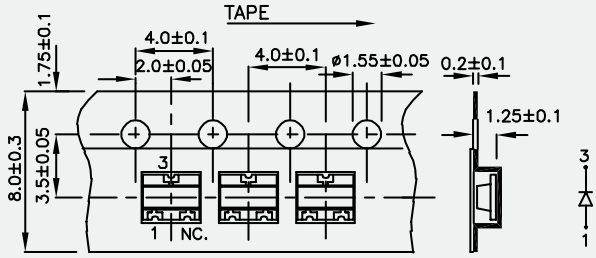
KPTC-2012 PACKAGE: 2000PCS / REEL



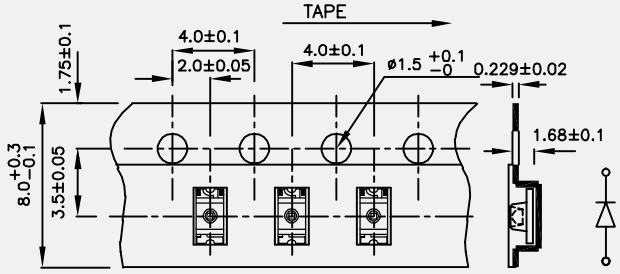
KPHCM-2012 PACKAGE: 2000PCS / REEL



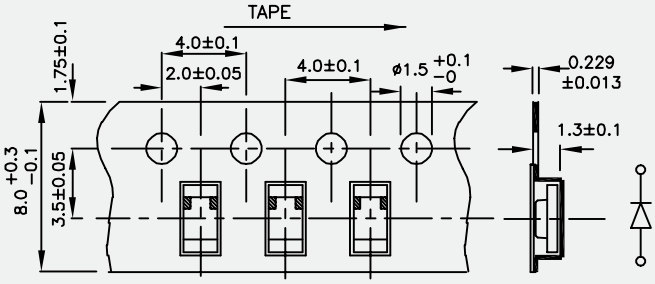
KP-23-F PACKAGE: 2000PCS / REEL



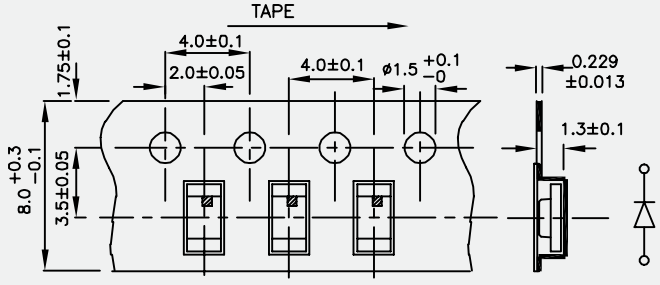
KPL-3015 PACKAGE: 2000PCS / REEL



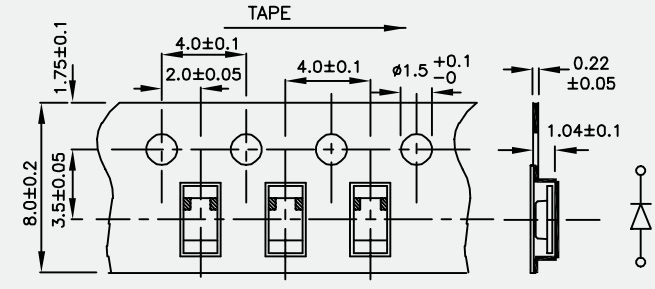
KP-3216 PACKAGE: 2000PCS / REEL



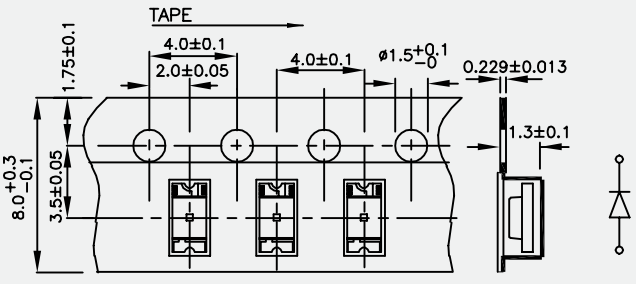
KP-3216SRC-PRV PACKAGE: 2000PCS / REEL



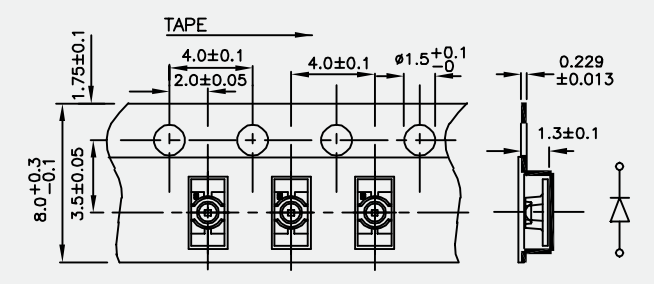
KPT-3216 PACKAGE: 2000PCS / REEL



KPC-3216 PACKAGE: 2000PCS / REEL

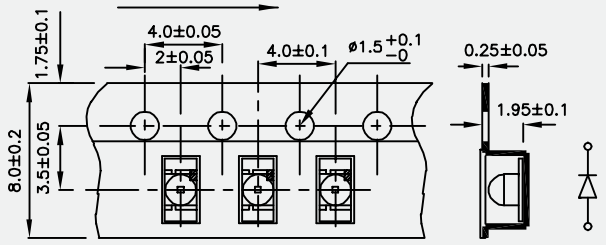


KPTL-3216 PACKAGE: 2000PCS / REEL

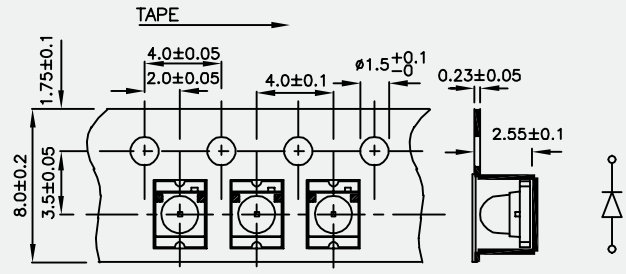


NOTE: 1. All dimensions are in millimeters.

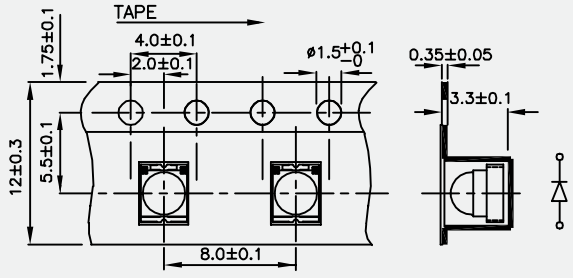
KPTD-3216 **PACKAGE: 2000PCS / REEL**



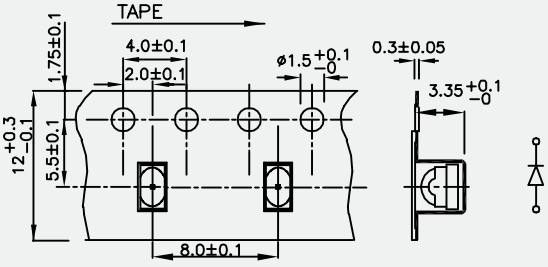
KPD-3224 **PACKAGE: 1500PCS / REEL**



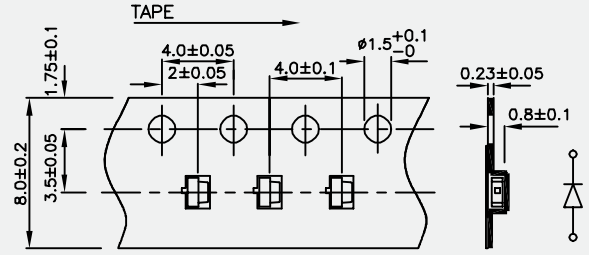
KPED-3528 **PACKAGE: 500PCS / REEL**



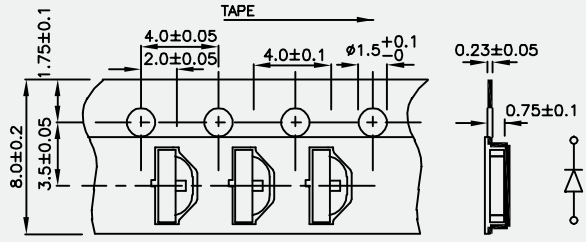
KPED-3820 **PACKAGE: 500PCS / REEL**



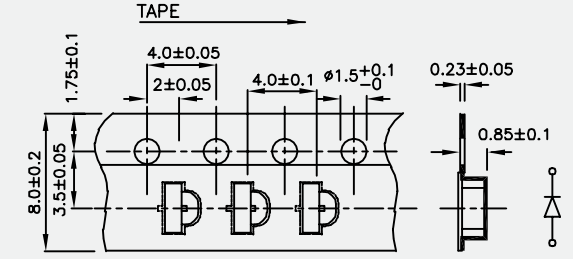
KPA-1606 **PACKAGE: 2000PCS / REEL**



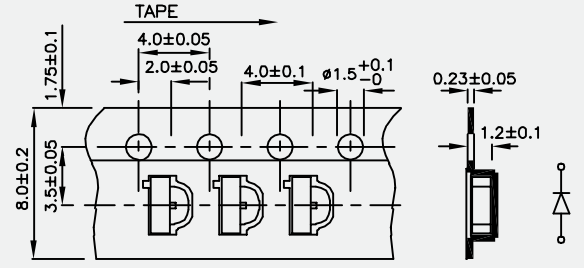
KPA-2106 **PACKAGE: 2000PCS / REEL**



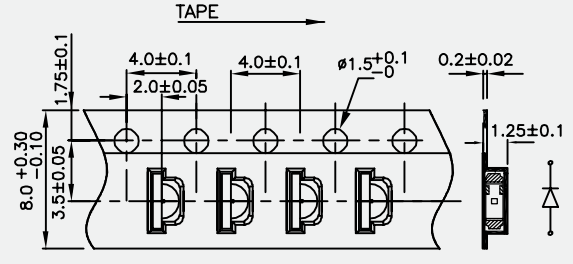
KPJA-2107 **PACKAGE: 2000PCS / REEL**



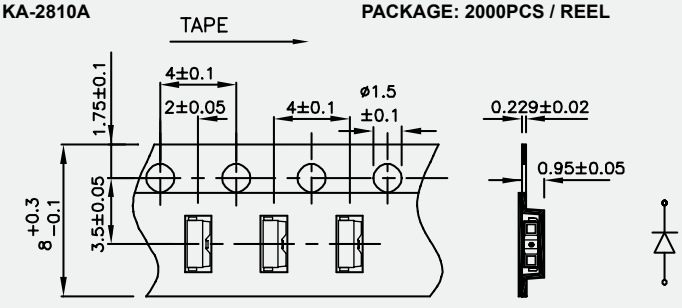
KPA-3010 **PACKAGE: 2000PCS / REEL**



KPA-3210 **PACKAGE: 2000PCS / REEL**

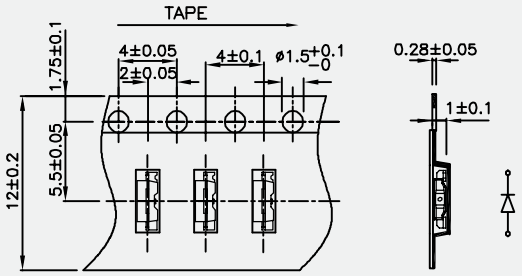


KA-2810A **PACKAGE: 2000PCS / REEL**

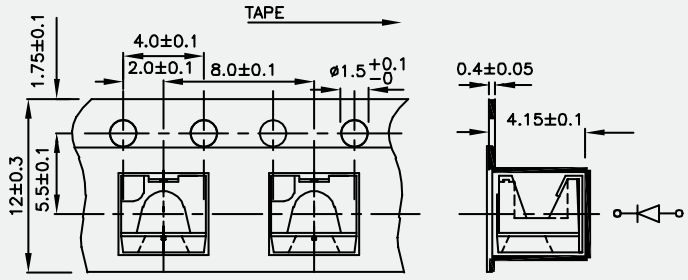


NOTE: 1. All dimensions are in millimeters.

