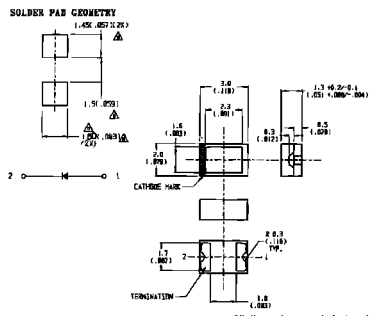




13

P I L O T L I G H T S & I N D I C A T O R S

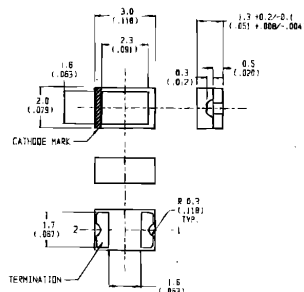
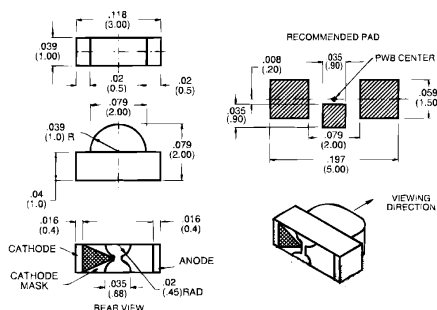


Part Number	Emitted Color	Lens Color	Package Type	Luminous Intensity			Forward Voltage			Peak Wavelength (nm)	View Angle Degrees
				Min. mcd	Typ. mcd	mA	Type.	Max	mA		
CMD11-21VGC/TR8	Green	Clear	Single	3.0	7.5	20	2.1	2.8	20	570	20°
CMD11-21VYC/TR8	Yellow	Clear	Single	3.0	6.0	20	2.0	2.8	20	585	20°
CMD11-21VRC/TR8	Red	Clear	Single	3.5	6.0	20	2.0	2.8	20	640	20°
CMD11-21SRC/TR8	Red	Clear	Single	6.0	17.0	20	1.7	2.4	20	660	20°
CMD11-21UBC/TR8	Blue	Clear	Single	CONTACT FACTORY							
CMD11-21RVGC/8	Red	Clear	Dual	6.0	17.0	20	1.7	2.4	20	660	20°
	Green	Clear	Dual	3.0	7.5	20	2.1	2.8	20	570	20°

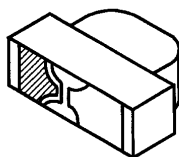
Part Number	Emitted Color	Lens Color	Package Type	Luminous Intensity			Forward Voltage			Peak Wavelength (nm)	View Angle Degrees
				Min. mcd	Typ. mcd	mA	Type.	Max	mA		
CMD12-21SRC/TR8	Red	Clear	Single	6.2	12.4	20	1.7	2.4	20	660	120°
CMD12-21VRC/TR8	H.E. Red	Clear	Single	3.0	5.0	20	2.0	2.8	20	640	120°
CMD12-21VYC/TR8	Yellow	Clear	Single	1.5	3.0	20	2.0	2.8	20	585	120°
CMD12-21VGC/TR8	Green	Clear	Single	4.4	8.8	20	2.1	2.8	20	570	120°
CMD12-21UBC/TR8	Green	Clear	Single	9.0	14.9	20	2.1	2.8	20	570	120°

Part Number	Emitted Color	Lens Color	Package Type	Luminous Intensity			Forward Voltage			Peak Wavelength (nm)	View Angle (degrees)
				Min. mcd	Typ. mcd	mA	Type.	Max	mA		
7016X13	Amber	Clear	Single	2.2	6.3	20	2.0	2.8	30	610	110°
7016X1	Red	Clear	Single	2.2	6.3	20	2.0	2.8	30	650	110°
7016X3	Yellow	Clear	Single	2.2	6.3	20	2.1	2.8	30	585	110°
7016X5	Green	Clear	Single	5.6	16.0	20	2.2	2.8	30	563	110°
7016X11	Red	Clear	Single	5.6	16.0	20	1.75	2.5	30	660	110°

