SunLED

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LEDs

LEADING EDGE DESIGN SOLUTIONS

Optoelectronic Components Catalogue 2025-2026

www.SunLEDusa.com

IATF16949 Automotive • ISO 9001 Quality • ISO 14001 Environmental

SMD LEDs

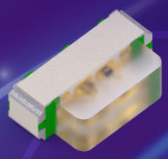
THRU-HOLE LEDs

CBI LEDs

IR & PHOTO

09

Bi-Color
Rt. Angle SMD



XZxxxx170W Series

13

Bi-Color
Ultra Bright SMD

XZxxxx55W-8 Series

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LED DISPLAYS

TECHNICAL NOTES

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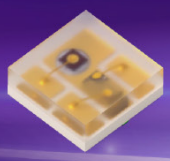
Smallest Top-Emitting Bi-Color SMD



XZxxxx172W Series

10

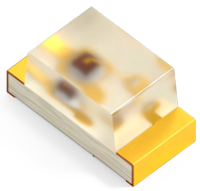
Low-Profile Right-Angle SMD

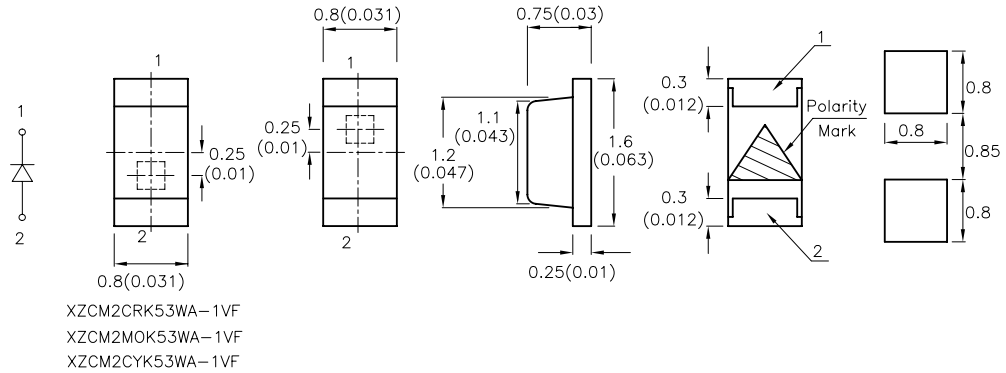
XZxxxx161W Series

ULTRA-BRIGHT LOW-CURRENT

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=2mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

1.6x0.8x0.75mm
(0603)





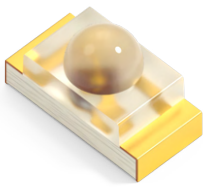
XZCM2CRK53WA−1VF
XZCM2MOK53WA−1VF
XZCM2CYK53WA−1VF

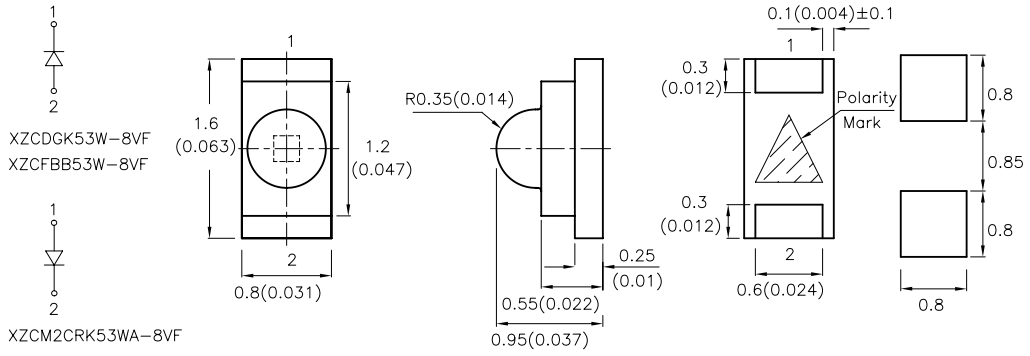
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZCM2CRK53WA-1VF	AlGaInP(Red)	640	20	39	120°	Water Clear
XZCM2MOK53WA-1VF	AlGaInP(Orange)	611	30	49	120°	Water Clear
XZCM2CYK53WA-1VF	AlGaInP(Yellow)	590	15	24	120°	Water Clear
XZCDGK53W-1VF	InGaN(Green)	515	50	98	130°	Water Clear
XZCFBB53W-1VF	InGaN(Blue)	465	15	23	130°	Water Clear

1.6x0.8x0.95mm
(0603 Dome Lens)





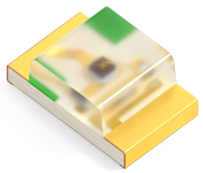
XZCM2CRK53WA−8VF

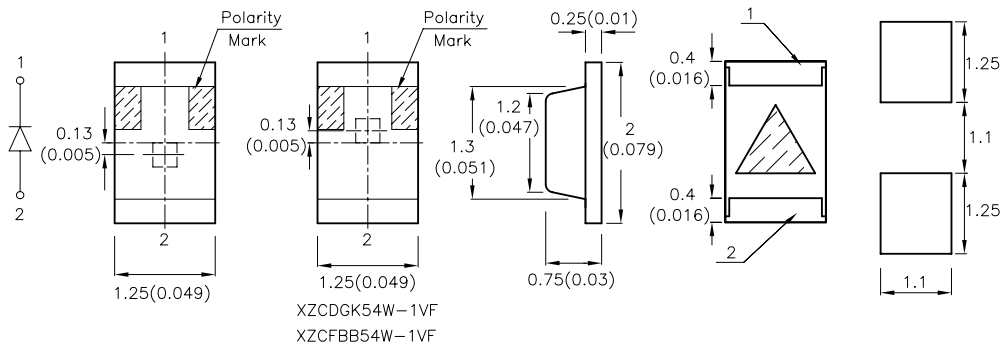
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZCM2CRK53WA-8VF	AlGaInP(Red)	640	50	118	60°	Water Clear
XZCDGK53W-8VF	InGaN(Green)	515	250	417	60°	Water Clear
XZCFBB53W-8VF	InGaN(Blue)	465	30	64	40°	Water Clear

2.0x1.25x0.75mm
(0805)





XZCDGK54W−1VF
XZCFBB54W−1VF

Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

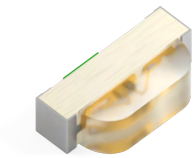
Recommended Soldering Pattern

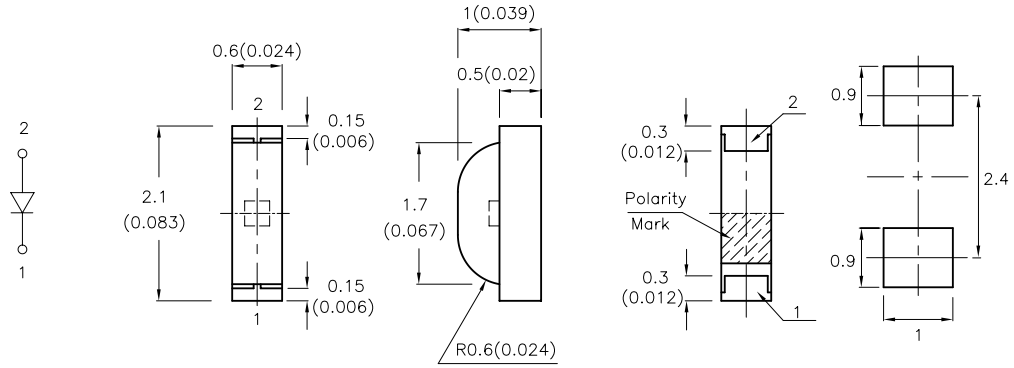
XZCM2CRK54WA-1VF	AlGaInP(Red)	640	20	39	140°	Water Clear
XZCM2CYK54WA-1VF	AlGaInP(Yellow)	590	15	24	140°	Water Clear
XZCDGK54W-1VF	InGaN(Green)	515	50	98	140°	Water Clear
XZCFBB54W-1VF	InGaN(Blue)	465	15	23	140°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=2mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

2.1x1.0x0.6mm
(Right Angle)



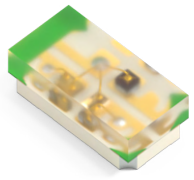


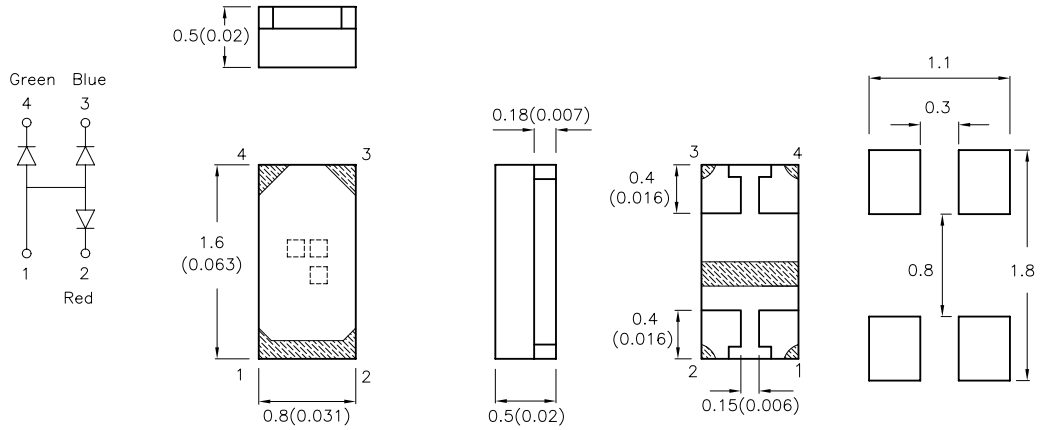
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZCFBB74W-3VU	InGaN(Blue)	465	10	19	170°	Water Clear

1.6x0.8x0.5mm
(Full Color)



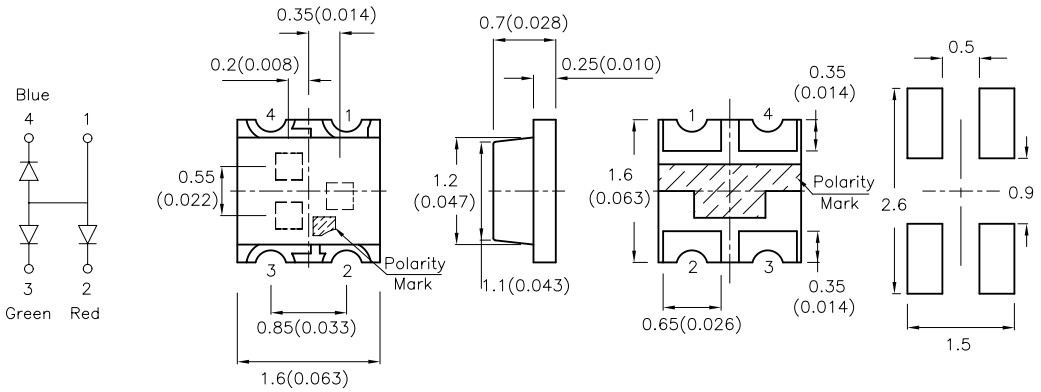


Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZCMECBDDGK53W	AlGaInP(Red)	630	4	14	140°	Water Clear
	InGaN(Blue)	460	4	9		
	InGaN(Green)	515	50	89		

1.6x1.6x0.7mm
(Full Color)



Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

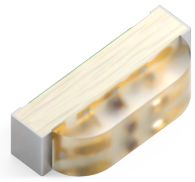
Recommended Soldering Pattern

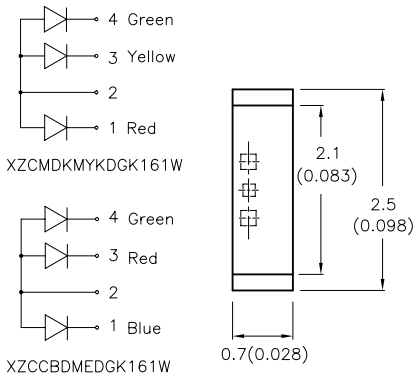
XZCMEDGCBD110W	AlGaInP(Red)	630	6	14	130°	Water Clear
	InGaN(Green)	515	30	79		
	InGaN(Blue)	460	6	13		

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

ULTRA-BRIGHT LOW-CURRENT

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=2mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
2.5x1.0x0.7mm (Right Angle, Full Color)						
XZCMDKMYKDGK161W	AlGaInP(Red)	645	6	9	130°	Water Clear
	AlGaInP(Yellow)	590	6	14		
	InGaN(Green)	515	50	98		
XZCCBDMEDGK161W	InGaN(Blue)	460	4	9	130°	Water Clear
	AlGaInP(Red)	630	6	9		
	InGaN(Green)	515	50	98		

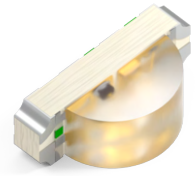


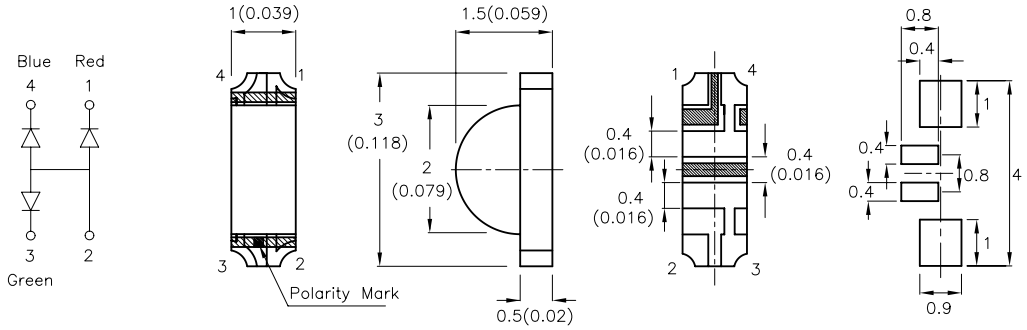


Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=2mA Min.	Intensity(mcd) I_F=2mA Typ.	Viewing Angle 2θ1/2	Lens
3.0x1.5x1.0mm (Right Angle, Full Color)						
XZCMEDGCBD56W	AlGaInP(Red)	630	6	14	150°	Water Clear
	InGaN(Green)	515	50	89		
	InGaN(Blue)	460	4	9		



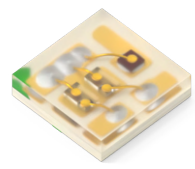


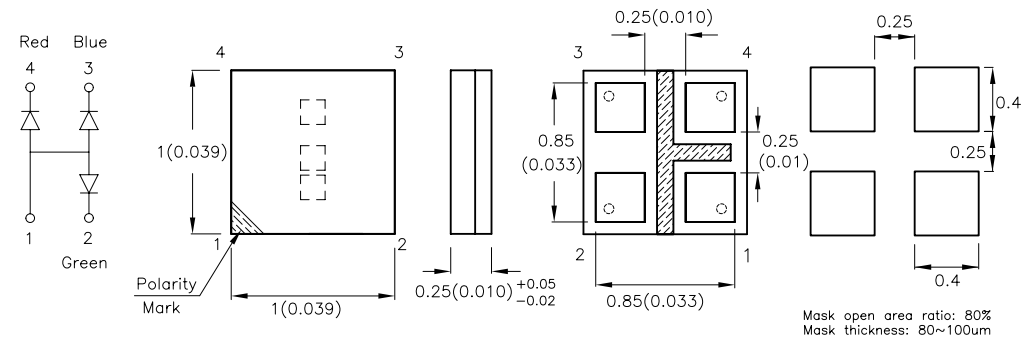
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

MULTI-COLOR

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=5mA Min.	Intensity(mcd) I_F=5mA Typ.	Viewing Angle 2θ1/2	Lens
1.0x1.0x0.25mm (Full Color)						
XZDGCBDMERK150W-1	InGaN(Green)	515	80	218	150°	Water Clear
	InGaN(Blue)	460	10	22		
	AlGaInP(Red)	632	15	29		





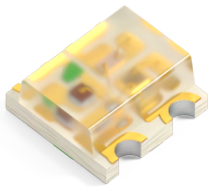
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

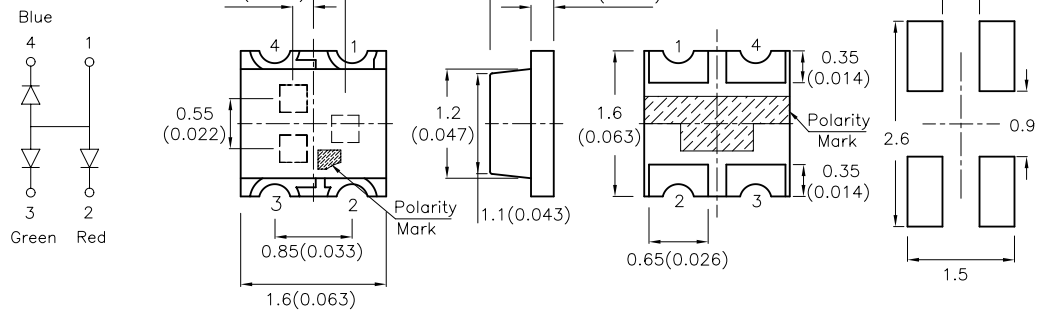
Recommended Soldering Pattern

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

1.6x1.6x0.7mm
(Full Color)



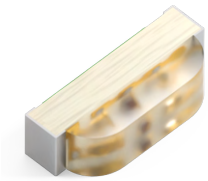


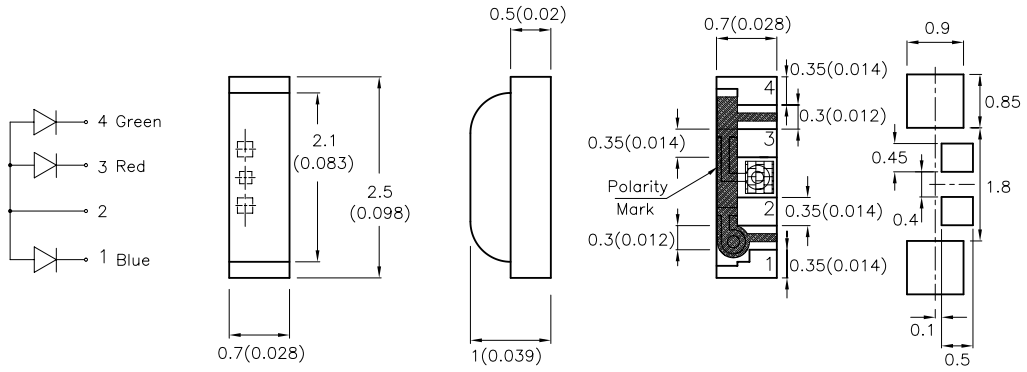
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDKDGCBD110W	AlGaInP(Red)	645	40	79	130°	Water Clear
	InGaN(Green)	515	300	397		
	InGaN(Blue)	460	40	69		

2.5x1.0x0.7mm
(Right Angle, Full Color)



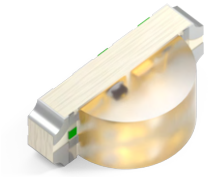


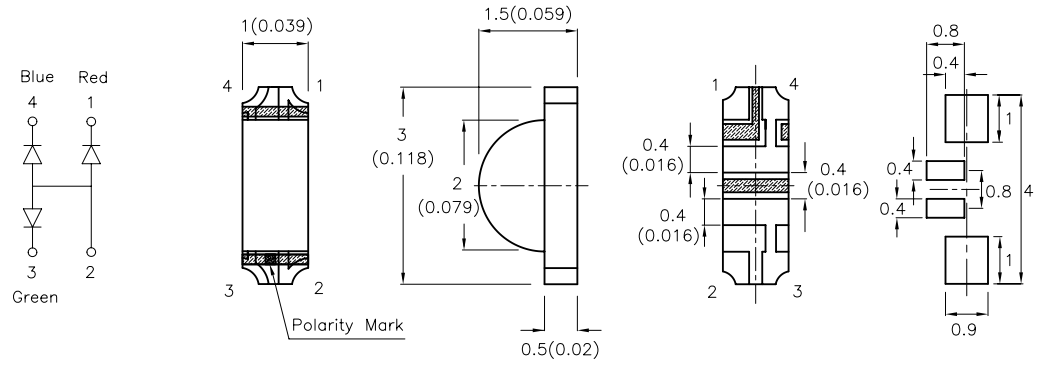
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZCBDMEDGK161W	InGaN(Blue)	460	40	64	130°	Water Clear
	AlGaInP(Red)	630	80	108		
	InGaN(Green)	515	400	547		

3.0x1.5x1.0mm
(Right Angle, Full Color)





Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

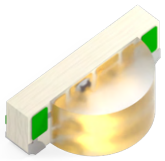
XZMEDGCBD56W	AlGaInP(Red)	630	80	138	150°	Water Clear
	InGaN(Green)	515	300	497		
	InGaN(Blue)	460	40	69		

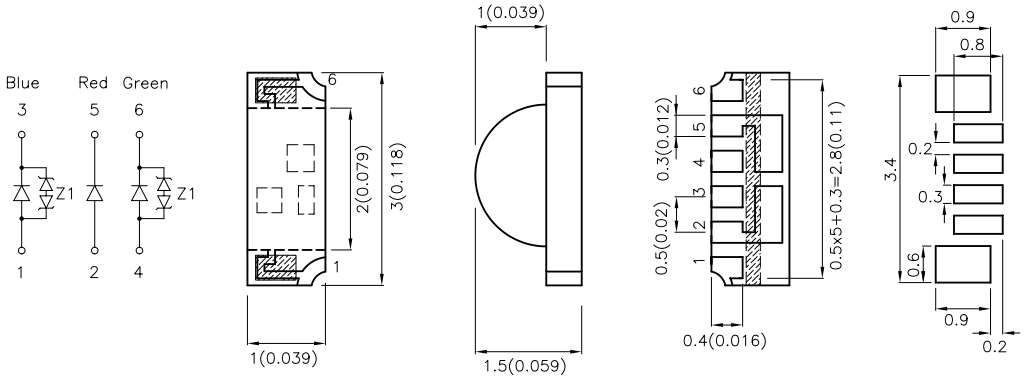
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

MULTI-COLOR

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.0x1.5x1.0mm
(Right Angle, Full Color)



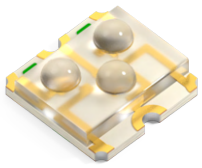


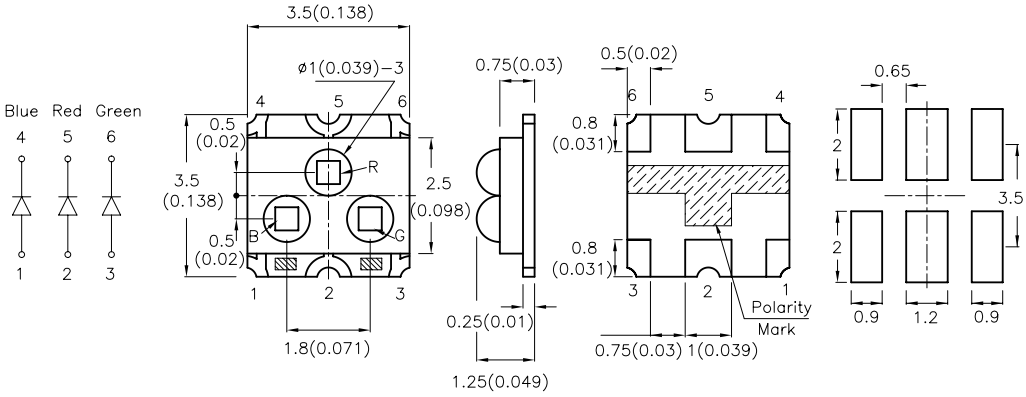
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZFBBM2CRKM2DGZ157W	InGaN(Blue)	465	80	148	150°	Water Clear
	AlGaInP(Red)	640	200	407		
	InGaN(Green)	520	500	775		

3.5x3.5x1.25mm
(3-Dome RGB SMD)



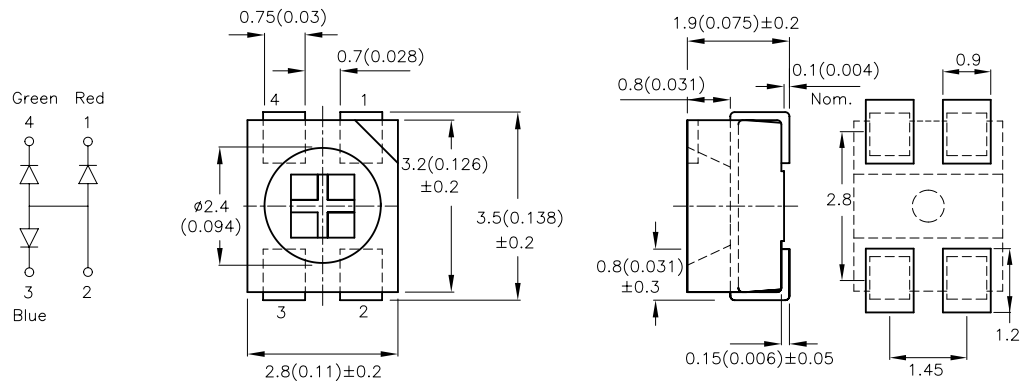


Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZFBBM2ACRDG92W-3	InGaN(Blue)	465	300	497	50°	Water Clear
	AlGaInP(Red)	640	1000	1590		
	InGaN(Green)	520	1300	1890		

3.5x2.8x1.9mm
(PLCC4 Full Color)



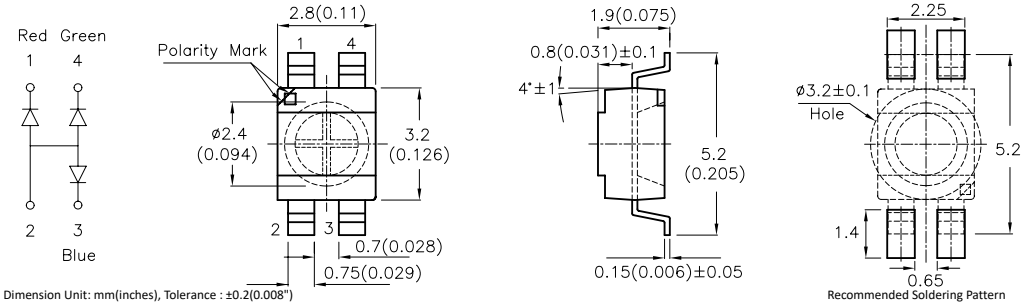
Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

XZMECBDDG45S	AlGaInP(Red)	630	120	218	120°	Water Clear
	InGaN(Blue)	460	55	98		
	InGaN(Green)	515	500	695		

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA, 5mA*		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3.2x2.8x1.9mm (Reverse Mount, Full Color)						
XZMDKCBDDG45S-9	AlGaInP(Red)	645	55	108	120°	Water Clear
	InGaN(Blue)	460	55	98		
	InGaN(Green)	515	500	695		

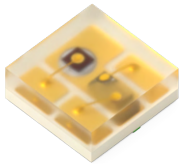


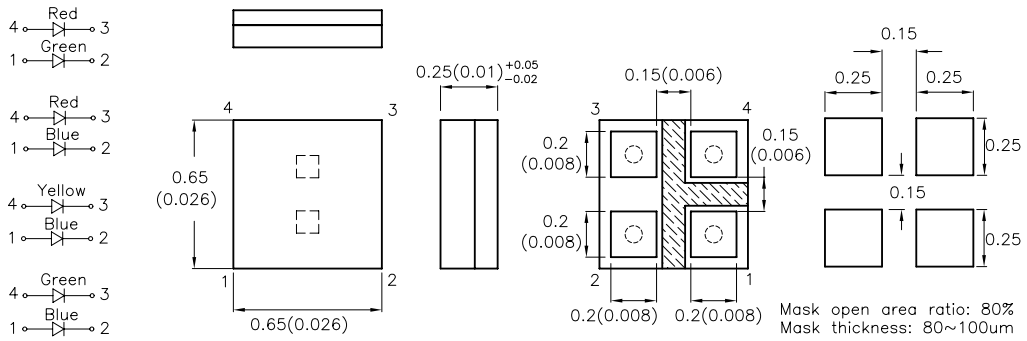
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZDGMERKK172W	InGaN(Green)	515	50*	198*	140°	Water Clear
	AlGaInP(Red)	632	6*	24*		
XZFBAMERKK172W	InGaN(Blue)	463	10*	39*	140°	Water Clear
	AlGaInP(Red)	632	6*	24*		
XZFBAMYRK172W	InGaN(Blue)	463	10*	39*	140°	Water Clear
	AlGaInP(Yellow)	591	4*	19*		
XZFBADG172W	InGaN(Blue)	463	10*	39*	140°	Water Clear
	InGaN(Green)	515	50*	198*		

0.65x0.65x0.25mm (Bi-Color)





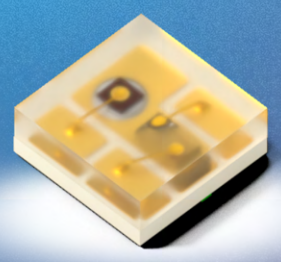
Dimension Unit: mm(inches), Tolerance: ±0.1 (0.004")

Recommended Soldering Pattern

NEW PRODUCT

NEW

Smallest Top-Emitting Bi-Color SMD



XZxxxx172W Series

XZxxxx172W Series: Smallest Top-Emitting Bi-Color SMD

SunLED is introducing the smallest top-emitting bi-color SMD LED in the market, ready to shine designs to the next level with versatility. This bi-color LED vibrantly emits in multiple color combinations, including unique configurations such as Blue/Yellow and Blue/Red. The XZxxxx172W series comes in a sleek and compact footprint of 0.65 x 0.65 x 0.25mm. Start designing projects today without constraints and compromise.

The XZxxxx172W series features independent anode and cathode control, enabling engineers to adjust outputs individually for enhanced design flexibility. The 140° wide viewing angle provides high visibility paired with more than adequate light coverage for backlighting applications. Each LED chip/die is centered within the package, providing uniform illumination. This small yet powerful LED comes at a low current of 5mA, lowering power consumption and reducing heat generation. Elevate your design with the smallest top-emitting bi-color SMD LED. Together, we illuminate possibilities.