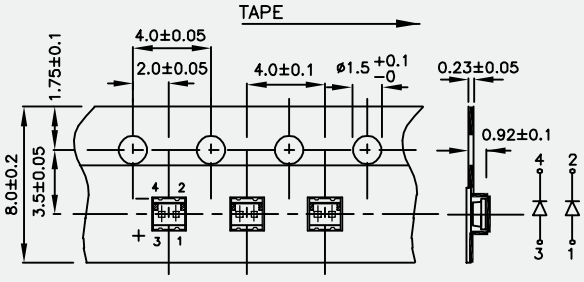
KA-4008 PACKAGE: 2000PCS / REEL



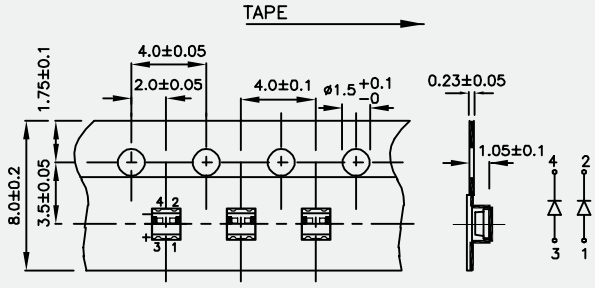
KA-4040 PACKAGE:500PCS / REEL



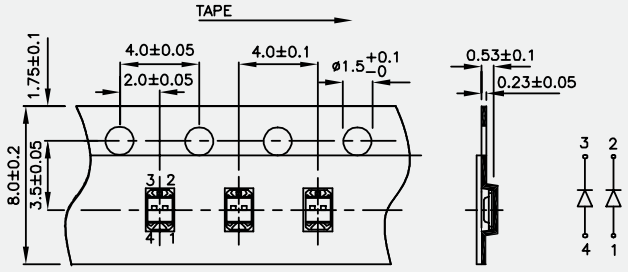
KPTB-1612 PACKAGE: 2000PCS / REEL



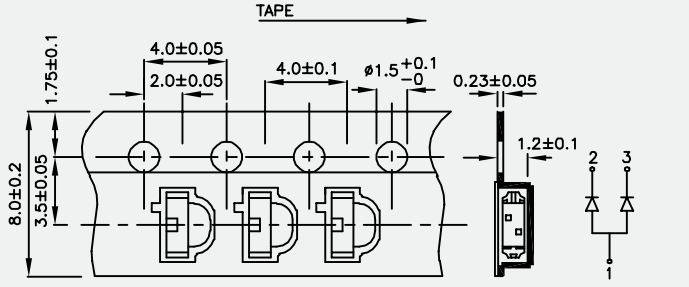
KPTB-1615 PACKAGE: 2000PCS / REEL



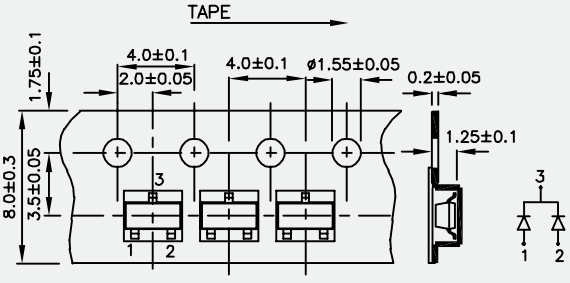
KPHBM-2012 PACKAGE: 2000PCS / REEL



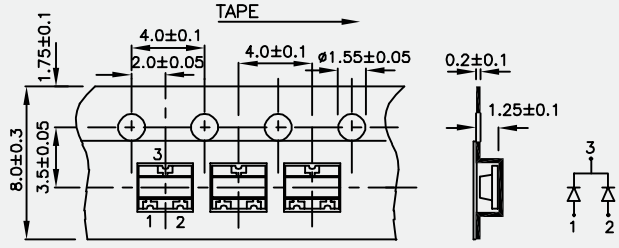
KPBVA-3010 PACKAGE: 2000PCS / REEL



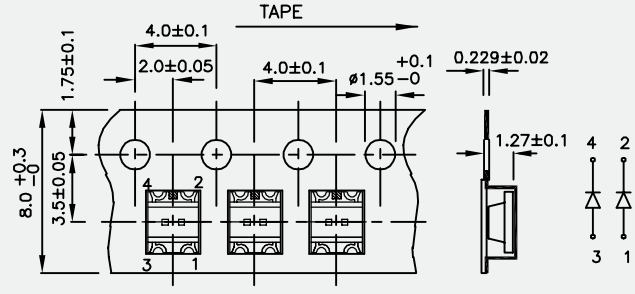
KM-23xxx PACKAGE: 2000PCS / REEL



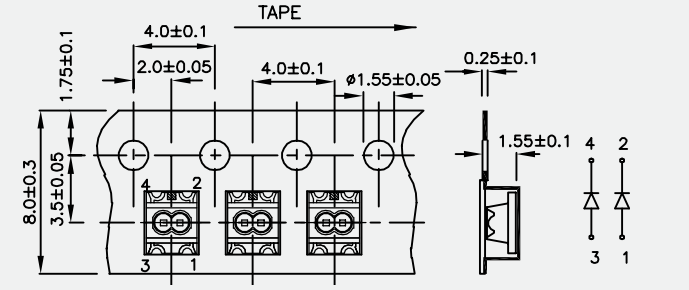
KP-23xxx PACKAGE: 2000PCS / REEL



KPB-3025 PACKAGE: 2000PCS / REEL

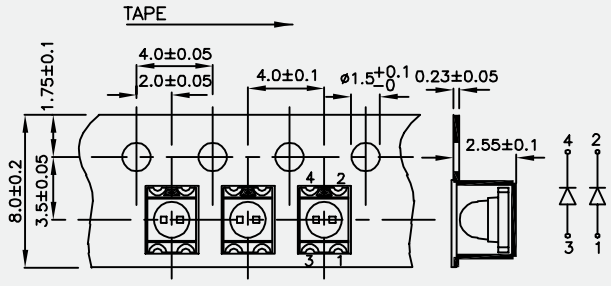


KPBL-3025 PACKAGE: 2000PCS / REEL

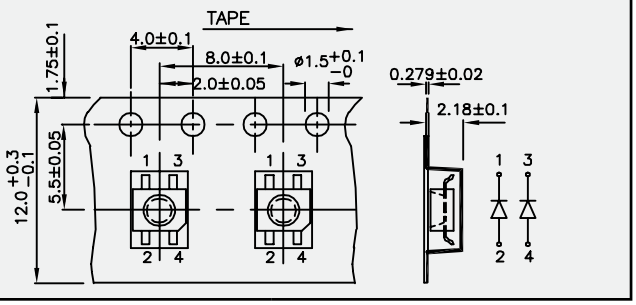


NOTE: 1. All dimensions are in millimeters.

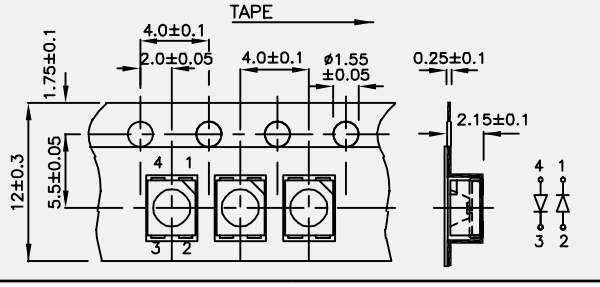
KPBD-3224 PACKAGE: 1500PCS / REEL



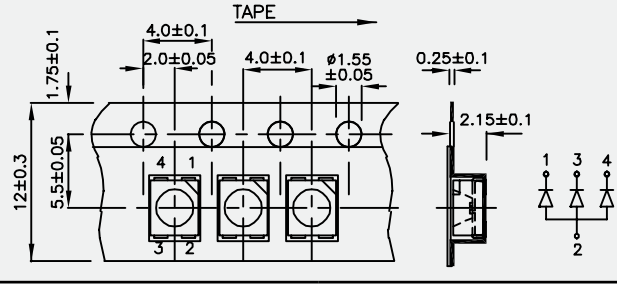
KA-2735 PACKAGE: 1000PCS / REEL



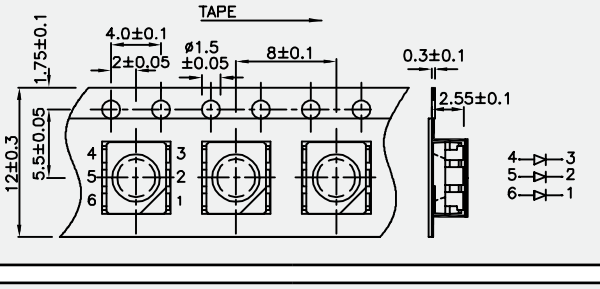
KAA-3528 Bi-Color PACKAGE: 1500PCS / REEL



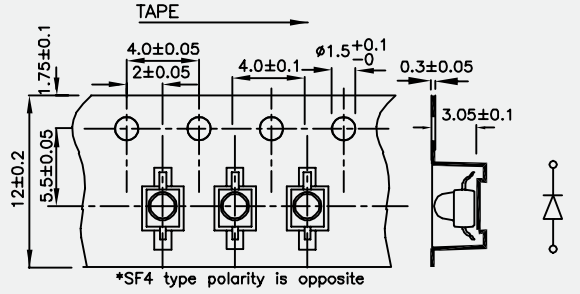
KAA-3528 Full-Color PACKAGE: 1500PCS / REEL



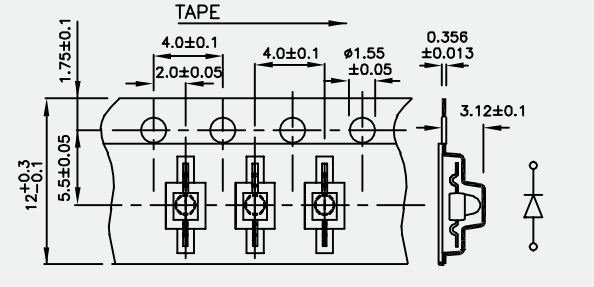
KAAF-5060 PACKAGE: 500PCS / REEL



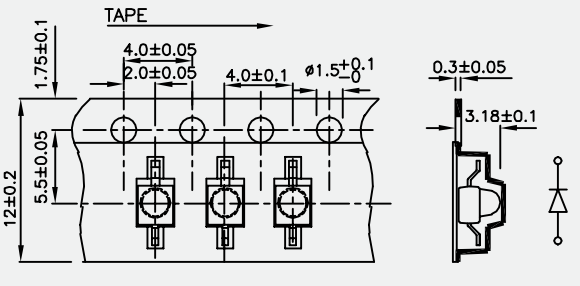
KM2520xxx03 PACKAGE: 1000PCS / REEL



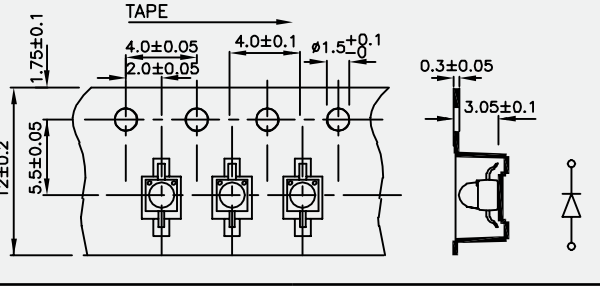
KM2520xxx08 PACKAGE: 1000PCS / REEL



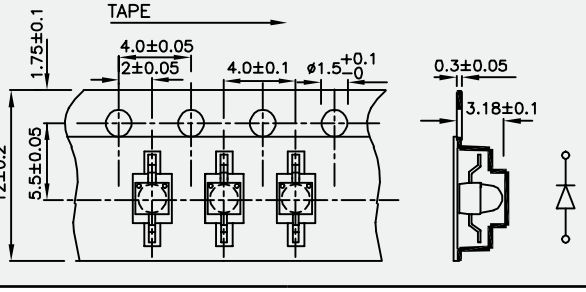
KM2520xxx09 PACKAGE: 1000PCS / REEL



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

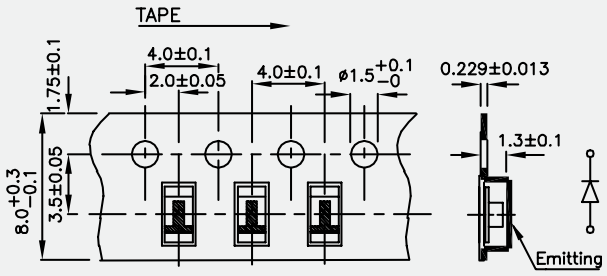


KM-27xxx-09 PACKAGE: 1000PCS / REEL

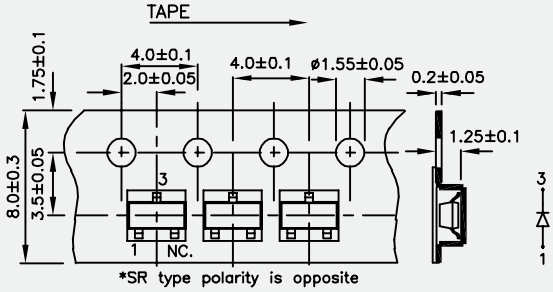


NOTE: 1. All dimensions are in millimeters.

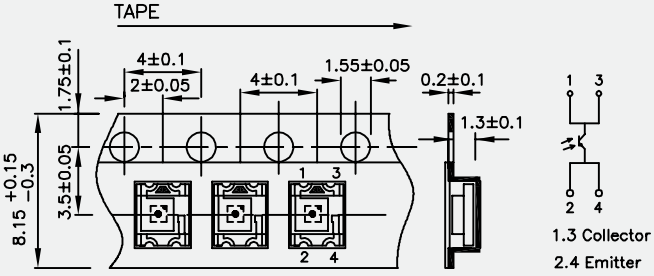
KPTR-3216 **PACKAGE: 2000PCS / REEL**



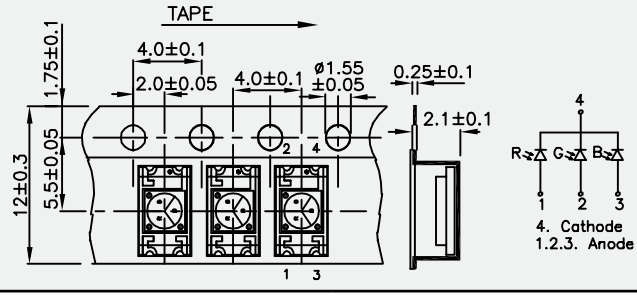
KM-23-F **PACKAGE: 2000PCS / REEL**



KPS-3227SP1C **PACKAGE: 2000PCS / REEL**

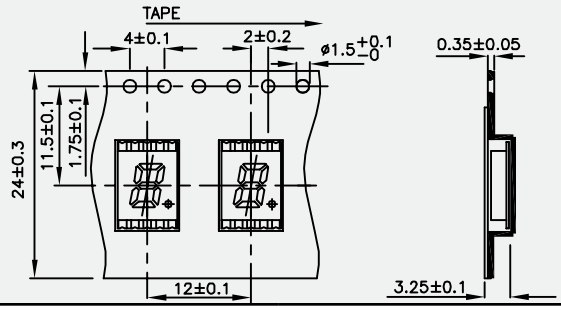


KPS-5130PD7C **PACKAGE: 1500PCS / REEL**

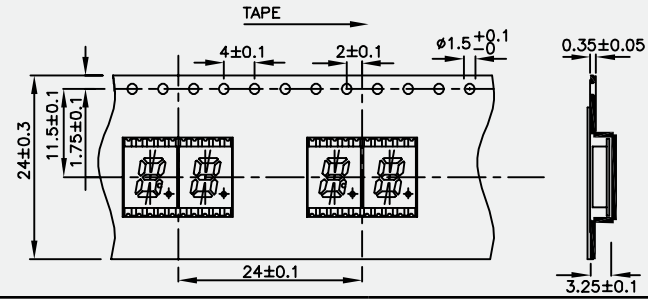


NOTE: 1. All dimensions are in millimeters.

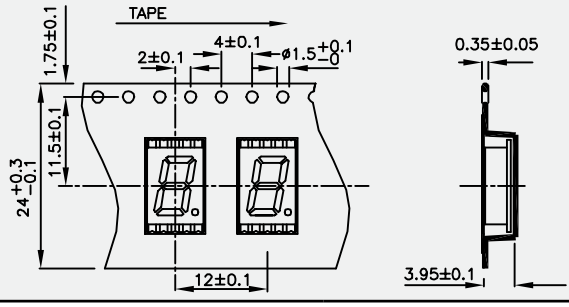
KCSX02 PACKAGE: 650PCS / REEL



KCDX02 PACKAGE: 300PCS / REEL



KCSX03 PACKAGE: 550PCS / REEL



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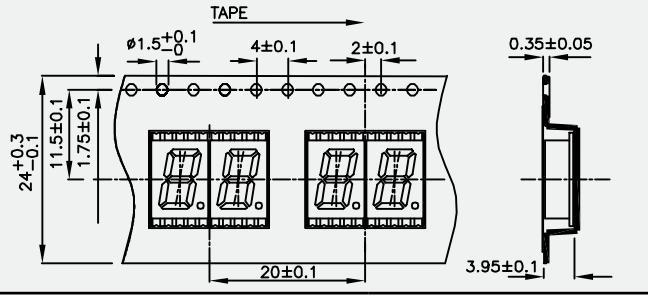
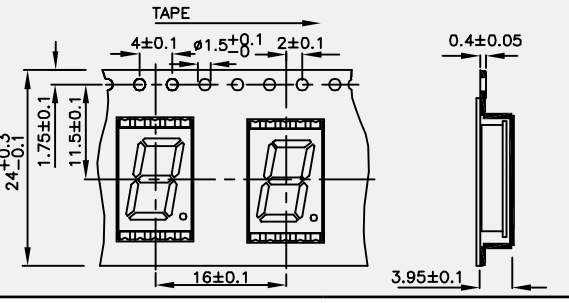
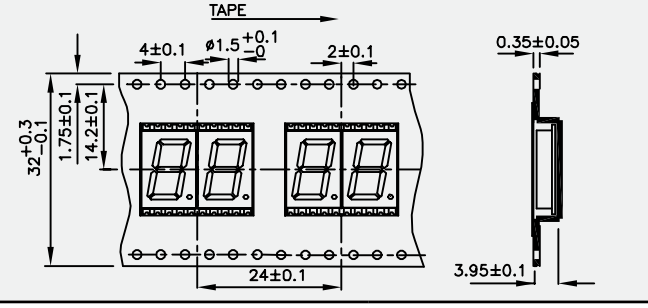


KCSX04 PACKAGE: 400PCS / REEL



KCDX04 PACKAGE: 250PCS / REEL



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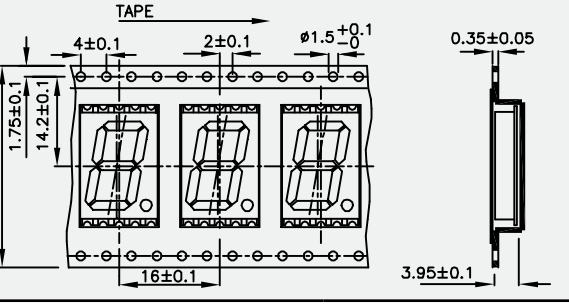