Part Number	Emitted Color	Lens Color	Package Type	Luminous Intensity			Forward Voltage			Peak Wavelength (nm)	View Angle Degrees
				Min. mcd	Typ. mcd	mA	Type.	Max	mA		
7016X1/5	Red/Green	Clear	Single	7.0	11.7	20	1.7	2.3	20	660	120°
7016X5/7	Green/Yellow	Clear	Single	4.5	6.4	20	2.1	2.8	20	560	120°



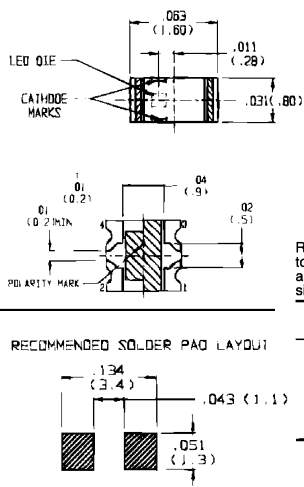
SERIES CMD115 RIGHT ANGLE SURFACE MOUNT LEDs



Right angle surface mount LED lamps are designed to be compatible with today's state-of-the-art surface mount technology. Packaged on 8mm tape allowing for easy automated placement. All have clear lenses. Compact size only 3.0mm x 1.0mm x 2.0mm.

Mfr. No.	Color	Typical Intensity	Typical Current
CMD11504UR	Red	13.2mcd	20mA
CMD11504A	Orange	3.2mcd	20mA
CMD11504Y	Yellow	3.2mcd	20mA
CMD11504PY	Pure Yellow	10.4mcd	20mA
CMD11504G	Green	16.0mcd	20mA
CMD11504PG	Pure Green	2.6mcd	20mA

Part Number	7016X1/5	7016X5/7
Output Color	Red/Green	Green/Yellow
Diffused/Non-Diffused	Non-Diffused	Non-Diffused
Package Tint	Clear	Clear
Rated Current (mA)	20/20	20/20
Forward Voltage Typ. (V)	1.75/2.2	2.2/2.2
Forward Voltage Max. (V)	2.5/2.8	2.8/2.8
Reverse Current Max. (V=-4 V)	100	100
Min. Luminous Intensity (mcd)	9.0	9.0
Max. Luminous Intensity (mcd)	16.0/20	20/16
Peak Wavelength (nm)	660/570	570/580
Power Dissipation Max. (mW)	60	60
Continuous Forward Current Max. (mA)	30/25	25
Peak Forward Current Max. (mA)	75/60	60
Viewing Angle (degrees)	110	110
Operating Temperature (°C)	-25/+80	-25/+80
Storage Temperature (°C)	-30/+85	-30/+85





Part Number	7020X1	7020X3	7020X5	7020X7	7020X15	7020X21	7020X23	7020X33
Output Color	Red	Orange	Green	Yellow	Green	Red	Orange	Yellow
Diffused/Non-Diffused	Diffused	Diffused	Diffused	Diffused	Diffused	Diffused	Diffused	Diffused
Package Color	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Rated Current (mA)	20	20	20	20	20	20	20	20
Forward Voltage Typ. (V)	1.7	2.2	2.1	2.2	2.1	1.9	1.9	1.9
Forward Voltage Max. (V)	2.3	2.8	2.8	2.8	2.8	2.4	2.4	2.4
Luminous Intensity Min. (mcd)	7.6	2.2	7.0	2.2	1.6	16.0	16.0	16.0
Luminous Intensity Typ. (mcd)	11.7	3.7	6.4	3.7	2.7	50.0	65.0	65.0
Luminous Intensity Max. (mcd)	-	-	-	-	-	-	-	-
Peak Wavelength (nm)	660	605	560	580	555	630	609	592
Viewing Angle (degrees)	75	75	75	75	75	75	75	75
Power Dissipation (mW)	57.5	70	70	70	70	81	81	81
Operating Temperature (°C)	-30 to +85	-30 to +85	-30 to +85	-30 to +85	-30 to +85	-40 to +85	-40 to +85	-40 to +85
Storage Temperature (°C)	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100
Peak Forward Current Max. (mA)	60	60	60	60	60	100	100	100
Reverse Voltage (IR=100µA) (V)	4	4	4	4	4	5	5	5
Lead Solder Time @ 260°C (seconds)	5	5	5	5	5	5	5	5