PRODUCT APPLICATIONS

- Enterprise Solutions
- Industrial Equipment
- Medical and Healthcare Devices
- Mobile Devices and Handheld Devices
- Safety and Security
- IoT Devices

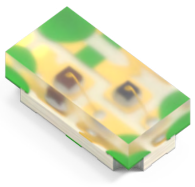
TECHNICAL FEATURES

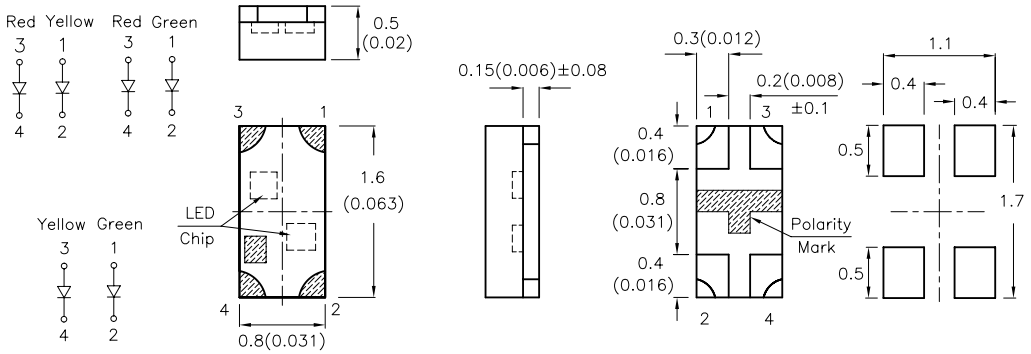
- Package Size 0.65 x 0.65 x 0.25 mm
- Low Current IF=5mA
- Unique Bi-Color Options
- Moisture Sensitivity Level: 3
- Smallest Package in the Market
- Viewing Angle: 140°

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

MULTI-COLOR

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
1.6x0.8x0.5mm (0603 Bi-Color)						
XZMYKMDK53W-9	AlGaInP(Yellow)	590	80	148	130°	Water Clear
	AlGaInP(Red)	645	40	89		
XZVGMDK53W-9	AlGaInP(Green)	574	20	49	130°	Water Clear
	AlGaInP(Red)	645	40	89		
XZDGKMDK53W-9	InGaN(Green)	515	200	347	130°	Water Clear
	AlGaInP(Red)	645	40	89		
XZVGMYK53W-9	AlGaInP(Green)	574	20	49	130°	Water Clear
	AlGaInP(Yellow)	590	80	148		



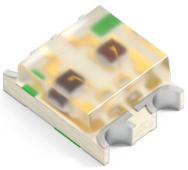


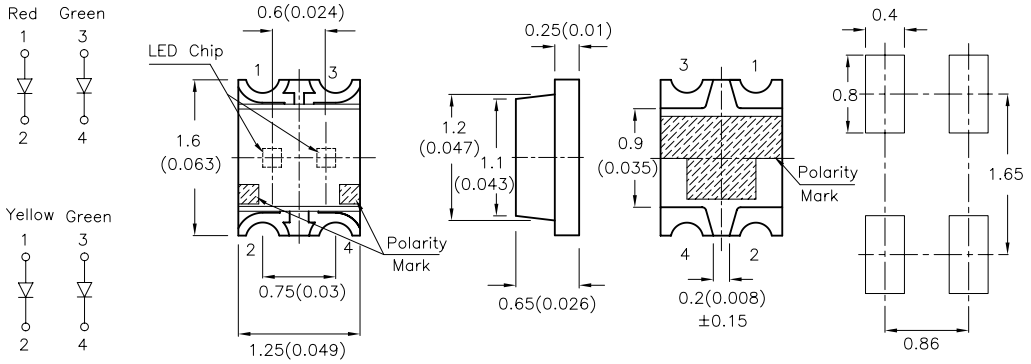
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

1.6x1.25x0.65mm (Bi-Color)

XZMDKVG62W-1	AlGaInP(Red)	645	40	79	150°	Water Clear
	AlGaInP(Green)	574	20	49		
XZMYKVG62W-1	AlGaInP(Yellow)	590	80	118	150°	Water Clear
	AlGaInP(Green)	574	20	49		



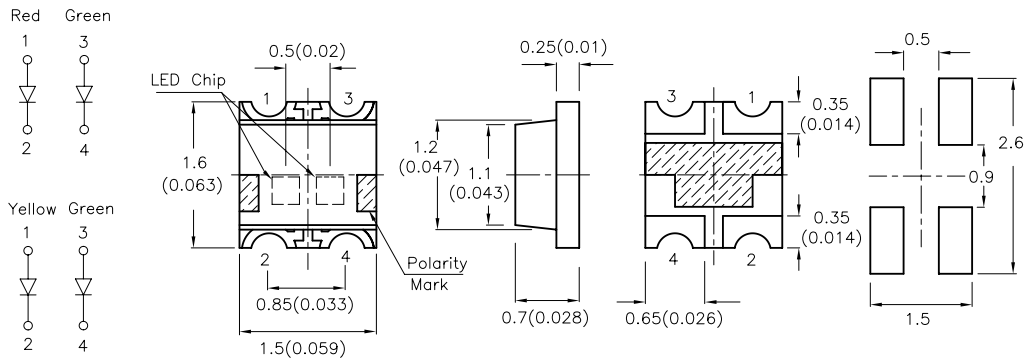


Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

1.6x1.5x0.7mm (Bi-Color)

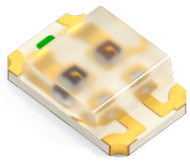
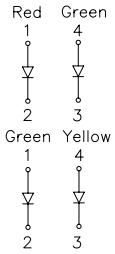
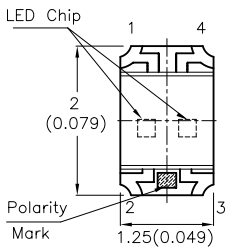
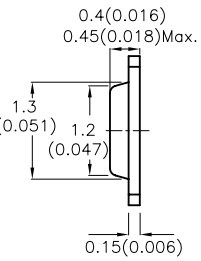
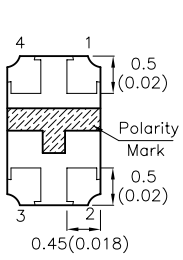
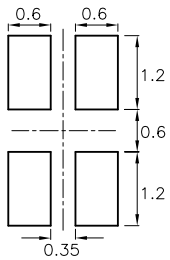
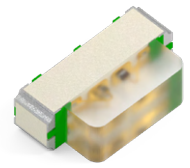
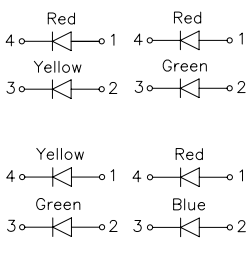
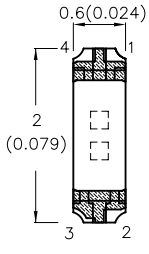
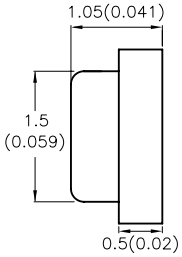
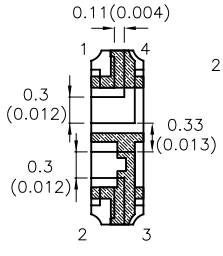
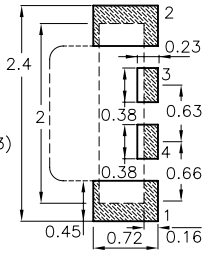
XZMDKVG59W-1	AlGaInP(Red)	645	40	79	150°	Water Clear
	AlGaInP(Green)	574	20	49		
XZMYKVG59W-1	AlGaInP(Yellow)	590	80	118	150°	Water Clear
	AlGaInP(Green)	574	20	49		



Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

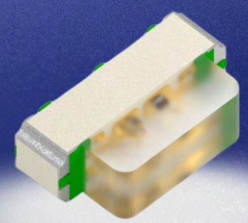
Recommended Soldering Pattern

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA, 5mA*		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
2.0x1.25x0.45mm (0805 Bi-Color)       Dimension Unit: mm(inches), Tolerance : ±0.1(0.004") Recommended Soldering Pattern						
XZMDKVG54W-4	AlGaInP(Red)	645	40	79	120°	Water Clear
	AlGaInP(Green)	574	20	49		
XZMDKDGK54W-4	AlGaInP(Red)	645	40	79	120°	Water Clear
	InGaN(Green)	515	300	447		
XZVGMYK54W-4	AlGaInP(Green)	574	20	49	120°	Water Clear
	AlGaInP(Yellow)	590	80	118		
2.0x1.05x0.6mm (Right Angle, Bi-Color)       Dimension Unit: mm(inches), Tolerance: ±0.1 (0.004") Recommended Soldering Pattern						
XZMDKMYK170W	AlGaInP(Red)	645	20	79	140°	Water Clear
	AlGaInP(Yellow)	590	40	98		
XZMDKVG170W	AlGaInP(Red)	645	20	79	140°	Water Clear
	AlGaInP(Green)	574	8	39		
XZMDKDGK170W	AlGaInP(Red)	645	20	79	140°	Water Clear
	InGaN(Green)	515	100	447		
XZMYKVG170W	AlGaInP(Yellow)	590	40	98	140°	Water Clear
	AlGaInP(Green)	574	8	39		
XZMDKFBB170W5MA	AlGaInP(Red)	645	6*	19*	140°	Water Clear
	InGaN(Blue)	465	20*	49*		

NEW

Bi-Color Rt. Angle SMD



XZxxxx170W Series

XZxxxx170W Series: Bi-Color Rt. Angle SMD

SunLED's XZxxxx170W Bi-Color Right Angle SMD LED series redefines the meaning of compact with next-generation LED technology. This XZxxxx170W series is the smallest package in class with a slick low profile height (2.0 x 1.05 x 0.6mm). A wide viewing angle of 140° ensures consistent brightness and illumination over a broader area. Various color combinations are available.

Innovation starts with this LED. This series can be used in AI data centers, EV chargers, handheld devices, and more. Enhance versatility and effectiveness in a wide range of applications. Design your project where every millimeter counts. Create unique color blends with lights that illuminate simultaneously. Great lights shine better together.

PRODUCT APPLICATIONS

- Network Infrastructure
- EV Chargers
- Medical and Healthcare Devices
- Mobile Devices and Handheld Devices
- Safety and Security
- IoT Devices

TECHNICAL FEATURES

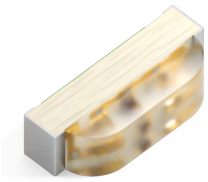
- Package Size 2.0x1.05x0.6 mm
- Low Current (IF=20mA, IF=5mA)
- Bi-Color Configuration
- Moisture Sensitivity Level: 3
- Smallest Package in Class
- Wide Viewing Angle: 140°

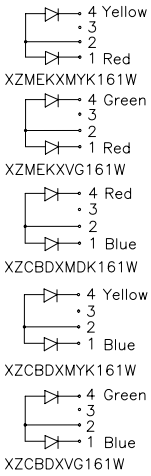
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

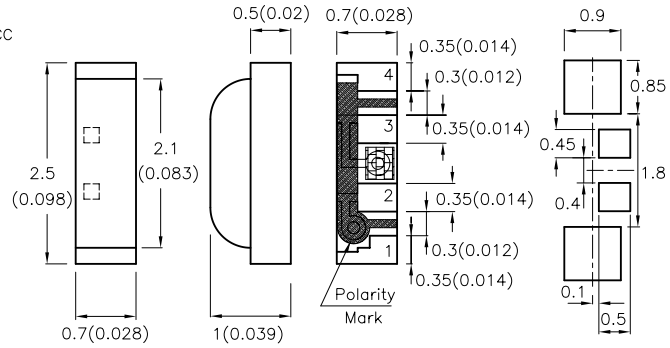
MULTI-COLOR

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

2.5x1.0x0.7mm
(Right Angle, Bi-Color)







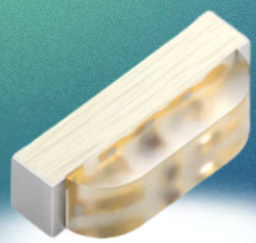
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZM2CRKXDGK161WCC	AlGaInP(Red)	640	200	397	130°	Water Clear
	InGaN(Green)	515	400	547		
XZMEKXMYK161W	AlGaInP(Red)	630	20	39	130°	Water Clear
	AlGaInP(Yellow)	590	80	128		
XZMEKXVG161W	AlGaInP(Red)	630	20	39	130°	Water Clear
	AlGaInP(Green)	574	20	44		
XZMEKXVG161W-A	AlGaInP(Red)	630	20	39	130°	Water Clear
	AlGaInP(Green)	574	20	44		
XZMYKXVG161W-A	AlGaInP(Yellow)	590	80	128	130°	Water Clear
	AlGaInP(Green)	574	20	44		
XZM2CYKXDGK161WCC	AlGaInP(Yellow)	590	120	297	130°	Water Clear
	InGaN(Green)	515	400	547		
XZCBDXMDK161W	InGaN(Blue)	460	40	64	130°	Water Clear
	AlGaInP(Red)	645	55	79		
XZCBDXMYK161W	InGaN(Blue)	460	40	64	130°	Water Clear
	AlGaInP(Yellow)	590	80	128		
XZCBDXVG161W	InGaN(Blue)	460	40	64	130°	Water Clear
	AlGaInP(Green)	574	20	44		

Product Highlight

Low-Profile Right-Angle SMD



XZxxxx161W Series

XZxxxx161W Series: Low-Profile Right-Angle SMD

SunLED's XZxxxx161W series low-profile right-angle SMD LED provides seamless integration for compact illumination. This XZxxxx161W series comes in a compact package with a low-profile height (2.5 x 1.0 x 0.7mm). The wide viewing angle of 130° offers consistent and uniform illumination. A large variety of bi-color and tri-color configurations are available for blending the unique hue that is desired for the indication and illumination.

The colors can be fine-tuned to maximize functionality with each chip's independent anode and cathode. Common pin layouts are also available for additional circuit design flexibility. Users can unleash creativity with this LED for a wide range of designs including backlighting, indications, aesthetics, and more. Great designs start with illumination that shines differently.

PRODUCT APPLICATIONS

- Enterprise Solutions
- EV Chargers
- Medical and Healthcare Devices
- Mobile Devices and Handheld Devices
- Safety and Security
- IoT Devices

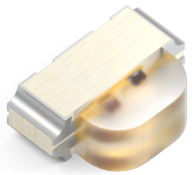
TECHNICAL FEATURES

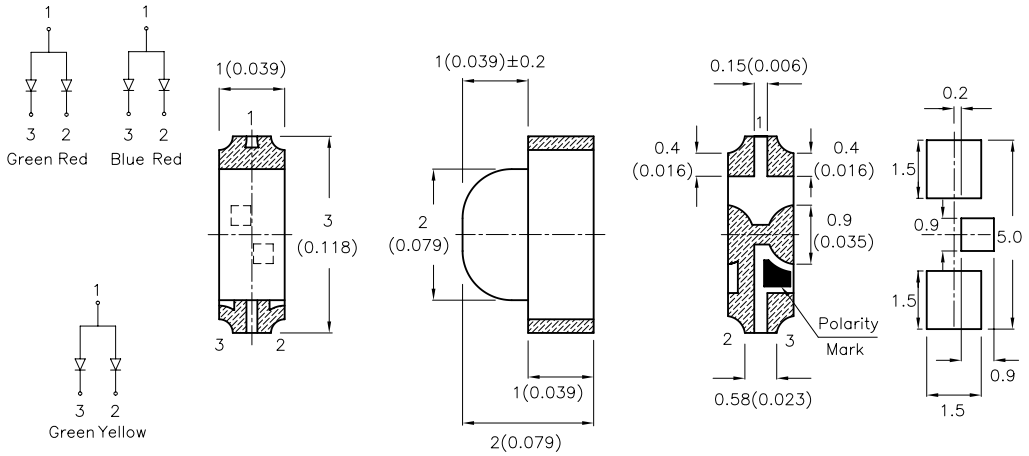
- Package Size 2.5x1.0x0.7 mm
- Ultra Low Current (IF=20mA, IF=2mA)
- Bi-Color and RGB Configuration
- Moisture Sensitivity Level: 3
- Low-Profile Height
- Wide Viewing Angle: 130°

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.0x2.0x1.0mm
(Right Angle, Bi-Color)



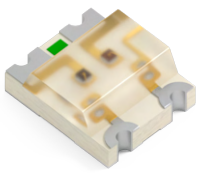


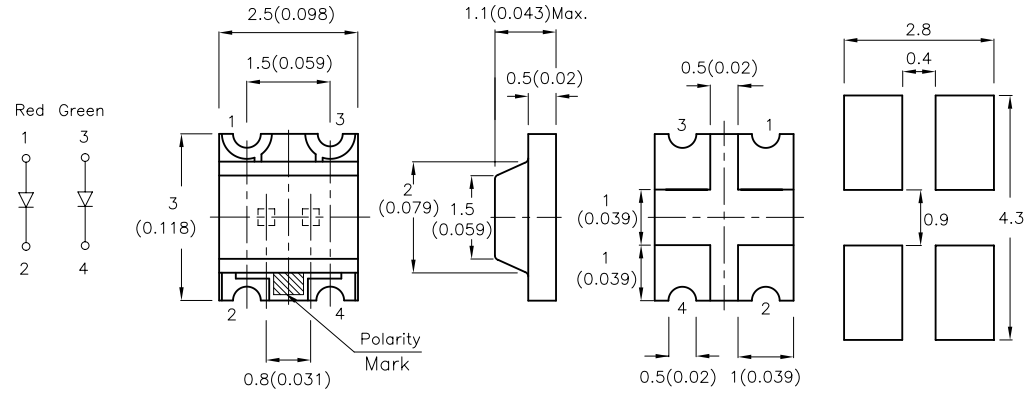
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZMDKVG56W	AlGaInP(Red)	645	40	79	140°	Water Clear
	AlGaInP(Green)	574	40	69		
XZMDKCBD56W	AlGaInP(Red)	645	40	79	140°	Water Clear
	InGaN(Blue)	460	40	89		
XZMYKVG56W	AlGaInP(Yellow)	590	80	118	140°	Water Clear
	AlGaInP(Green)	574	40	69		

3.0x2.5x1.1mm
(Bi-Color)





Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

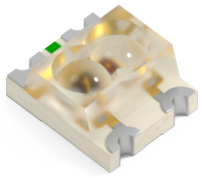
XZMDKVG57W	AlGaInP(Red)	645	40	69	160°	Water Clear
	AlGaInP(Green)	574	20	59		

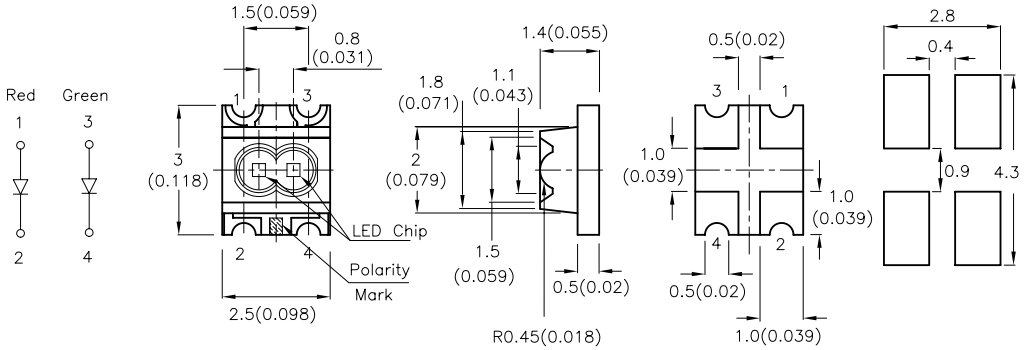
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

MULTI-COLOR

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.0x2.5x1.4mm
(Bi-Color)



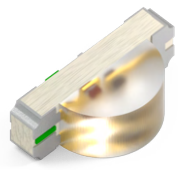


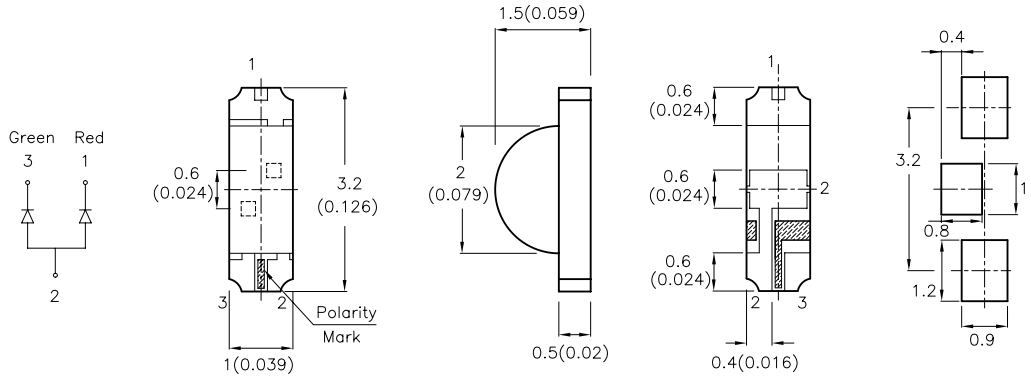
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDKVG57W-1	AlGaInP(Red)	645	120	297	50°	Water Clear
	AlGaInP(Green)	574	80	148		

3.2x1.5x1.0mm
(Right Angle, Bi-Color)



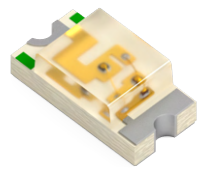


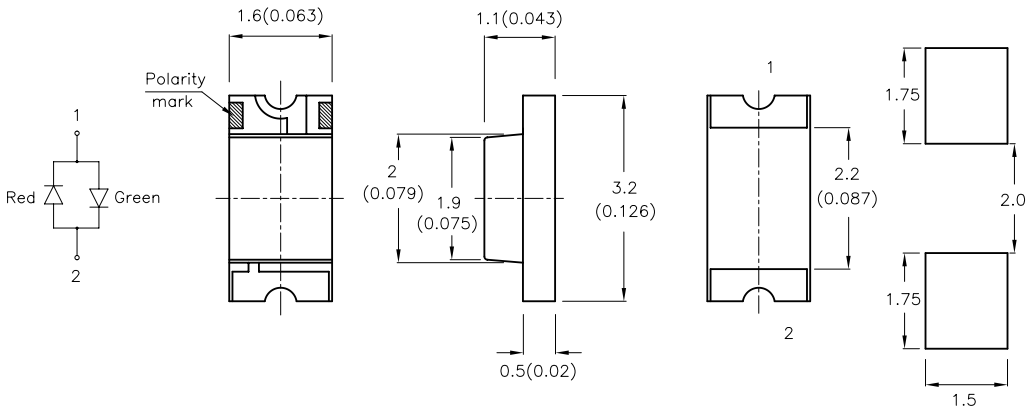
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDKVG88W	AlGaInP(Red)	645	40	79	140°	Water Clear
	AlGaInP(Green)	574	40	69		

3.2x1.6x1.1mm
(Bi-Polar)





Dimension Unit: mm(inches), Tolerance: ±0.2(0.008")

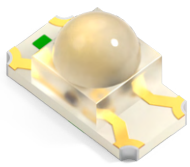
Recommended Soldering Pattern

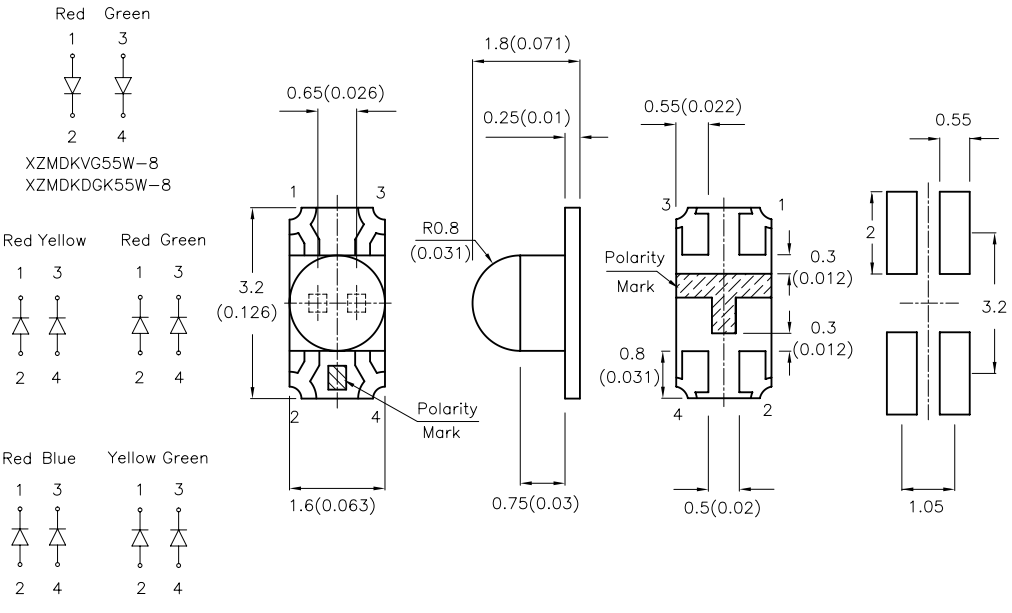
XZMDKDGK55W-4	AlGaInP(Red)	645	20	69	140°	Water Clear
	InGaN(Green)	515	200	397		

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.2x1.6x1.8mm
(1206 Dome Lens Bi-Color)





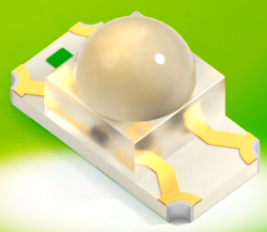
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDKVG55W-8	AlGaInP(Red)	645	300	597	30°	Water Clear
	AlGaInP(Green)	574	120	248		
XZMDKDGK55W-8	AlGaInP(Red)	645	300	597	30°	Water Clear
	InGaN(Green)	515	400	647		
XZM2CRKCYK55W-8	AlGaInP(Red)	640	700	1295	30°	Water Clear
	AlGaInP(Yellow)	590	400	695		
XZM2CRKM2DG55W-8	AlGaInP(Red)	640	700	1295	30°	Water Clear
	InGaN(Green)	520	700	1295		
XZM2CRKFBB55W-8	AlGaInP(Red)	640	700	1295	30°	Water Clear
	InGaN(Blue)	465	120	278		
XZM2CYKM2DG55W-8	AlGaInP(Yellow)	590	700	1195	30°	Water Clear
	InGaN(Green)	520	700	1295		

Product Highlight

Bi-Color Ultra Bright SMD



XZxxxx55W-8 Series

XZxxxx55W-8 Series: Bi-Color Ultra Bright SMD

SunLED is excited to release a series that redefines high-intensity, low-current LEDs. Designed and built to meet and exceed the most demanding visibility requirements, the XZxxxx55W-8 series outshines nearly all other LEDs. Developed from a combination of AlGaInP and InGaN dies, this series ensures a long and robust lifespan while outputting a brilliant array of colors.
With a standard 1206 footprint of 3.2 mm x 1.6 mm, this bi-color SMD LED uses a configuration of ultra-bright colors paired with a dome lens to provide one of the highest intensity options available in the industry operating with a current of IF=20 mA. This package is accompanied by a 4-pad design allowing independent connections for each color channel, and maximizing circuit-design flexibility. This series is excellent for any light-pipe application, high-visibility indication requirements, or where high brightness and low-current operation is needed.

PRODUCT APPLICATIONS

- Consumer Electronics
- Industrial Equipment
- Medical and Healthcare Devices
- Mobile Devices and Handheld Devices
- Safety and Security
- Power Management Systems

TECHNICAL FEATURES

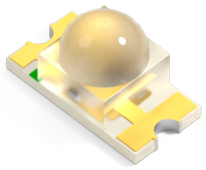
- Package Size 3.2x1.6x1.8 mm
- Ultra-Bright Intensity Output
- Independent Anode/Cathode for Each Color
- Moisture Sensitivity Level: 3
- Dome Lens
- Narrow Viewing Angle : 30°

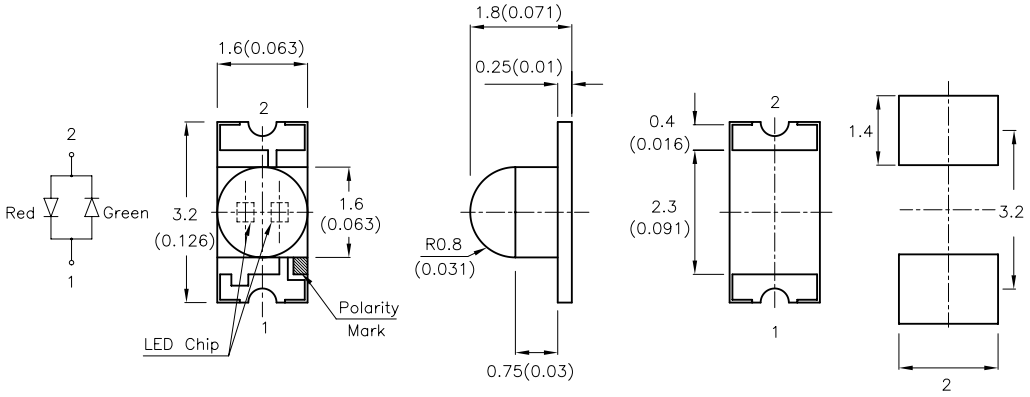
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

MULTI-COLOR

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.2x1.6x1.8mm
(1206 Dome Lens Bi-Polar)



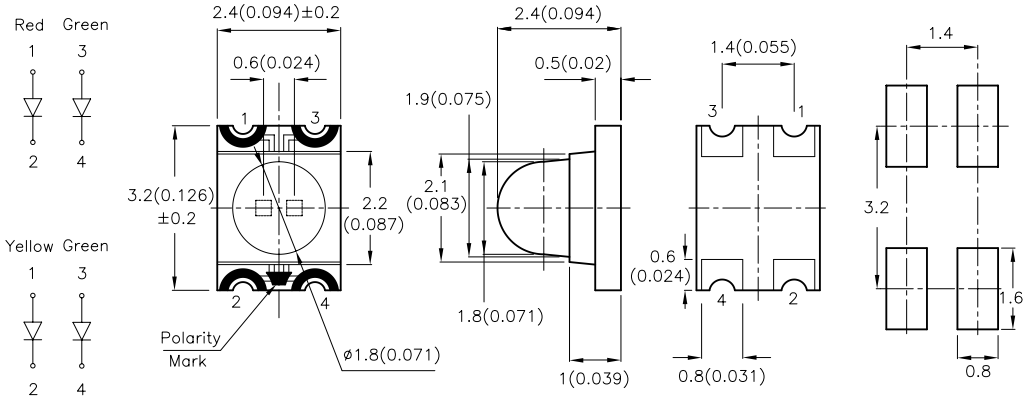


Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDKVG55W-7	AlGaInP(Red)	645	300	597	30°	Water Clear
	AlGaInP(Green)	574	120	248		

3.2x2.4x2.4mm
(Dome Lens Bi-Color)

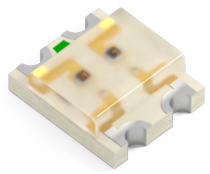


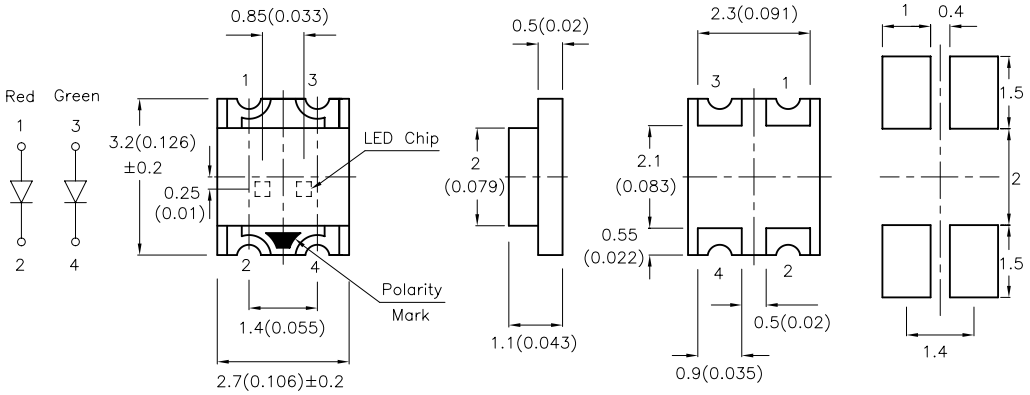
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDKVG78W	AlGaInP(Red)	645	120	397	20°	Water Clear
	AlGaInP(Green)	574	80	278		
XZMYKVG78W	AlGaInP(Yellow)	590	400	795	20°	Water Clear
	AlGaInP(Green)	574	80	278		