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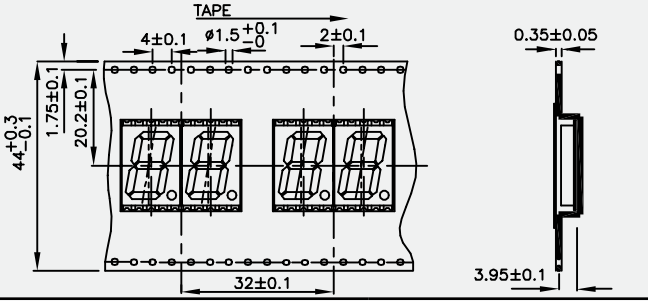

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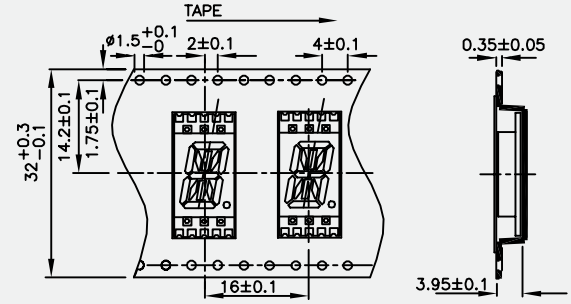

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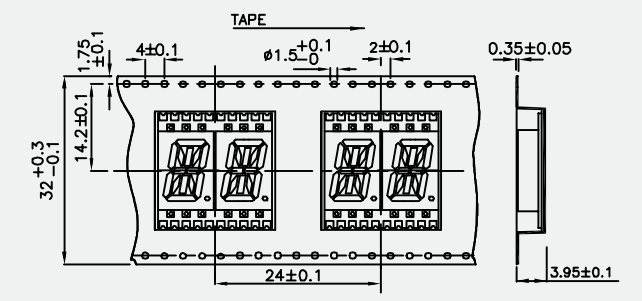
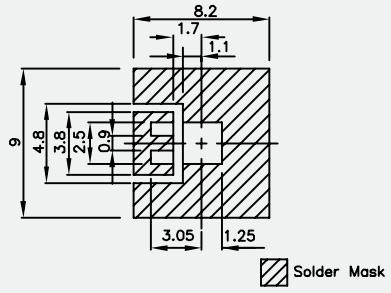


NOTE: 1. All dimensions are in millimeters.

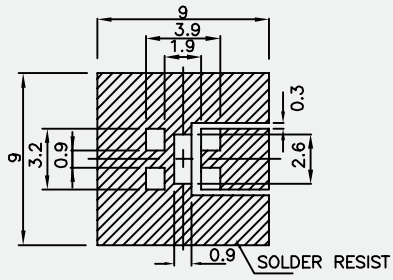
Kingbright

Optoelectronic Components

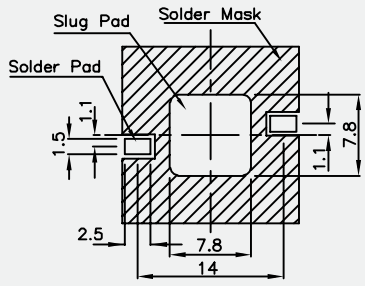
KA-3529



KA-3535



KAD1-9090



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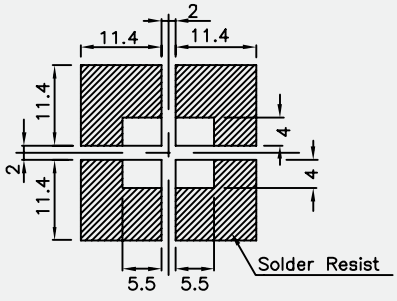
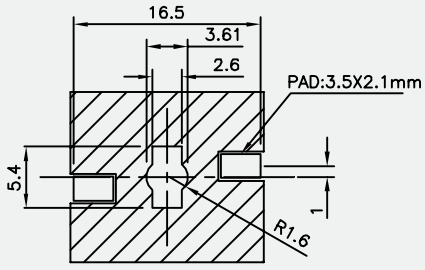
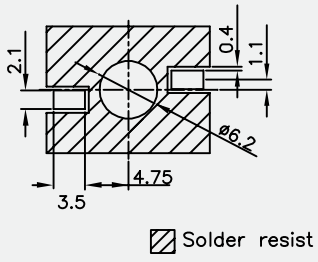


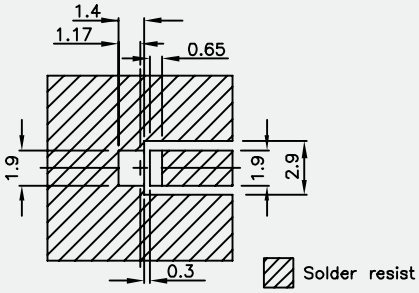
KA-8070, KADS-8070



KA-8080, KADG1-8080



KT-2117



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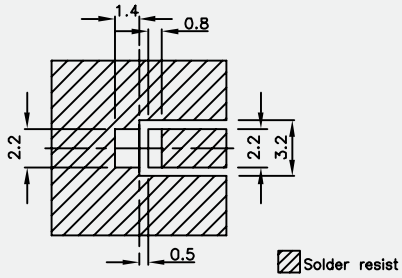

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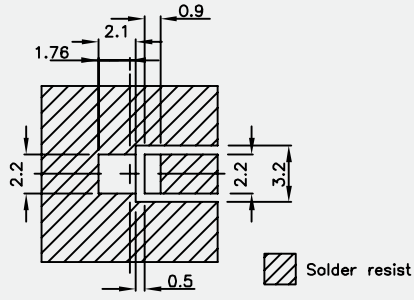

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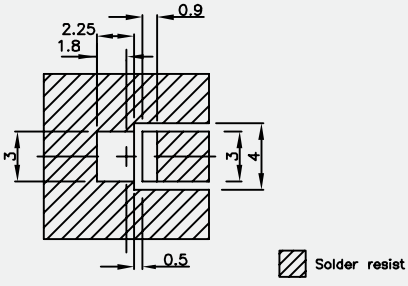

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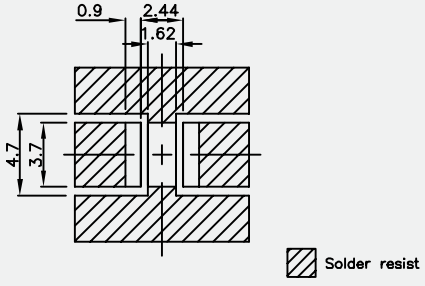
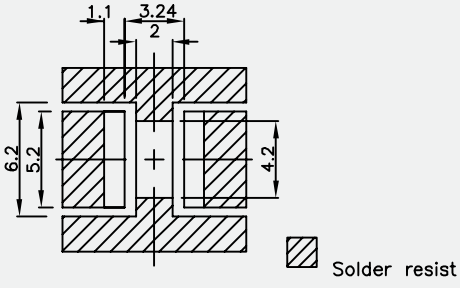
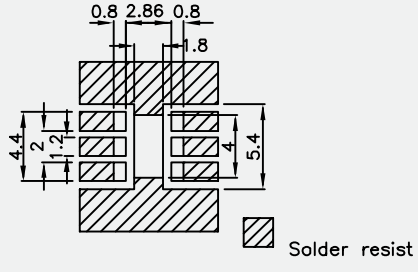


KT-5050



KT-5051



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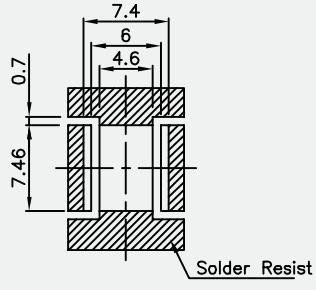

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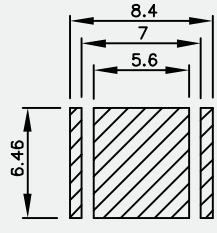
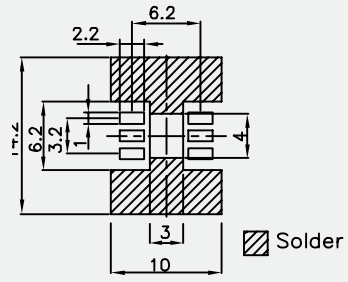


NOTES:
1. All dimensions are in millimeters.
2. Tolerance is ±0.1mm unless otherwise noted.

KAAF5051



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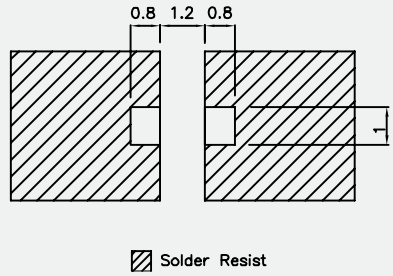

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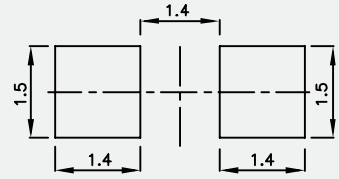
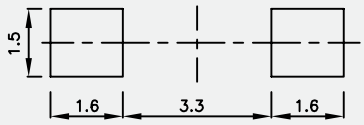
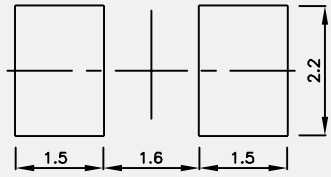


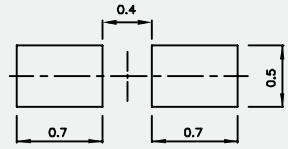
KA-3022-4.5SF



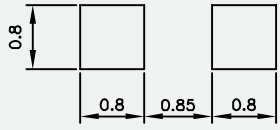
KA-3528 , KPED-3528



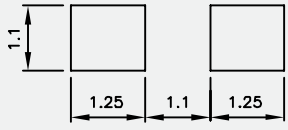
KPHHS-1005



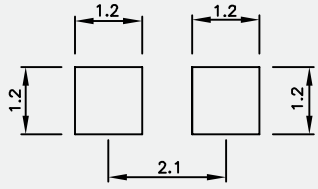
KP-1608, KPT-1608, KPTD-1608



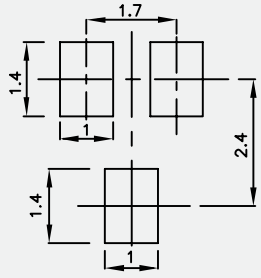
KP-2012, KPT-2012, KPTC-2012



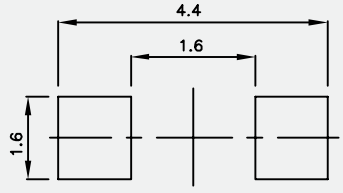
KPHCM-2012



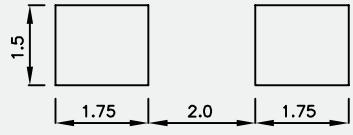
KP-23-F, KP-23xxx



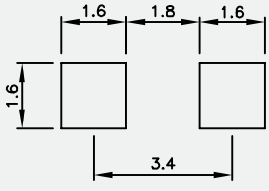
KPL-3015



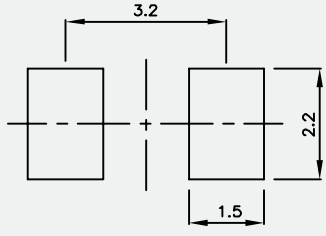
KP-3216, KPT-3216, KPC-3216, KPTD-3216



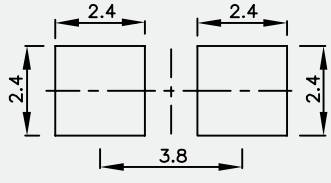
KPTL-3216



KPD-3224

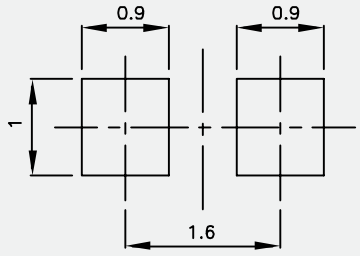


KPED-3820

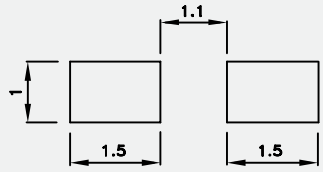


NOTES:
1. All dimensions are in millimeters.
2. Tolerance is ±0.1mm unless otherwise noted.

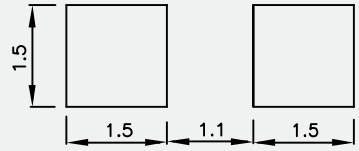
KPA-1606



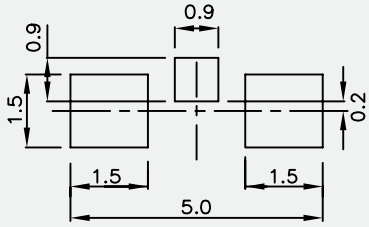
KPA-2106



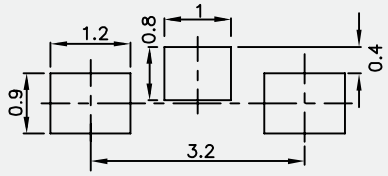
KPJA-2107



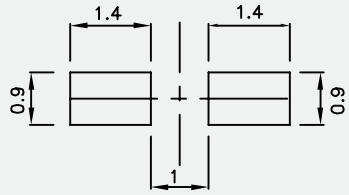
KPA-3010, KPBVA-3010



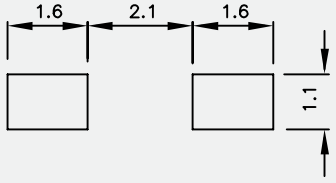
KPA-3210



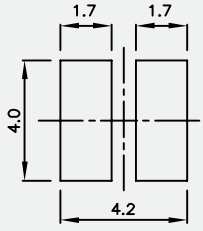
KA-2810A



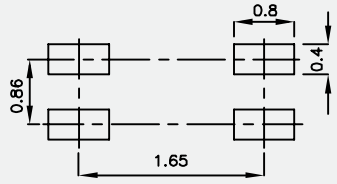
KA-4008



KA-4040



KPTB-1612



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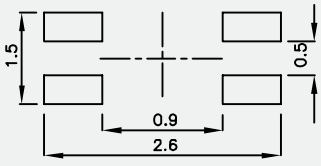
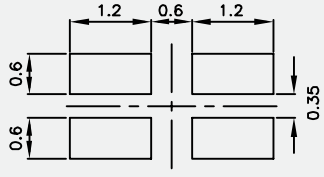
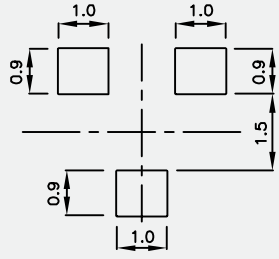


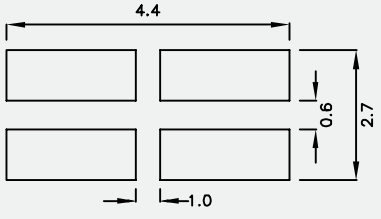
KPHBM-2012



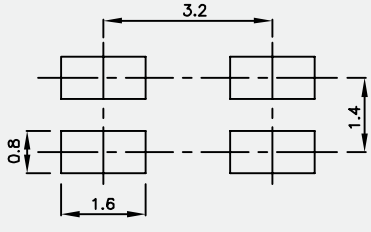
KM-23-F, KM-23xxx



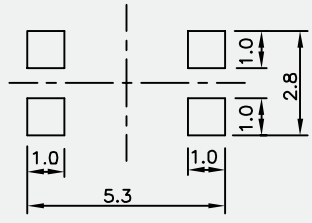
KPB-3025, KPBL-3025



KPBD-3224

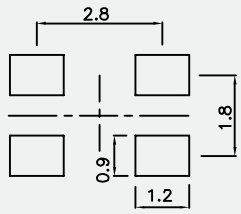


KA-2735

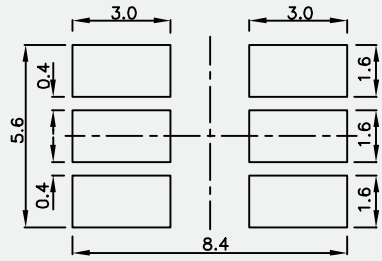


NOTES:
1. All dimensions are in millimeters.
2. Tolerance is ±0.1mm unless otherwise noted.

