

### Features

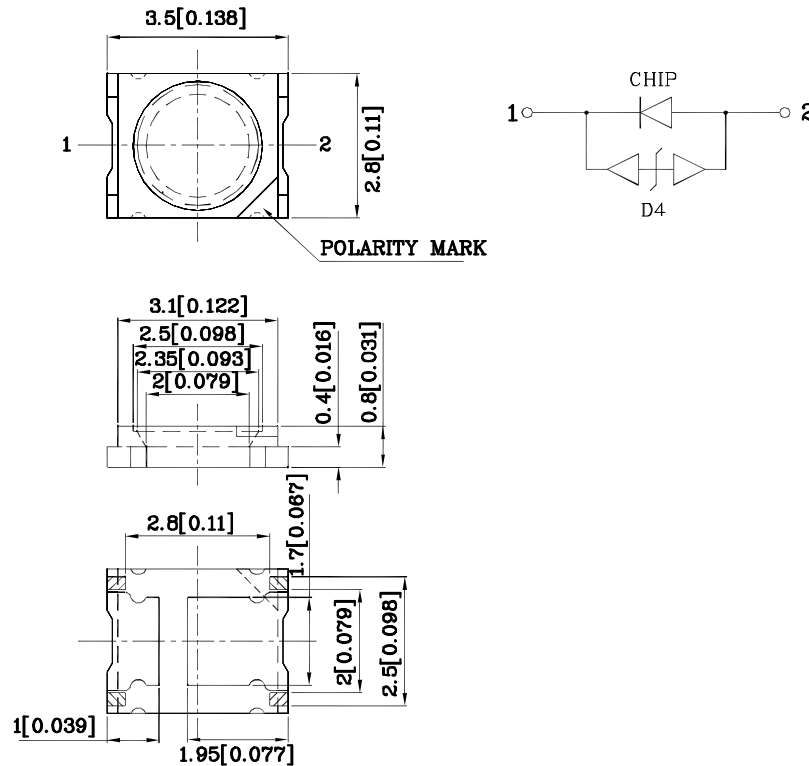
- 3.5mm X 2.8mm X 0.8mm SMD LED
- Ideal for indication for hand held products
- IR-reflow compatible
- Ideal 0.5-Watt power for backlighting and accent lighting
- Special colors available
- Standard Package: 2000pcs / Reel
- MSL (Moisture Sensitivity Level): 2a
- RoHS compliant



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES



### Package Schematics



#### Notes:

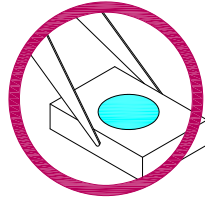
1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Specifications are subject to change without notice.

## Handling Precautions

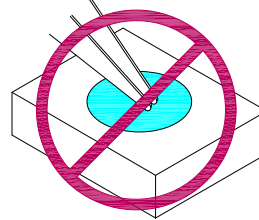
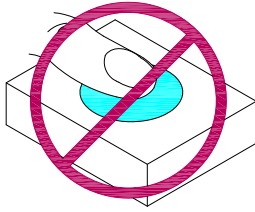
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

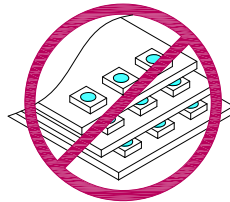
1. Handle the component along the side surfaces by using forceps or appropriate tools.



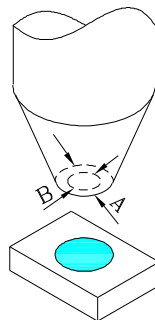
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



- 4.1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.
- 4.2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
- 4.3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



5. As silicone encapsulation is permeable to gases, some corrosive substances such as H<sub>2</sub>S might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.

Part Number	Emitting Color	Emitting Material	Lens-color	Luminous Intensity CIE127-2007* ( $I_F=150\text{mA}$ ) mcd		Luminous Flux CIE127-2007* ( $I_F=150\text{mA}$ ) mlm		Wavelength CIE127-2007* nm $\lambda_P$	Viewing Angle $2\theta$ 1/2
				min.	typ.	min.	typ.		
XZMOLA109FS	Red	AlGaInP	Water Clear	3100*	4190*	8600*	11700*	640*	120°

Notes:

LEDs are binned according to their luminous flux.

\*Luminous intensity/luminous flux value and wavelength are in accordance with CIE127-2007 standards.