3.2x2.7x1.1mm
(Bi-Color)





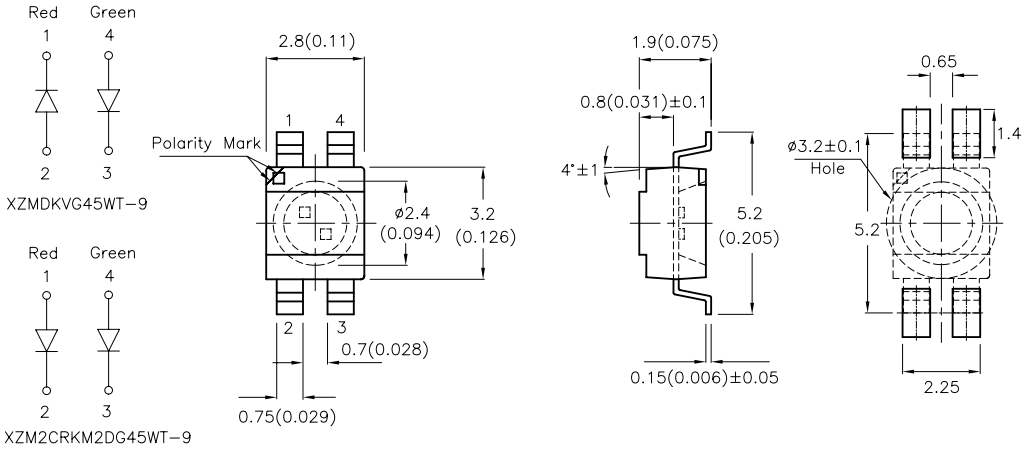
Dimension Unit: mm(inches), Tolerance: ±0.1(0.004")

Recommended Soldering Pattern

XZMDKVG98W	AlGaInP(Red)	645	40	79	140°	Water Clear
	AlGaInP(Green)	574	20	54		

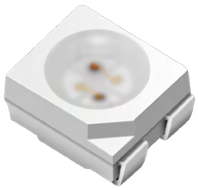
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

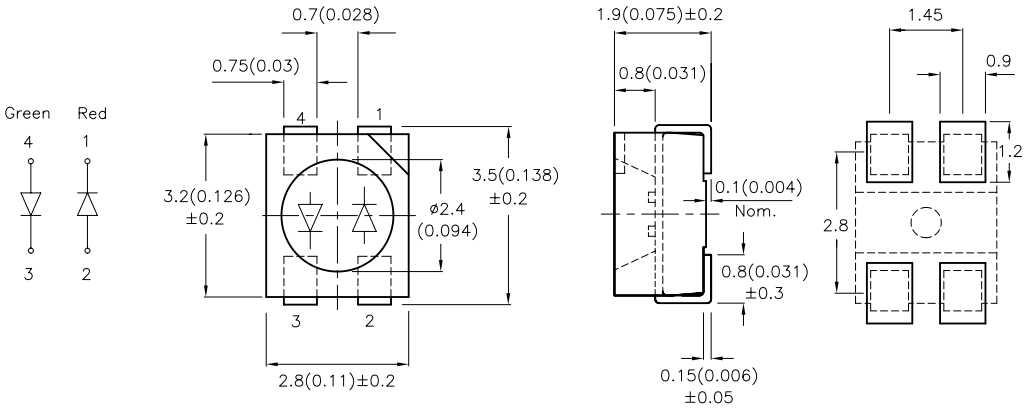
Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3.2x2.8x1.9mm (PLCC4 Reverse Mount Bi-Color)						
XZMDKVG45WT-9	AlGaInP(Red)	645	55	98	120°	Water Clear
	AlGaInP(Green)	574	40	79		
XZM2CRKM2DG45WT-9	AlGaInP(Red)	640	300	447	120°	Water Clear
	InGaN(Green)	520	1000	1590		
3.5x2.8x1.9mm (PLCC4 Bi-Color)						
XZMDKVG45WT	AlGaInP(Red)	645	55	98	120°	Water Clear
	AlGaInP(Green)	574	40	79		
4.0x4.0x3.6mm (PLCC2 Right Angle Bi-Polar)						
XZM2CRKVG67WTR	AlGaInP(Red)	640	400	577	120°	Water Clear
	AlGaInP(Green)	574	40	89		



Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

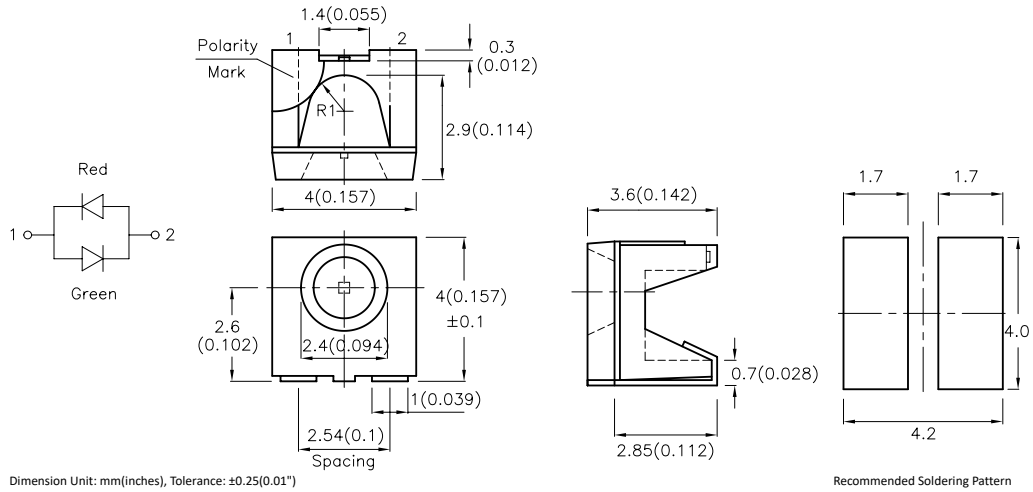
Recommended Soldering Pattern





Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern



Dimension Unit: mm(inches), Tolerance: ±0.25(0.01")

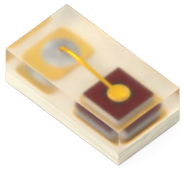
Recommended Soldering Pattern

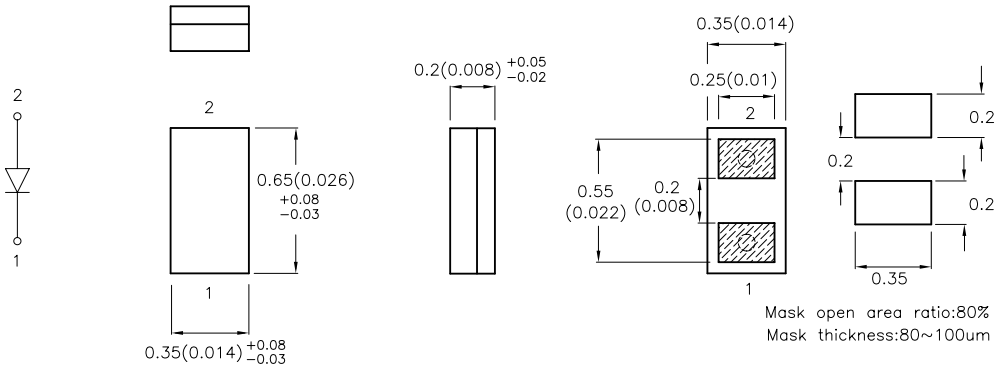
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

TOP EMITTING

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA,10mA*,5mA**		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

0.65x0.35x0.2mm
(0201 Super Thin)



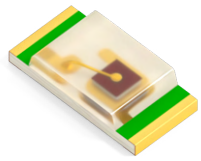


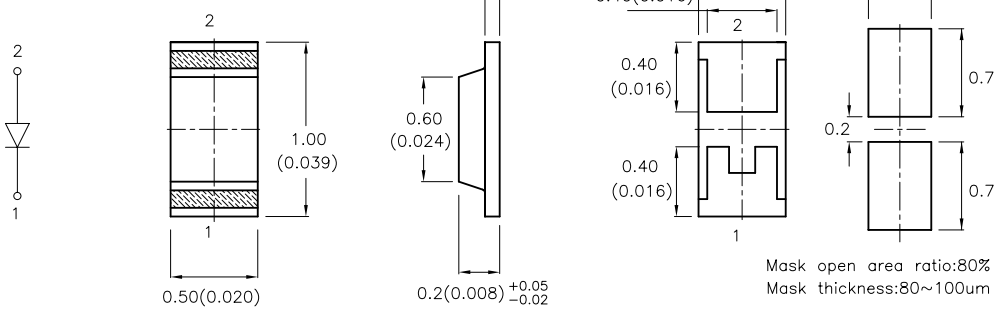
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDR155W	AlGaInP(Red)	639	10*	34*	140°	Water Clear
XZMER155W	AlGaInP(Red)	632	15*	39*	140°	Water Clear
XZMYR155W	AlGaInP(Yellow)	591	10*	29*	140°	Water Clear
XZVGR155W	AlGaInP(Green)	572	6*	14*	140°	Water Clear
XZDG155W5MAV	InGaN(Green)	515	180**	278**	140°	Water Clear
XZFBA155W5MAV	InGaN(Blue)	463	30**	59**	140°	Water Clear

1.0x0.5x0.2mm
(0402 Super Thin)



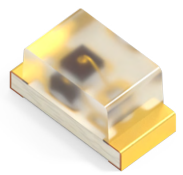


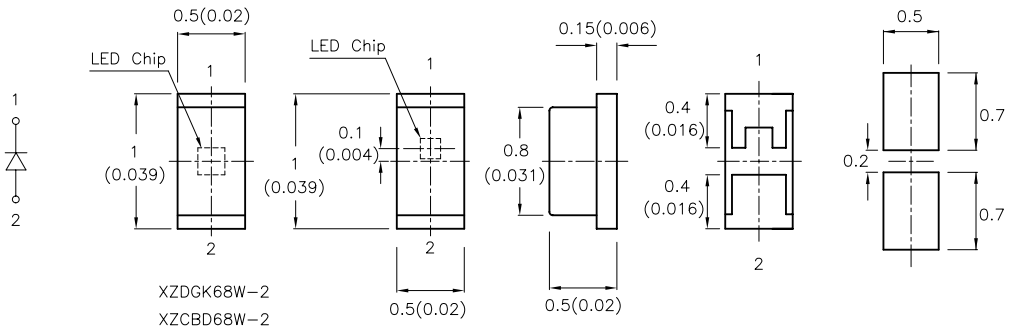
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMER68W-3	AlGaInP(Red)	632	40	79	120°	Water Clear
XZMYR68W-3	AlGaInP(Yellow)	591	55	98	120°	Water Clear
XZVGR68W-3	AlGaInP(Green)	572	12	34	120°	Water Clear
XZDG68W5MAV-3	InGaN(Green)	515	120**	278**	140°	Water Clear
XZFBA68W5MAV-3	InGaN(Blue)	463	20**	59**	140°	Water Clear

1.0x0.5x0.5mm
(0402)





Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

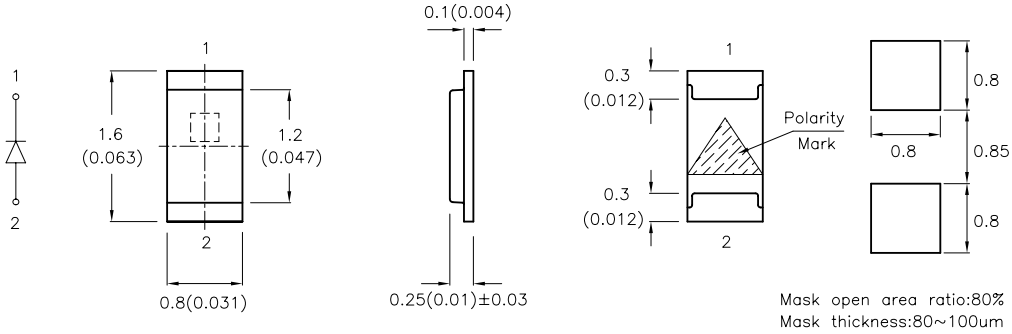
Recommended Soldering Pattern

XZMDK68W-2	AlGaInP(Red)	645	40	69	120°	Water Clear
XZMOK68W-2	AlGaInP(Orange)	610	80	148	120°	Water Clear
XZMYK68W-2	AlGaInP(Yellow)	590	80	148	120°	Water Clear
XZVG68W-2	AlGaInP(Green)	574	20	49	120°	Water Clear
XZDGK68W-2	InGaN(Green)	515	400	547	140°	Water Clear
XZCBD68W-2	InGaN(Blue)	460	40	59	140°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

1.6x0.8x0.25mm
(0603 Super Thin)

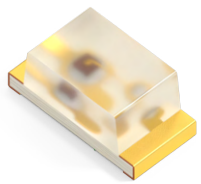


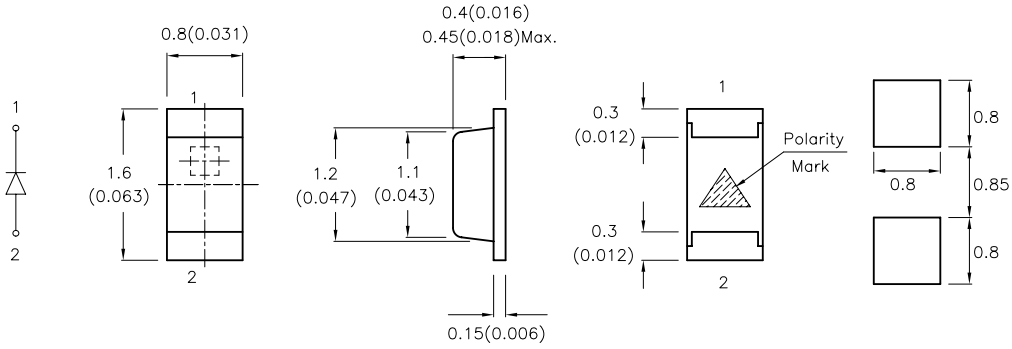
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDKT53W-6	AlGaInP(Red)	645	55	108	120°	Water Clear
XZMYKT53W-6	AlGaInP(Yellow)	590	55	118	120°	Water Clear
XZVGT53W-6	AlGaInP(Green)	574	20	49	120°	Water Clear
XZM2DG53W-6	InGaN(Green)	520	700	995	130°	Water Clear
XZDGK53W-6	InGaN(Green)	515	300	397	130°	Water Clear
XZCBD53W-6	InGaN(Blue)	460	40	98	130°	Water Clear

1.6x0.8x0.45mm
(0603)



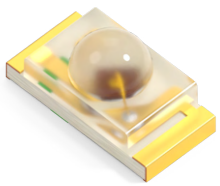


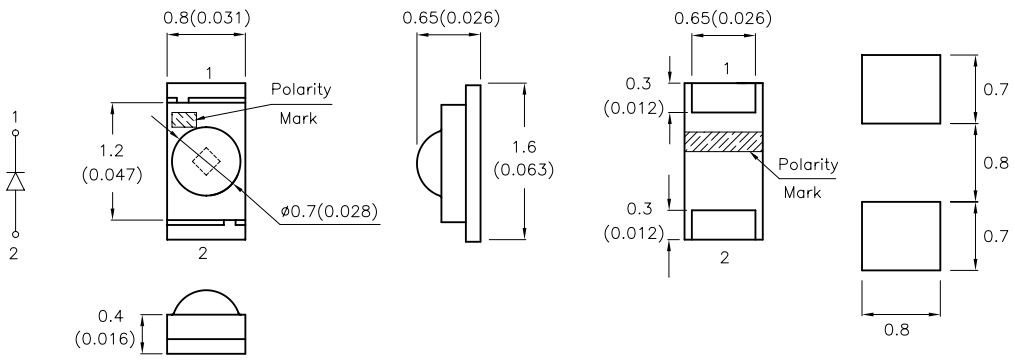
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDK53W-3	AlGaInP(Red)	645	40	79	120°	Water Clear
XZMOK53W-3	AlGaInP(Orange)	610	80	178	120°	Water Clear
XZMYK53W-3	AlGaInP(Yellow)	590	80	148	120°	Water Clear
XZVG53W-3	AlGaInP(Green)	574	20	49	120°	Water Clear

1.6x0.8x0.65mm
(0603 Dome Lens)





Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

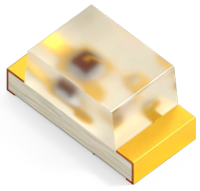
XZMDK53W-8ST	AlGaInP(Red)	645	55	118	100°	Water Clear
XZM2CRK53WA-8ST	AlGaInP(Red)	640	300	597	100°	Water Clear
XZMOK53W-8ST	AlGaInP(Orange)	610	80	208	100°	Water Clear
XZVG53W-8ST	AlGaInP(Green)	574	20	79	100°	Water Clear
XZDGK53W-8ST	InGaN(Green)	515	400	935	100°	Water Clear
XZFBB53W-8ST	InGaN(Blue)	465	80	258	100°	Water Clear

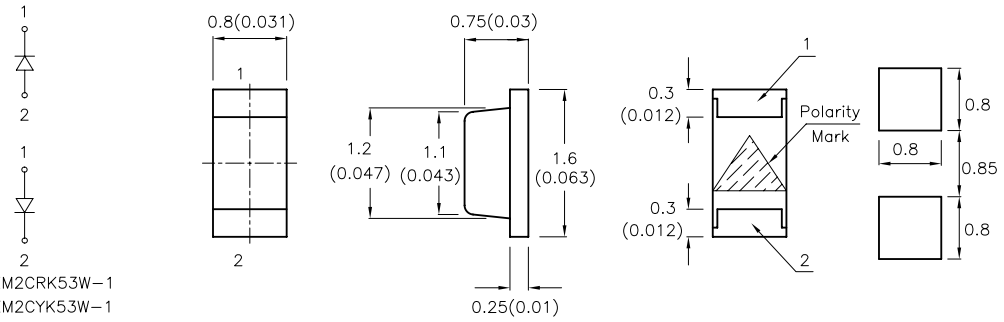
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

TOP EMITTING

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

1.6x0.8x0.75mm
(0603)



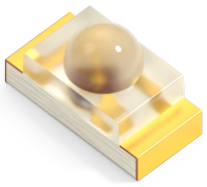


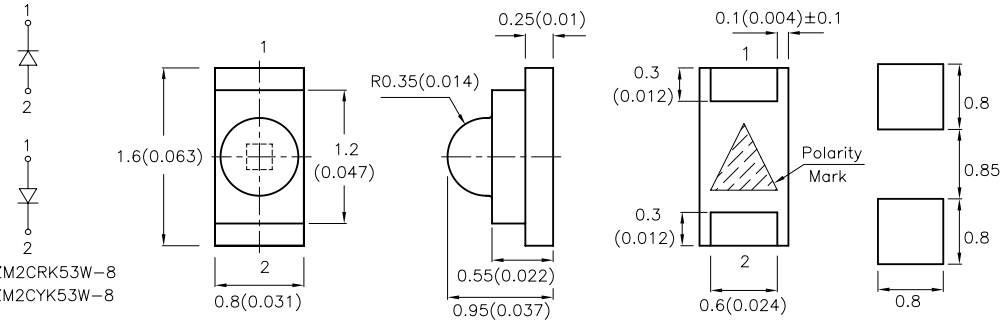
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDK53W-1	AlGaInP(Red)	645	40	79	120°	Water Clear
XZM2CRK53W-1	AlGaInP(Red)	640	200	347	120°	Water Clear
XZMOK53W-1	AlGaInP(Orange)	610	80	178	120°	Water Clear
XZMYK53W-1	AlGaInP(Yellow)	590	80	148	120°	Water Clear
XZM2CYK53W-1	AlGaInP(Yellow)	590	200	317	120°	Water Clear
XZVG53W-1	AlGaInP(Green)	574	20	49	120°	Water Clear
XZM2DG53W-1	InGaN(Green)	520	500	795	130°	Water Clear
XZDGK53W-1	InGaN(Green)	515	300	547	130°	Water Clear
XZFBB53W-1	InGaN(Blue)	465	120	178	130°	Water Clear
XZCBD53W-1	InGaN(Blue)	460	40	98	130°	Water Clear

1.6x0.8x0.95mm
(0603 Dome Lens)



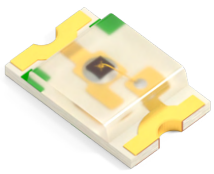


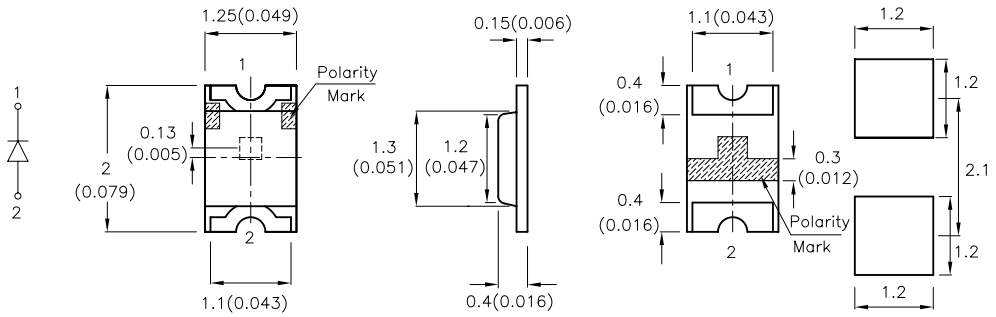
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZMDK53W-8	AlGaInP(Red)	645	80	248	60°	Water Clear
XZM2CRK53W-8	AlGaInP(Red)	640	500	895	60°	Water Clear
XZMOK53W-8	AlGaInP(Orange)	610	200	497	60°	Water Clear
XZMYK53W-8	AlGaInP(Yellow)	590	300	597	60°	Water Clear
XZM2CYK53W-8	AlGaInP(Yellow)	590	500	845	60°	Water Clear
XZVG53W-8	AlGaInP(Green)	574	80	188	60°	Water Clear
XZDGK53W-8	InGaN(Green)	515	700	1195	60°	Water Clear
XZFBB53W-8	InGaN(Blue)	465	200	347	40°	Water Clear
XZCBD53W-8	InGaN(Blue)	460	80	198	40°	Water Clear

2.0x1.25x0.4mm
(0805)





Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

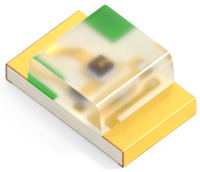
Recommended Soldering Pattern

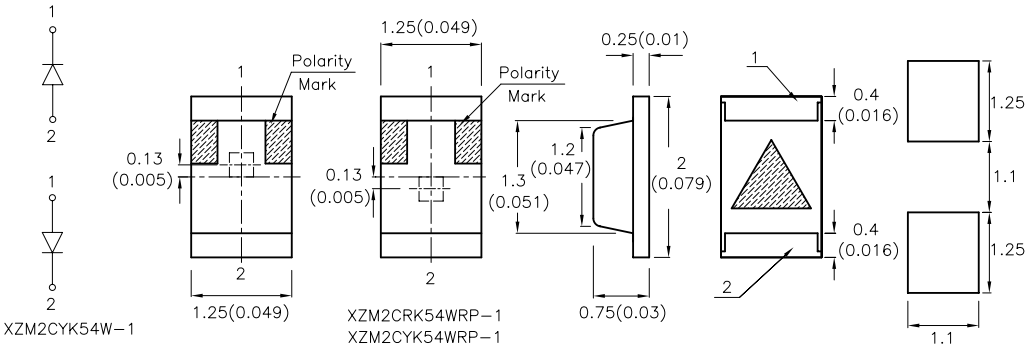
XZMDK54W-4	AlGaInP(Red)	645	40	79	140°	Water Clear
XZMOK54W-4	AlGaInP(Orange)	610	80	178	140°	Water Clear
XZMYK54W-4	AlGaInP(Yellow)	590	80	148	140°	Water Clear
XZVG54W-4	AlGaInP(Green)	574	20	49	140°	Water Clear
XZCBD54W-4	InGaN(Blue)	460	40	98	140°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

2.0x1.25x0.75mm
(0805)



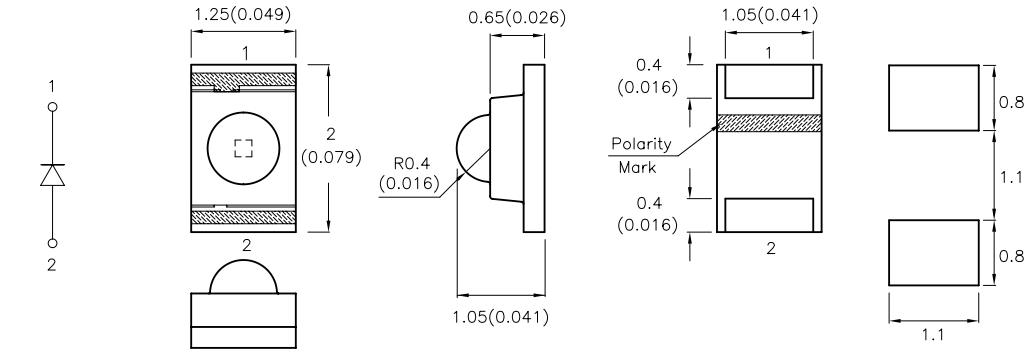


Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDK54W-1	AlGaInP(Red)	645	40	79	140°	Water Clear
XZM2CRK54WRP-1	AlGaInP(Red)	640	200	347	140°	Water Clear
XZMOK54W-1	AlGaInP(Orange)	610	80	178	140°	Water Clear
XZMYK54W-1	AlGaInP(Yellow)	590	80	148	140°	Water Clear
XZM2CYK54W-1	AlGaInP(Yellow)	590	200	317	140°	Water Clear
XZM2CYK54WRP-1	AlGaInP(Yellow)	590	200	317	140°	Water Clear
XZVG54W-1	AlGaInP(Green)	574	20	49	140°	Water Clear
XZDGK54W-1	InGaN(Green)	515	300	547	140°	Water Clear
XZFBB54W-1	InGaN(Blue)	465	120	178	140°	Water Clear
XZCBD54W-1	InGaN(Blue)	460	40	98	140°	Water Clear

2.0x1.25x1.05mm
(Dome Lens)

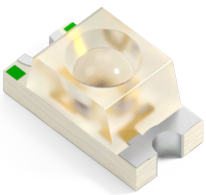


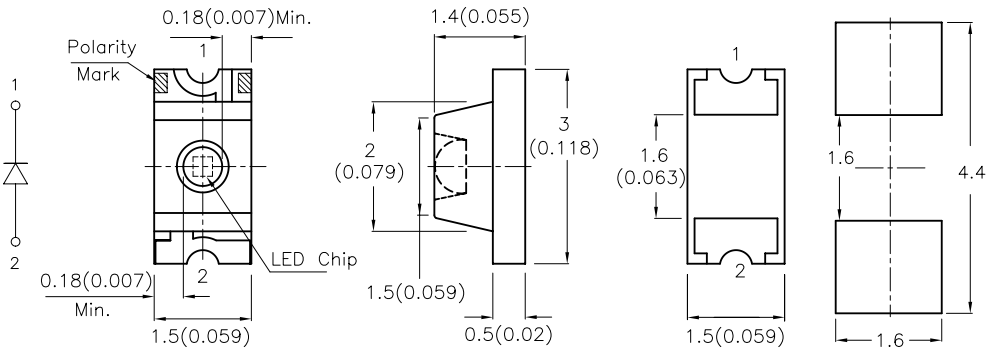
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZMDK54W-8	AlGaInP(Red)	645	300	547	40°	Water Clear
XZM2CRK54WA-8	AlGaInP(Red)	640	1000	1990	40°	Water Clear
XZMOK54W-8	AlGaInP(Orange)	610	300	745	40°	Water Clear
XZVG54W-8	AlGaInP(Green)	574	120	347	40°	Water Clear
XZDGK54W-8	InGaN(Green)	515	1600	2490	30°	Water Clear

3.0x1.5x1.4mm
(Inner Dome Lens)





Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

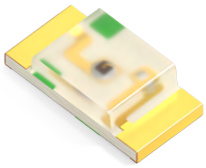
XZMDK60W	AlGaInP(Red)	645	120	178	70°	Water Clear
XZMYK60W	AlGaInP(Yellow)	590	200	347	70°	Water Clear
XZVG60W	AlGaInP(Green)	574	55	118	70°	Water Clear

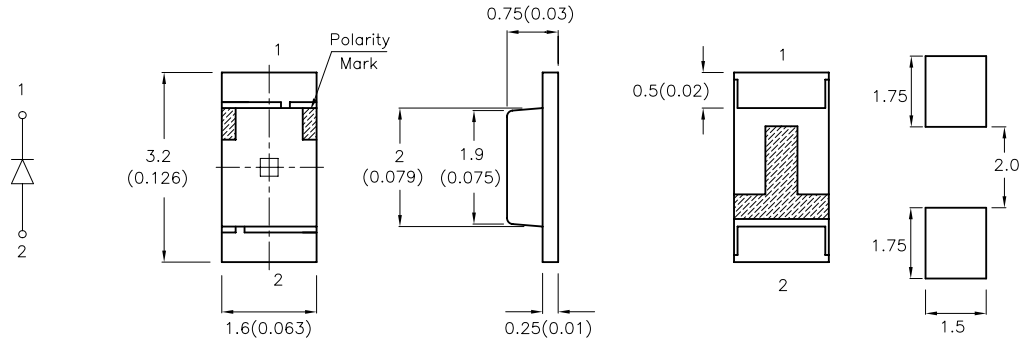
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

TOP EMITTING

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.2x1.6x0.75mm
(1206)



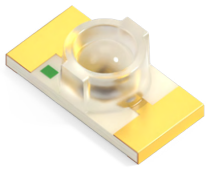


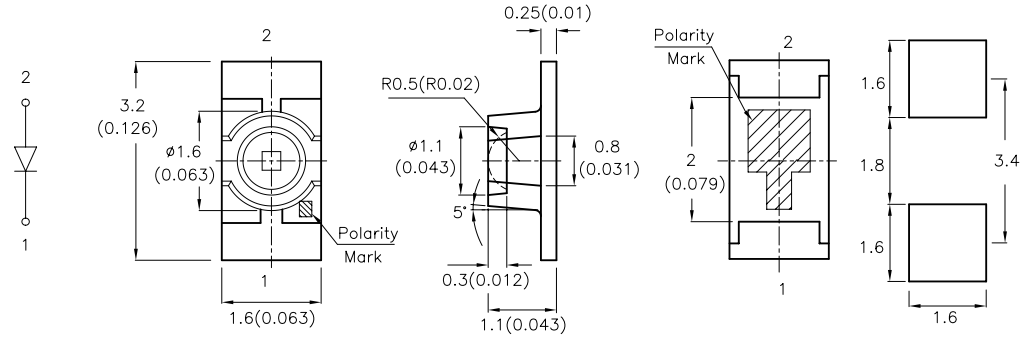
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDK55W-1	AlGaInP(Red)	645	40	79	140°	Water Clear
XZMOK55W-1	AlGaInP(Orange)	610	80	178	140°	Water Clear
XZMYK55W-1	AlGaInP(Yellow)	590	80	148	140°	Water Clear
XZVG55W-1	AlGaInP(Green)	574	20	49	140°	Water Clear
XZCBD55W-1	InGaN(Blue)	460	40	98	150°	Water Clear