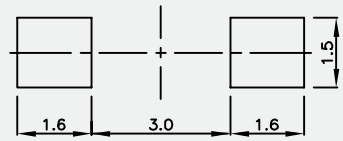
KAA-3528



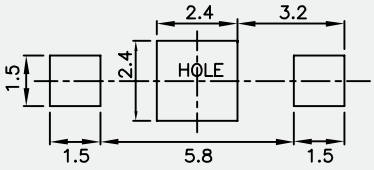
KAAF-5060



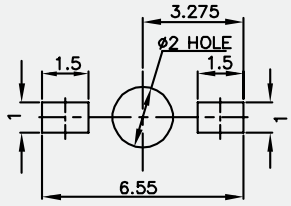
KM2520xxx03, KM-27xxx-03



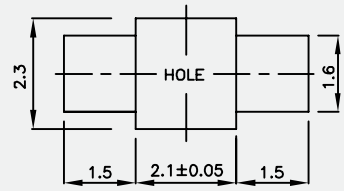
KM2520xxx08



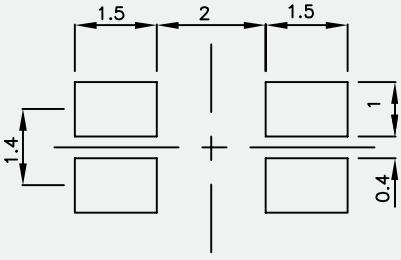
KM2520xxx09, KM-27xxx-09



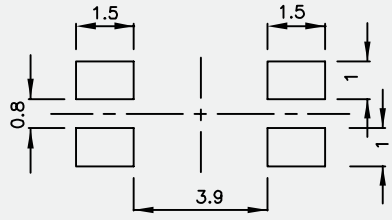
KPTR-3216



KPS-3227SP1C

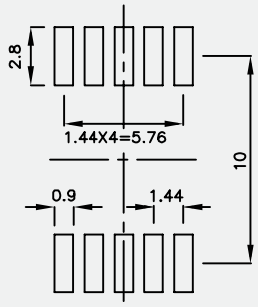


KPS-5130PD7C



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

KCSX02



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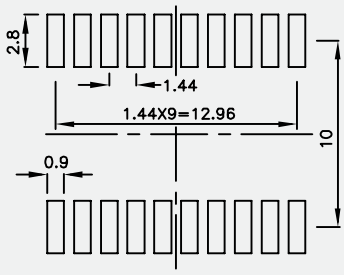

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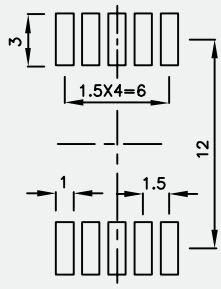

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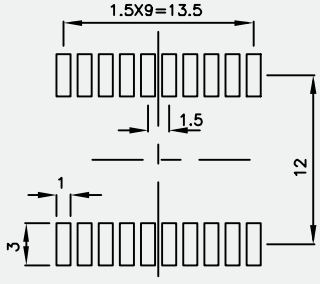

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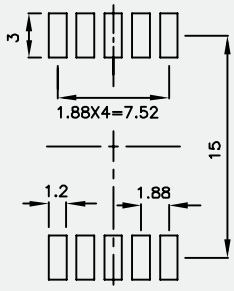

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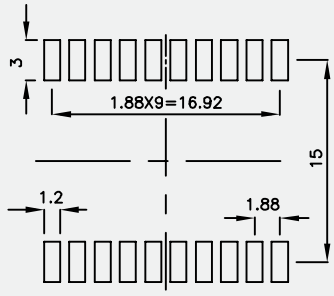

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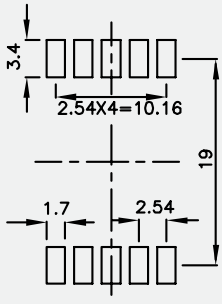

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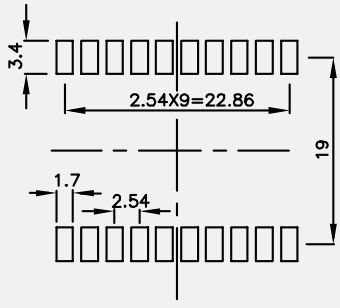

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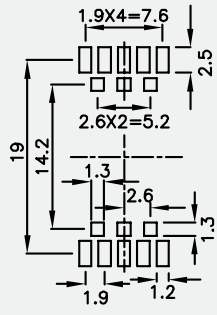

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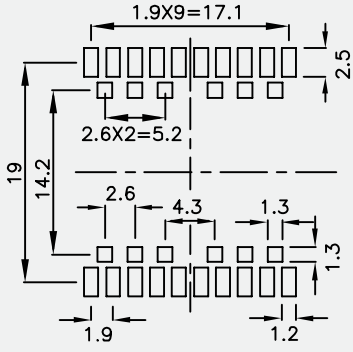


NOTES:
1. All dimensions are in millimeters.
2. Tolerance is ±0.15mm unless otherwise noted.

Kingbright

Optoelectronic Components

Absolute maximum ratings (T_A=25°C)		E,I Hi.Eff.Red Orange (GaAsP/GaP)	H Bright Red (GaP)	SR Super Bright Red (GaAlAs)	SURK Hyper Red (AlGaInP)	SUR-E Hyper Red (AlGaInP)	SUR-G Hyper Red (AlGaInP)	N Pure Orange (GaAsP/GaP)	SEK Super Bright Orange (AlGaInP)	Unit
		●	●	●	●	●	●	●	●	
Reverse voltage	V_R	5	5	5	5	5	5	5	5	V
Forward current	I_F	30	25	30	30	30	30	25	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i_{FS}	160	130	155	185	200	150	145	195	mA
Power dissipation	P_D	75	62.5	75	75	75	75	62.5	75	mW
LED LAMPS:										
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:										
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating Characteristics		E,I Hi.Eff.Red Orange (GaAsP/GaP)	H Bright Red (GaP)	SR Super Bright Red (GaAlAs)	SURK Hyper Red (AlGaInP)	SUR-E Hyper Red (AlGaInP)	SUR-G Hyper Red (AlGaInP)	N Pure Orange (GaAsP/GaP)	SEK Super Bright Orange (AlGaInP)	Unit
		●	●	●	●	●	●	●	●	
Forward voltage (typ.)										
I_F=20mA		2.0	2.25	1.85	1.95	1.9	1.9	2.05	2.1	
I_F=10mA	V_F	1.9	2.05	1.8	1.85	1.8	1.85	1.95	2.0	V
I_F=2mA		1.7	1.85	1.65	1.75	1.7	1.75	1.85	1.85	
Forward voltage (max.) I_F=20mA, 10mA, 2mA	V_F	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	V
Reverse current V_R=5V	I_R	10	10	10	10	10	10	10	10	uA
Peak Emission Wavelength I_F=20mA, 10mA, 2mA	λp	627	700	660	650	640	640	607	610	nm
Dominant Wavelength I_F=20mA, 10mA, 2mA	λD	**625**	**660**	**640**	**630**	**630**	**630**	**610**	**601**	nm
Spectral line half-width I_F=20mA, 10mA, 2mA	Δλ1/2	45	45	20	28	25	22	35	29	nm
Capacitance V_F=0V,f=1MHZ	C	15	40	45	35	45	45	15	15	pF

Absolute maximum ratings (T_A=25°C)		SE-E Hyper Red (AlGaInP)	SE-H Hyper Red (AlGaInP)	G,SG Green, Super Bright Green (GaP)	PG Pure Green (GaP)	CGK Green (AlGaInP)	MGK Mega Green (AlGaInP)	MG Mega Green (AlGaInP)	ZG Green (InGaN)	Unit
		●	●	●	●	●	●	●	●	
Reverse voltage	V_R	5	5	5	5	5	5	5	5	V
Forward current	I_F	30	30	25	25	30	30	30	25	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i_{FS}	195	150	140	135	150	150	150	150	mA
Power dissipation	P_D	75	84	62.5	62.5	75	75	75	102.5	mW
LED LAMPS:										
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:										
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating Characteristics		SE-E Hyper Red (AlGaInP)	SE-H Hyper Red (AlGaInP)	G,SG Green, Super Bright Green (GaP)	PG Pure Green (GaP)	CGK Green (AlGaInP)	MGK Mega Green (AlGaInP)	MG Mega Green (AlGaInP)	ZG Green (InGaN)	Unit
		●	●	●	●	●	●	●	●	
Forward voltage (typ.)										
I_F=20mA		2.0	2.2	2.2	2.25	2.1	2.1	2.1	3.3	
I_F=10mA	V_F	1.9	2.05	2.0	2.1	2.0	2.0	2.0	3.0	V
I_F=2mA		1.8	1.85	1.9	1.9	1.9	1.9	1.9	2.65	
Forward voltage (max.) I_F=20mA, 10mA, 2mA	V_F	2.5	2.8	2.5	2.5	2.5	2.5	2.5	4.1	V
Reverse current V_R=5V	I_R	10	10	10	10	10	10	10	50	uA
Peak Emission Wavelength I_F=20mA, 10mA, 2mA	λp	630	640	565	555	574	574	574	515	nm
Dominant Wavelength I_F=20mA, 10mA, 2mA	λD	**621**	**630**	**568**	**555**	**570**	**570**	**570**	**525**	nm
Spectral line half-width I_F=20mA, 10mA, 2mA	Δλ1/2	20	25	30	30	20	20	26	30	nm
Capacitance V_F=0V,f=1MHZ	C	25	27	15	45	15	15	20	45	pF

Absolute maximum ratings (T_A=25°C)		ZG-E Green (InGaN)	ZG-G Green (InGaN)	Y Yellow (GaAsP/GaP)	SYK Super Bright Yellow (AlGaInP)	SY-H Super Bright Yellow (AlGaInP)	QB-D Blue (InGaN)	QB-F Blue (InGaN)	QB-G Blue (InGaN)	Unit
		●	●	●	●	●	●	●	●	
Reverse voltage	V_R	5	5	5	5	5	5	5	5	V
Forward current	I_F	30	30	30	30	30	30	30	30	mA
Forward current (Peak) 1/10 Duty Cycle, 0.1ms Pulse Width	i_{FS}	100	100	140	175	140	150	150	150	mA
Power dissipation	P_D	120	120	75	75	84	120	120	120	mW
LED LAMPS:										
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
LED DISPLAYS:										
Operating temperature	T_A	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C
Storage temperature	T_{STG}	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	- 40~+85	°C

Operating Characteristics		ZG-E Green (InGaN)	ZG-G Green (InGaN)	Y Yellow (GaAsP/GaP)	SYK Super Bright Yellow (AlGaInP)	SY-H Super Bright Yellow (AlGaInP)	QB-D Blue (InGaN)	QB-F Blue (InGaN)	QB-G Blue (InGaN)	Unit
		●	●	●	●	●	●	●	●	
Forward voltage (typ.)										
I_F=20mA		3.2	3.2	2.1	2.0	2.3	3.3	3.3	3.3	
I_F=10mA	V_F	3.05	3.05	1.95	1.95	2.2	3.0	3.0	3.0	V
I_F=2mA		2.8	2.8	1.85	1.85	2.0	2.65	2.65	2.65	
Forward voltage (max.) I_F=20mA, 10mA, 2mA	V_F	4.0	4.0	2.5	2.5	2.8	4.0	4.0	4.0	V
Reverse current V_R=5V	I_R	50	50	10	10	10	50	50	50	uA
Peak Emission Wavelength I_F=20mA, 10mA, 2mA	λp	520	520	590	590	590	468	461	461	nm
Dominant Wavelength I_F=20mA, 10mA, 2mA	λD	**525**	**525**	**588**	**590**	**589**	**470**	**465**	**465**	nm
Spectral line half-width I_F=20mA, 10mA, 2mA	Δλ1/2	35	35	35	20	20	25	25	25	nm
Capacitance V_F=0V,f=1MHZ	C	100	100	20	20	45	100	100	100	pF

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

Operating Characteristics		E,I Hi.Eff.Red (GaAsP/GaP)	SR Super Bright Red (GaAlAs)	G,SG Green, Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	Unit
		●	●	●	●	
Forward current (typ.) V_F=5V	I_F	13	13	11.5	13	mA
Forward current (typ.) V_F=12V	I_F	8.5	8.5	8.5	8.5	mA
Forward current (typ.) V_F=14V	I_F	10.5	10.5	10.5	10.5	mA
Forward current (max.) V_F=5V	I_F	17.5	17.5	17.5	17.5	mA
Forward current (max.) V_F=12V	I_F	11.5	11.5	11.5	11.5	mA
Forward current (max.) V_F=14V	I_F	13.5	13.5	13.5	13.5	mA
Reverse current V_R=5V	I_R	10	10	10	10	uA
Peak Emission Wavelength V_F=5V,12V,14V	λp	627	660	565	590	nm
Dominant Wavelength V_F=5V,12V,14V	λD	**625**	**640**	**568**	**588**	nm
Spectral line half-width V_F=5V,12V,14V	Δλ1/2	45	20	30	35	nm

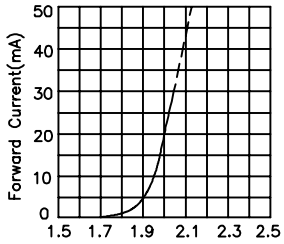
Absolute maximum ratings (T_A=25°C)		E,I Hi.Eff.Red (GaAsP/GaP)	H Bright Red (GaP)	SR Super Bright Red (GaAlAs)	G,SG Green, Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	Unit
		●	●	●	●	●	
Reverse voltage	V_R	0.5	0.5	0.5	0.5	0.5	V
Forward voltage (max.)	V_F	14	14	14	14	14	V
Total Power dissipation	P_D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

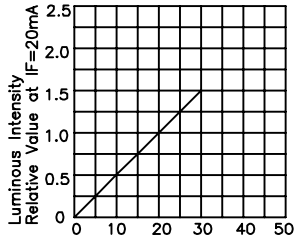
Operating Characteristics		E,I Hi.Eff.Red (GaAsP/GaP)	H Bright Red (GaP)	SR Super Bright Red (GaAlAs)	G,SG Green, Super Bright Green (GaP)	Y Yellow (GaAsP/GaP)	Unit
		●	●	●	●	●	
Forward current (min.) V_F=3.5V	I_F	8	8	8	8	8	mA
Forward current (typ.) V_F=5V	I_F	22	22	22	22	22	mA
Supply current V_F=3.5V ~ 14V	I_{SON}	8 ~ 44	8 ~ 44	8 ~ 44	8 ~ 44	8 ~ 44	mA
Blink frequency V_F=3.5V ~ 14V	f	3 ~ 1.5	3 ~ 1.5	3 ~ 1.5	3 ~ 1.5	3 ~ 1.5	Hz
Peak Emission Wavelength	λp	627	700	660	565	590	nm
Dominant Wavelength	λD	**625**	**660**	**640**	**568**	**588**	nm
Spectral line half-width	Δλ1/2	45	45	20	30	35	nm