Part Number	Emitted Color	Lens Color	Package Type	Luminous Intensity			Forward Voltage			Peak Wavelength (nm)	View Angle Degrees
				Min. mcd	Typ. mcd	mA	Type.	Max	mA		
CMD67-22VRVC/TR8	H.E. Red	Clear	Dual	6.0	10.0	20	2.0	2.8	20	640	120°
	Green	Clear	Dual	15.0	25.0	20	2.1	2.8	20	570	120°
CMD67-22SRUC/TR8	Super Red	Clear	Dual	25.0	40.0	20	1.7	2.4	20	660	120°
	Green	Clear	Dual	15.0	25.0	20	2.1	2.8	20	565	120°

Part Number	7017X21	7017X23	7017X3	7017X15	7017X13	7017X5	7017X1	7017X7	7017X33
Output Color	Red	Orange	Orange	Green	Yellow	Green	Red	Yellow	Yellow
Diffused/Non-Diffused	Diffused	Diffused	Diffused	Diffused	Diffused	Diffused	Diffused	Diffused	Diffused
Package Color	White	White	Clear	Clear	Clear	Clear	Clear	Clear	White
Power Dissipation (mW)	81	81	70	70	70	70	57.5	70	81
Forward Current (mA)	30	30	25	25	25	25	25	25	30
Peak Forward Current (mA)	100	100	60	60	60	60	60	60	100
Reverse Voltage (V)	5	5	4	4	4	4	4	4	5
Operating Temperature (°C)	-40 to +85	-30 to +85	-30 to +85	-30 to +85	-30 to +85	-30 to +85	-30 to +85	-30 to +85	-40 to +85
Storage Temperature (°C)	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100	-40 to +100
Forward Voltage Typ. (IF=20mA)	1.9	1.9	2.2	2.1	2.2	2.1	1.7	2.1	1.9
Forward Voltage Max. (IF=20mA)	2.4	2.4	2.8	2.8	2.8	2.8	2.3	2.8	2.4
Reverse Current Typ. (VR=4V)	-	-	-	-	-	-	-	-	-
Reverse Current Max. (VR=4V)	100	100	100	100	100	100	100	100	100
Luminous Intensity Min. (IF=20 mA)	16	16	2.0	1.4	2.0	3.8	7.0	7.0	16
Luminous Intensity Typ. (IF=20 mA)	50	65	3.4	2.4	3.4	6.4	11.7	11.7	65
Peak Wavelength (IF=20 mA)	630	609	605	555	580	560	660	570	592
Special Line Half Width (IF=20 mA)	15	15	30	30	30	30	30	30	15
Viewing Angle (degrees)	70	70	70	70	70	70	70	70	70

SURFACE MOUNT LED LAMPS

Features

- Super thin package, wide viewing angle
- Reverse surface mount LEDs
- Low power consumption
- Ideal for backlight and indicator
- Available in blue and other colors
- Various lens types and inner lens type

Descriptions

The bright red source color devices are made with Gallium Phosphide Red LED.

The super bright green source color devices are made with Gallium Phosphide Green LED.

The high efficiency red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange LED.

The yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow LED.

The super bright red source color devices are made with Gallium Aluminum Arsenide red LED.

The super bright yellow source color devices are made with DH InGaAlP on GaAs substrate LED.