3.2x1.6x1.1mm
(1206 Inner Dome Lens)



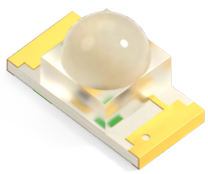


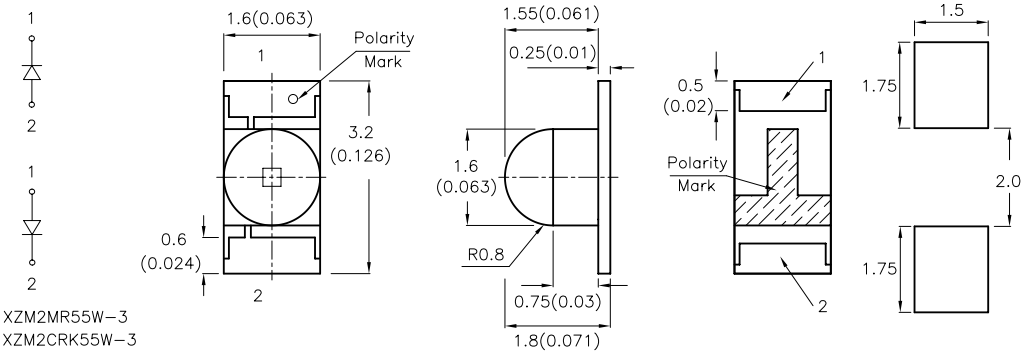
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDK55W-A2	AlGaInP(Red)	645	120	228	80°	Water Clear
XZMOK55W-A2	AlGaInP(Orange)	610	200	347	80°	Water Clear
XZVG55W-A2	AlGaInP(Green)	574	55	98	80°	Water Clear

3.2x1.6x1.8mm
(1206 Dome Lens)





Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

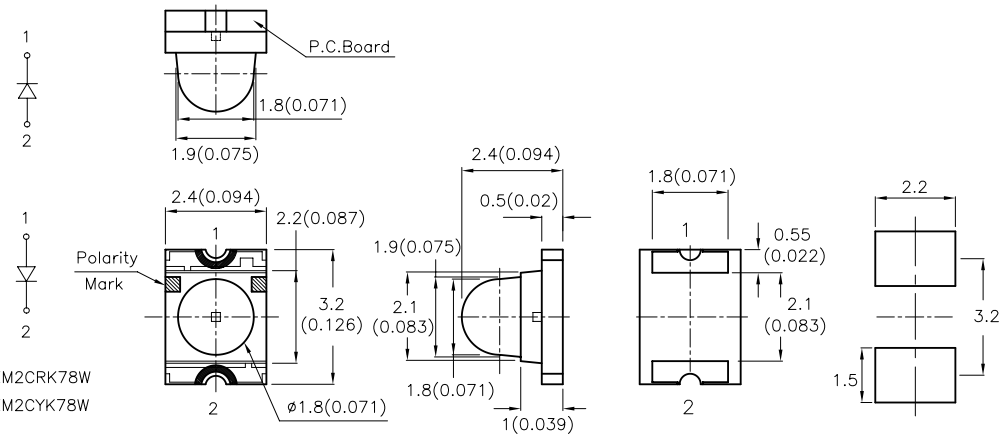
Recommended Soldering Pattern

XZM2MR55W-3	AlGaInP(Red)	660	700	1095	40°	Water Clear
XZMDK55W-3	AlGaInP(Red)	645	300	795	40°	Water Clear
XZM2CRK55W-3	AlGaInP(Red)	640	1600	2490	40°	Water Clear
XZMOK55W-3	AlGaInP(Orange)	610	500	995	40°	Water Clear
XZMYK55W-3	AlGaInP(Yellow)	590	700	795	40°	Water Clear
XZVG55W-3	AlGaInP(Green)	574	120	297	40°	Water Clear
XZM2DG55W-3	InGaN(Green)	520	3600	5990	30°	Water Clear
XZDGK55W-3	InGaN(Green)	515	2700	3990	30°	Water Clear
XZFBB55W-3	InGaN(Blue)	465	700	1195	30°	Water Clear
XZCBD55W-3	InGaN(Blue)	460	300	695	30°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA,10mA*		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.2x2.4x2.4mm
(Dome Lens)



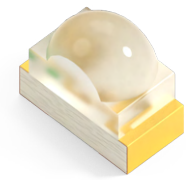
XZM2CRK78W
XZM2CYK78W

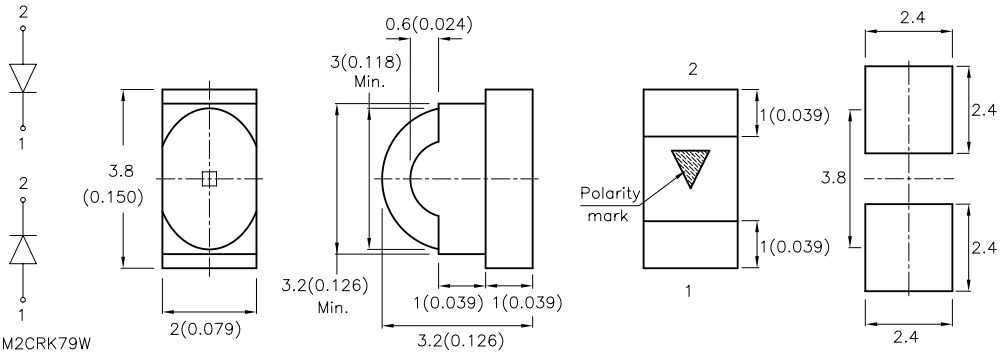
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDK78W	AlGaInP(Red)	645	1000	1295	20°	Water Clear
XZM2CRK78W	AlGaInP(Red)	640	3100	4990	20°	Water Clear
XZMYK78W	AlGaInP(Yellow)	590	1300	1590	20°	Water Clear
XZM2CYK78W	AlGaInP(Yellow)	590	2300	3290	20°	Water Clear
XZVG78W	AlGaInP(Green)	574	500	895	20°	Water Clear
XZDGK78W	InGaN(Green)	515	3600	6790	20°	Water Clear
XZM2DG78W	InGaN(Green)	520	5000	7990	20°	Water Clear
XZFBB78W	InGaN(Blue)	465	1600	1990	20°	Water Clear
XZCBD78W	InGaN(Blue)	460	500	895	20°	Water Clear

3.8x2.0x3.2mm
(Oval Dome Lens)





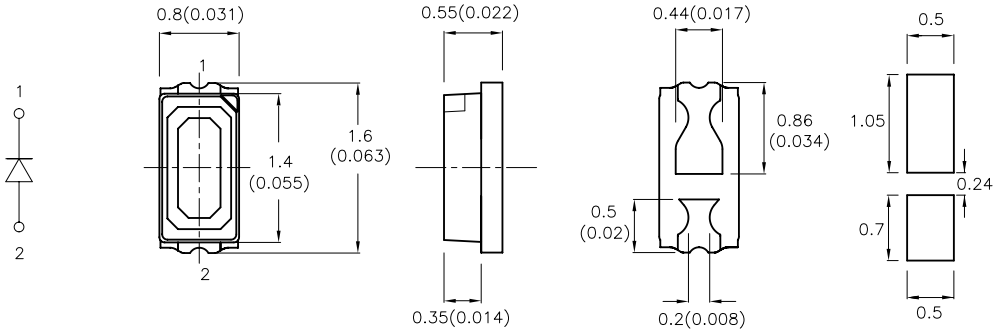
XZM2CRK79W

Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZM2CRK79W	AlGaInP(Red)	640	1000	1690	60°(H) 35°(V)	Water Clear
XZM2DG79W	InGaN(Green)	520	1900	2690	60°(H) 35°(V)	Water Clear
XZFBB79W	InGaN(Blue)	465	500	745	60°(H) 35°(V)	Water Clear

1.6x0.8x0.55mm
(0603 PLCC SMD)



Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

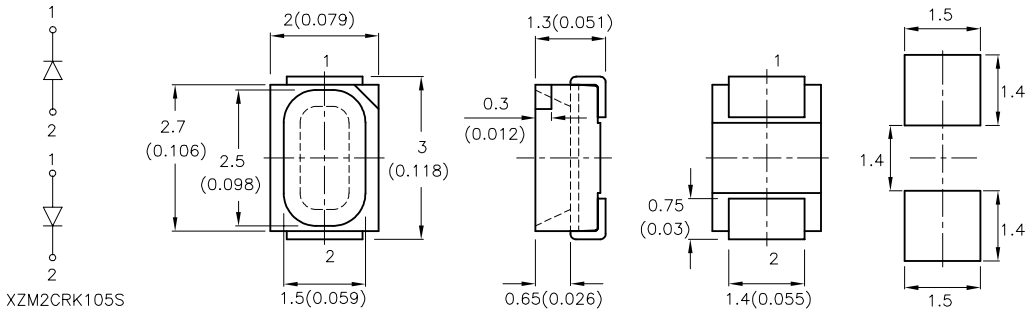
XZMDK53S-4	AlGaInP(Red)	645	40	158	120°	Water Clear
XZMYK53S-4	AlGaInP(Yellow)	590	55	238	120°	Water Clear
XZVG53S-4	AlGaInP(Green)	574	40	79	120°	Water Clear
XZFBA53S10MAV-4	InGaN(Blue)	463	50*	158*	120°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

TOP EMITTING

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

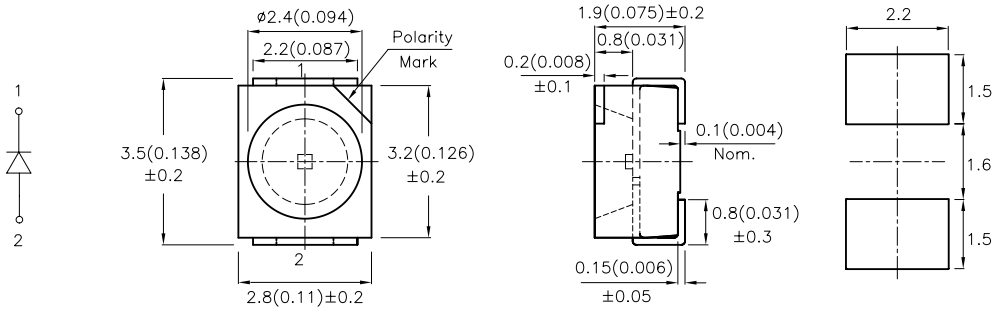
3.0x2.0x1.3mm (PLCC2)



Dimension Unit: mm(inches), Tolerance : ±0.2(0.008") Recommended Soldering Pattern

XZMDK105S	AlGaInP(Red)	645	40	89	120°	Water Clear
XZM2CRK105S	AlGaInP(Red)	640	300	447	120°	Water Clear
XZMYK105S	AlGaInP(Yellow)	590	120	198	120°	Water Clear
XZVG105S	AlGaInP(Green)	574	40	79	120°	Water Clear
XZCBD105S	InGaN(Blue)	460	80	118	120°	Water Clear

3.5x2.8x1.9mm (PLCC2)



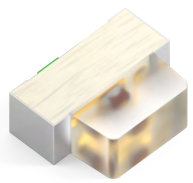
Dimension Unit: mm(inches), Tolerance : ±0.25(0.01") Recommended Soldering Pattern

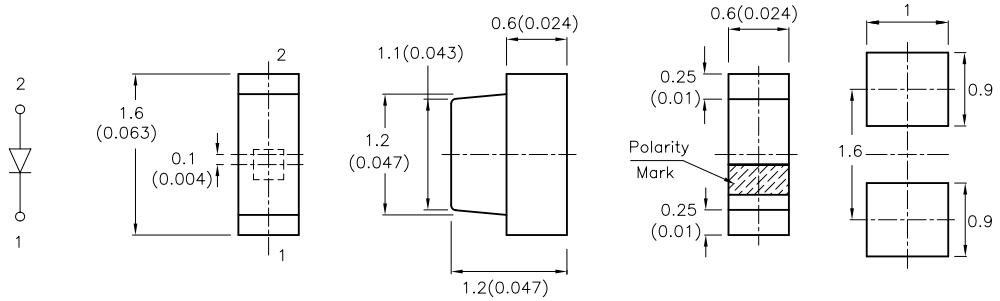
XZMDK45WT	AlGaInP(Red)	645	55	98	120°	Water Clear
XZMOK45WT	AlGaInP(Orange)	610	120	228	120°	Water Clear
XZMYK45WT	AlGaInP(Yellow)	590	120	248	120°	Water Clear
XZVG45WT	AlGaInP(Green)	574	40	98	120°	Water Clear
XZDGK45WT	InGaN(Green)	515	500	995	120°	Water Clear
XZFBB45S	InGaN(Blue)	465	300	447	120°	Water Clear
XZCBD45S	InGaN(Blue)	460	80	148	120°	Water Clear

SIDE EMITTING

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

1.6x1.2x0.6mm (Right Angle)





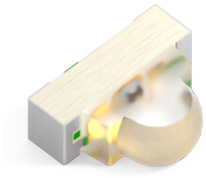
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004") Recommended Soldering Pattern

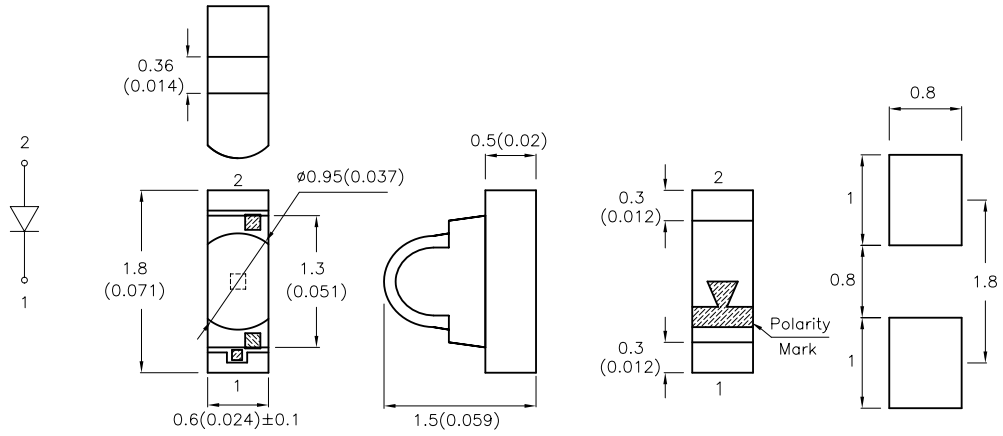
XZMDK87W	AlGaInP(Red)	645	55	79	110°	Water Clear
XZMOK87W	AlGaInP(Orange)	610	80	178	110°	Water Clear
XZMYK87W	AlGaInP(Yellow)	590	80	148	110°	Water Clear
XZVG87W	AlGaInP(Green)	574	20	49	110°	Water Clear
XZCBD87W	InGaN(Blue)	460	40	79	110°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

1.8x1.5x0.6mm
(Dome Lens Right Angle)



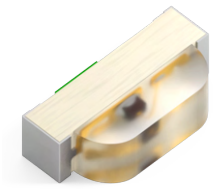


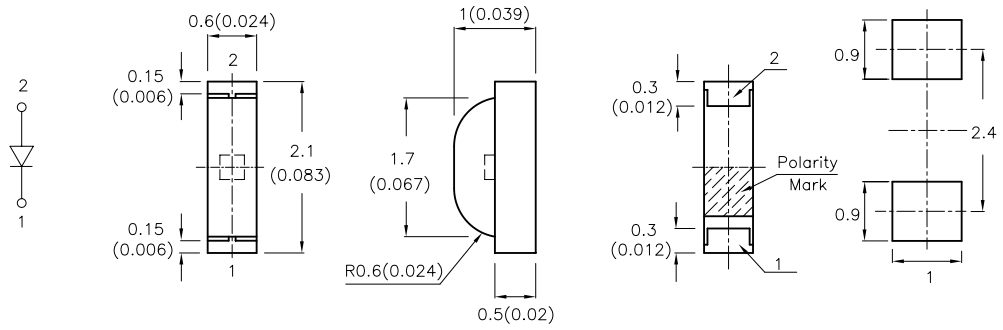
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZMDK168W	AlGaInP(Red)	645	500	1195	25°	Water Clear
XZM2CRK168WA	AlGaInP(Red)	640	1300	2590	25°	Water Clear
XZMYK168W	AlGaInP(Yellow)	590	500	1095	25°	Water Clear
XZVG168W	AlGaInP(Green)	574	120	397	25°	Water Clear
XZDGK168W	InGaN(Green)	515	1900	3190	25°	Water Clear
XZFBB168W	InGaN(Blue)	465	400	795	25°	Water Clear

2.1x1.0x0.6mm
(Right Angle)



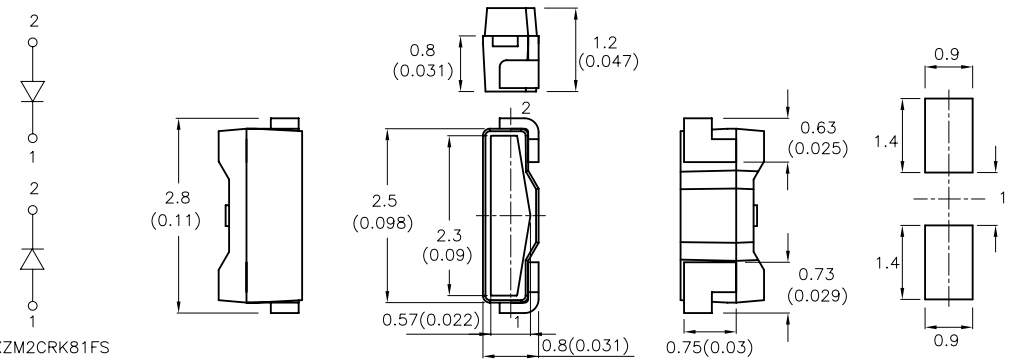


Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZMDK74W	AlGaInP(Red)	645	55	79	140°	Water Clear
XZMYK74W	AlGaInP(Yellow)	590	80	148	140°	Water Clear
XZVG74W	AlGaInP(Green)	574	20	49	140°	Water Clear

2.8x1.2x0.8mm
(PLCC2 Right Angle)



Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

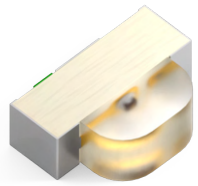
Recommended Soldering Pattern

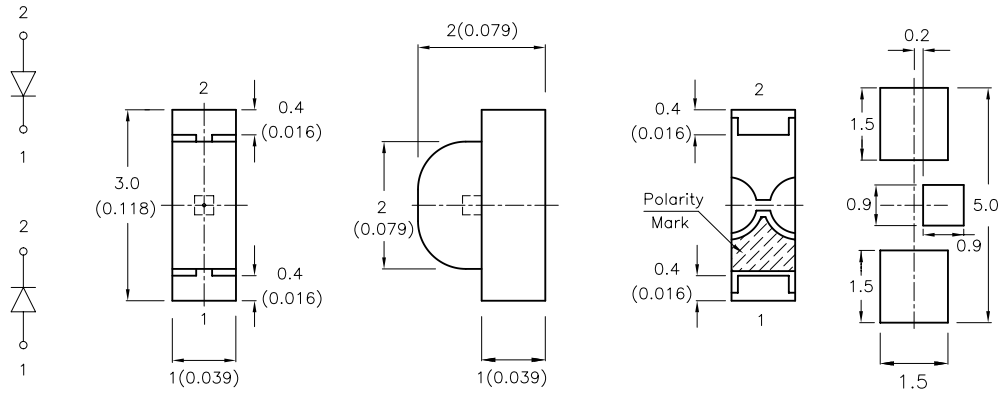
XZMDK81FS	AlGaInP(Red)	645	40	98	110°	Water Clear
XZM2CRK81FS	AlGaInP(Red)	640	300	497	110°	Water Clear
XZMYK81FS	AlGaInP(Yellow)	590	120	198	110°	Water Clear
XZVG81FS	AlGaInP(Green)	574	40	69	110°	Water Clear
XZM2DG81FS	InGaN(Green)	520	1000	1395	110°	Water Clear
XZFBB81FS	InGaN(Blue)	465	200	347	110°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.0x2.0x1.0mm
(Right Angle)



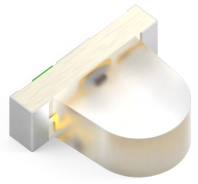


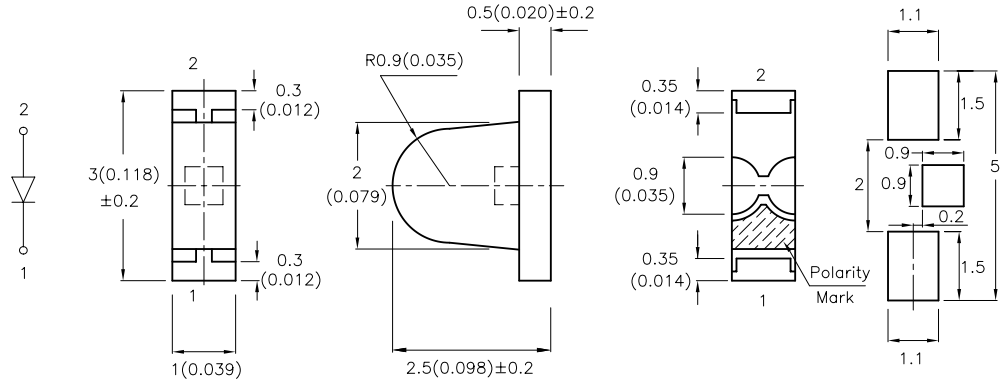
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZMDK56W	AlGaInP(Red)	645	55	79	120°	Water Clear
XZM2CRK56W	AlGaInP(Red)	640	200	377	120°	Water Clear
XZMYK56W	AlGaInP(Yellow)	590	80	148	120°	Water Clear
XZVG56W	AlGaInP(Green)	574	20	49	120°	Water Clear
XZDGK56W	InGaN(Green)	515	200	297	120°	Water Clear
XZCBD56W	InGaN(Blue)	460	40	79	120°	Water Clear

3.0x2.5x1.0mm
(Right Angle)



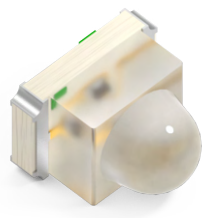


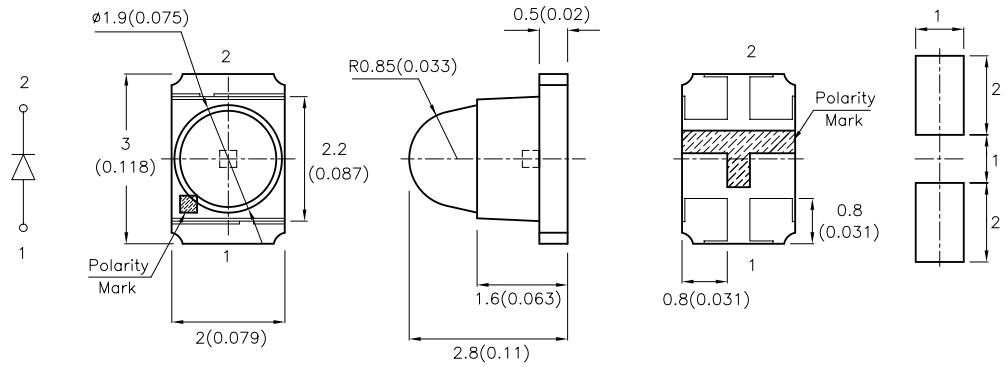
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZMDK56W-1	AlGaInP(Red)	645	200	297	30°	Water Clear
XZFBB56W-1	InGaN(Blue)	465	300	447	30°	Water Clear

3.0x2.8x2.0mm
(Dome Lens Right Angle)





Dimension Unit: mm(inches), Tolerance: ±0.2(0.008")

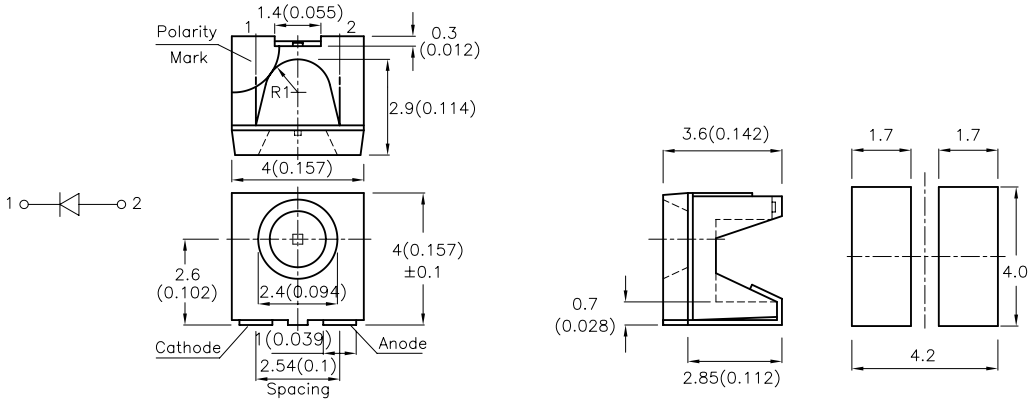
Recommended Soldering Pattern

XZM2CRK50W-2RP	AlGaInP(Red)	640	2300	3790	10°	Water Clear
XZM2CYK50W-2RP	AlGaInP(Yellow)	590	3600	6990	10°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

4.0x4.0x3.6mm
(PLCC2 Right Angle)



Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

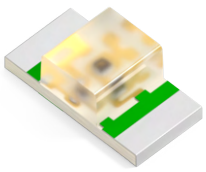
Recommended Soldering Pattern

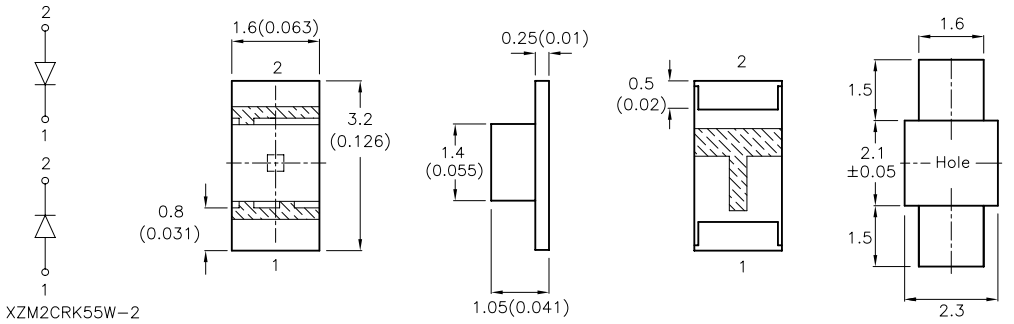
XZMDK67S	AlGaInP(Red)	645	80	148	120°	Water Clear
XZMYK67S	AlGaInP(Yellow)	590	120	248	120°	Water Clear
XZVG67S	AlGaInP(Green)	574	40	89	120°	Water Clear
XZM2DG67WT	InGaN(Green)	520	1000	1395	120°	Water Clear
XZCBD67S	InGaN(Blue)	460	80	218	120°	Water Clear

REVERSE MOUNT

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.2x1.6x1.05mm
(1206 Reverse Mount)



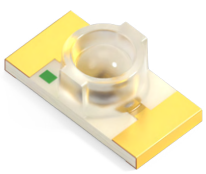


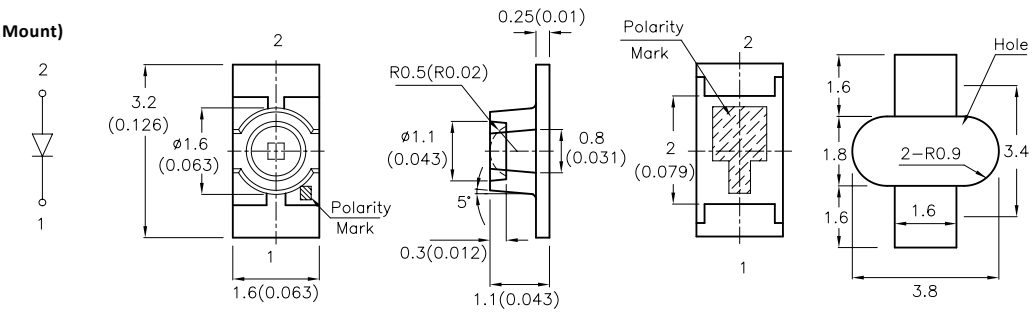
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDK55W-2	AlGaInP(Red)	645	40	79	140°	Water Clear
XZM2CRK55W-2	AlGaInP(Red)	640	200	347	140°	Water Clear
XZMYK55W-2	AlGaInP(Yellow)	590	80	148	140°	Water Clear
XZVG55W-2	AlGaInP(Green)	574	20	49	140°	Water Clear
XZDGK55W-2	InGaN(Green)	515	300	547	140°	Water Clear
XZCBD55W-2	InGaN(Blue)	460	40	98	140°	Water Clear

3.2x1.6x1.1mm
(1206 Inner Dome Lens Reverse Mount)





Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

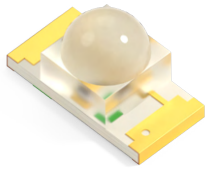
XZMDK55W-A2RT	AlGaInP(Red)	645	120	228	80°	Water Clear
XZMYK55W-A2RT	AlGaInP(Yellow)	590	200	347	80°	Water Clear
XZVG55W-A2RT	AlGaInP(Green)	574	55	98	80°	Water Clear
XZDGK55W-A2RT	InGaN(Green)	515	700	995	80°	Water Clear
XZCBD55W-A2RT	InGaN(Blue)	460	120	248	80°	Water Clear

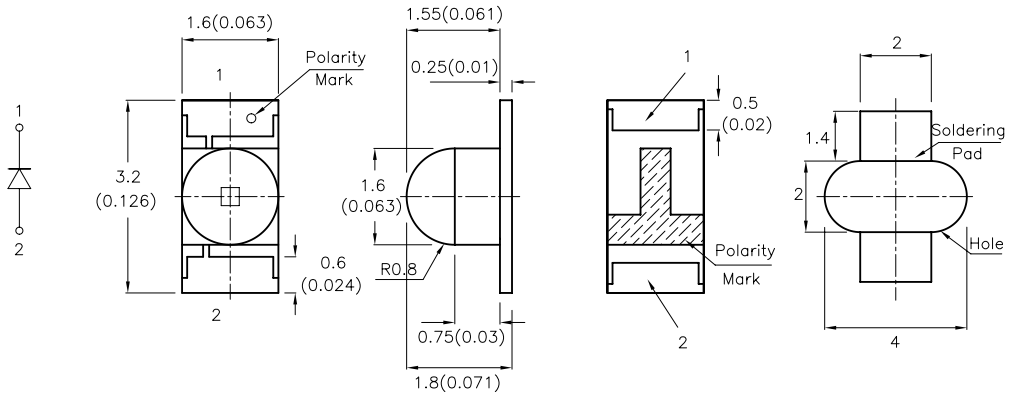
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