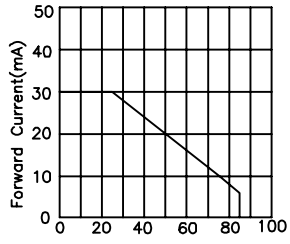
Absolute maximum ratings (T_A=25°C)		F3 (GaAs)	SF4 (GaAlAs)	SF6 (GaAlAs)	SF7 (GaAlAs)	Unit
Reverse voltage	V_R	5	5	5	5	V
Forward current	I_F	50	50	50	50	mA
Forward current (Peak) 1/100 Duty Cycle, 10μs Pulse Width	i_{FS}	1.2	1.2	1	1	A
Power dissipation	P_D	80	80	80	80	mW
LED LAMPS:						
Operating temperature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

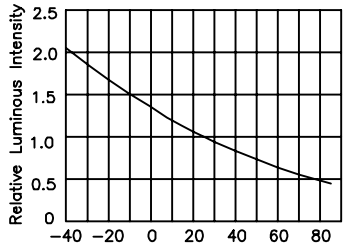
Operating Characteristics		F3 (GaAs)	SF4 (GaAlAs)	SF6 (GaAlAs)	SF7 (GaAlAs)	Unit
Forward voltage (typ.) I_F=20mA	V_F	1.2	1.3	1.35	1.4	V
Forward voltage (max.) I_F=20mA	V_F	1.6	1.6	1.6	1.6	V
Reverse current V_R=5V	I_R	10	10	10	10	uA
Peak Emission Wavelength I_F=20mA	λp	940	880	860	850	nm
Spectral line half-width I_F=20mA	Δλ1/2	50	50	50	50	nm
Capacitance VF=0V,f=1MHZ	C	90	90	30	30	pF