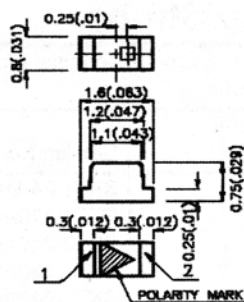


Fig. 1

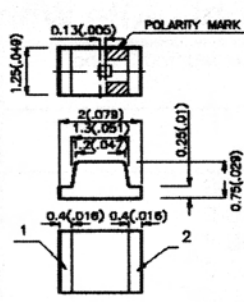


Fig. 2

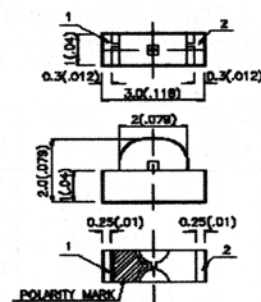


Fig. 3

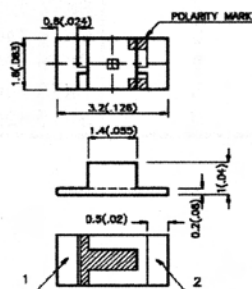


Fig. 4

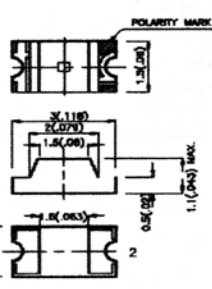


Fig. 5

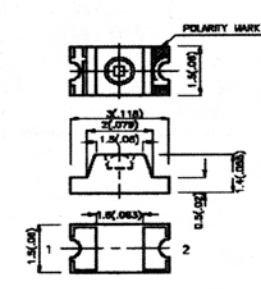


Fig. 6

1.6mm x 0.8mm x 0.75mm (0603 Super Thin SMT LED)

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
1	KPT1608SRWPRV	Red	660	40	70
	KPT1608NW	Orange	610	5	12.5
	KPT1608PYW	Yellow	580	3.2	8
	KPT1608QYW	Yellow	565	3.2	12.5
	KPT1608QGW	Green	560	3.2	8
	KPT1608PGW	Pure Gm.	555	0.8	3.2

3.2mm x 1.6mm x 1.05mm (1206 Reverse Angle SMT LED)

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
4	KPTR3216SRWPRV	Red	660	40	70
	KPTR3216NW	Orange	610	5	12.5
	KPTR3216PYW	Yellow	580	3.2	8
	KPTR3216QYW	Yellow	565	3.2	12.5
	KPTR3216QGW	Green	560	3.2	8
	KPTR3216PGW	Pure Gm.	555	0.8	3.2

2.0mm x 1.2mm x 0.75mm (0805 Super Thin SMT LED)

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
2	KPT2012SRWPRV	Red	660	40	70
	KPT2012NW	Orange	610	5	12.5
	KPT2012PYW	Yellow	580	3.2	8
	KPT2012QYW	Yellow	565	3.2	12.5
	KPT2012QGW	Green	560	3.2	8
	KPT2012PGW	Pure Gm.	555	0.8	3.2

3.0mm x 1.5mm x 1.1mm (1106 SMT LED)

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
5	KP3015SRCPV	Red	660	40	70
	KP3015NC	Orange	610	5	12.5
	KP3015PYC	Yellow	580	3.2	8
	KP3015QYC	Yellow	565	3.2	12.5
	KP3015QGC	Green	560	3.2	8
	KP3015PGC	Pure Gm.	555	0.8	3.2

3.0mm x 1.0mm (1104 Right Angle SMT LED)

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
3	KPA3010SRCPV	Red	660	40	70
	KPA3010NC	Orange	610	5	12.5
	KPA3010PYC	Yellow	580	3.2	8
	KPA3010QYC	Yellow	565	3.2	12.5
	KPA3010QGC	Green	560	3.2	8
	KPA3010PGC	Pure Gm.	555	0.8	3.2

3.0mm x 1.5mm x 1.1mm (1106 SMT LED)

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
6	KPL3015SRCPV	Red	660	40	80
	KPL3015NC	Orange	610	5	16
	KPL3015PYC	Yellow	580	3.2	12.5
	KPL3015QYC	Yellow	565	5	16
	KPL3015QGC	Green	560	3.2	8
	KPL3015PGC	Pure Gm.	555	0.8	3.2



SURFACE MOUNT LED LAMPS

Features

3.0mmx2.5mm SMT LED 1.1mm thickness. Bi-color, low power consumption.
Axial leads, right angle leads are also available in subminiature solid state lamps.
3.0mmx2.0mm, 1.4mm high, suitable for compact optoelectronic applications.
Sot-23 package surface mount LED, both single chip and dual chips available.
3.5mmx2.8mm SMT, available in single color and bi-color, ideal for backlighting.

Descriptions

The bright red source color devices are made with Gallium Phosphide red LED.

The super bright green source color devices are made with Gallium Phosphide green LED.

The high efficiency red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange LED.

The yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide yellow LED.

The super bright red source color devices are made with Gallium Aluminium Arsenide red LED.

The super bright yellow source color device are made with DH InGaAlP on GaAs substrate LED.