REVERSE MOUNT

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.2x1.6x1.8mm
(1206 Dome Lens Reverse Mount)



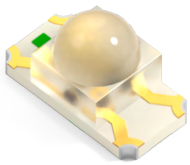


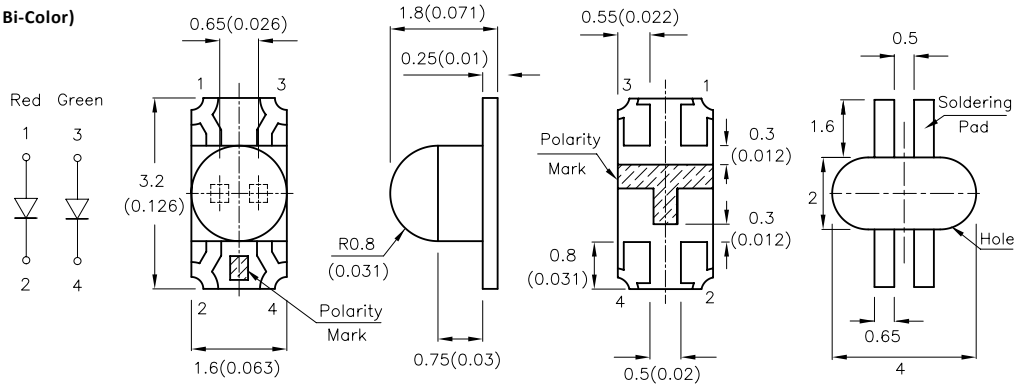
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDK55W-3RT	AlGaInP(Red)	645	300	795	40°	Water Clear
XZMYK55W-3RT	AlGaInP(Yellow)	590	700	795	40°	Water Clear
XZVG55W-3RT	AlGaInP(Green)	574	120	297	40°	Water Clear

3.2x1.6x1.8mm
(1206 Dome Lens Reverse Mount Bi-Color)



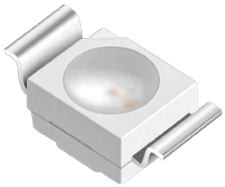


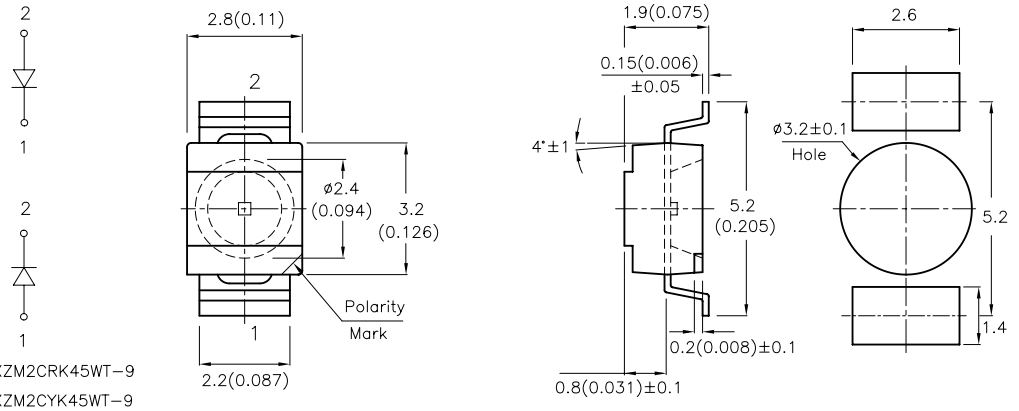
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDKDGK55W-8RT	AlGaInP(Red)	645	300	597	30°	Water Clear
	InGaN(Green)	515	400	647		

3.2x2.8x1.9mm
(PLCC2 Reverse Mount)





Dimension Unit: mm(inches), Tolerance: ±0.25(0.01")

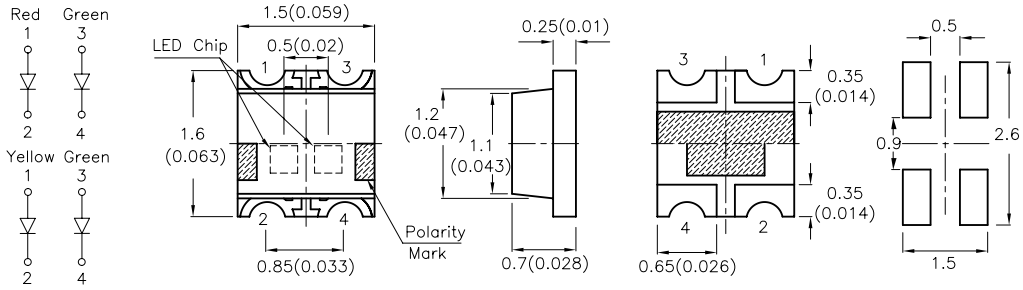
Recommended Soldering Pattern

XZMDK45WT-9	AlGaInP(Red)	645	55	98	120°	Water Clear
XZM2CRK45WT-9	AlGaInP(Red)	640	500	695	120°	Water Clear
XZMYK45WT-9	AlGaInP(Yellow)	590	120	248	120°	Water Clear
XZM2CYK45WT-9	AlGaInP(Yellow)	590	400	597	120°	Water Clear
XZVG45WT-9	AlGaInP(Green)	574	40	98	120°	Water Clear
XZDGK45WT-9	InGaN(Green)	515	500	995	120°	Water Clear
XZFBB45S-9	InGaN(Blue)	465	300	447	120°	Water Clear

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA,30mA*		Viewing Angle 2θ1/2	Lens
			Min.	Max.		

1.6x1.5x0.7mm
(Bi-Color)

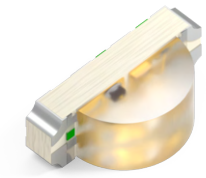


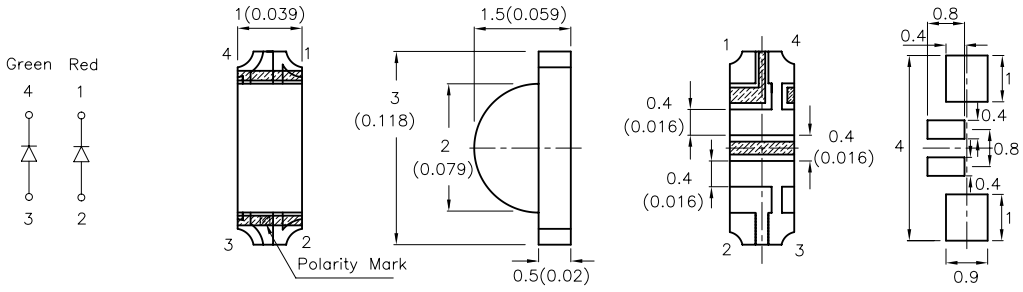
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDKVG59W-1HTA	AlGaInP(Red)	645	40	120	150°	Water Clear
	AlGaInP(Green)	574	20	120		
XZMYKVG59W-1HTA	AlGaInP(Yellow)	590	80	300	150°	Water Clear
	AlGaInP(Green)	574	20	120		

3.0x1.5x1.0mm
(Right Angle, Bi-Color)



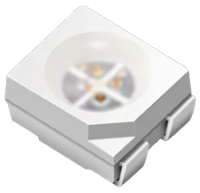


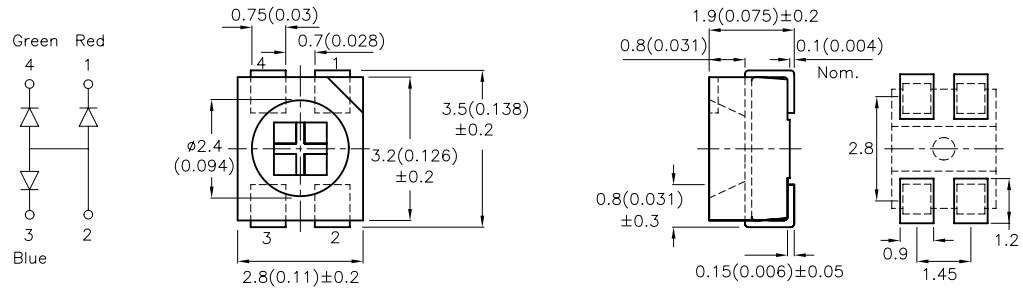
Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZMDKVGX56W-HTA	AlGaInP(Red)	645	55	200	150°	Water Clear
	AlGaInP(Green)	574	20	80		

3.5x2.8x1.9mm
(PLCC4 Full Color)



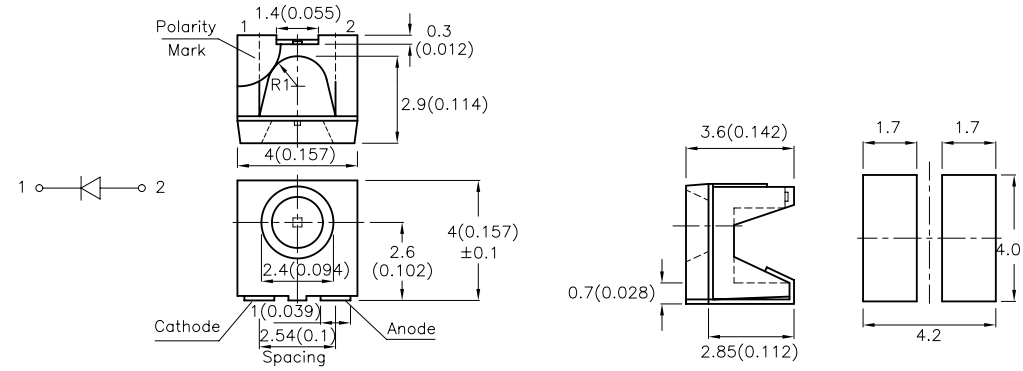


Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

XZMECBDDG45SHTA	AlGaInP(Red)	630	120	400	120°	Water Clear
	InGaN(Blue)	460	55	200		
	InGaN(Green)	515	700	1600		

4.0x4.0x3.6mm
(PLCC2 Right Angle)



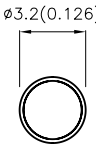
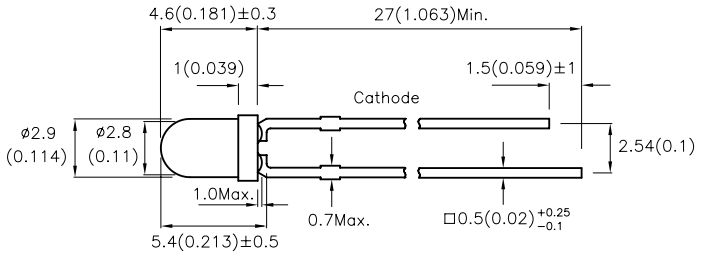
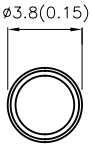
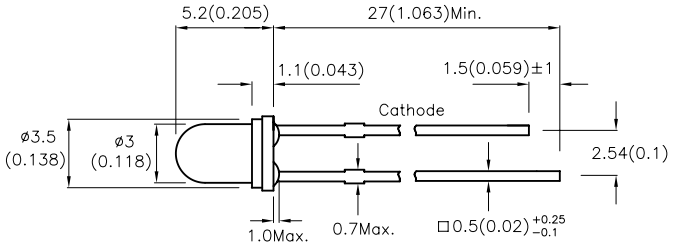
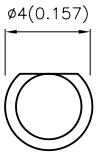
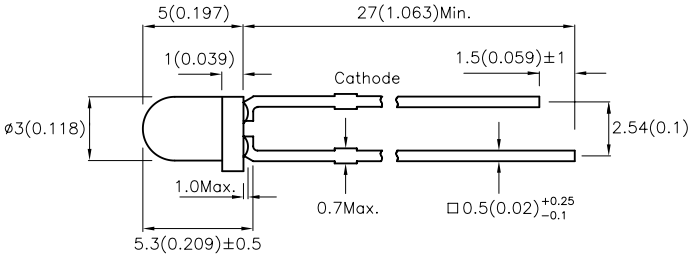
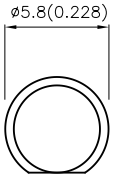
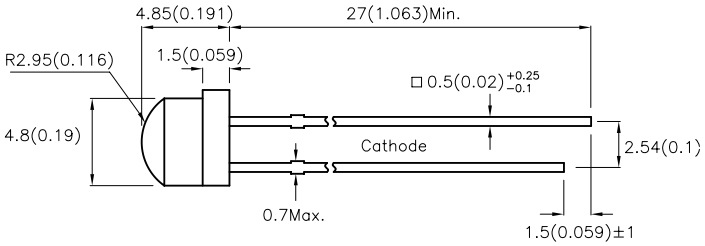
Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

XZM2CYK67S30MAV-HTA	AlGaInP(Yellow)	590	400*	1000*	120°	Water Clear

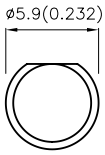
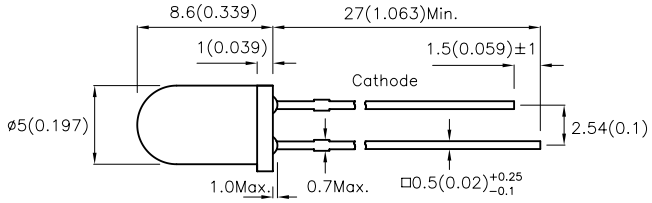
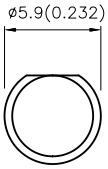
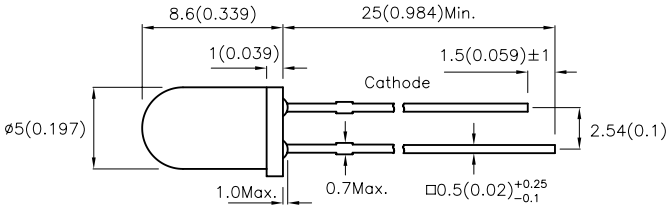
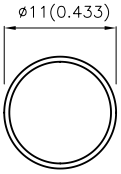
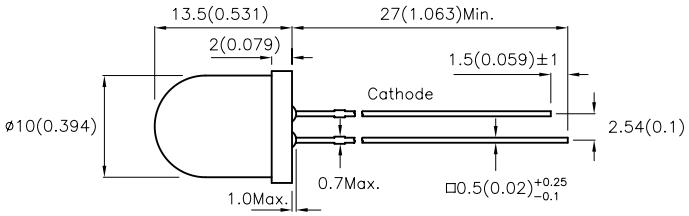
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.1mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

ROUND

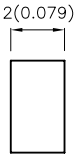
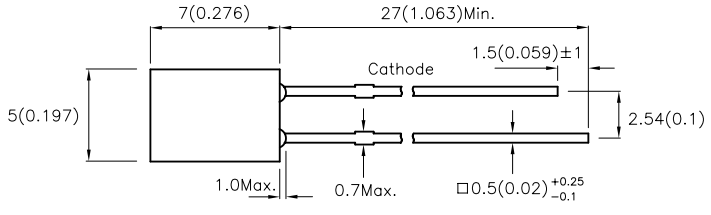
Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3mm   						
XLM2MR11D	AlGaInP(Red)	660	500	995	50°	Red Diffused
XLM2MR11W	AlGaInP(Red)	660	1400	2490	30°	Water Clear
XLMDK11D	AlGaInP(Red)	645	200	397	50°	Red Diffused
XLMDK11W	AlGaInP(Red)	645	400	895	30°	Water Clear
XLM2CRK11W	AlGaInP(Red)	640	2300	3590	30°	Water Clear
XLM2MOK11W	AlGaInP(Orange)	611	3600	5990	30°	Water Clear
XLMYK11D	AlGaInP(Yellow)	590	400	795	50°	Yellow Diffused
XLMYK11W	AlGaInP(Yellow)	590	700	1495	30°	Water Clear
XLM2CYK11W	AlGaInP(Yellow)	590	1900	2990	30°	Water Clear
XLVG11D	AlGaInP(Green)	574	80	248	50°	Green Diffused
XLM2DG11W	InGaN(Green)	520	10500	16490	30°	Water Clear
XLDGK11W	InGaN(Green)	515	8000	13990	30°	Water Clear
XLFBB11W	InGaN(Blue)	465	3600	4990	30°	Water Clear
XLCBD11D	InGaN(Blue)	460	1000	1990	50°	Blue Diffused
XLCBD11W	InGaN(Blue)	460	1300	2290	30°	Water Clear
3mm   						
XLMDK65D	AlGaInP(Red)	645	180	357	60°	Red Diffused
XLVG65D	AlGaInP(Green)	574	60	138	60°	Green Diffused
3mm   						
XLMDK34D	AlGaInP(Red)	645	100	248	60°	Red Diffused
XLMYK34D	AlGaInP(Yellow)	590	300	497	60°	Yellow Diffused
XLVG34D	AlGaInP(Green)	574	80	148	60°	Green Diffused
5mm   						
XLMDK169W	AlGaInP(Red)	645	100	178	70°	Water Clear

1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

ROUND

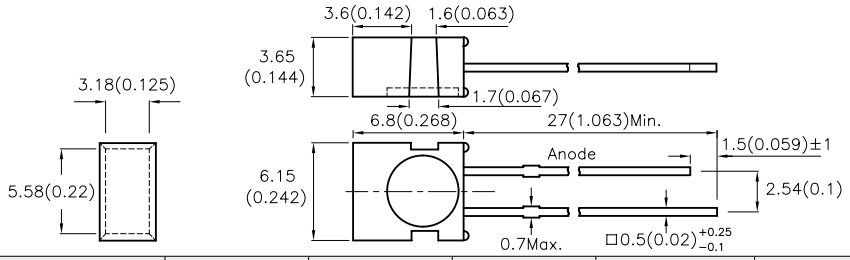
Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
5mm   						
XLM2MR12D	AlGaInP(Red)	660	550	895	30°	Red Diffused
XLM2MR12W	AlGaInP(Red)	660	2300	3690	20°	Water Clear
XLMDK12D	AlGaInP(Red)	645	400	745	30°	Red Diffused
XLMDK12W	AlGaInP(Red)	645	1000	1890	20°	Water Clear
XLM2CRK12W	AlGaInP(Red)	640	5000	8490	20°	Water Clear
XLM2MOK12W	AlGaInP(Orange)	611	5000	8890	20°	Water Clear
XLMYK12D	AlGaInP(Yellow)	590	500	995	30°	Yellow Diffused
XLM2CYK12W	AlGaInP(Yellow)	590	5000	7790	20°	Water Clear
XLVG12D	AlGaInP(Green)	574	50	138	30°	Green Diffused
XLDGK12W	InGaN(Green)	515	14000	25990	20°	Water Clear
XLFBB12W	InGaN(Blue)	465	4300	6990	20°	Water Clear
XLCBD12D	InGaN(Blue)	460	700	1590	30°	Blue Diffused
XLCBD12W	InGaN(Blue)	460	3100	4490	20°	Water Clear
5mm   						
XLM2CRK14W	AlGaInP(Red)	640	1500	2890	30°	Water Clear
XLFBB14W	InGaN(Blue)	465	1900	3090	30°	Water Clear
10mm   						
XLMDK01D	AlGaInP(Red)	645	300	647	30°	Red Diffused
XLM2CRK01W	AlGaInP(Red)	640	6000	8490	15°	Water Clear
XLM2DG01W	InGaN(Green)	520	27000	42990	15°	Water Clear
XLFBB01W	InGaN(Blue)	465	8500	13990	15°	Water Clear

RECTANGULAR

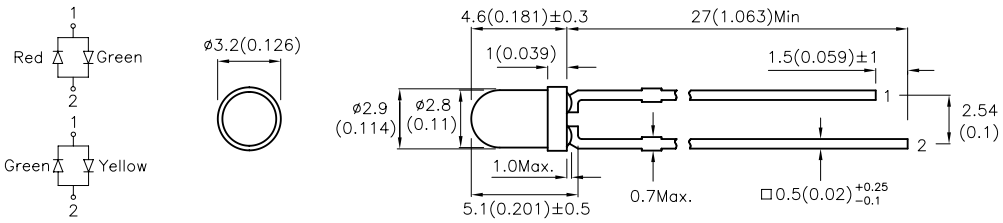
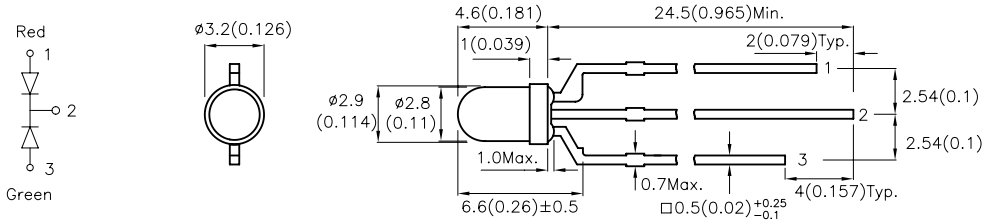
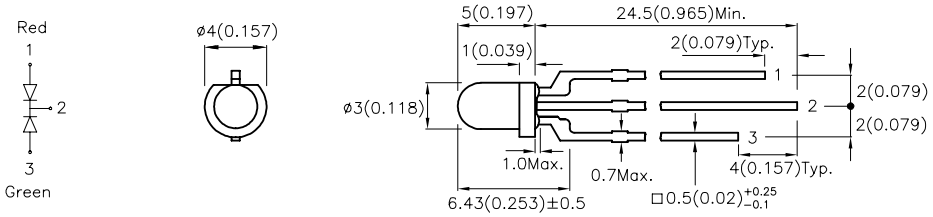
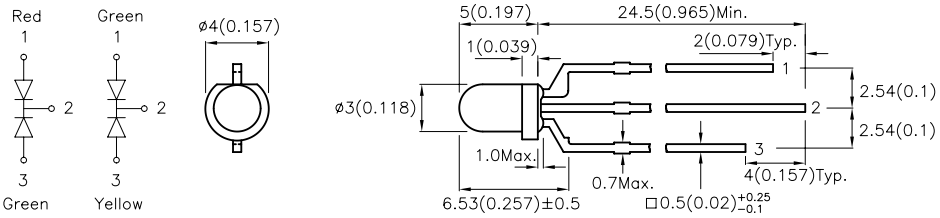
Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
2x5mm   						
XSMDK18D	AlGaInP(Red)	645	25	49	140°	Red Diffused
XSMYK18D	AlGaInP(Yellow)	590	70	118	140°	Yellow Diffused
XSVG18D	AlGaInP(Green)	574	10	29	140°	Green Diffused

1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

RECTANGULAR

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3.65x6.15mm  						
XEMDK21D	AlGaInP(Red)	645	30	59	140°	Red Diffused

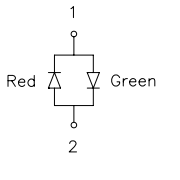
BI-COLOR & BI-POLAR

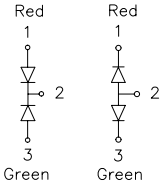
Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3mm Round  						
XLMDKVG37M	AlGaInP(Red)	645	55	108	60°	White Diffused
	AlGaInP(Green)	574	40	79		
XLVGMYK37M	AlGaInP(Green)	574	40	79	60°	White Diffused
	AlGaInP(Yellow)	590	80	228		
3mm Round  						
XLMDKVG38W	AlGaInP(Red)	645	350	795	30°	Water Clear
	AlGaInP(Green)	574	300	497		
3mm Round  						
XLMDKVG29M	AlGaInP(Red)	645	120	248	60°	White Diffused
	AlGaInP(Green)	574	40	98		
3mm Round  						
XLMDKVG34M	AlGaInP(Red)	645	80	158	60°	White Diffused
	AlGaInP(Green)	574	60	158		
XLVGMYK34M	AlGaInP(Green)	574	40	118	60°	White Diffused
	AlGaInP(Yellow)	590	120	297		

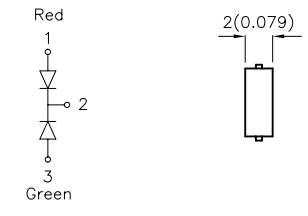
1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

BI-COLOR & BI-POLAR

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA Min.	Intensity(mcd) I_F=20mA Typ.	Viewing Angle 2θ1/2	Lens
5mm Round						
XLMDKVG58M	AlGaInP(Red)	645	120	327	30°	White Diffused
	AlGaInP(Green)	574	60	118		
5mm Round						
XLMDKVG59M	AlGaInP(Red)	645	200	397	30°	White Diffused
	AlGaInP(Green)	574	80	178		
XLMDKVG59MCA	AlGaInP(Red)	645	18	39	60°	White Diffused
	AlGaInP(Green)	574	8	19		
2x5mm Rectangular						
XSMDKVG47M	AlGaInP(Red)	645	30	54	140°	White Diffused
	AlGaInP(Green)	574	15	29		

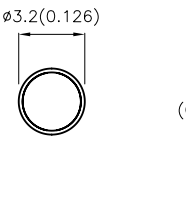



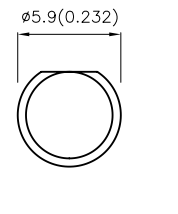



LOW CURRENT

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=2mA Min.	Intensity(mcd) I_F=2mA Typ.	Viewing Angle 2θ1/2	Lens
3mm						
XCMDK11D	AlGaInP(Red)	645	10	19	50°	Red Diffused
XCVG11D	AlGaInP(Green)	574	4	7	50°	Green Diffused
5mm						
XCMDK12D	AlGaInP(Red)	645	40	69	30°	Red Diffused
XCMYK12D	AlGaInP(Yellow)	590	20	69	30°	Yellow Diffused
XCVG12D	AlGaInP(Green)	574	6	11	30°	Green Diffused

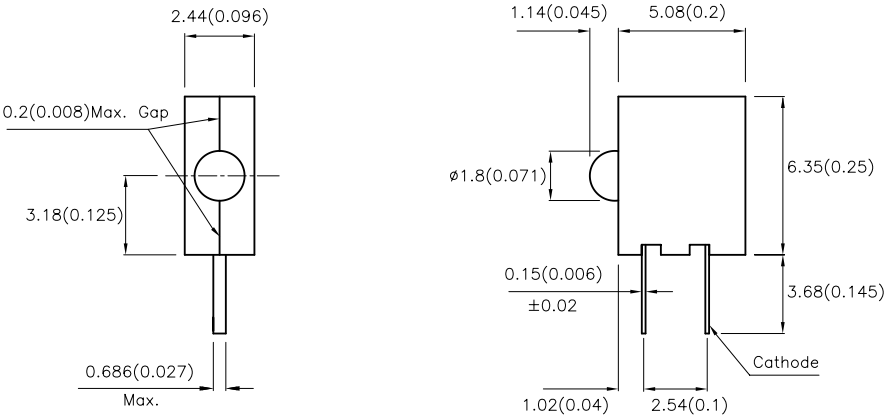



1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

ONE POSITION

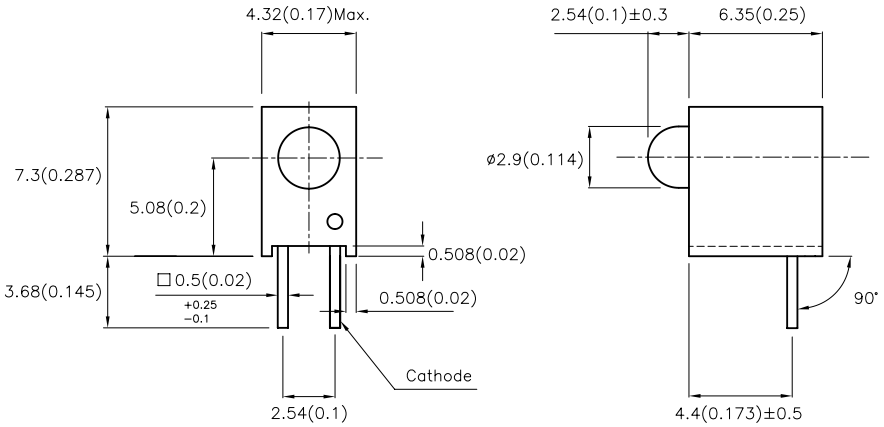
Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=10mA,20mA*		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

1.8mm



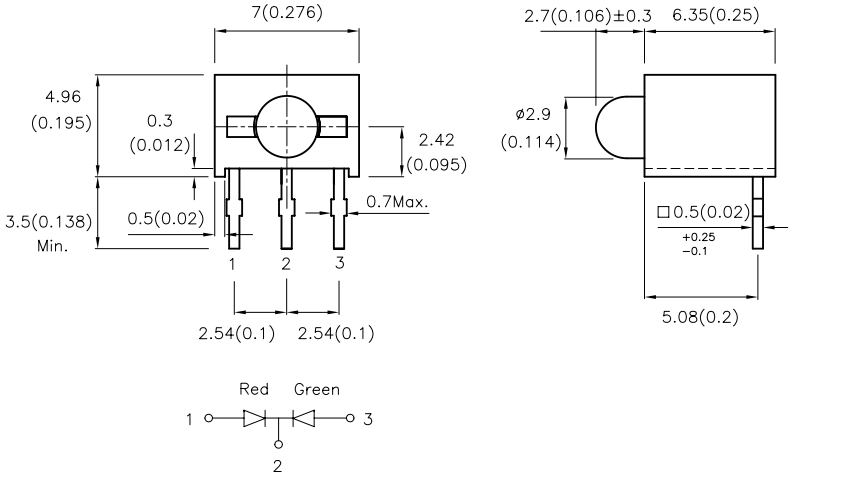
XNH1ZMG46D	GaP(Green)	565	5*	11*	40°	Green Diffused

3mm



XNK1LUG11D	GaP(Green)	565	10	24	50°	Green Diffused

3mm
(Bi-Color)

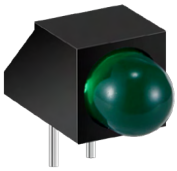


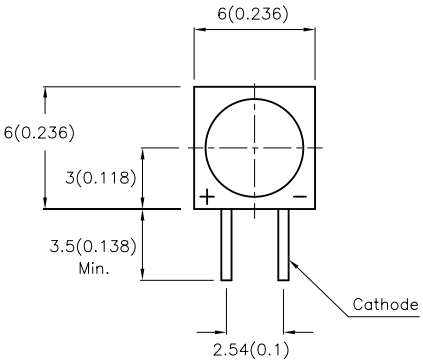
XNN1LUGR86M	GaAsP/GaP(Red)	627	10*	23*	60°	White Diffused
	GaP(Green)	565	12*	29*		