High Efficiency Red,Orange | E,I : GaAsP/GaP

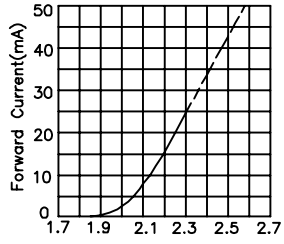


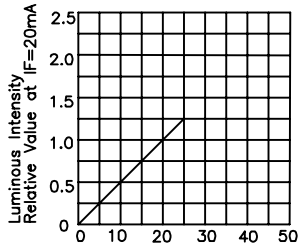


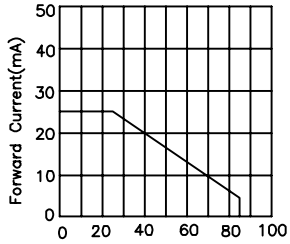


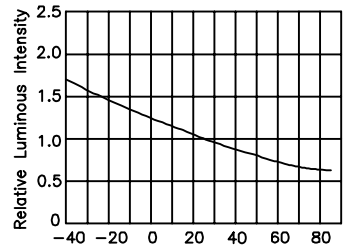


Bright Red | H : GaP

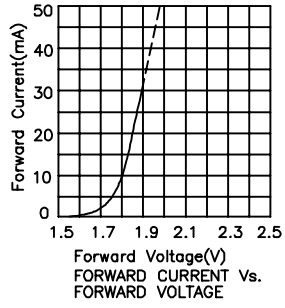


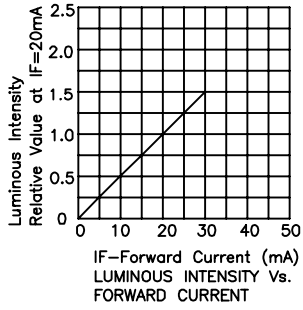


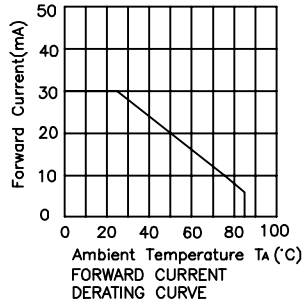


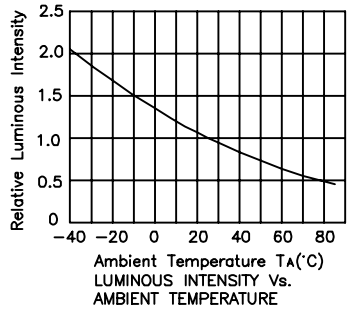


Super Bright Red | SR : GaAlAs

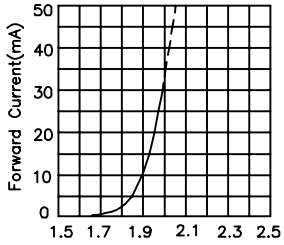


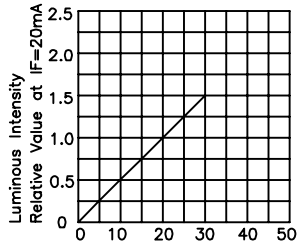


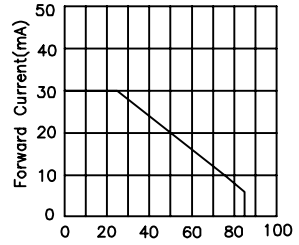


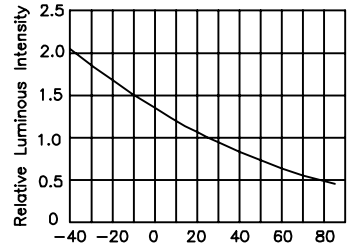


Hyper Red | SURK : AlGaInP

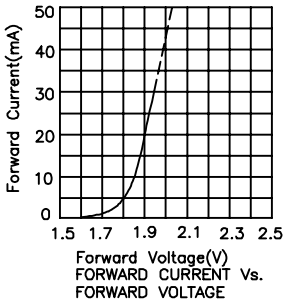


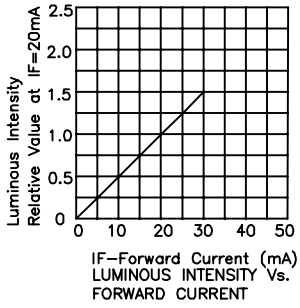




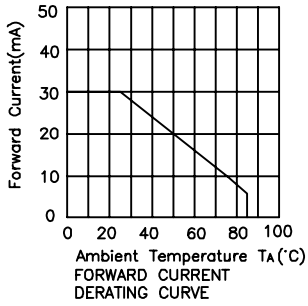


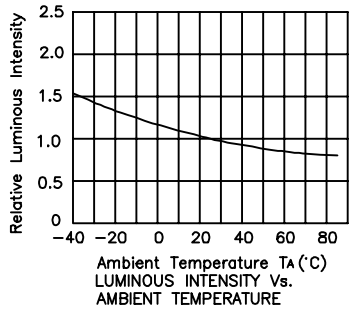
Hyper Red



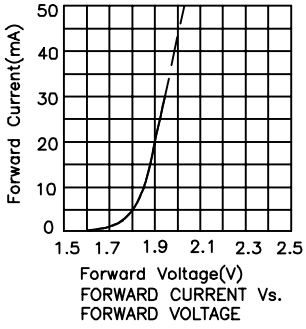


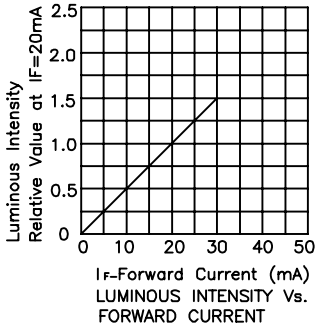
SUR-E : AlGaInP



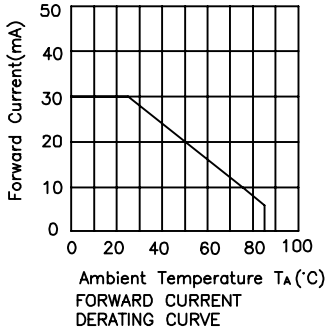


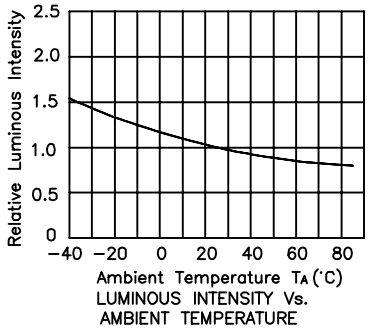
Hyper Red



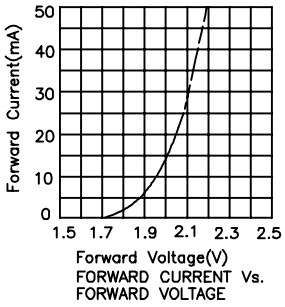


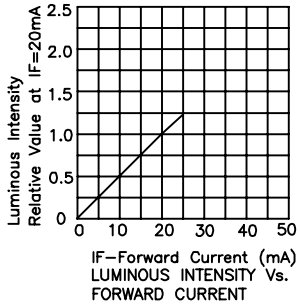
SUR-G : AlGaInP



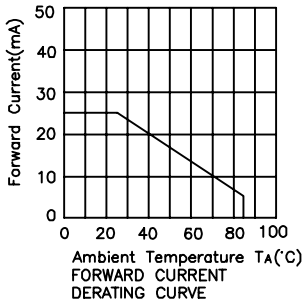


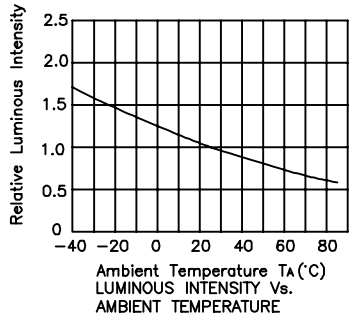
Pure Orange



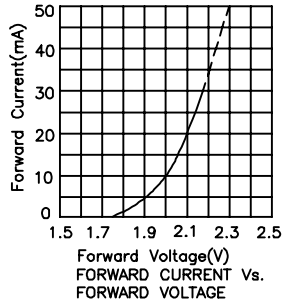


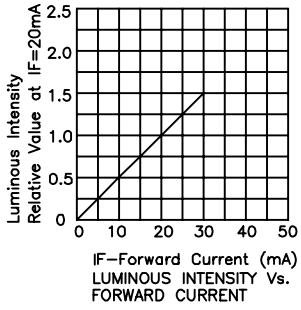
N : GaAsP/GaP



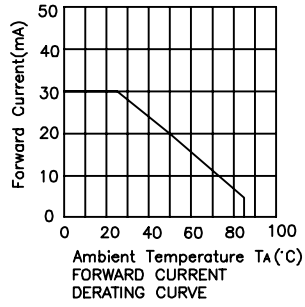


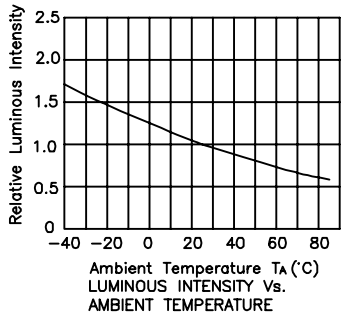
Super Bright Orange



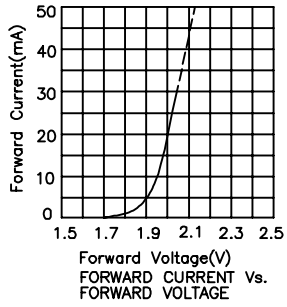


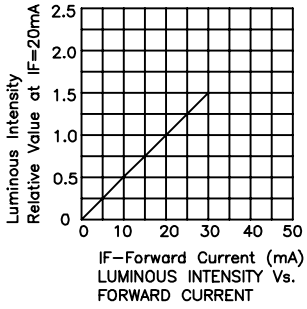
SEK : AlGaInP

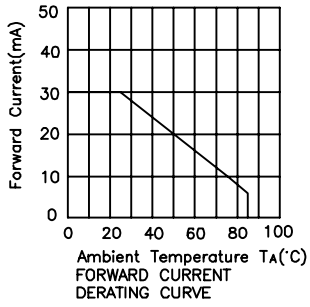


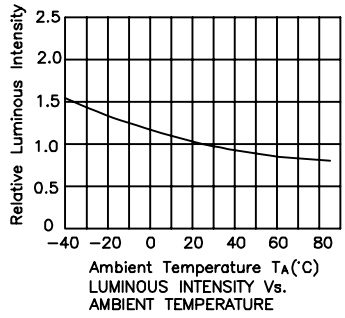


Hyper Red — SE-E : AlGaInP

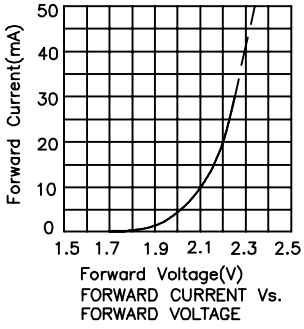


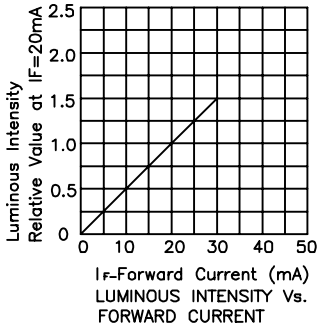


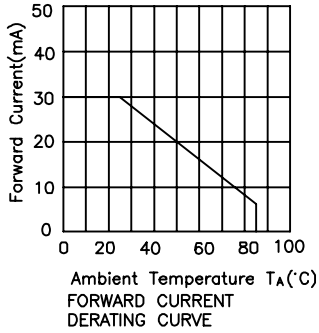


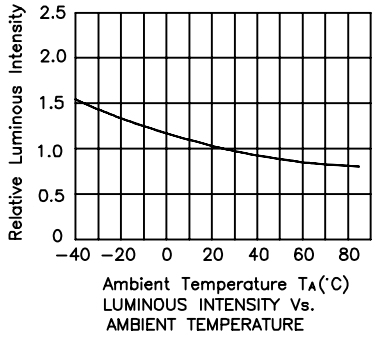


Hyper Red — SE-H : AlGaInP

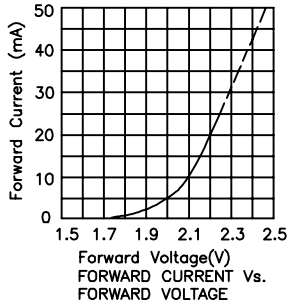


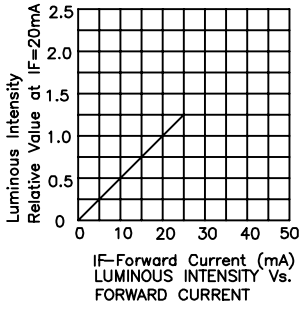


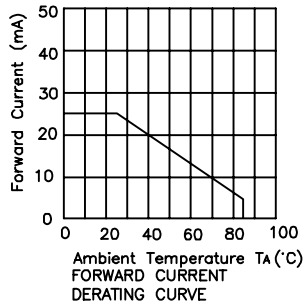


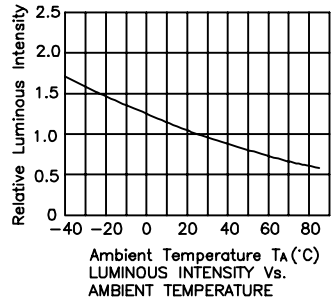


Green, Super Bright Green — G,SG : GaP

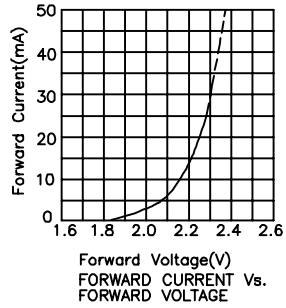


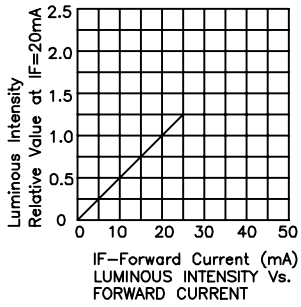


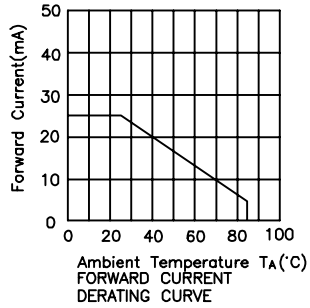


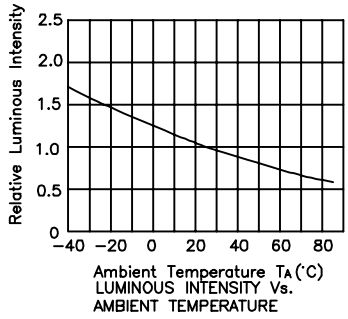


Pure Green — PG : GaP

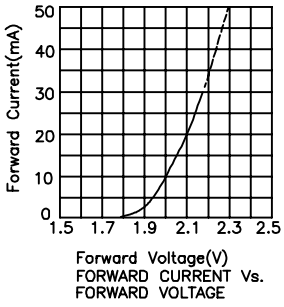


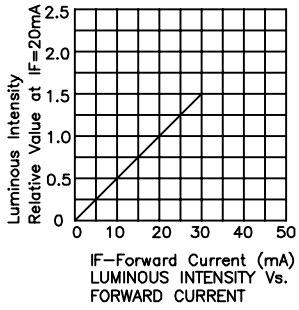


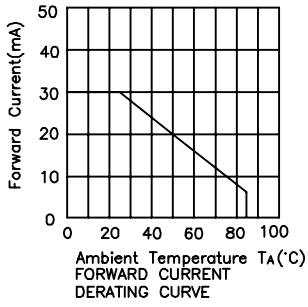


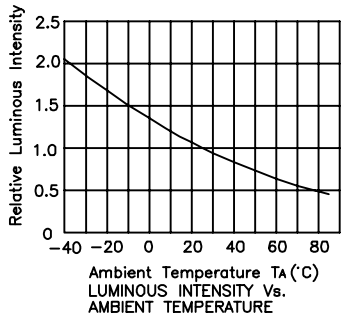


Green — CGK : AlGaInP

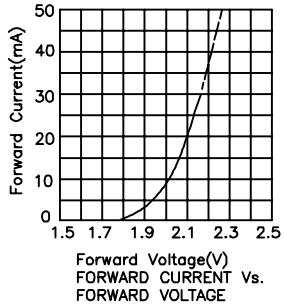


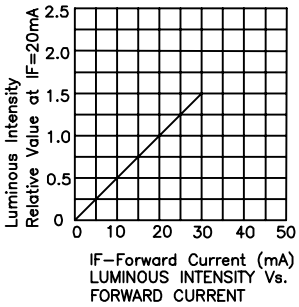


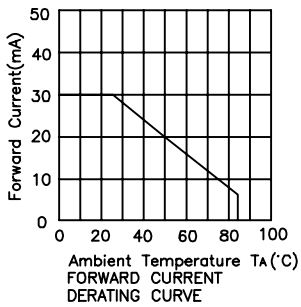


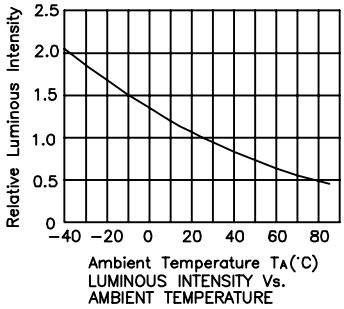


Mega Green — MGK : AlGaInP

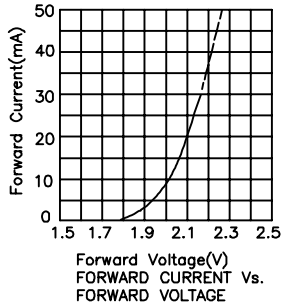


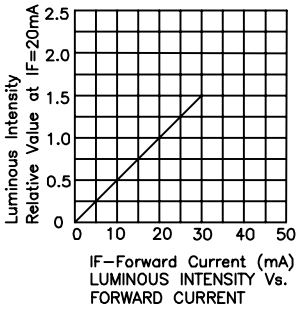


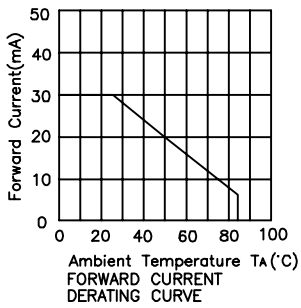


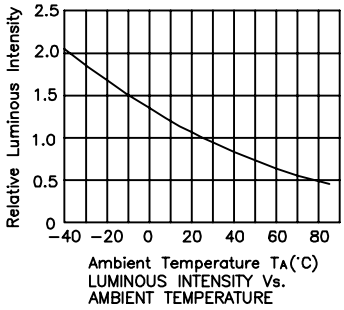


Mega Green — MG : AlGaInP

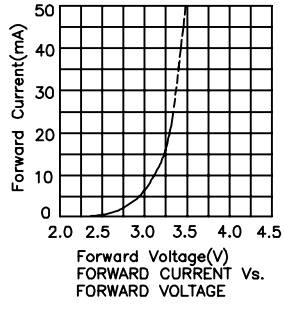


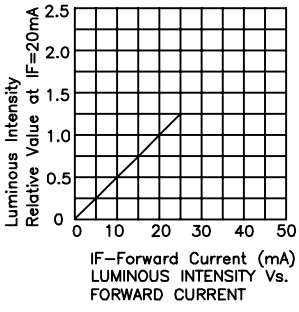


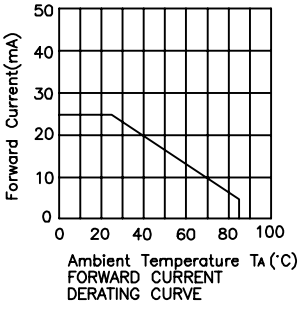


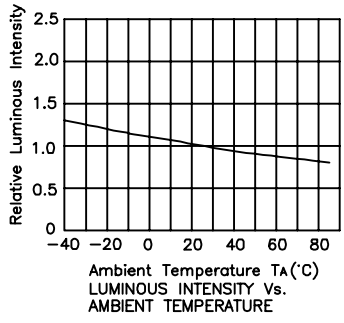


Green — ZG : InGaN

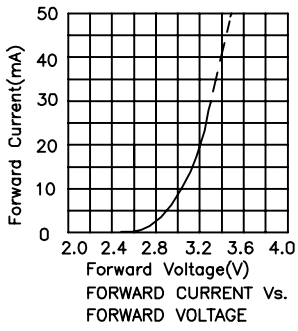


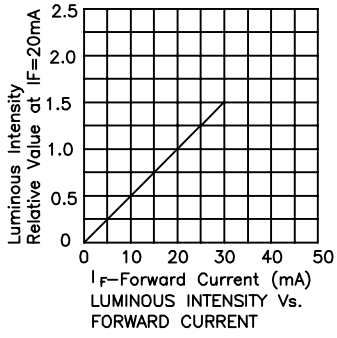


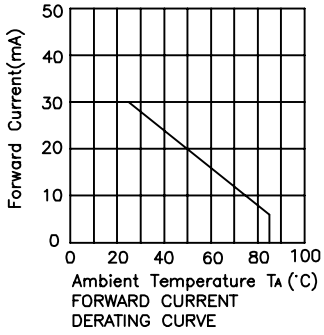


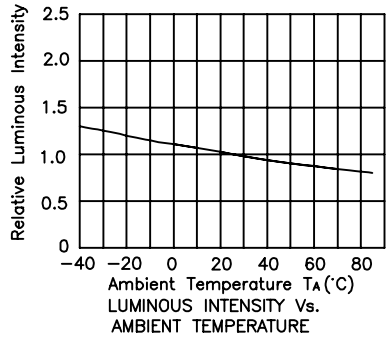


Green — ZG-E : InGaN

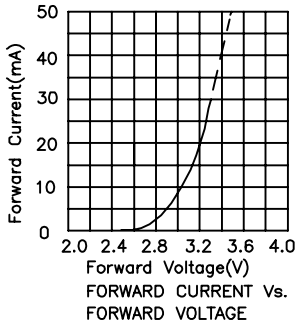


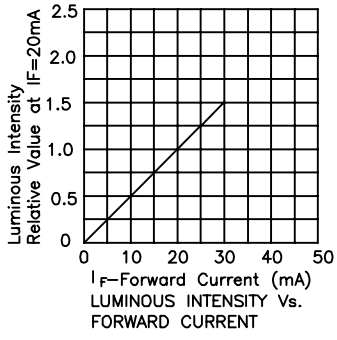


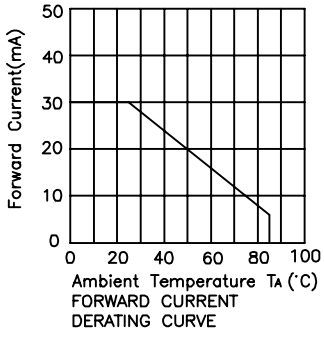


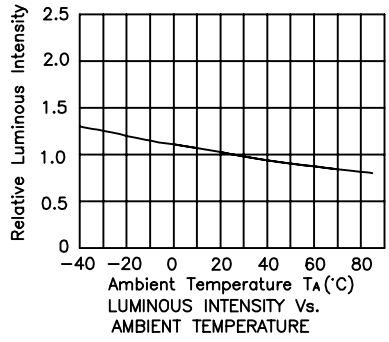


Green — ZG-G : InGaN

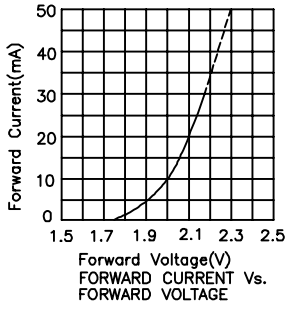


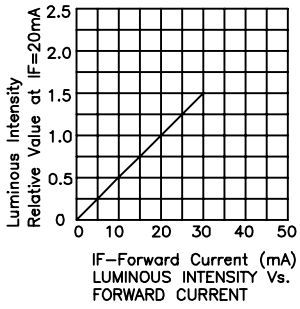


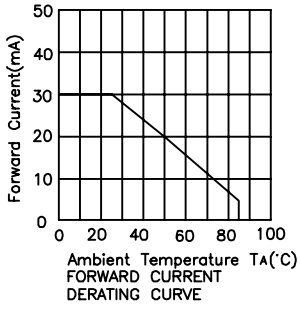


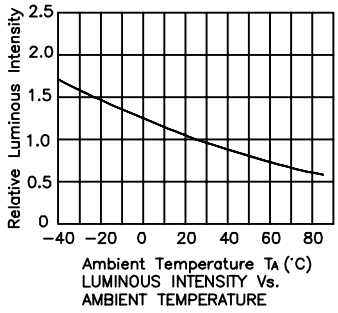


Yellow — Y : GaAsP/GaP

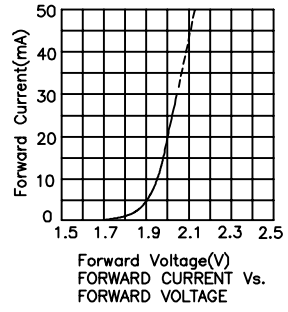


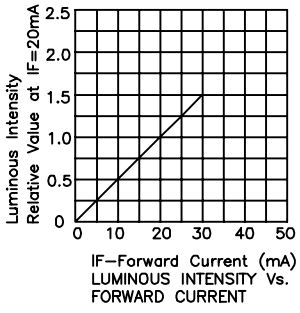


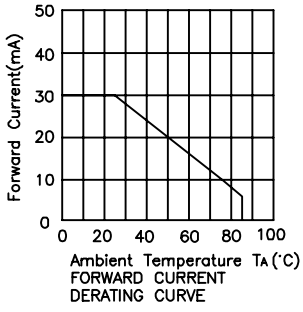


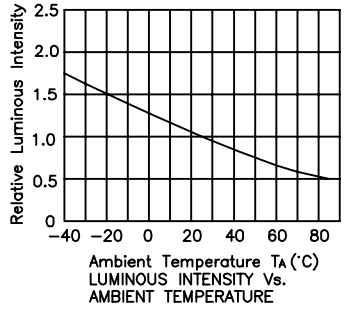


Super Bright Yellow — SYK : AlGaInP

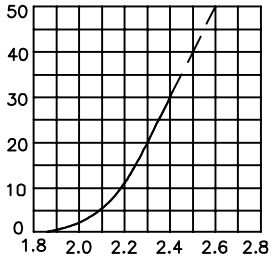




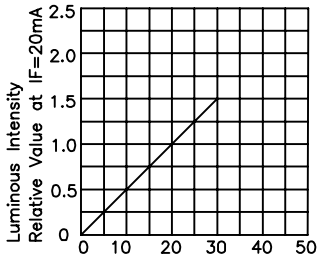




Super Bright Yellow — SY-H : AlGaInP

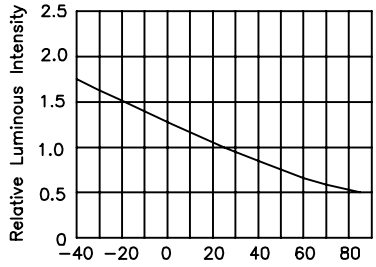


Forward Voltage(V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



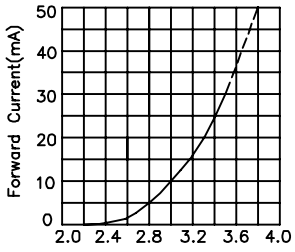
IF-Forward Current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT

Ambient Temperature T_A(°C)
FORWARD CURRENT
DERATING CURVE

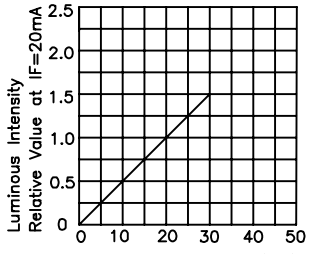


Ambient Temperature T_A(°C)
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

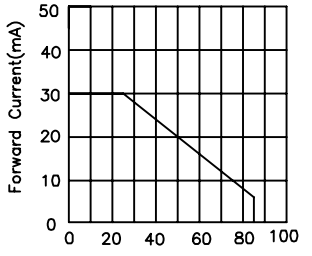
Blue — QB-D: InGaN



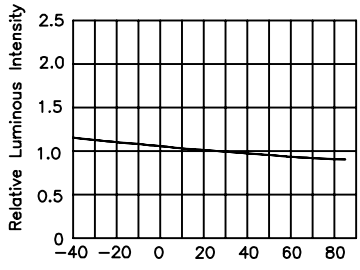
Forward Voltage(V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