**Absolute Maximum Ratings at  $T_A=25^\circ\text{C}$**

Parameter	Symbol	Value	Unit
Power Dissipation	$P_D$	450	mW
Junction Temperature [1]	$T_J$	110	$^\circ\text{C}$
Operating Temperature	$T_{op}$	-40 ~ +85	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40 ~ +85	$^\circ\text{C}$
DC Forward Current [1]	$I_F$	150	mA
Peak Forward Current [3]	$I_{FM}$	350	mA
Reverse Voltage	$V_R$	5	V
Thermal Resistance [1] (Junction/ambient)	$R_{th\ j-a}$	155	$^\circ\text{C/W}$
Thermal Resistance [1] (Junction/solder point)	$R_{th\ j-s}$	60	$^\circ\text{C/W}$
Electrostatic Discharge Threshold (HBM)		8000	V

Notes:

1. Results from mounting on PC board FR4 (pad size  $\geq 70\text{mm}^2$ ), mounted on pc board-metal core PCB is recommend for lowest thermal Resistance.

2.  $0.1/2$  is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.

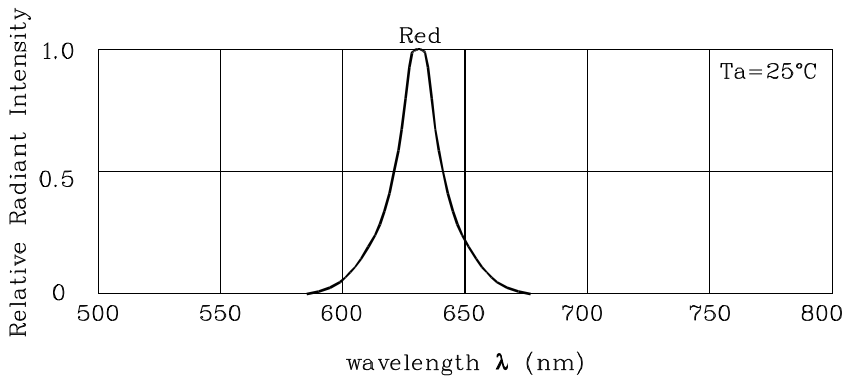
3. 1/10 Duty Cycle, 0.1ms Pulse Width.

4. A Relative Humidity between 40% and 60% is recommended in ESD-protected work areas to reduce static build up during assembly process (Reference JEDEC/JESD625-A and JEDEC/J-STD-033)

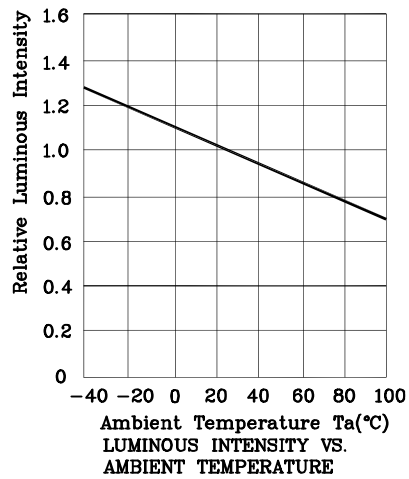
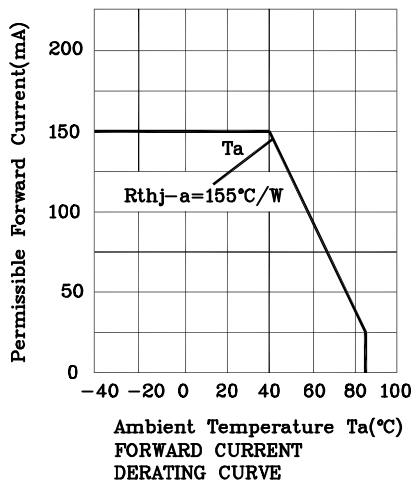
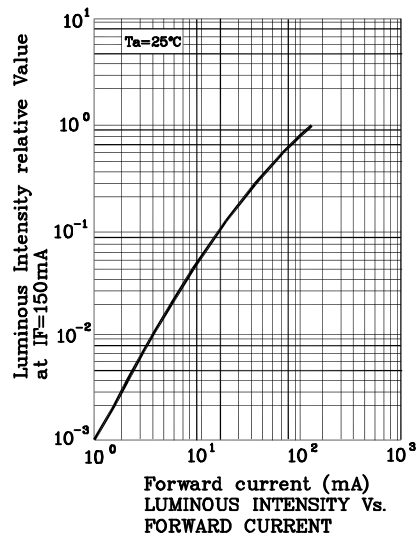
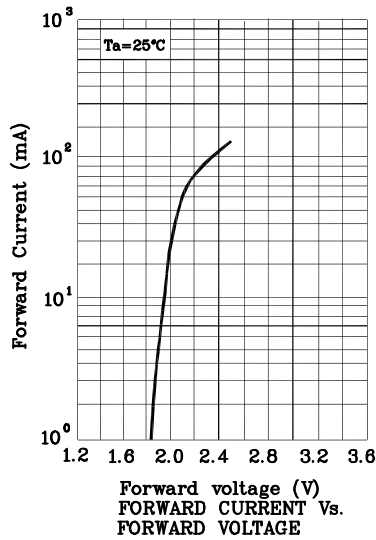
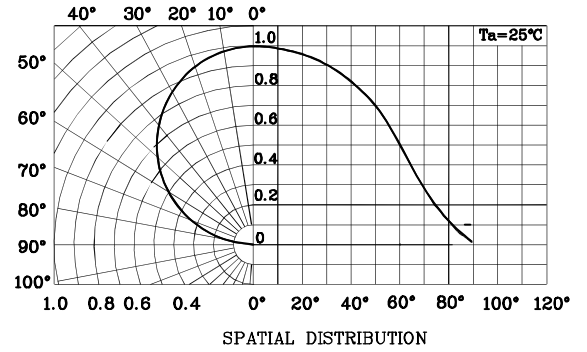
**Electrical / Optical Characteristics at  $T_A=25^\circ\text{C}$**