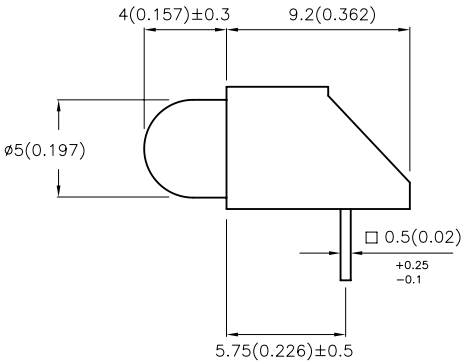
1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

ONE POSITION

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=10mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
5mm						
XVB1LUR50D	GaAsP/GaP(Red)	627	30	69	30°	Red Diffused
XVB1LUY50D	GaAsP/GaP(Yellow)	590	15	29	30°	Yellow Diffused
XVB1LUG50D	GaP(Green)	565	15	29	30°	Green Diffused

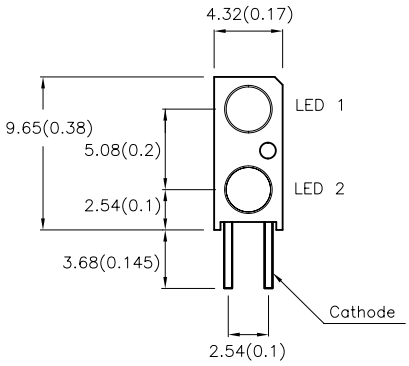


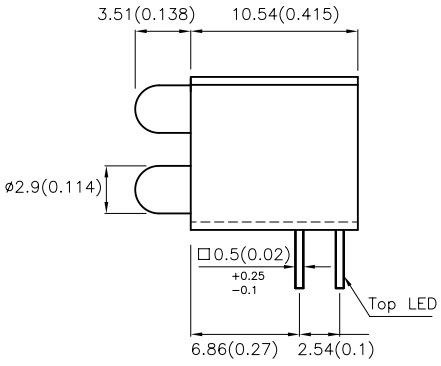




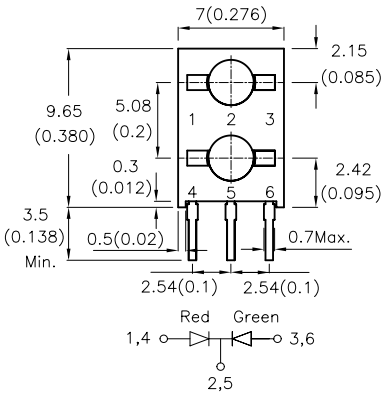
TWO POSITION

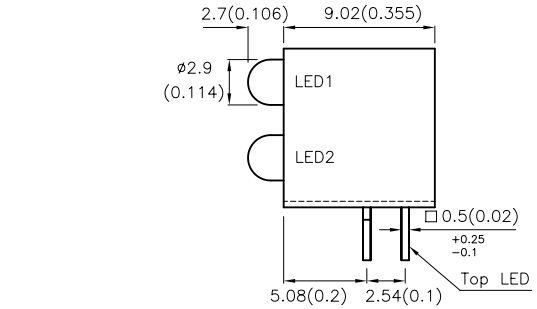
Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=10mA,20mA*		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3mm						
XPF2LUY11D	GaAsP/GaP(Yellow)	590	8	14	50°	Yellow Diffused
XPF2LUG11D	GaP(Green)	565	10	24	50°	Green Diffused

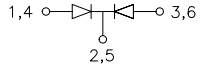




Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=10mA,20mA*		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3mm (Bi-Color)						
XVO2LUGR86M	GaAsP/GaP(Red)	627	10*	23*	60°	White Diffused
	GaP(Green)	565	12*	29*		
XVO2LUGY86M	GaP(Green)	565	18*	39*	60°	White Diffused
	GaAsP/GaP(Yellow)	590	10*	19*		



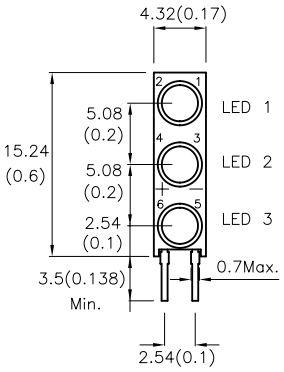


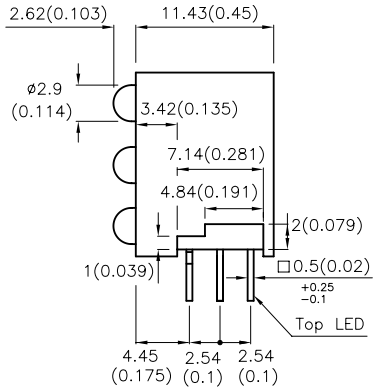


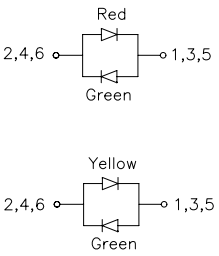
1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

THREE POSITION

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3mm (Bi-Color)						
XPZ3LUGR37M	GaAsP/GaP(Red)	627	4	9	60°	White Diffused
	GaP(Green)	565	6	13		
XPZ3LUYG37M	GaAsP/GaP(Yellow)	590	4	7	60°	White Diffused
	GaP(Green)	565	6	13		

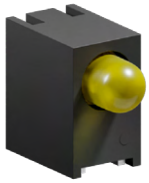


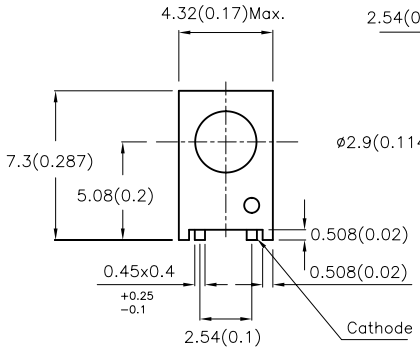


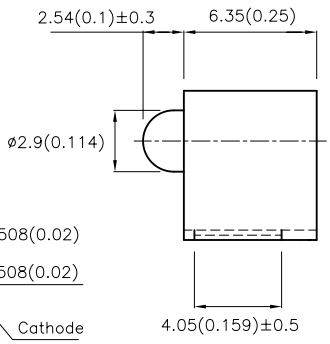


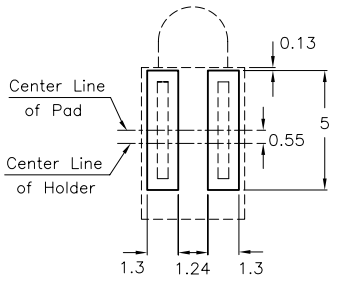
SMD CBI

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(mcd) I_F=10mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
3mm (One-Position SMD)						
XNK1LUY11DSMD	GaAsP/GaP(Yellow)	590	6	14	50°	Yellow Diffused

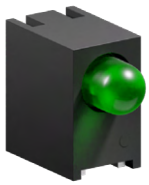


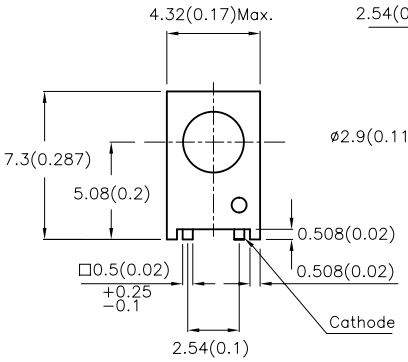


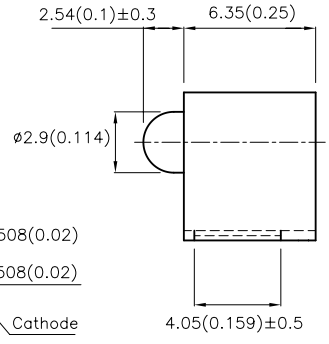


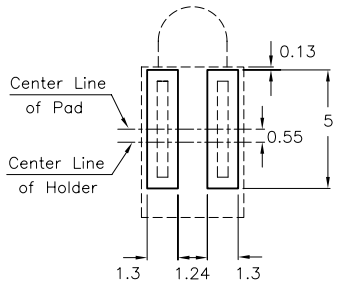


3mm (One-Position SMD)						
XNK1LUG11DSMD	GaP(Green)	565	10	24	50°	Green Diffused





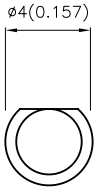


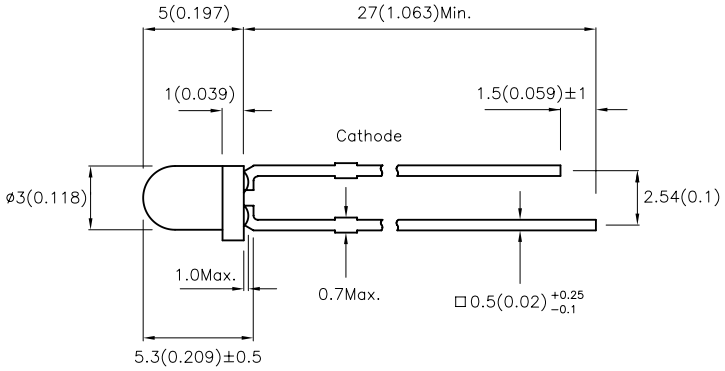


1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure	λpeak (nm)	Po(mW/sr) I_F=20mA,50mA*		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

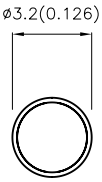
3mm

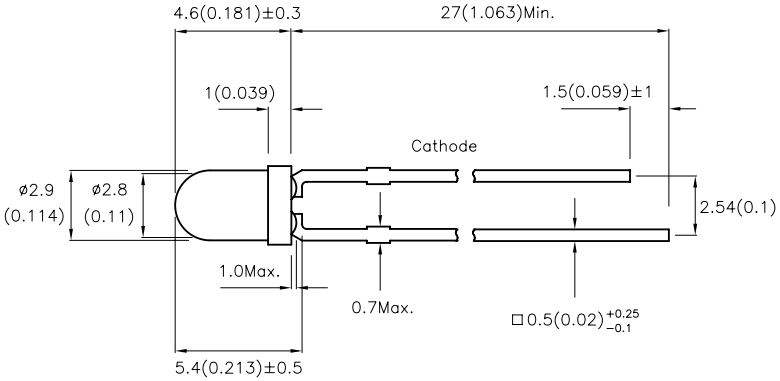




XTNI30W	GaAs	940	3 8*	7 14*	50°	Water Clear
XTHI30W	GaAlAs	880	3 5*	7 15*	50°	Water Clear

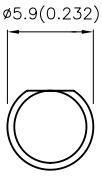
3mm

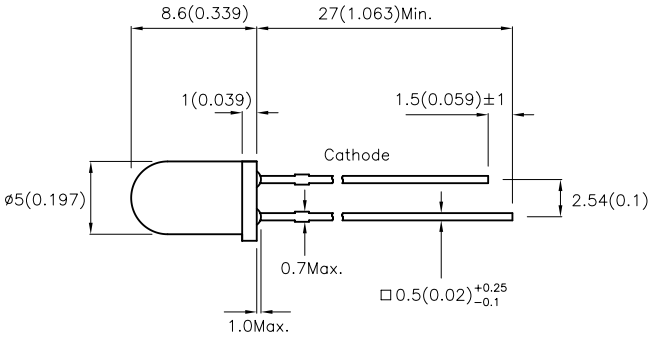




XTNI11W	GaAs	940	3 12*	7 24*	30°	Water Clear

5mm



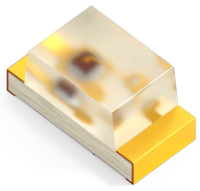


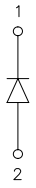
XTNI12W	GaAs	940	8 25*	19 49*	20°	Water Clear
XTNI12BF	GaAs	940	8 25*	19 49*	20°	Blue Transparent
XTHI12W	GaAlAs	880	6 15*	14 39*	20°	Water Clear

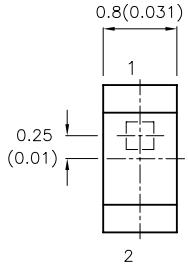
1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Radiant intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

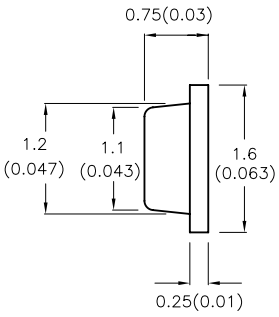
INFRARED EMITTING DIODE

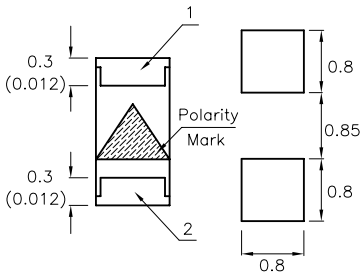
Part Number	Chip Structure	λpeak (nm)	Po(mW/sr) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		
1.6x0.8x0.75mm (0603)						
XZTNI53W-1	GaAs	940	0.8	1.8	150°	Water Clear
1.6x0.8x1.1mm (0603)						
XZTHI53W	GaAlAs	880	0.8	1.3	150°	Water Clear
2.0x1.25x0.75mm (0805)						
XZTNI54W-1	GaAs	940	0.8	1.8	160°	Water Clear
2.0x1.25x1.1mm (0805)						
XZTNI54W	GaAs	940	0.8	1.8	160°	Water Clear
XZTHI54W	GaAlAs	880	0.8	1.3	160°	Water Clear





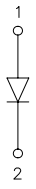


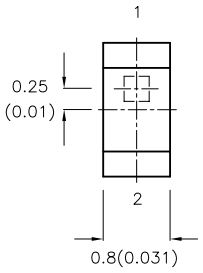


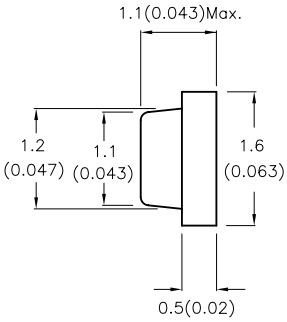


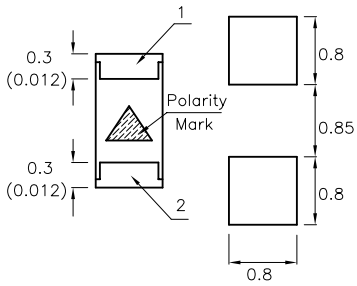
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern



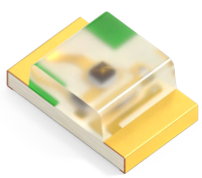


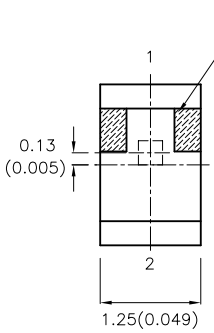


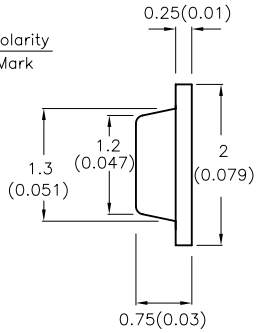


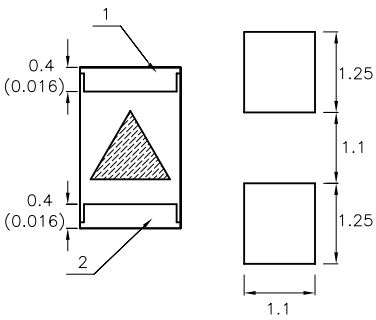
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern



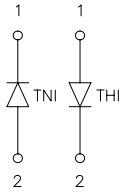


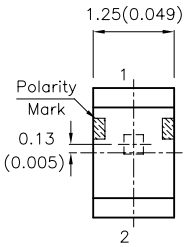


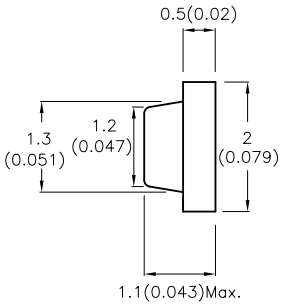


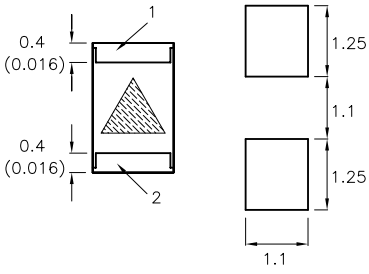
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern









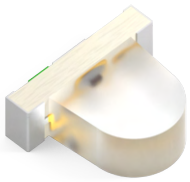
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

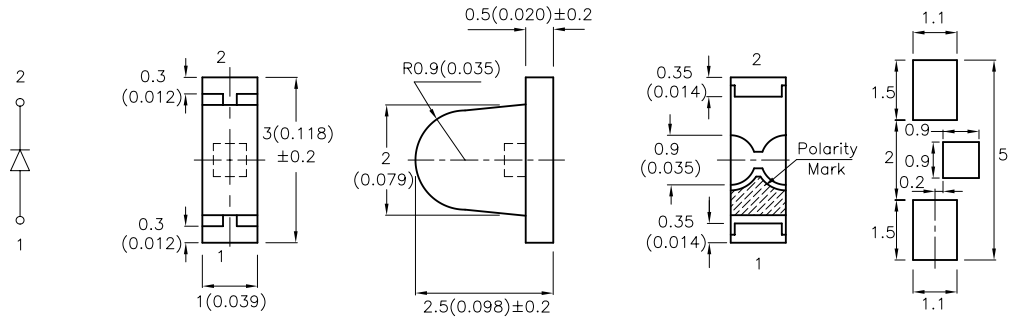
Recommended Soldering Pattern

1. Soldering Pattern Dimension Unit : mm , Tolerance : ±0.1mm.
2. Radiant intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Chip Structure	λpeak (nm)	Po(mW/sr) I_F=20mA		Viewing Angle 2θ1/2	Lens
			Min.	Typ.		

3.0x2.5x1.0mm
(Right Angle)



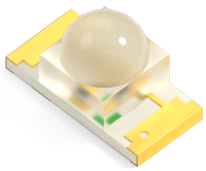


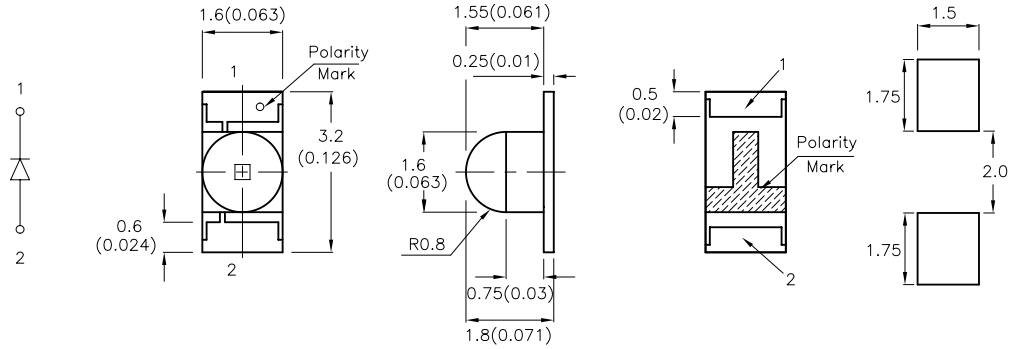
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZTHI56W-1	GaAlAs	880	1	2.3	30°	Water Clear

3.2x1.6x1.8mm
(1206 Dome Lens)



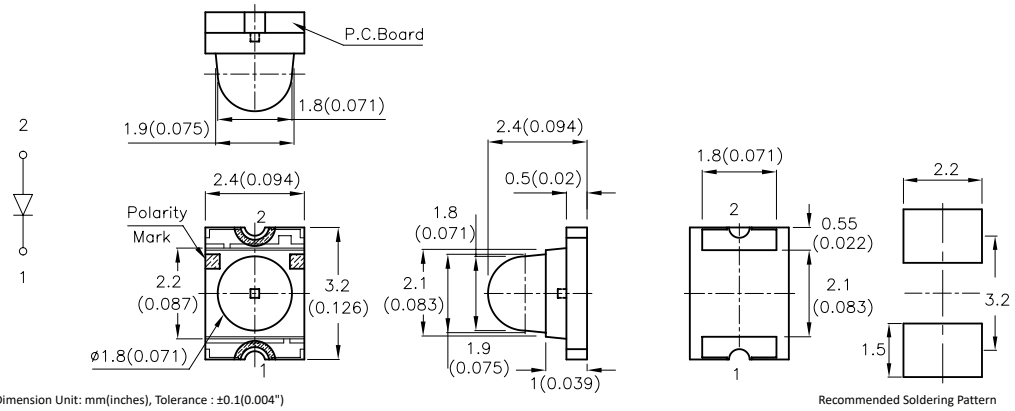


Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

XZTNI55W-3	GaAs	940	2	4.8	40°	Water Clear

3.2x2.4x2.4mm
(Dome Lens)

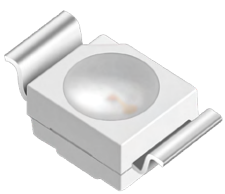


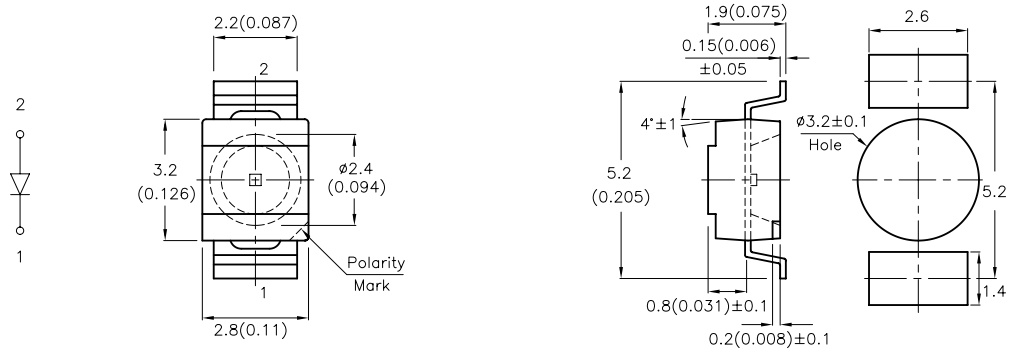
Dimension Unit: mm(inches), Tolerance : ±0.1(0.004")

Recommended Soldering Pattern

XZTHI78W	GaAlAs	880	3	5	20°	Water Clear

3.2x2.8x1.9mm
(PLCC2 Reverse Mount)





Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

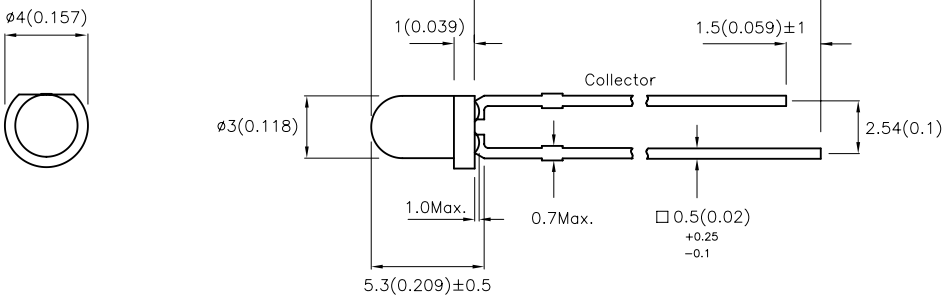
XZTNI45S-9	GaAs	940	1.2	2.3	120°	Water Clear

1. Soldering Pattern Dimension Unit : mm , Tolerance : ±0.1mm.
2. Radiant intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

PHOTOTRANSISTOR

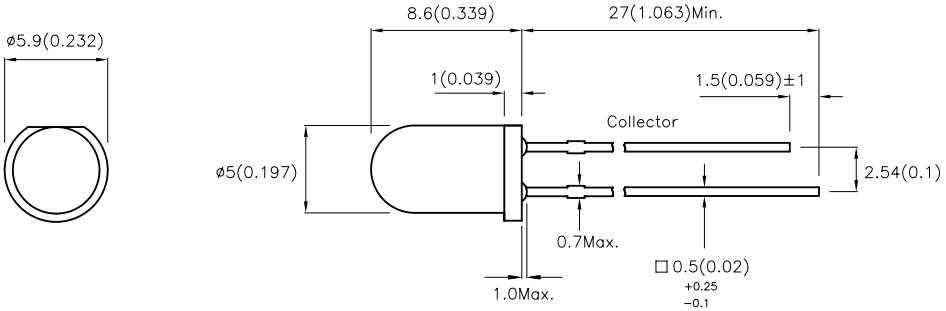
Part Number	Lens	Dimension

3mm



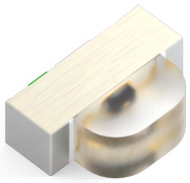
XRNI30W-1	Water Clear	3mm

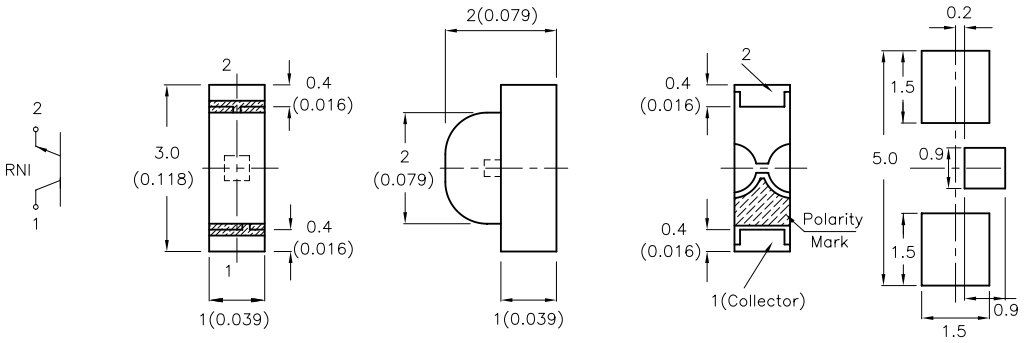
5mm



XRNI12W	Water Clear	5mm

3.0x2.0x1.0mm
(Right Angle)



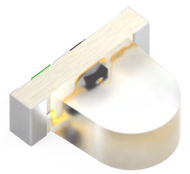


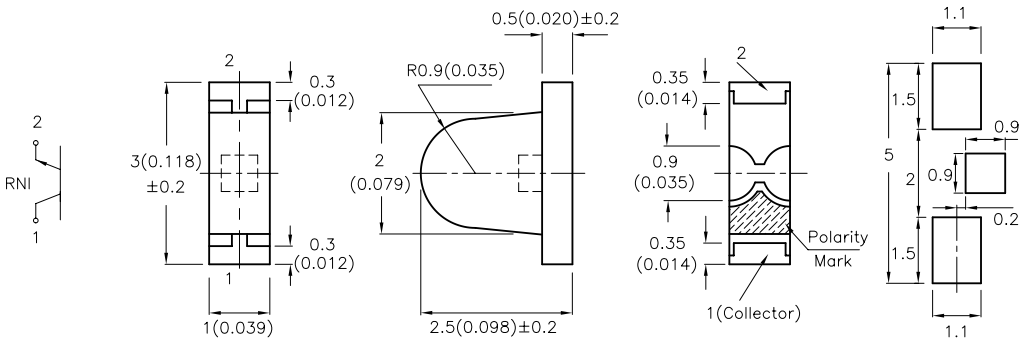
Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

Recommended Soldering Pattern

XZRNI56W	Water Clear	3.0x2.0x1.0mm

3.0x2.5x1.0mm
(Right Angle)





Dimension Unit: mm(inches), Tolerance : ±0.15(0.006")

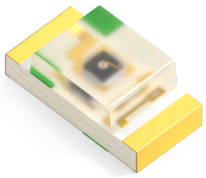
Recommended Soldering Pattern

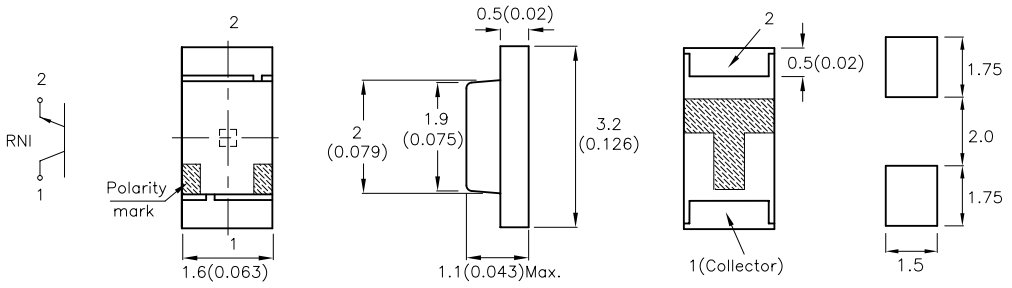
XZRNI56W-1	Water Clear	3.0x2.5x1.0mm

1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01"). Soldering Pattern Tolerance : ±0.1mm.
2. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number	Lens	Dimension
XZRNI55W	Water Clear	3.2x1.6x1.1mm

3.2x1.6x1.1mm
(1206)





Dimension Unit: mm(inches), Tolerance : ±0.2(0.008")

Recommended Soldering Pattern

Electrical & Radiant Characteristics T_a =25°C

Symbol	Parameter	Part Number	Min.	Typ.	Max.	Unit	Test Conditions
$I_{(ON)}$	On State Collector Current	XRNI30W-1	0.3	0.8	-	mA	V_{CE}=5V, Ee=1mW/cm² λ=940nm
		XRNI12W	0.5	2.5			
		XZRNI56W	0.2	0.4			
		XZRNI56W-1	0.2	0.5			
		XZRNI55W	0.2	0.4			
$V_{BR\ CEO}$	Collector-to-Emitter Breakdown Voltage	-	30	-	-	V	I_C=100μA Ee=0mW/cm²
$V_{BR\ ECO}$	Emitter-to-Collector Breakdown Voltage	-	5	-	-	V	I_E=100μA Ee=0mW/cm²
$V_{CE\ (SAT)}$	Collector-to-Emitter Saturation Voltage	-	-	-	0.8	V	I_C=2mA Ee=20mW/cm²
I_{CEO}	Collector Dark Current	-	-	-	100	nA	V_{CE}=10V Ee=0mW/cm²
t_r	Rise Time (10% to 90%)	-	-	15	-	μs	V_{CE}=5V I_C=1mA R_L=1KΩ
t_f	Fall Time (90% to 10%)	-	-	15	-	μs	V_{CE}=5V I_C=1mA R_L=1KΩ

Absolute Maximum Rating T_a =25°C

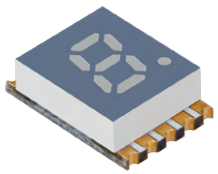
Collector-to-Emitter Voltage	30V	Operating Temperature Range	-40°C ~ +85°C
Emitter-to-Collector Voltage	5V	Storage Temperature Range	-40°C ~ +85°C
Power Dissipation at (or below) 25°C Free Air Temperature	100mW	XRNI30W-1 XRNI12W Lead Soldering Temperature(>5mm for 5sec)	260°C

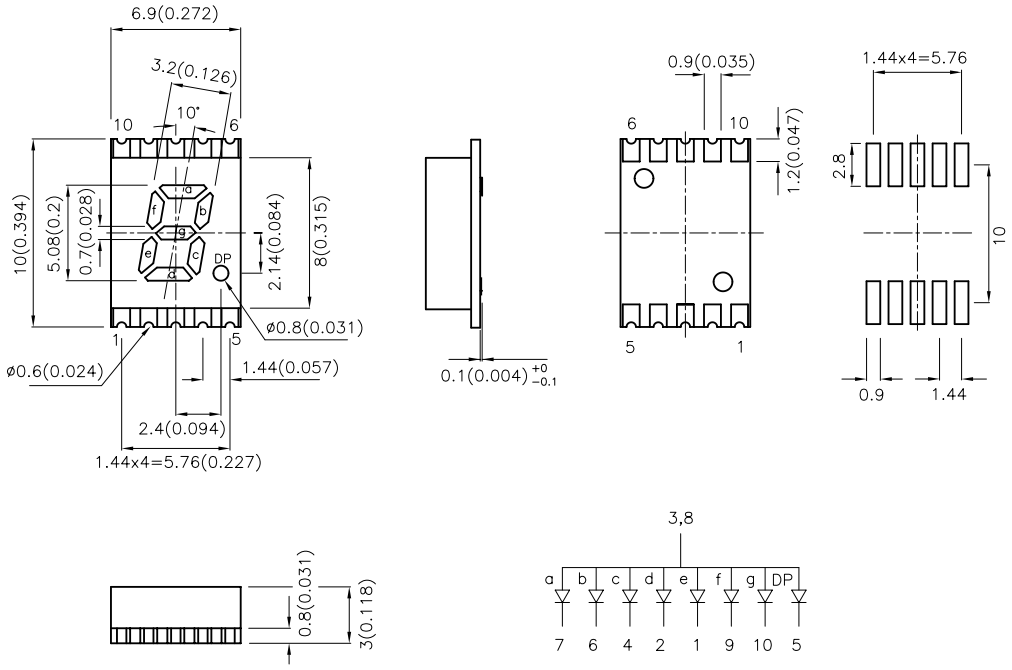
1. Soldering Pattern Dimension Unit : mm , Tolerance : ±0.1mm.
2. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

SINGLE DIGIT SMD

Part Number		Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
Common Anode	Common Cathode			Min.	Typ.