IF-Forward Current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT

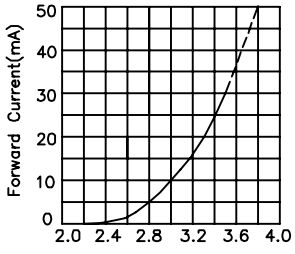


Ambient Temperature T_A(°C)
FORWARD CURRENT
DERATING CURVE

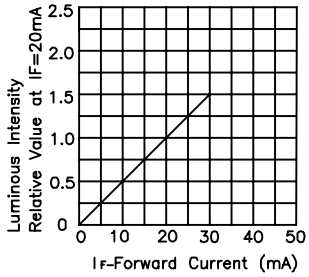


Ambient Temperature T_A(°C)
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

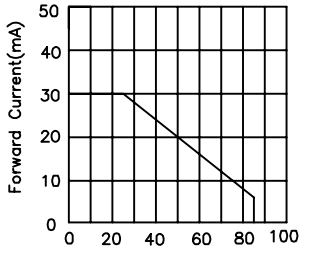
Blue — QB-F: InGaN



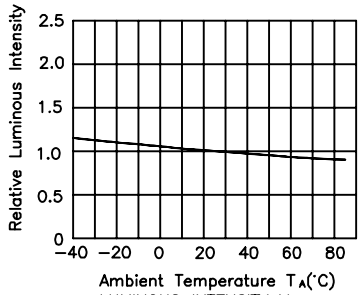
Forward Voltage(V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



IF-Forward Current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT

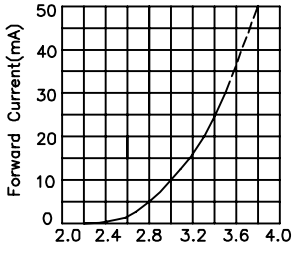


Ambient Temperature T_A(°C)
FORWARD CURRENT
DERATING CURVE

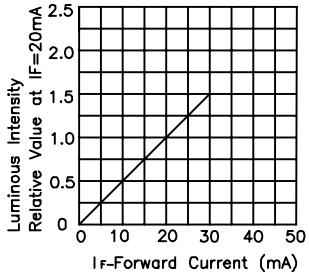


Ambient Temperature T_A(°C)
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

Blue — QB-G: InGaN

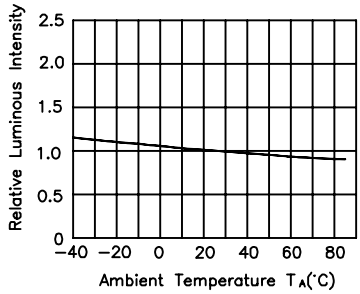


Forward Voltage(V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



IF-Forward Current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT

Ambient Temperature T_A(°C)
FORWARD CURRENT
DERATING CURVE



Ambient Temperature T_A(°C)
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

SELECTION CODE FOR STANDARD LEDS

(T_A=25°C)

Group	Light intensity in mcd(10mA)		Group	Light intensity in mcd(10mA)	
	min.	max.		min.	max.
F	0.1	0.25	W	110	200
G	0.2	0.4	X	170	280
H	0.3	0.6	Y	230	350
I	0.4	1	Z	300	500
K	0.7	1.5	ZA	400	620
L	1	3	ZB	520	750
M	1.8	5	ZC	650	1200
N	3	7	ZD	900	1800
P	5	12	ZE	1400	2400
Q	8	17	ZF	1900	3000
R	12	23	ZG	2500	3600
S	18	35	ZH	3100	4500
T	28	55	ZM	4000	5400
U	40	90	ZN	4800	6500
V	70	130	ZP	5900	7600

SELECTION CODE FOR DISPLAYS

(T_A=25°C)

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

SELECTION CODE FOR NPN PHOTOTRANSISTORS

(T_A=25°C)

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

SELECTION CODE FOR SUPER BRIGHT LEDS

(T_A=25°C)

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

SELECTION CODE FOR INFRARED EMITTING DIODES

(T_A=25°C)

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

SELECTION CODE FOR LUMINOUS FLUX

(T_A=25°C;Tolerance: +/-15%)

Group	Luminous Flux in lm		Group	Luminous Flux in lm		Group	Luminous Flux in lm	
	min.	max.		min.	max.		min.	max.
A1	0.5	0.6	B2	12	14	C6	210	240
A2	0.6	0.7	B3	14	17	C7	240	280
A3	0.7	0.8	B4	17	20	C8	280	320
A4	0.8	1	B5	20	24	C9	320	370
A5	1	1.2	B6	24	29	C10	370	430
A6	1.2	1.4	B7	29	35	C11	430	490
A7	1.4	1.7	B8	35	42	C12	490	560
A8	1.7	2	B9	42	50	C13	560	640
A9	2	2.4	B10	50	60	C14	640	740
A10	2.4	2.9	B11	60	70	C15	740	850
A11	2.9	3.5	B12	70	80	C16	850	1000
A12	3.5	4.2	B13	80	90	D1	1000	1200
A13	4.2	5	B14	90	100	D2	1200	1400
A14	5	6	C1	100	120	D3	1400	1600
A15	6	7.2	C2	120	140	D4	1600	1800
A16	7.2	8.6	C3	140	160	D5	1800	2100
A17	8.6	10	C4	160	180	-	-	-
B1	10	12	C5	180	210	-	-	-

COLOR CODE FOR GREEN LEDS + DISPLAYS

(T_A=25°C)

Group	Dom. Wavelength (nm)	
	ZG	
	min.	max.
1	513	522
2	518	527
3	523	532
4	528	537

COLOR CODE FOR BLUE LEDS + DISPLAYS

(T_A=25°C)

Group	Dom. Wavelength (nm)		Group	Dom. Wavelength (nm)	
	min.	max.		min.	max.
1	443	452	3A	469	475
2	448	457	3B	471	477
3	453	462	4A	473	479
1A	458	465	4B	475	481
1B	461	468	5A	477	483
2A	464	471	5B	479	485
2B	467	473	5C	481	488

COLOR CODE FOR LEDS + DISPLAYS

(T_A=25°C, Tolerance: +/-1nm)

Group	Dom. Wavelength (nm)			
	Green		Yellow	
	min.	max.	min.	max.
0	556	559		
1	559	561	581	584
2	561	563	584	586
3	563	565	586	588
4	565	567	588	590
5	567	569	590	592
6	569	571	592	594
7	571	573	594	597
8	573	575	597	600

SOLDERING INSTRUCTIONS

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

NOTE: 1. one time only

Kingbright

Optoelectronic Components

Soldering

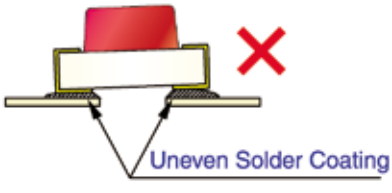
General Notes

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℃ for Pb-Sn solder and 350℃ for lead-free solder for normal lamps and displays. For blue (425nm),and blue-green (525nm) LEDs, the maximum soldering iron temperature is 280℃. Do not place the soldering iron on the component for more than 3 seconds.

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

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

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

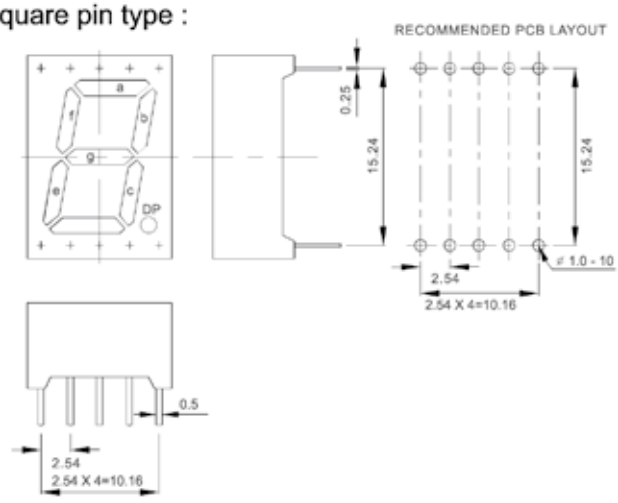


5.After soldering, allow at least three minutes for the component to cool to room temperature before further operations.

Recommended PCB pin hole diameters for display products are list below :

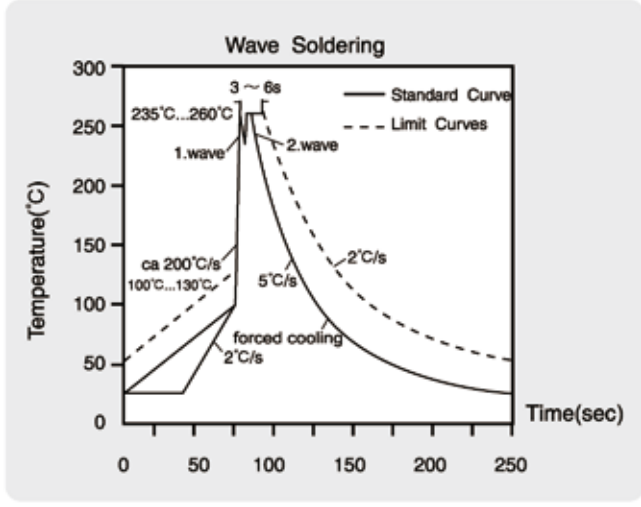
Round pin type : 2 x pin diameters

Square pin type :

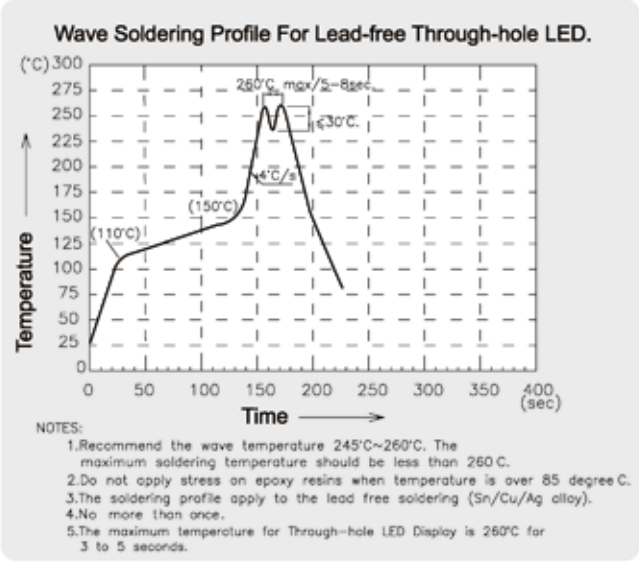


Recommended Wave Soldering Profiles For Kingbright Through-Hole Products

1. Wave Soldering Profile With Pb-Sn Solder



2. Lead-Free Wave Soldering Profile

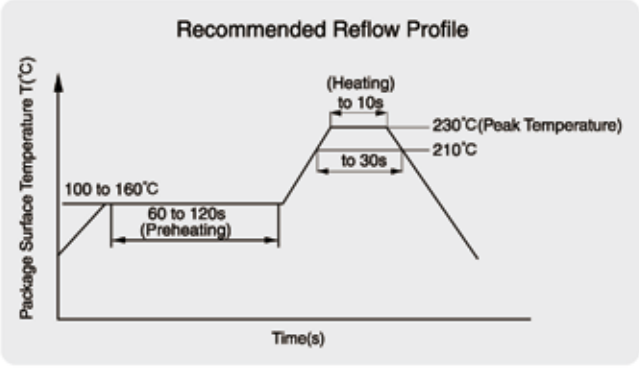


NOTES:
1.Recommend the wave temperature 245°C~260°C. The maximum soldering temperature should be less than 260 C.
2.Do not apply stress on epoxy resins when temperature is over 85 degree C.
3.The soldering profile apply to the lead free soldering (Sn/Cu/Ag alloy).
4.No more than once.
5.The maximum temperature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

Recommended Reflow Soldering Profiles For Kingbright SMD Products

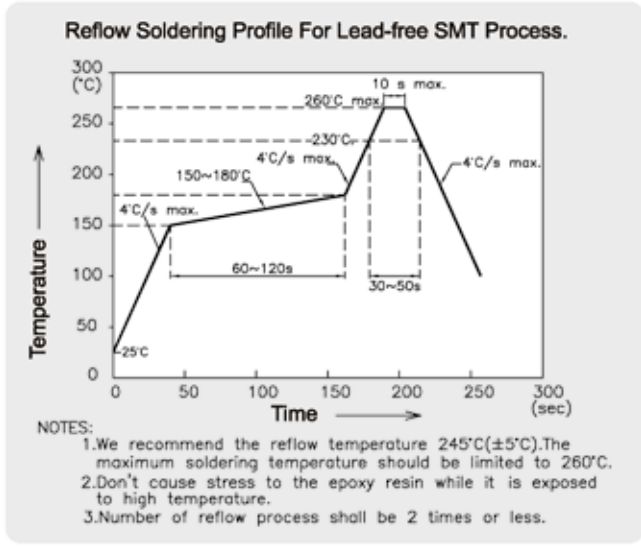
1. Reflow Soldering Profile With Pb-Sn Solder

No more than two soldering passes with the recommended profile.



2. Lead-Free Reflow Soldering Profile

No more than two soldering passes with the recommended profile.



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

Static Electricity and Voltage Spikes in InGaN/GaN Products

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

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

Design Precautions

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

ESD Protection During Production

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

1. Minimize friction between the product and surroundings to avoid static buildup.
2. All production machinery and test instruments must be electrically grounded.
3. Operators must wear anti-static bracelets.
4. Wear anti-static suit when entering work areas with conductive machinery.
5. Set up ESD protection areas using grounded metal plating for component handling.
6. All workstations that handle IC and ESD-sensitive components must maintain an electrostatic potential of 150V or less.
7. Maintain a humidity level of 50% or higher in production areas.
8. Use anti-static packaging for transport and storage.
9. All anti-static equipment and procedures should be periodically inspected and evaluated for proper functionality.

LED Mounting Method

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

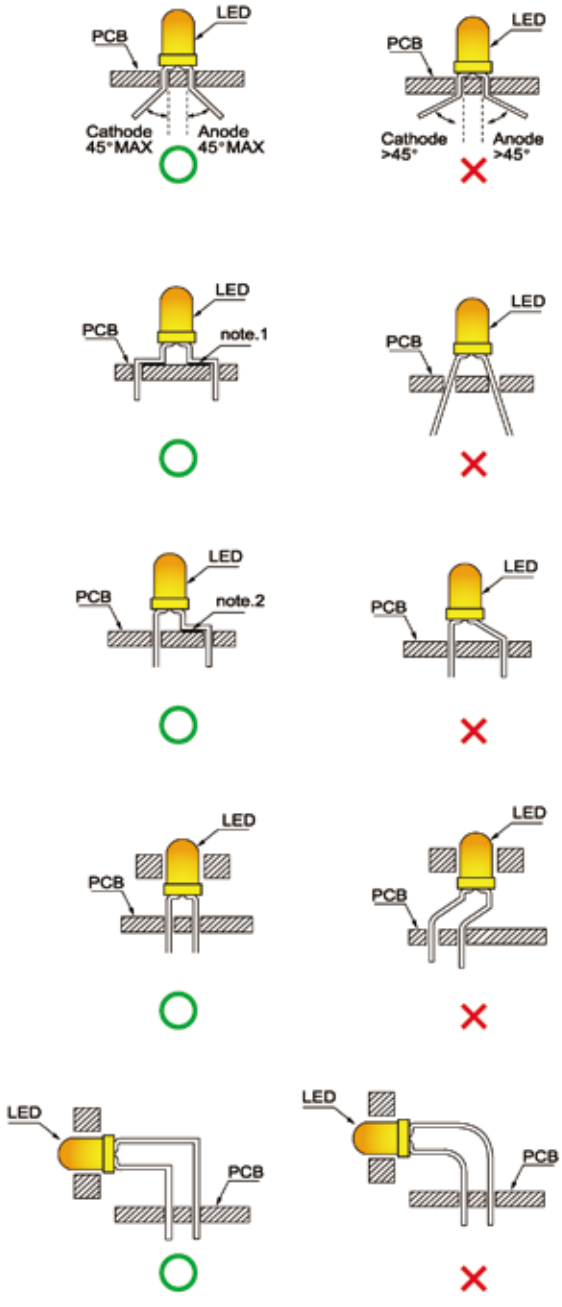


Fig. 1

"○" Correct mounting method
"×" Incorrect mounting method
Note 1-2 : Do not route PCB trace in the contact area between the leadframe and the PCB to prevent short-circuits.