Parameter	Symbol	Value	Unit
Wavelength at peak emission CIE127-2007* $I_F = 150\text{mA}$ [Typ.]	$\lambda_{peak}$	631*	nm
Dominant Wavelength CIE127-2007* $I_F = 150\text{mA}$ [Typ.]	$\lambda_{dom}$ [1]	623*	nm
Spectral Line Half-width $I_F = 150\text{mA}$ [Typ.]	$\Delta\lambda$	20	nm
Capacitance [ $V_F = 0\text{V}; f = 1\text{MHz}$ ]	C	27	pF
Forward Voltage $I_F = 150\text{mA}$ [Typ.]	$V_F$ [2]	2.5	V
Forward Voltage $I_F = 150\text{mA}$ [Max.]		3.0	
Allowable Reverse Current [Max.]	$I_R$	10	mA

\*wavelength value is in accordance with CIE127-2007 standards.



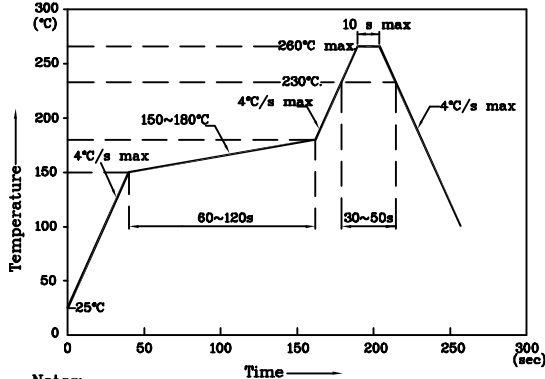
Relative Intensity Vs. CIE Wavelength



LED is recommended for reflow soldering and soldering profile is shown below.

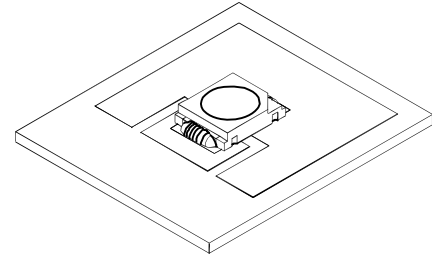
❖ The device has a single mounting surface. The device must be mounted according to the specifications.

Reflow Soldering Profile for SMD Products (Pb-Free Components)



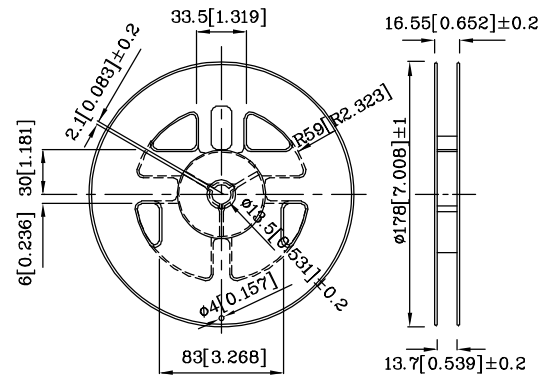
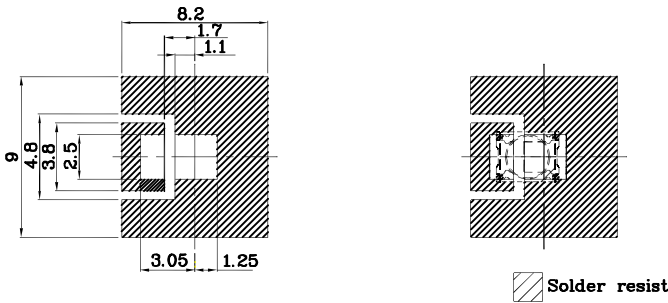
Notes:

1. Maximum soldering temperature should not exceed 260°C
2. Recommended reflow temperature: 145°C-260°C
3. Do not put stress to the epoxy resin during high temperatures conditions

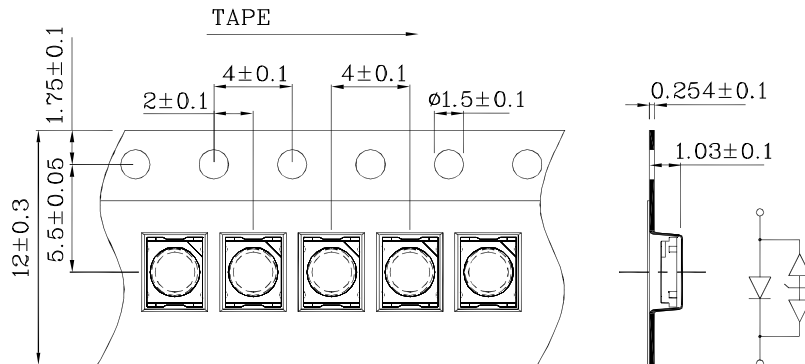


❖ Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)

❖ Reel Dimension



❖ Tape Specification (Units : mm)



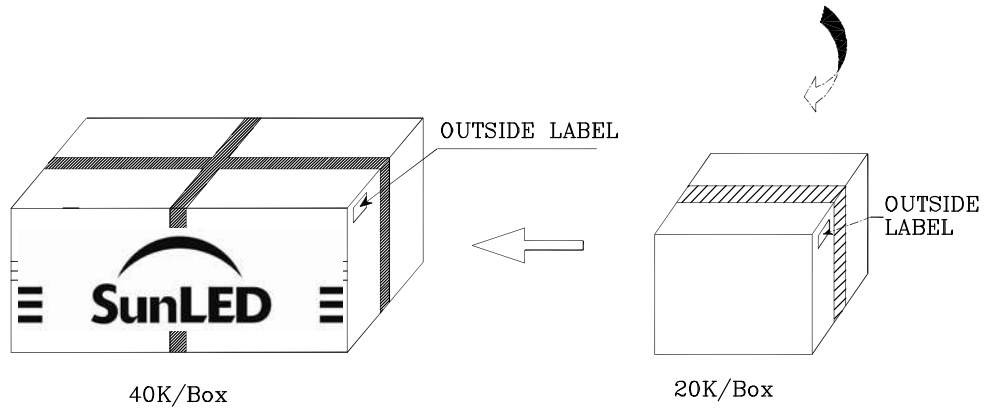
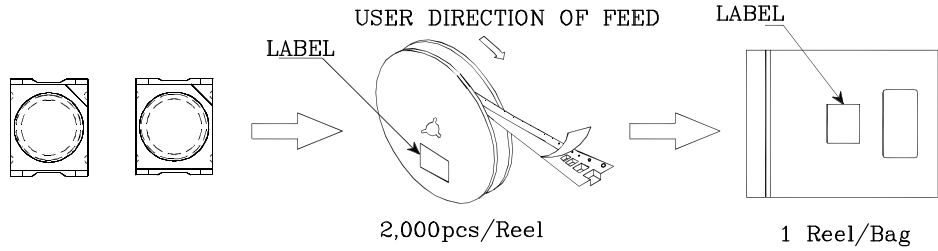
Remarks:



If special sorting is required (e.g. binning based on forward voltage, Luminous intensity / luminous flux, or wavelength), the typical accuracy of the sorting process is as follows:

1. Wavelength: +/-1nm
2. Luminous intensity / luminous flux: +/-15%
3. Forward Voltage: +/-0.1V

Note: Accuracy may depend on the sorting parameters.

**PACKING & LABEL SPECIFICATIONS**



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Q.C.						
Q C						
XX XX XXXX						
PASSED						
P/NO : XZxxx109x						
QTY : 2,000 pcs		CODE: XXX				
S/N : XX						
LOT NO :						
 XXXXXXXXXXXXXXXXXXXXXXXXXXXX						
RoHS Compliant						

**TERMS OF USE**

1. Data presented in this document reflect statistical figures and should be treated as technical reference only.
2. Contents within this document are subject to improvement and enhancement changes without notice.
3. The product(s) in this document are designed to be operated within the electrical and environmental specifications indicated on the datasheet. User accepts full risk and responsibility when operating the product(s) beyond their intended specifications.
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