0.2"(5.08mm)

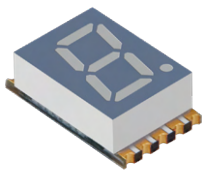


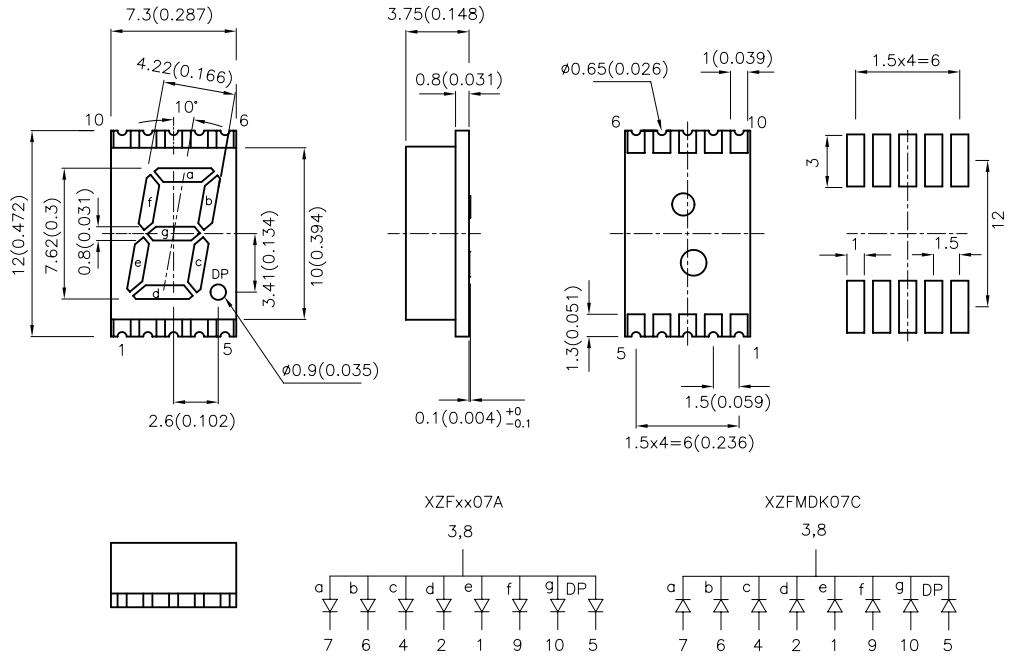


Dimension Unit: mm(inches), Tolerance : ±0.25(0.01") Recommended Soldering Pattern

XZFMDK05A	-	AlGaInP(Red)	645	3600	8090
XZFMYK05A	-	AlGaInP(Yellow)	590	5600	14990

0.3"(7.62mm)





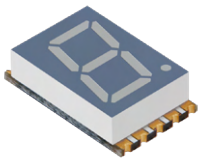
Dimension Unit: mm(inches), Tolerance : ±0.25(0.01") Recommended Soldering Pattern

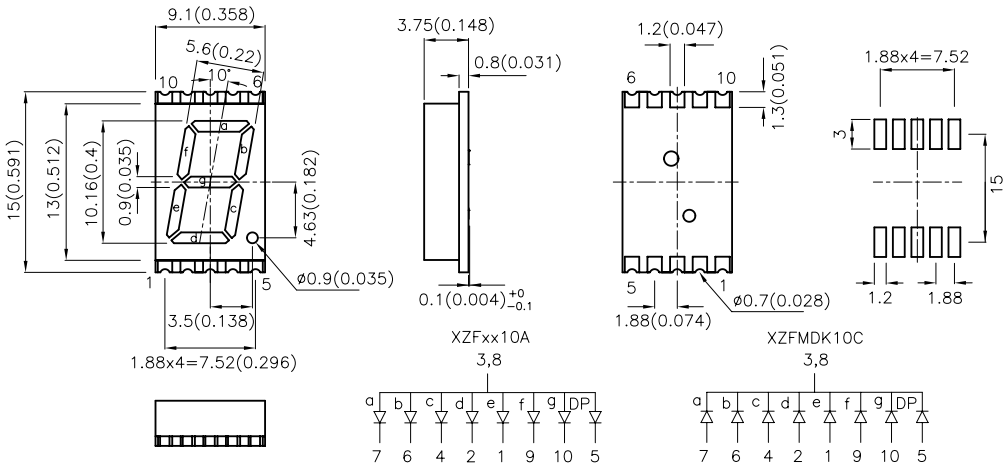
XZFMDK07A	XZFMDK07C	AlGaInP(Red)	645	3600	6390
XZFMYK07A	-	AlGaInP(Yellow)	590	5600	12990
XZFVG07A	-	AlGaInP(Green)	574	1400	3090

1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.15mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

Part Number		Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
Common Anode	Common Cathode			Min.	Typ.

0.4"(10.16mm)



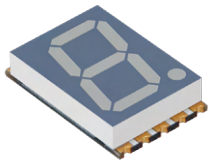


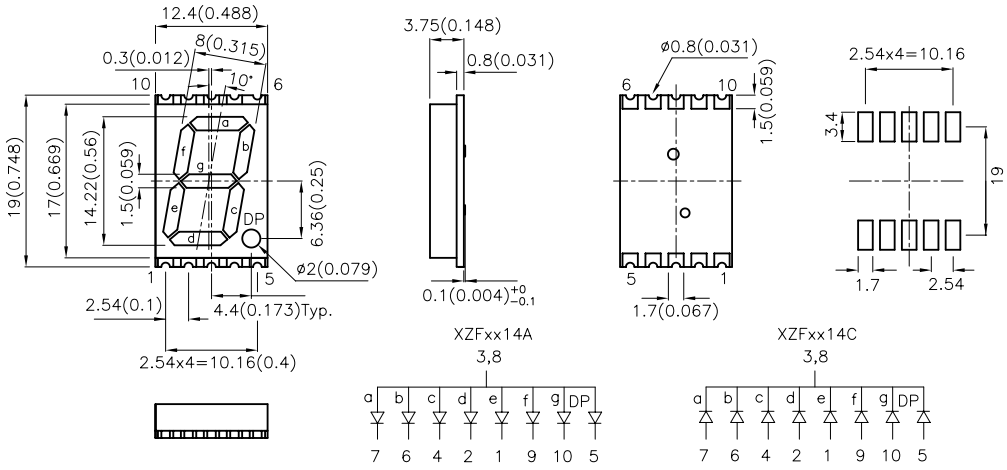
Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

XZFMDK10A	XZFMDK10C	AlGaInP(Red)	645	9000	19990
XZFVG10A	-	AlGaInP(Green)	574	2200	4090

0.56"(14.22mm)



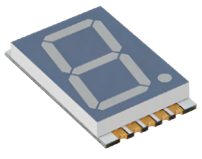


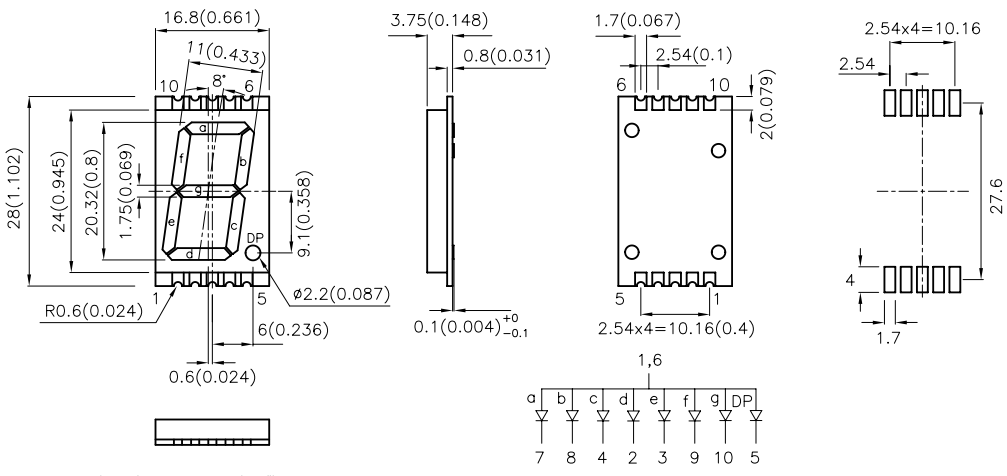
Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

XZFMDK14A	XZFMDK14C	AlGaInP(Red)	645	14000	28990
-	XZFMYK14C	AlGaInP(Yellow)	590	14000	28990
XZFVG14A	-	AlGaInP(Green)	574	2200	4590
XZFCBD14A	-	InGaN(Blue)	460	5600	14990

0.8"(20.32mm)





Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

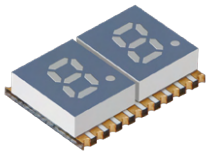
XZFCBD20A-A	-	InGaN(Blue)	460	3600	8690

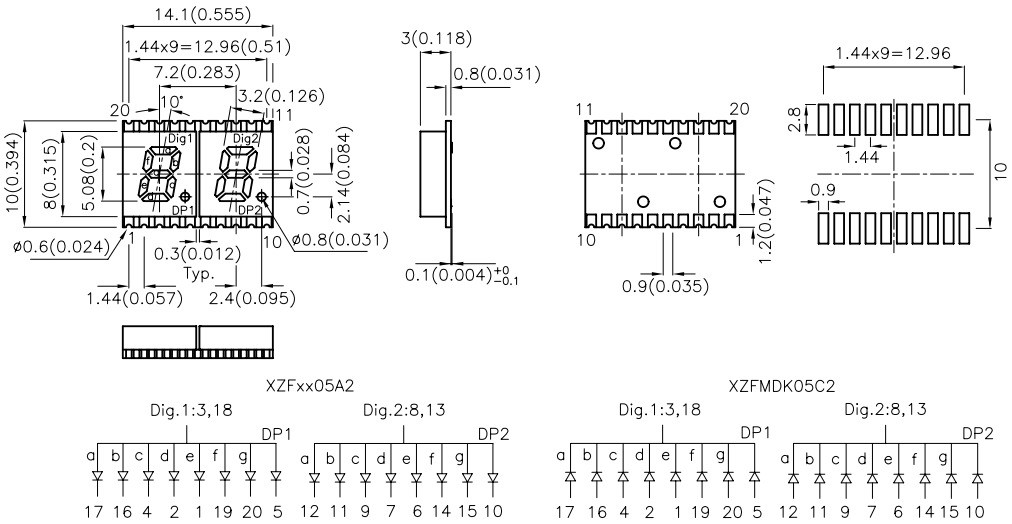
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.15mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

DUAL DIGIT SMD

Part Number		Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
Common Anode	Common Cathode			Min.	Typ.

0.2"(5.08mm)



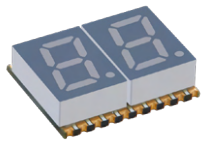


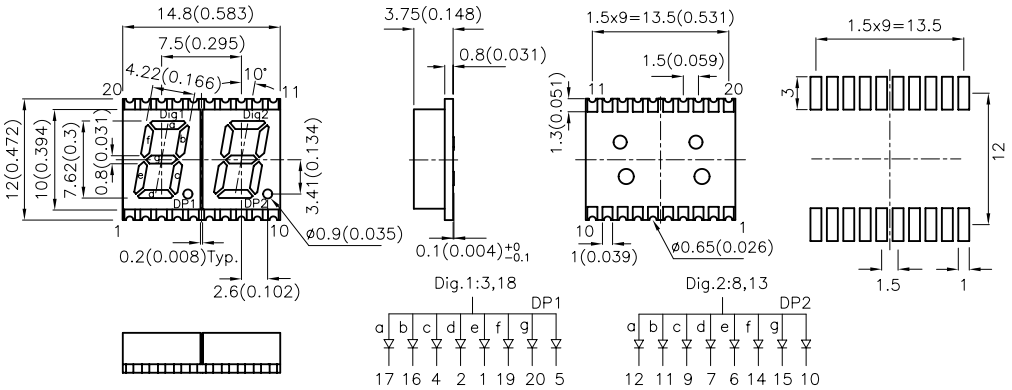
Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

-	XZFMDK05C2	AlGaInP(Red)	645	3600	8090
XZFMYK05A2	-	AlGaInP(Yellow)	590	5600	14990
XZFVG05A2	-	AlGaInP(Green)	574	2200	4290

0.3"(7.62mm)



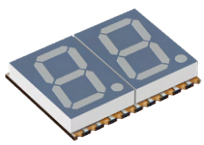


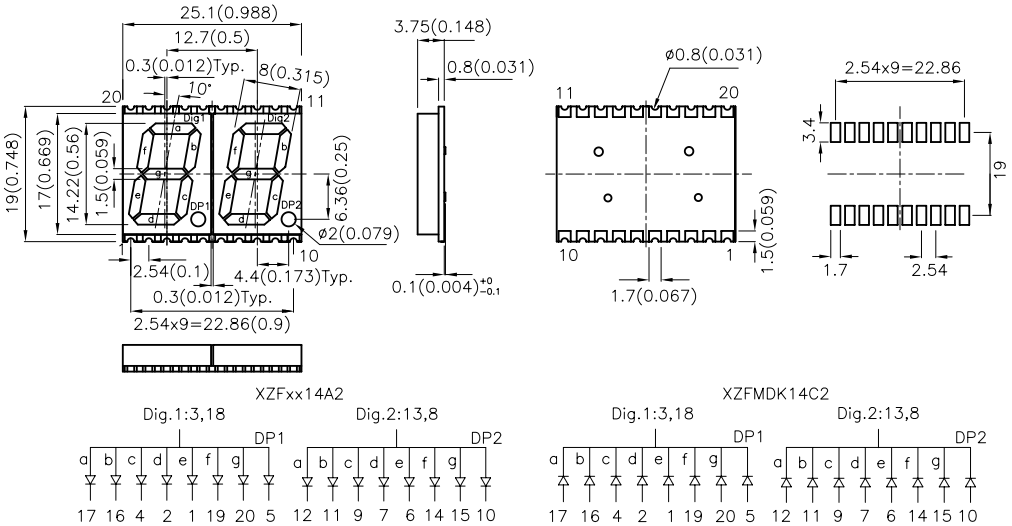
Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

XZFMDK07A2	-	AlGaInP(Red)	645	3600	6390

0.56"(14.22mm)





Dimension Unit: mm(inches), Tolerance : ±0.25(0.01")

Recommended Soldering Pattern

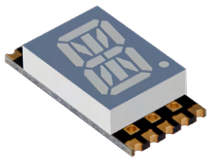
XZFMDK14A2	XZFMDK14C2	AlGaInP(Red)	645	14000	28990
XZFVG14A2	-	AlGaInP(Green)	574	2200	4590

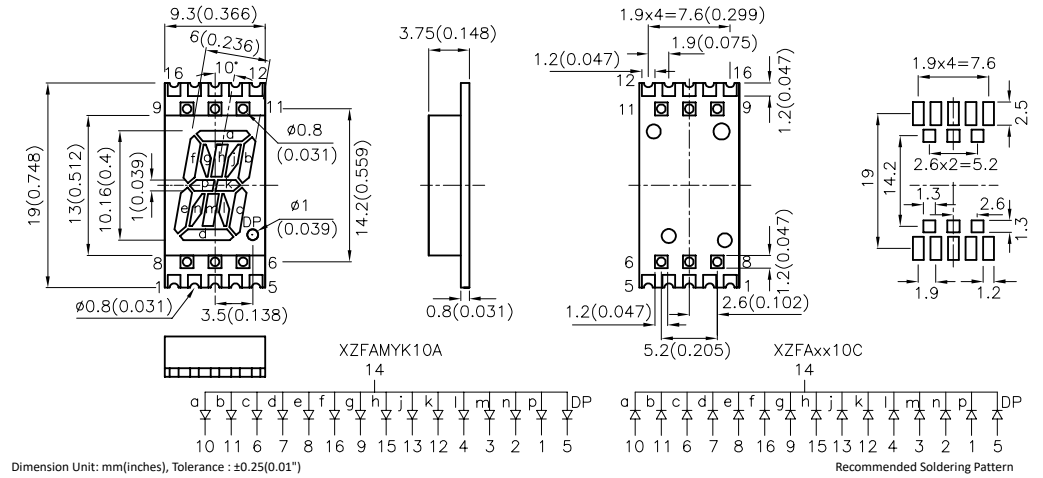
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.15mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

ALPHANUMERIC SMD

Part Number		Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
Common Anode	Common Cathode			Min.	Typ.

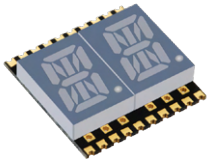
0.4"(10.16mm)

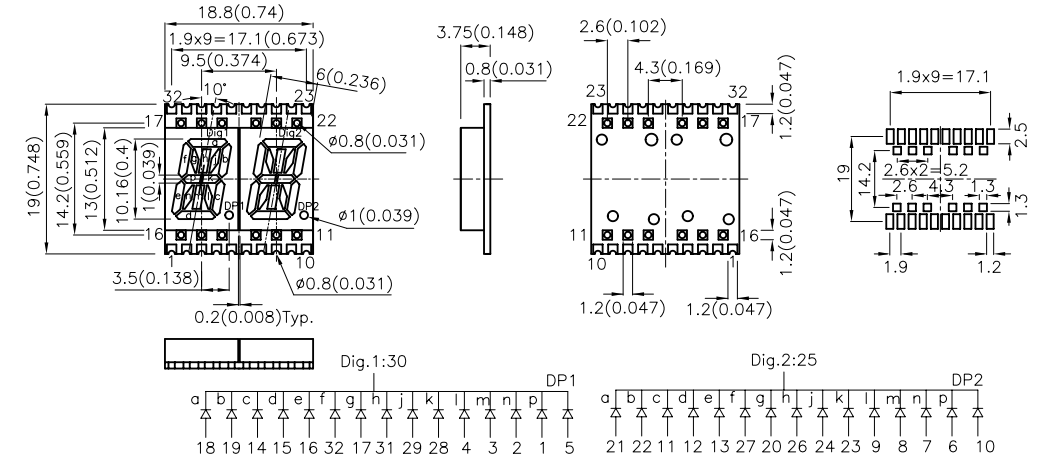




-	XZFAMDK10C	AlGaInP(Red)	645	3600	8290
XZFAMYK10A	-	AlGaInP(Yellow)	590	5600	11990
-	XZFAVG10C	AlGaInP(Green)	574	1400	3090

0.4"(10.16mm)



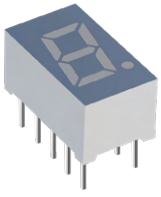


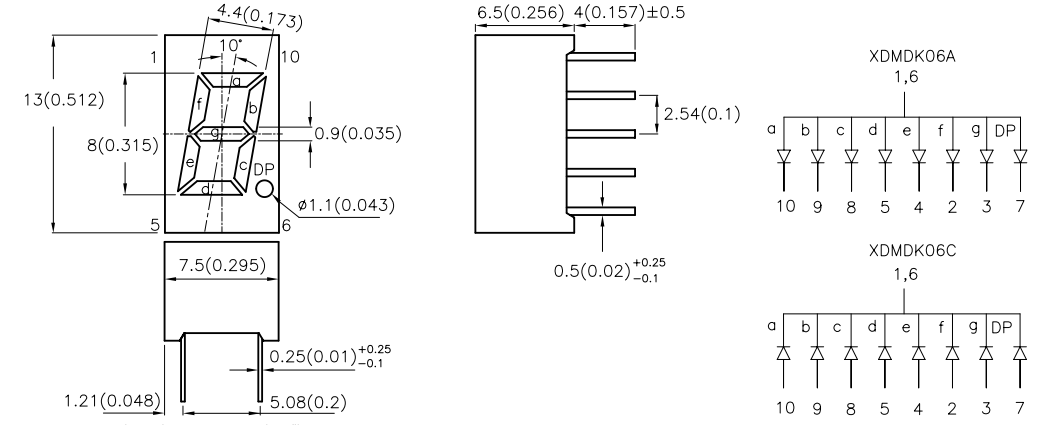
-	XZFAVG10C2	AlGaInP(Green)	574	1400	3090

SINGLE DIGIT

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
			Min.	Typ.

0.32"(8mm)





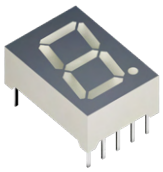
XDMDK06A	XDMDK06C	AlGaInP(Red)	645	9000	20990

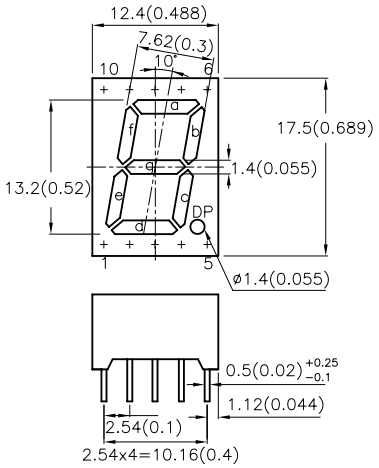
1. Soldering Pattern Dimension Unit : mm, Tolerance : ±0.15mm.
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

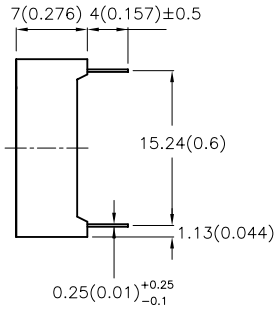
SINGLE DIGIT

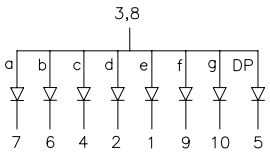
Part Number		Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
Common Anode	Common Cathode			Min.	Typ.

0.52"(13.2mm)



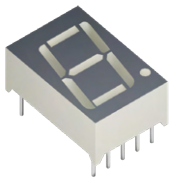


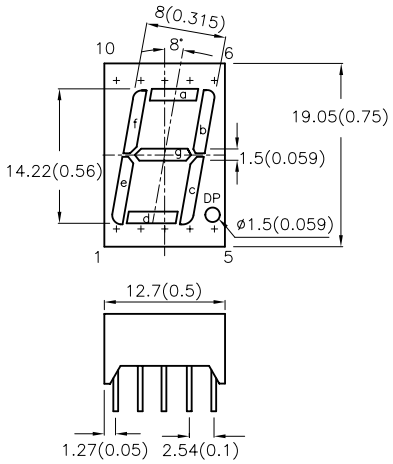


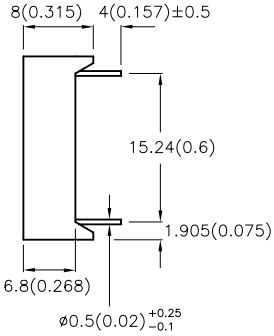


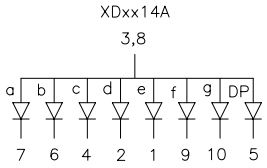
XDMDK13A	-	AlGaInP(Red)	645	14000	31990

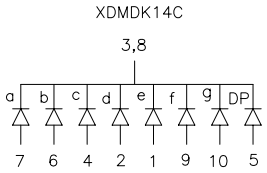
0.56"(14.22mm)









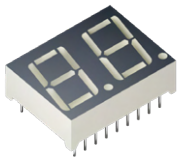


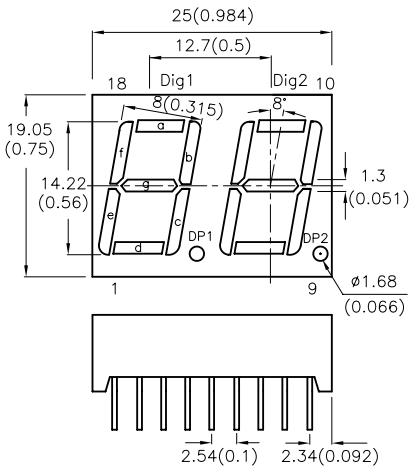
XDMDK14A	XDMDK14C	AlGaInP(Red)	645	14000	26990
XDCBD14A	-	InGaN(Blue)	460	9000	23990

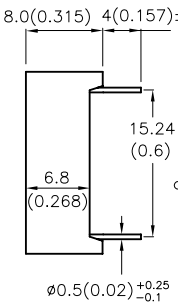
DUAL DIGIT

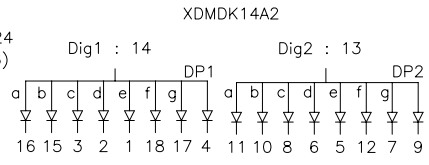
Part Number		Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
Common Anode	Common Cathode			Min.	Typ.

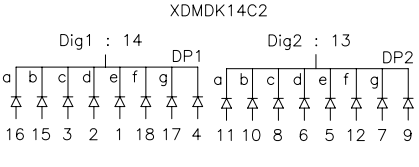
0.56"(14.22mm)









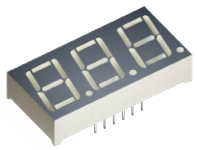


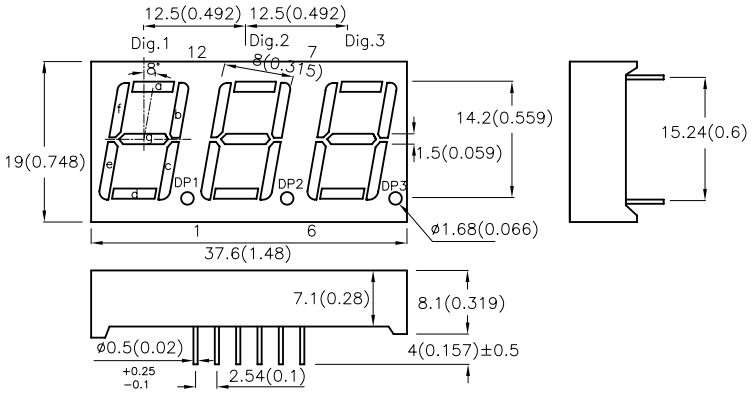
XDMDK14A2	XDMDK14C2	AlGaInP(Red)	645	9000	23990

1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

THREE DIGIT

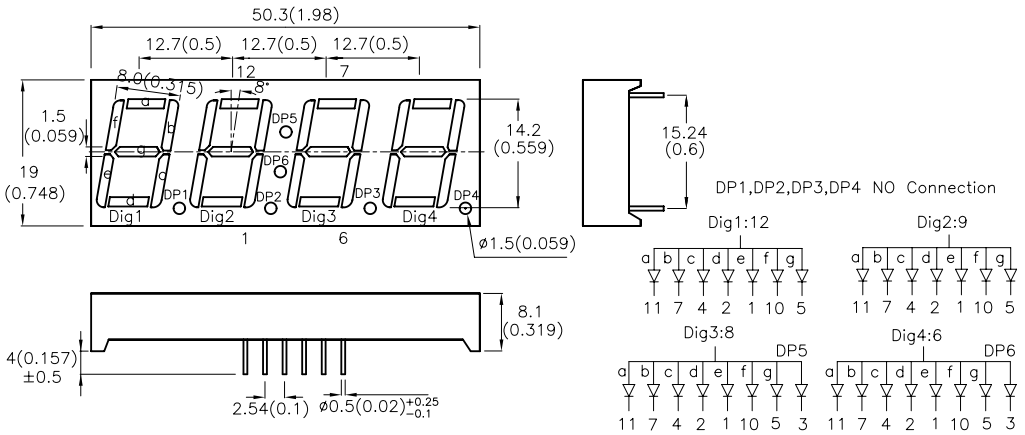
Part Number		Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
Common Anode	Common Cathode			Min.	Typ.
0.56"(14.2mm)					
XDMDK14A3	-	AlGaInP(Red)	645	9000	21990





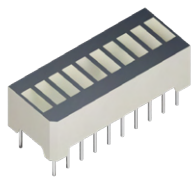
FOUR DIGIT

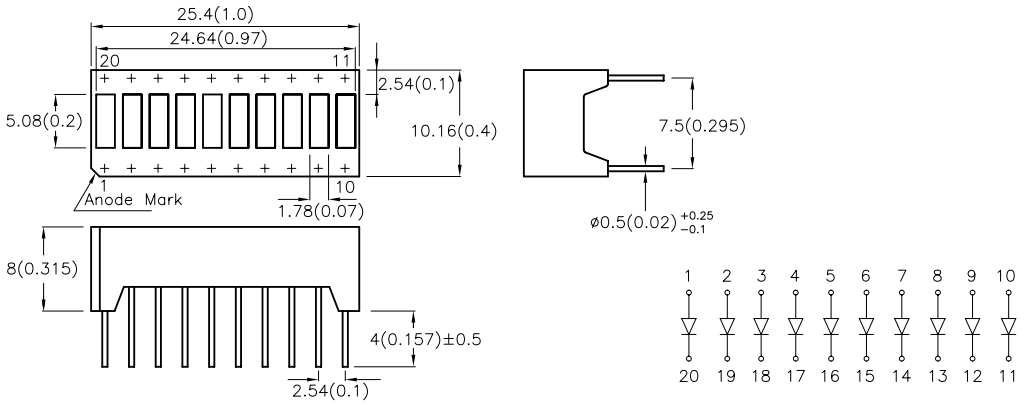
Part Number		Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
Common Anode	Common Cathode			Min.	Typ.
0.56"(14.2mm)					
XDMDK14A4-1A	-	AlGaInP(Red)	645	14000	23990



BAR GRAPH ARRAY

Part Number	Chip Structure (Emitted Color)	λpeak (nm)	Intensity(ucd) I_F=10mA	
			Min.	Typ.
10 Segment				
XGMDKX10D	AlGaInP(Red)	645	9000	24990
XGVGX10D	AlGaInP(Green)	574	3600	7990
XGCBDX10D	InGaN(Blue)	460	3600	9390





1. Dimension Unit: mm(inches), Tolerance: ±0.25mm (0.01").
2. Luminous intensity value and wavelength are in accordance with CIE127-2007 standards.
3. We reserve the right to make changes at any time to enhance the design and/or performance of the product.