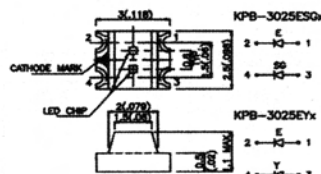


Fig. 7

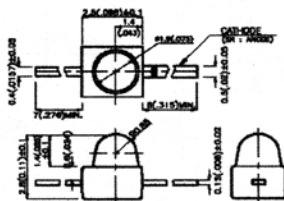


Fig. 8 - Axial Lead

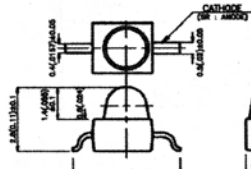


Fig. 9 - Gull Wing Lead

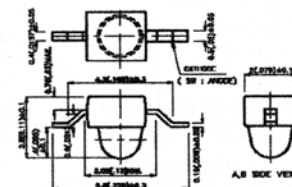


Fig. 10 - Z Bend Lead

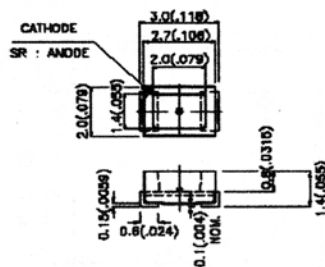


Fig. 11

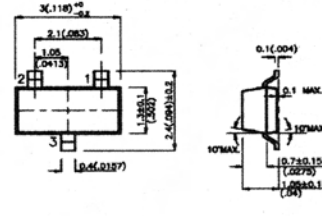


Fig. 12

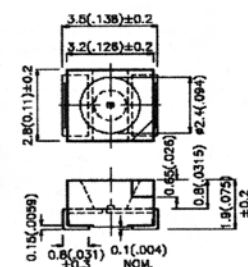


Fig. 13

3.0mm x 2.5mm (1109 Bi-Color)

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
7	KPB3025ESGC	Red/Gm.	625/565	5/3.2	12.5/12.5
	KPB3025ESGW	Red/Gm.	625/565	5/3.2	12.5/12.5
	KPB3025EYC	Red/Yel.	625/590	5/3.2	12.5/8
	KPB3025EYW	Red/Yel.	625/590	5/3.2	12.5/8
	KPB3025SGYC	Gm./Yel.	565/590	3.2/3.2	12.5/8

3.0mm x 2.0mm SMT LED Lamps

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
11	KA3020EC	Red	625	8	60
	KA3020SGC	Green	565	8	40
	KA3020YC	Yellow	590	8	40
	KA3020SRC	Red	660	70	300
	KA3020SYC	Yellow	595	100	200

Subminiature Solid State Lamps (Axial Leads)

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
8	KM2520A01EC001	Red	625	20	100
	KM2520A01SGC001	Green	565	50	150
	KM2520A01YC001	Yellow	590	20	70
	KM2520A01SRC001	Red	660	200	1000
	KM2520A01SYC001	Yellow	595	700	1300
9	KM2520A01EC003	Red	625	20	100
	KM2520A01SGC003	Green	565	50	150
	KM2520A01YC003	Yellow	590	20	70
	KM2520A01SRC003	Red	660	200	1000
	KM2520A01SYC003	Yellow	595	700	1300
10	KM2520A01EC009	Red	625	20	100
	KM2520A01SGC009	Green	565	50	150
	KM2520A01YC009	Yellow	590	20	70
	KM2520A01SRC009	Red	660	200	1000
	KM2520A01SRT009	Red	660	200	1000
	KM2520A01SYC009	Yellow	595	700	1300

3mm x 1.3mm SOT- 23 SMT LED Lamps

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
12	KM23EC	Red	625	8	32
	KM23SGC	Green	565	8	32
	KM23YC	Yellow	590	5	12.5
	KM23SRC	Red	660	50	90
	KM23SYC	Yellow	595	40	100
	KM23ESGC	Red/Gm.	625/565	8.0/8.0	32/32

3.5mm x 2.8mm SMT LED

Fig. No.	Kingbright Part No.	Emitted Color	Peak Wave-Length (nm)	Iv (mcd) @20mA	
				Min.	Max.
13	KA3528EC	Red	625	12.5	40
	KA3528SGC	Green	565	12.5	40
	KA3528YC	Yellow	590	8	20
	KA3528SRC	Red	660	70	300
	KA3528SYC	Yellow	595	40	100

13

P I L O T L I G H T S & I N D I C A T O R S