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

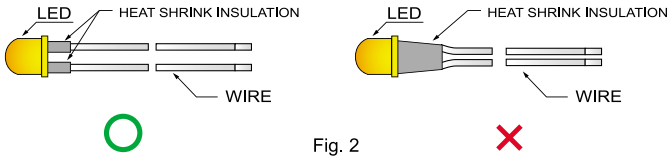


Fig. 2

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

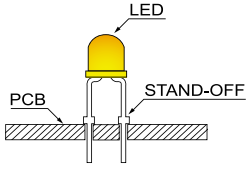


Fig. 3

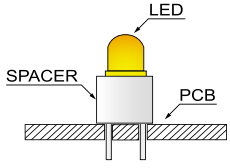


Fig. 4

Lead Forming Procedures

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

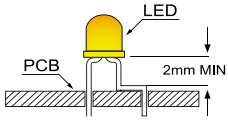


Fig. 5

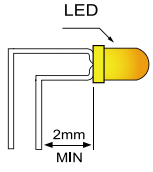


Fig. 6

2. Lead forming or bending must be performed before soldering, never during or after soldering.

3. Do not stress the LED lens during lead-forming in order to prevent fractures in the lens epoxy and damage the internal structures.

4. During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures. Do not perform lead forming once the component has been mounted onto the PCB. (Fig. 7)

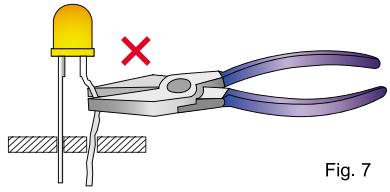


Fig. 7

5. Do not bend the leads more than twice. (Fig. 8)

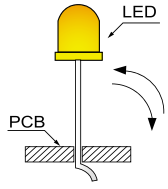


Fig. 8

6. After soldering or other high-temperature assembly, allow the LED to cool down to 50° C before applying outside force (Fig. 9). In general, avoid placing excess force on the LED to avoid damage. For any questions please consult with Kingbright representative for proper handling procedures.

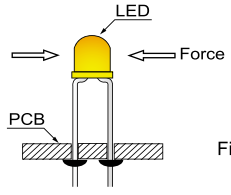


Fig. 9

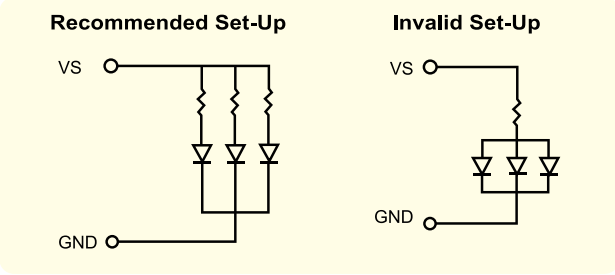
Cleaning

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

Miscellaneous Design Notes

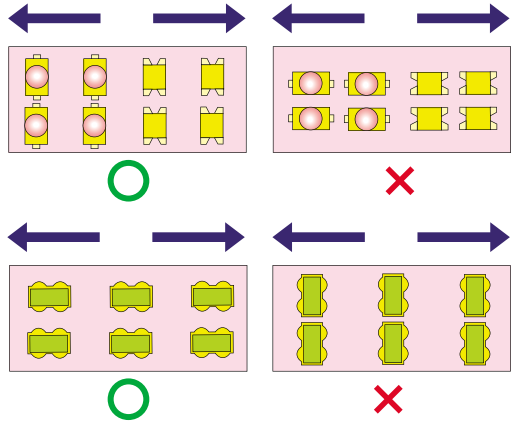
1. Protective current-limiting resistors may be necessary to operate the LEDs within the specified range.

2. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.

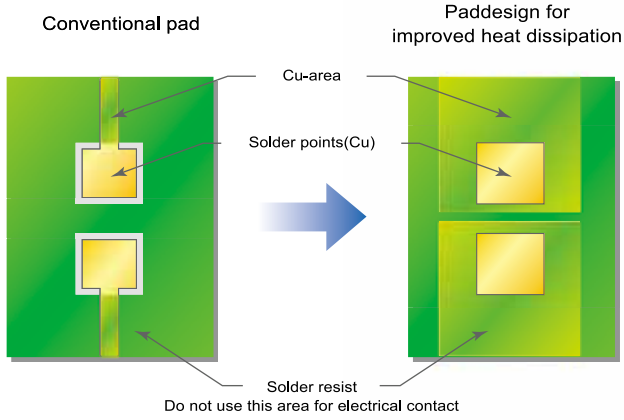


3. The driving circuit should be designed to avoid reverse voltages and transient voltage spikes when the circuit is powered up or shut down.

4. During soldering, SMD components should be mounted such that the leads are placed perpendicular to the direction of PCB travel to insure the solder on each lead melts simultaneously during reflow.



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

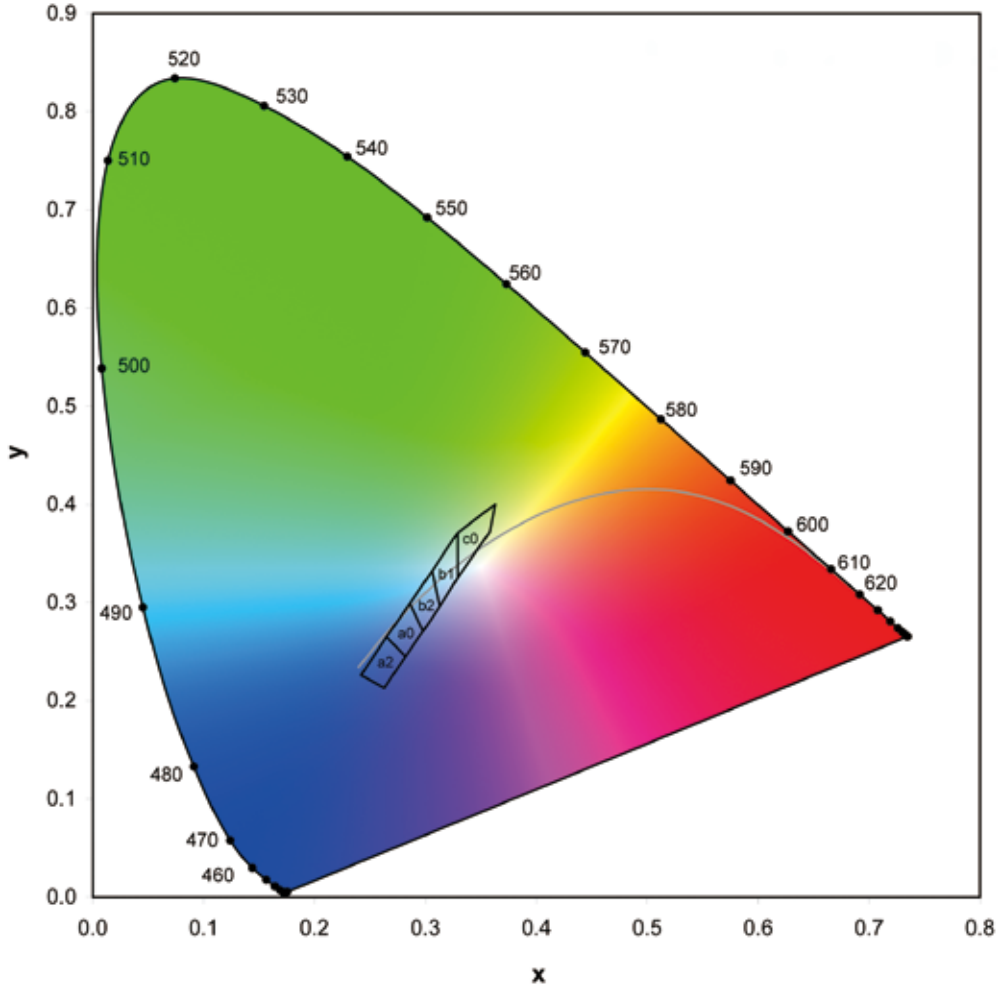


6. High temperatures can reduce device performance and reliability. Keep LED devices away from heat sources for best performance.

Restrictions on Product Use

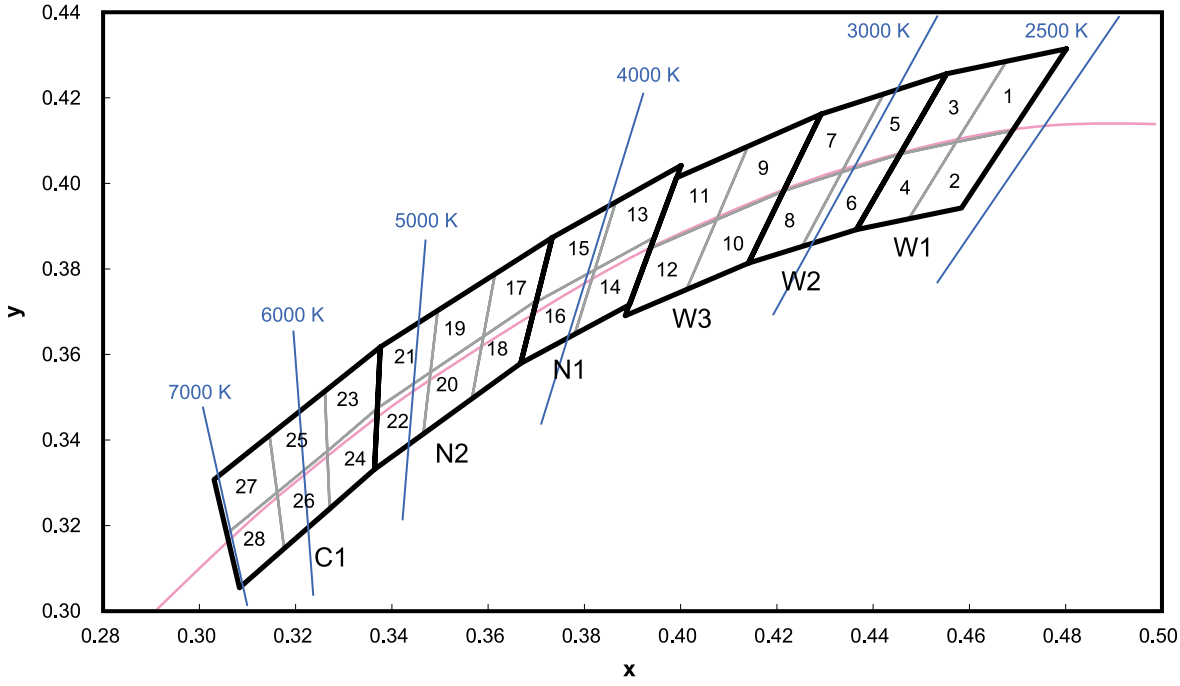
1. The information contained within this document is subject to change without notice. Before referencing this document, please confirm that it is the most current version available.
2. Not all devices and product families are available in every country.
3. The light output from UV, blue, white, and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

White Bin Code



Bin	x	y
a2	0.263	0.213
	0.282	0.245
	0.265	0.265
	0.242	0.226
CCT: 15000K~		
a0	0.282	0.245
	0.298	0.271
	0.286	0.299
	0.265	0.265
CCT: 9000~15000K		
b2	0.298	0.271
	0.313	0.296
	0.306	0.332
	0.286	0.299
CCT: 6800~9000K		
b1	0.313	0.296
	0.329	0.325
	0.329	0.371
	0.306	0.332
CCT: 5600~6800K		
c0	0.329	0.325
	0.358	0.372
	0.363	0.400
	0.329	0.371
CCT: 4600~5600K		

CCT2500 ~ 7000 K Bin Code



Group	Chromaticity Regions	CCT(K) Min.	Typ.	Max.
W1	1, 2, 3, 4	2580	2700	2870
W2	5, 6, 7, 8	2870	3000	3220
W3	9, 10, 11, 12	3220	3500	3710
N1	13, 14, 15, 16	3710	4000	4260
N2	17, 18, 19, 20, 21, 22	4260	4700	5310
C1	23, 24, 25, 26, 27, 28	5310	6000	7040

	x	y		x	y		x	y		x	y
1	0.4582	0.4099	8	0.4147	0.3814	15	0.3702	0.3722	22	0.3481	0.3557
	0.4687	0.4289		0.4221	0.3984		0.3736	0.3874		0.3370	0.3472
	0.4813	0.4319		0.4342	0.4028		0.3869	0.3958		0.3361	0.3328
	0.4700	0.4126		0.4259	0.3853		0.3825	0.3798		0.3466	0.3411
2	0.4483	0.3919	9	0.4080	0.3916	16	0.3670	0.3578	23	0.3376	0.3616
	0.4582	0.4099		0.4146	0.4089		0.3702	0.3722		0.3260	0.3512
	0.4700	0.4126		0.4299	0.4165		0.3825	0.3798		0.3265	0.3371
	0.4593	0.3944		0.4221	0.3984		0.3783	0.3646		0.3370	0.3472
3	0.4465	0.4071	10	0.4017	0.3751	17	0.3736	0.3874	24	0.3370	0.3472
	0.4562	0.4260		0.4080	0.3916		0.3616	0.3788		0.3265	0.3371
	0.4687	0.4289		0.4221	0.3984		0.3592	0.3641		0.3270	0.3230
	0.4582	0.4099		0.4147	0.3814		0.3703	0.3726		0.3364	0.3328
4	0.4373	0.3893	11	0.3941	0.3848	18	0.3703	0.3726	25	0.3260	0.3512
	0.4465	0.4071		0.3996	0.4015		0.3592	0.3641		0.3144	0.3408
	0.4582	0.4099		0.4146	0.4089		0.3568	0.3495		0.3160	0.3274
	0.4483	0.3919		0.4080	0.3916		0.3670	0.3578		0.3265	0.3371
5	0.4342	0.4028	12	0.3889	0.3690	19	0.3616	0.3788	26	0.3265	0.3371
	0.4430	0.4212		0.3941	0.3848		0.3496	0.3702		0.3160	0.3274
	0.4562	0.4260		0.4080	0.3916		0.3481	0.3557		0.3175	0.3139
	0.4465	0.4071		0.4017	0.3751		0.3592	0.3641		0.3270	0.3230
6	0.4259	0.3853	13	0.3825	0.3798	20	0.3592	0.3641	27	0.3144	0.3408
	0.4342	0.4028		0.3869	0.3958		0.3481	0.3557		0.3028	0.3304
	0.4465	0.4071		0.4006	0.4044		0.3466	0.3411		0.3055	0.3177
	0.4373	0.3893		0.3950	0.3875		0.3568	0.3495		0.3160	0.3274
7	0.4221	0.3984	14	0.3783	0.3646	21	0.3496	0.3702	28	0.3160	0.3274
	0.4299	0.4165		0.3825	0.3798		0.3376	0.3616		0.3055	0.3177
	0.4430	0.4212		0.3950	0.3875		0.3370	0.3472		0.3081	0.3049
	0.4342	0.4028		0.3898	0.3716		0.3481	0.3557		0.3175	0.3139