INTENSITY CODES

Intensity Code for Standard LEDs
(Ta=25°C Tolerance +/-15%)

Bin Code	Light intensity in mcd (IF<15mA)		Bin Code	Light intensity in mcd (IF<15mA)		Bin Code	Light intensity in mcd (IF<15mA)	
	min.	max.		min.	max.		min .	max.
F	0.1	0.2	R	15	20	ZB	550	700
G	0.2	0.35	S	20	30	ZC	700	1000
H	0.35	0.5	T	30	50	ZD	1000	1600
I	0.5	0.8	U	50	80	ZE	1600	2200
K	0.8	1.2	V	80	120	ZF	2200	2800
L	1.2	2	W	120	180	ZG	2800	3400
M	2	4	X	180	250	ZH	3400	4300
N	4	6	Y	250	320	ZM	4300	5200
P	6	10	Z	320	450	ZN	5200	6300
Q	10	15	ZA	450	550	ZP	6300	7400

Intensity Code for Displays
(Ta=25°C Tolerance +/-15%)

Bin Code	Light intensity in ucd (IF≤10mA)		Bin Code	Light intensity in ucd (IF≤10mA)	
	min.	max.		min.	max.
C	70	140	P	14000	21000
D	140	240	Q	21000	31000
E	240	360	R	31000	52000
F	360	560	S	52000	88000
G	560	900	T	88000	150000
H	900	1400	U	150000	255000
I	1400	2200	V	255000	433000
K	2200	3600	W	433000	736000
L	3600	5600	X	736000	1251000
M	5600	9000	Y	1251000	2126000
N	9000	14000	Z	2126000	3614000

Intensity Code for High Intensity LEDs
(Ta=25°C Tolerance +/-15%)

Bin Code	Light intensity in mcd (IF≥15mA)		Bin Code	Light intensity in mcd (IF≥15mA)	
	Min.	Max.		Min.	Max.
A	2	3	ZA	3100	3600
B	3	5	ZB	3600	4200
C	5	8	ZC	4200	5000
D	8	12	ZD	5000	6000
E	12	20	ZE	6000	7000
F	20	40	ZF	7000	8000
G	40	55	ZG	8000	9000
H	55	80	ZH	9000	11000
M	80	120	ZM	11000	14000
N	120	200	ZN	14000	18000
P	200	300	ZP	18000	22000
Q	300	400	ZQ	22000	27000
R	400	500	ZR	27000	35000
S	500	700	ZS	35000	43000
T	700	1000	ZT	43000	55000
U	1000	1300	ZU	55000	75000
V	1300	1600	ZV	75000	130000
W	1600	1900	ZW	130000	200000
X	1900	2300	ZX	200000	320000
Y	2300	2700	ZY	320000	490000
Z	2700	3100	ZZ	490000	800000

Intensity Code for High Powered LEDs
(Ta=25°C Tolerance: +/-15%)

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

INTENSITY CODES

Code for NPN Phototransistors
(Ta=25°C Tolerance +/-15%)

Bin Code	Photocurrent in mA		Bin Code	Photocurrent in mA	
	min.	max.		min.	max.
F	0.1	0.2	L	1.2	2
G	0.2	0.35	M	2	4
H	0.35	0.5	N	4	6
I	0.5	0.8	P	6	10
K	0.8	1.2	Q	10	15

Code for Infrared Emitting Diodes
(Ta=25°C Tolerance +/-15%)

Bin Code	Radiant intensity in mW/sr		Bin Code	Radiant intensity in mW/sr	
	min.	max.		min.	max.
AK	0.8	1.2	D	8	12
AL	1.2	2	E	12	20
A	2	3	F	20	40
B	3	5	G	40	55
C	5	8	H	55	80

WAVELENGTH CODES

Color Code for LEDs and Displays (Ta=25°C Tolerance: +/-1nm)

Bin Code	Dominant Wavelength in nm							
	Green		Aqua Green		True Green		Yellow	
	min.	max.	min.	max.	min.	max.	min.	max.
0	556	559			510	515		
1	559	561	497	501	515	520	581	584
2	561	563	501	504	520	525	584	586
3	563	565	504	506	525	530	586	588
4	565	567	506	508	530	535	588	590
5	567	569	508	510	535	540	590	592
6	569	571	510	512			592	594
7	571	573	512	515			594	597
8	573	575					597	600

Color Code for LEDs and Displays (Ta=25°C Tolerance: +/-1nm)

Bin Code	Dominant Wavelength in nm		Bin Code	Dominant Wavelength in nm	
	Blue			Blue	
	min.	max.		min.	max.
1	445	450	3A	471	473
2	450	455	3B	473	475
3	455	460	4A	475	477
1A	460	463	4B	477	479
1B	463	466	5A	479	481
2A	466	469	5B	481	483
2B	469	471	5C	483	486

CIE CHROMATICITY DIAGRAM

SunLED white LEDs are color sorted based on either CIE (coordinates) or CCT (Kelvin). Refer to below diagram (Fig. 1).

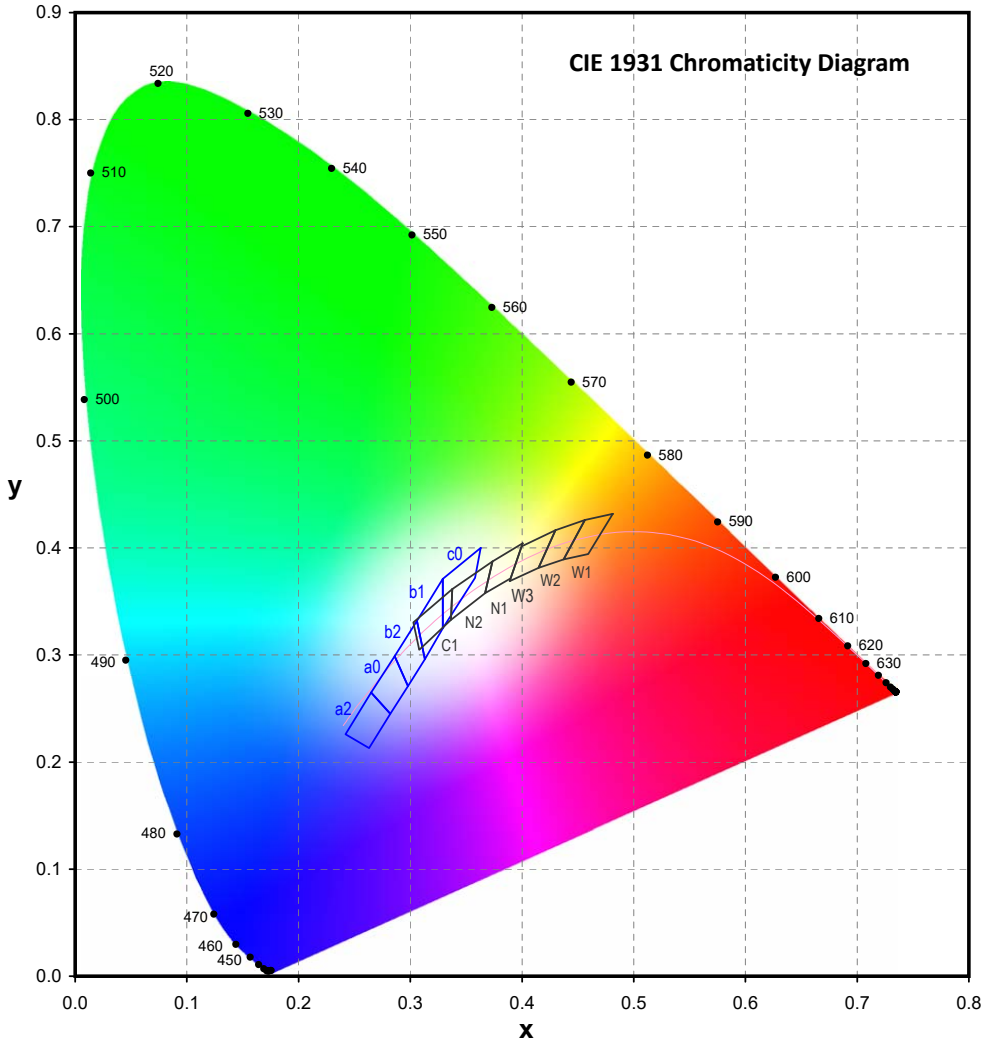


Fig. 1

a2				
x	0.263	0.282	0.265	0.242
y	0.213	0.245	0.265	0.226
CCT: 15000K~				

a0				
x	0.282	0.298	0.286	0.265
y	0.245	0.271	0.299	0.265
CCT: 9000~15000K				

b2				
x	0.298	0.313	0.306	0.286
y	0.271	0.296	0.332	0.299
CCT: 6800~9000K				

b1				
x	0.313	0.329	0.329	0.306
y	0.296	0.325	0.371	0.332
CCT: 5600~6800K				

c0				
x	0.329	0.358	0.363	0.329
y	0.325	0.372	0.400	0.371
CCT: 4600~5600K				

W1				
x	0.4373	0.4593	0.4813	0.4562
y	0.3893	0.3944	0.4319	0.4260
CCT: 2580~2870K				

W2				
x	0.4147	0.4373	0.4562	0.4299
y	0.3814	0.3893	0.4260	0.4165
CCT: 2870~3220K				

W3				
x	0.3889	0.4147	0.4299	0.3996
y	0.3690	0.3814	0.4165	0.4015
CCT: 3220~3710K				

N1				
x	0.3670	0.3898	0.4006	0.3736
y	0.3578	0.3716	0.4044	0.3874
CCT: 3710~4260K				

N2				
x	0.3364	0.3670	0.3736	0.3376
y	0.3328	0.3578	0.3874	0.3616
CCT: 4260~5310K				

C1				
x	0.3081	0.3364	0.3376	0.3028
y	0.3049	0.3328	0.3616	0.3304
CCT: 5310~7040K				

SMD LED Products

Test Item	Test Conditions	Description	Reference Standard
Continuous operating	Ta=25°C T=1000hrs RH<75%RH, IF(Max)	The purpose of this test is to determine the resistance of the device when operating under electrical stress	EIAJ ED-4701 100 101
High temperature storage	Ta=100°C T=1000hrs	The purpose of this test is to evaluate the product durability after long-term storage in high temperature	EIAJ ED-4701 200 201
Low temperature storage	Ta=-40°C T=1000hrs	The purpose of this test is to evaluate the product durability after long-term storage in low temperature	EIAJ ED-4701 200 202
High temperature and humidity storage	Ta=60°C T=1000hrs RH=90%RH	The purpose of this test is to evaluate product durability under long-term high temperature and high humidity storage	EIAJ ED-4701 100 103
High temperature and humidity operating	Ta=60°C T=1000hrs RH=90%RH, IF(Max)	The purpose of this test is to determine the resistance of the device under electrical and thermal stress	EIAJ ED-4701 100 102
Solderability	Ta=245°C T=5sec	The purpose of this test is to evaluate solderability on leads of device	EIAJ ED-4701 300 303
Soldering resistance	Ta=260°C T=5sec	The purpose of this test is to determine the thermal resistance characteristics of the device to sudden exposures at extreme changes in temperature during Tin-dipping	EIAJ ED-4701 300 301
Temperature cycling	Ta=-40°C~25°C~100°C~25°C T=(30min~5min~30min~5min)×10cycles	The purpose of this test is to determine the resistance of the device to storage under extreme temperature for hours	EIAJ ED-4701 100 105
Temperature cycling operating	Ta=-40°C~25°C~100°C~25°C IF(Max) T=(30min~5min~30min~5min)×10cycles	The purpose of this test is to determine the resistance of the device under extreme temperature for hours	N/A
Thermal shock	Ta=-40°C~100°C T=15min~15min×100cycles	The purpose of this test is to determine the resistance of the device to sudden extreme changes in high and low temperature	EIAJ ED-4701 300 307

LED Displays

Test Item	Test Conditions	Description	Reference Standard
Continuous operating	Ta=25°C T=1000hrs RH<75%RH, IF(Max)	The purpose of this test is to determine the resistance of the device when operating under electrical stress	EIAJ ED-4701 100 101
High temperature storage	Ta=100°C T=1000hrs	The purpose of this test is to evaluate the product durability after long-term storage in high temperature	EIAJ ED-4701 200 201
Low temperature storage	Ta=-40°C T=1000hrs	The purpose of this test is to evaluate the product durability after long-term storage in low temperature	EIAJ ED-4701 200 202
High temperature and humidity storage	Ta=60°C T=1000hrs RH=90%RH	The purpose of this test is to evaluate product durability under long-term high temperature and high humidity storage	EIAJ ED-4701 100 103
Solderability	Ta=245°C T=5sec	The purpose of this test is to evaluate solderability on leads of device	EIAJ ED-4701 300 303
Soldering resistance	Ta=260°C T=5sec	The purpose of this test is to determine the thermal resistance characteristics of the device to sudden exposures at extreme changes in temperature during Tin-dipping	EIAJ ED-4701 300 301
Temperature cycling	Ta=-40°C~25°C~100°C~25°C T=(30min~5min~30min~5min)×10cycles	The purpose of this test is to determine the resistance of the device to storage under extreme temperature for hours	EIAJ ED-4701 100 105
Thermal shock	Ta=-40°C~100°C T=15min~15min×100cycles	The purpose of this test is to determine the resistance of the device to sudden extreme changes in high and low temperature	EIAJ ED-4701 300 307

Through-Hole LEDs

Test Item	Test Conditions	Description	Reference Standard
Continuous operating	Ta=25°C T=1000hrs RH<75%RH, IF(Max)	The purpose of this test is to determine the resistance of the device when operating under electrical stress	EIAJ ED-4701 100 101
High temperature storage	Ta=100°C T=1000hrs	The purpose of this test is to evaluate the product durability after long-term storage in high temperature	EIAJ ED-4701 200 201
Low temperature storage	Ta=-40°C T=1000hrs	The purpose of this test is to evaluate the product durability after long-term storage in low temperature	EIAJ ED-4701 200 202
High temperature and humidity storage	Ta=60°C T=1000hrs RH=90%RH	The purpose of this test is to evaluate product durability under long-term high temperature and high humidity storage	EIAJ ED-4701 100 103
High temperature and humidity operating	Ta=60°C T=1000hrs RH=90%RH, IF(Max)	The purpose of this test is to determine the resistance of the device under electrical and thermal stress	EIAJ ED-4701 100 102
Lead frame bending	Bend 90°C T=3 cycles	The purpose of this test is to evaluate products durability against mechanical stress applied to leads	N/A
Lead frame pulling	W=1kg T=30sec	The purpose of this test is to evaluate products durability against mechanical stress	N/A
Solderability	Ta=245°C T=5sec	The purpose of this test is to evaluate solderability on leads of device	EIAJ ED-4701 300 303
Soldering resistance	Ta=260°C T=5sec	The purpose of this test is to determine the thermal resistance characteristics of the device to sudden exposures at extreme changes in temperature during Tin-dipping	EIAJ ED-4701 300 302
Temperature cycling	Ta=-40°C~25°C~100°C~25°C T=(30min~5min~30min~5min)×10cycles	The purpose of this test is to determine the resistance of the device to storage under extreme temperature for hours	EIAJ ED-4701 100 105
Temperature cycling operating	Ta=-40°C~25°C~100°C~25°C IF(Max) T=(30min~5min~30min~5min)×10cycles	The purpose of this test is to determine the resistance of the device under extreme temperature for hours	N/A
Thermal shock	Ta=-40°C~100°C T=15min~15min×100cycles	The purpose of this test is to determine the resistance of the device to sudden extreme changes in high and low temperature	EIAJ ED-4701 300 307

1. Manual soldering operations should only be for repairs and reworks unless otherwise noted on product specifications.

2. Maximum soldering iron temperatures for manual soldering:

   a. Pb-Sn solder: 300°C

   b. Pb-Free solder: 350°C

   c. All LEDs using InGaN material (e.g. Blue, Green, White): 280°C

3. The soldering iron should never touch the epoxy lens. Contact duration with the component should not exceed 3 seconds.

4. Do not apply stress or pressure to the leads when the component is heated above 80°C as possible damage to the internal wire bonds may occur.

5. During soldering, component covers and holders should leave enough clearance to avoid any stress applied to the LED. Refer to below diagram (Fig. 2) for examples of proper method.

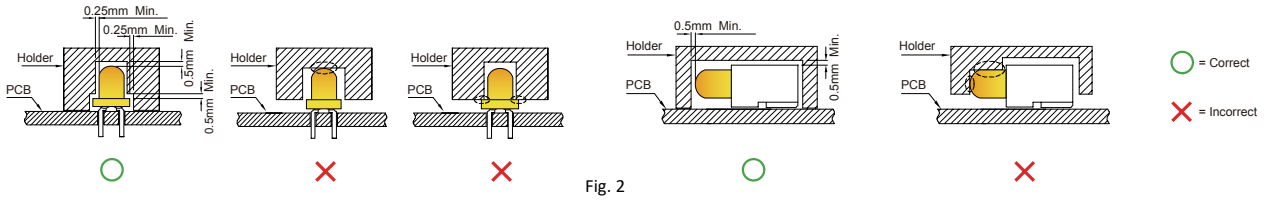


Fig. 2

6. Refer to below diagrams for recommended soldering profiles.

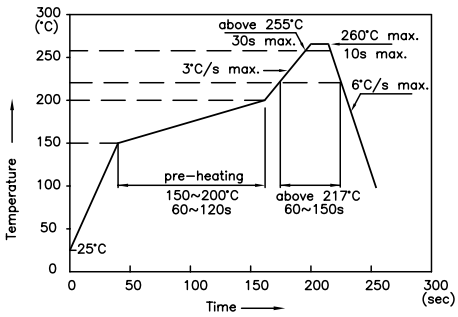
   a. SMD LEDs: Reflow Soldering – Pb-Free Solder (Fig. 3) | Pb-Sn Solder (Fig. 4)

   -No more than two soldering passes except SMD CBIs which should not exceed one pass

   b. Through-hole LEDs: Wave Soldering – Pb-Free Solder (Fig. 5) | Pb-Sn Solder (Fig. 6)

   -No more than one soldering pass

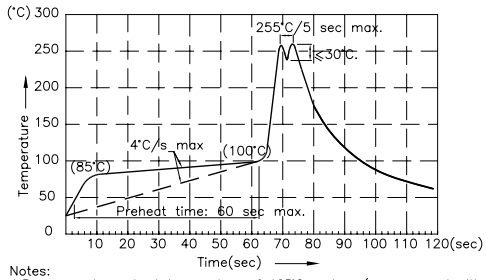
Reflow Soldering Profile for SMD Products (Pb–Free Solder)



Notes:
1. All temperatures refer to the center of the package, measured on the package body surface facing up during reflow.
2. Do not apply any stress to the LED during high temperature conditions.
3. Maximum number of soldering passes: 2

Fig. 3

Wave Soldering Profile (Pb–Free Solder)



Notes:
1.Recommend pre–heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
2.Peak wave soldering temperature between 245°C ~ 255°C for 3 sec (5 sec max).
3.Do not apply stress to the epoxy resin while the temperature is above 85°C.
4.Fixtures should not incur stress on the component when mounting and during soldering process.
5.SAC 305 solder alloy is recommended.
6.No more than one wave soldering pass.
7.During wave soldering, the PCB top–surface temperature should be kept below 105°C.

Fig. 5

Reflow Soldering Profile (Pb–Sn Solder)

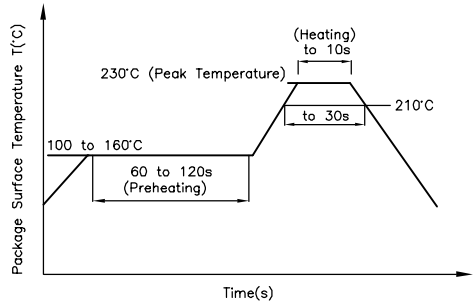


Fig. 4

Wave Soldering Profile (Pb–Sn Solder)

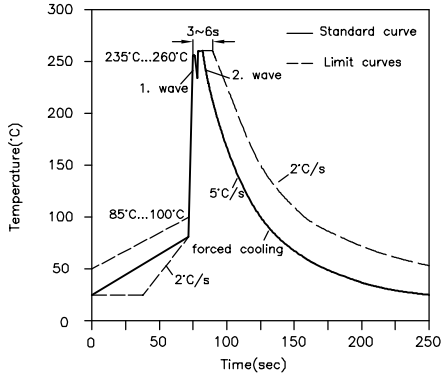


Fig. 6

SOLDERING INSTRUCTIONS

7. Refer to the appropriate product datasheet for details on specific soldering pay layout. To ensure proper bonding and setting of the LED, solder paste must be evenly applied to each soldering pad. Refer to below diagram (Fig. 7) for example of improper solder application.

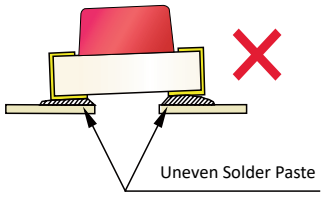


Fig. 7

8. After soldering, allow at least three minutes for the component to cool to room temperature before further processing.
9. Refer to below table for summary of soldering instructions for dip, wave, and manual solder. Note that these are considered general instructions and all soldering notes indicated above should take precedence.

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	/	/	/	<=350°C	3s (one time only)	/
DISPLAYs	*<=260°C	*3s	*>2mm	<=350°C	3s	>2mm

APPLICATION NOTES

Cleaning

1. Do not use harsh organic solvents such as acetone, trichloroethylene, Chlorsan, and/or diflon solvent for cleaning as they may cause damage or hazing to the LED lens.
2. Do not use acidic solvents or unknown chemicals for cleaning as they may damage or degrade the LED. Always check the properties of the chemical to ensure it will not corrode or damage epoxy resin, silicone resin, silver plating, or organosilicates.
3. Recommended solvents for cleaning: deionized water or isopropyl alcohol.
4. Special attention should be taken if other chemicals are used for cleaning as they may damage the epoxy lens or housing.
5. Any cleaning should take place at room temperature and the wash duration should not exceed one minute.
6. Use forced-air drying immediately following water wash to remove excess moisture.

Lead Forming

1. Any lead forming or bending must be done prior to soldering.
2. Avoid bending leads at the same point more than once as it may compromise the integrity of the leads.
3. Minimum clearance of 3mm is required between the base of the LED lens and the bend location. Refer to below diagram (Fig. 8).

Fig. 8

4. Lead forming should only be done with proper tools such as a jig and/or radio pliers. The upper section of the leads should be secured firmly such that the bending force is not exerted on the LED body. Refer to below diagram (Fig. 9) for recommended lead bending method.

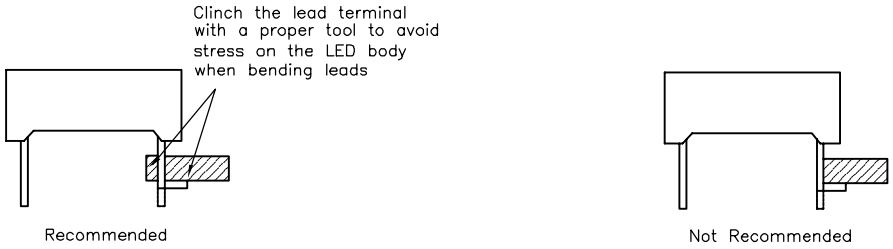


Fig. 9

ESD Precautions

InGaN/GaN material LEDs are sensitive to electrostatic discharge (ESD) and other transient voltage spikes. ESD and voltage spikes can affect the component's performance due to increased reverse current and/or decreased forward voltage. This may result in reduced light intensity and/or component failure. Static discharge may occur when static sensitive LEDs come in contact with the user or other conductive devices. ESD sensitive LEDs must incorporate protective circuitry to prevent ESD and to control voltage spikes in order to stay within the maximum voltage specified.

SunLED products are stored in anti-static bags for protection during transportation and storage. However, below anti-static measures should always be noted when handling static sensitive components.

1. Operators must wear anti-static wristbands.
2. Operators must wear anti-static suits when entering work areas with conductive machinery and materials.
3. All test instruments and production machinery must be grounded.
4. Avoid static build up by minimizing friction between the LED and its surroundings.
5. Relative Humidity between 40% ~ 60% is recommended in ESD-protected work areas to reduce static build up. Reference JEDEC/J-STD-033 and JEDEC/JESD625-A standards.
6. All workstations that handle ESD sensitive components must maintain an electrostatic condition of 150V or less.
7. Anti-static material/packaging should be used when parts are being stored and/or transported.
8. All anti-static measures noted above should be periodically checked and inspected to ensure proper functionality.

Design Notes

1. Protective current-limiting resistors should be used in conjunction with LEDs to ensure parts are operating within specified current range.
2. The driving circuit should be designed to avoid any forward/reverse voltage while the LED is in OFF state in order to prevent electrochemical migration which may cause damage to the LED.

3. Prevent exposure of LEDs to environments containing high moisture or corrosive gases.
4. Excess operating temperature and/or forward current should be avoided as it may lead to accelerated degradation or failure of the LED. Always refer to the most updated datasheet for driving conditions.
5. When LEDs are mounted in a parallel configuration, there should be individual current-limiting resistors in series with each LED. Refer to below diagram (Fig.10) for an example of a recommended set up.

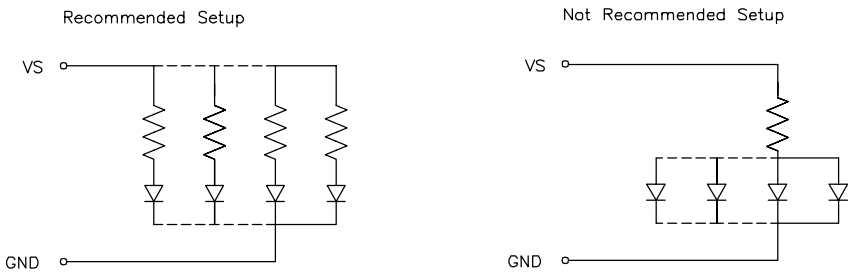


Fig. 10

6. Mounting direction of SMD components should be placed perpendicular to the direction of PCB travel. This will ensure the solder wets on each lead simultaneously during reflow and prevent shifting of LEDs. Refer to below diagram (Fig.11) for examples of recommended mounting direction.

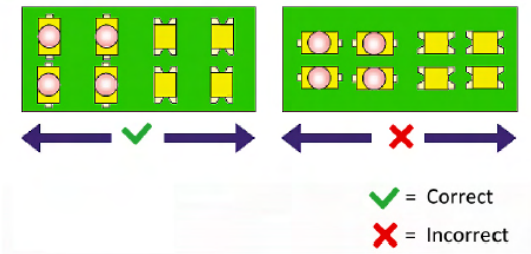


Fig. 11

7. High-power LED devices require optimization of heat dissipation. Increasing the size of metal mounting surface and proper application of thermal conductive paste will help improve heat dissipation. Refer to below diagram (Fig.12) and product datasheets for specific design recommendations.

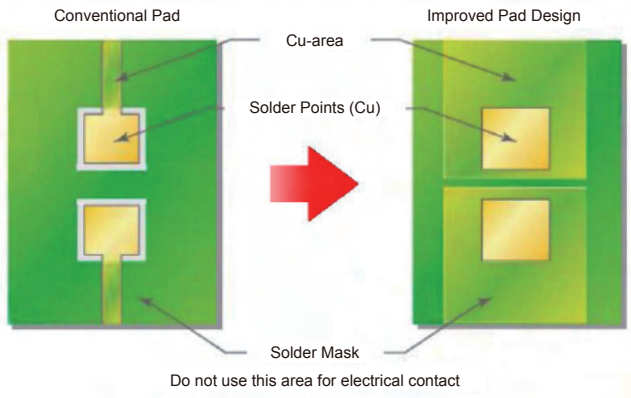


Fig. 12

8. High temperatures may reduce component's performance and reliability. Please refer to individual product datasheets for specific details on operable temperature range and effects of temperature on the LED.

Storage, MSL, and Humidity Conditions

SMD LEDs are considered moisture sensitive and storage/usage precautions must be taken to prevent damage to the internal materials. Excess moisture trapped within the component may cause internal vapor pressure during solder reflow leading to possible delamination of the die or wire bond.

1. Do not store or expose LEDs in an environment where high levels of moisture or corrosive gases are present and keep away from rapid transitions in ambient temperature.

   Recommended storage conditions for each type of LED product as per below:

Product Type	Temperature	Humidity
SMD LED	< 40°C	< 90%RH
Through-hole LED	≤ 30°C	< 60%RH
LED Displays	5°C to 30°C	< 60%RH

Note: Above conditions are based on products in original sealed packaging

2. All SMD LEDs are packaged in moisture barrier bags (MBB) with a label indicating the moisture sensitivity level (MSL).

a. Storage conditions for unopened MBB: Temperature < 40°C, Humidity < 90%RH with shelf life of 24 months.

b. Floor life for opened MBB follows the corresponding MSL as per below:

IPC/JEDEC J-STD-020

MSL	Floor Life	
	Time	Conditions
1	Unlimited	≤30°C / 85%RH
2	1 Year	≤30°C / 60%RH
2a	4 Weeks	≤30°C / 60%RH
3	168 Hours	≤30°C / 60%RH
4	72 Hours	≤30°C / 60%RH
5	48 Hours	≤30°C / 60%RH
5a	24 Hours	≤30°C / 60%RH
6	Time indicated on label	≤30°C / 60%RH

3. All SMD LEDs are packaged with desiccants and a humidity indicator card (HIC). If the LEDs are not used within the specific floor life or if the HIC has indicated presence of moisture, the following baking procedure must be taken:

Condition	Temperature	Humidity	Bake Duration
LED inside carrier	60°C ± 3°C	<5% RH	100 hours
LED outside carrier tape	110°C	-	10 hours

*Not more than once

Additional Notes

1. LED devices may contain Gallium Arsenide (GaAs). GaAs dust and fumes are toxic and harmful if ingested. Do not expose LEDs to chemical solvents and/or break open LED devices.
2. The light output from UV, blue, and high-power LEDs may cause injury to the human eye when viewed directly.
3. Semiconductor devices can fail or malfunction due to their sensitivity to electrical fluctuation and physical stress. In design development, please make certain that SunLED products are used within the specified operating conditions as indicated on our most current product datasheets. The user is responsible to observe and follow all safety measures to avoid situations where the failure or malfunction of a SunLED product could cause injury, property damage, or the loss of human life.
4. Reference https://www.SunLEDusa.com/TechnicalNotes.asp for complete technical notes.

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SunLED

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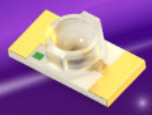

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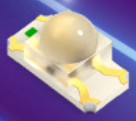

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