

### Features

- 3.5mm X 3.5mm X 1.15mm SMD LED
- Zener diode provided for ESD Protection
- IR-reflow compatible
- Ideal for accent lighting
- Standard Package: 2,000pcs / Reel
- MSL (Moisture Sensitivity Level): 2a
- RoHS compliant

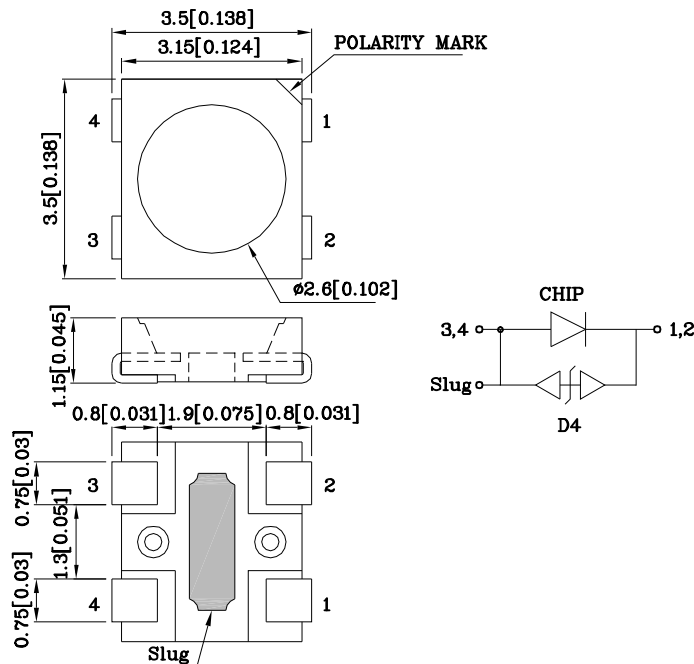
### Applications

- Signal and symbol luminaire for orientation.
- Marker lights (e.g. steps, exit ways, etc).
- Decorative and entertainment lighting.
- Commercial and residential lighting.
- Automotive interior lighting.



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

### Package Schematics



Notes:

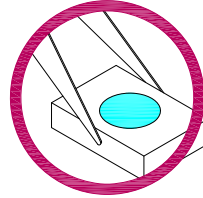
1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Specifications are subject to change without notice.

### Handling Precautions

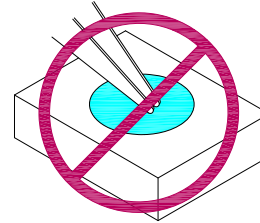
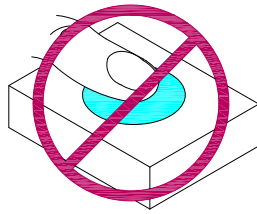
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

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.

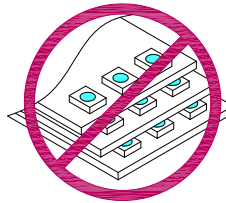
1. Handle the component along the side surfaces by using forceps or appropriate tools.



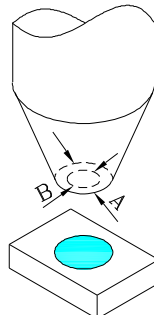
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



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.

### Selection Guide

Part Number	Emitting Color	Emitting Material	Lens-color	Luminous Intensity CIE127-2007* ( $I_F=150\text{mA}$ ) cd		Luminous Flux CIE127-2007* ( $I_F=150\text{mA}$ ) lm		Viewing Angle 2 $\theta$ 1/2 [1]
				min.	typ.	min.	typ.	
XZMD20X92S-4	Deep-Red	AlGaInP	Water Clear	1.6*	2.1*	5*	6.5*	120°

Notes:

1.  $\theta$  1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
  2. Luminous intensity / luminous flux: +/-15%.
  3. LEDs are binned according to their luminous flux.
- \* Luminous intensity / luminous flux value is in accordance with CIE127-2007 standards.

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

Parameter	Symbol	Value	Unit
Power Dissipation	$P_D$	465	mW
Junction Temperature [1]	$T_J$	120	°C
Operating Temperature	Top	-40 To +100	°C
Storage Temperature	$T_{stg}$	-40 To +110	°C
DC Forward Current [1]	$I_F$	150	mA
Reverse Voltage	$V_R$	5	V
Peak Forward Current [2]	$I_{FM}$	270	mA
Thermal Resistance [1] (Junction/ambient)	$R_{th\ j-a}$	178	°C/W
Thermal Resistance [1] (Junction/solder point)	$R_{th\ j-s}$	78	°C/W
Electrostatic Discharge Threshold (HBM)		8000	V

Notes:

1.  $R_{th(j-a)}$  Results from mounting on PC board FR4 (pad size  $\geq 16\text{ mm}^2$  per pad)
2. 1/10 Duty Cycle, 0.1ms Pulse Width.

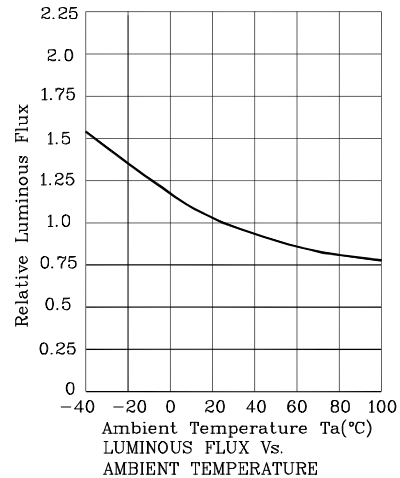
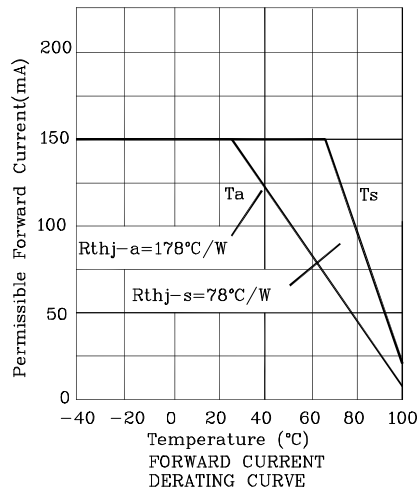
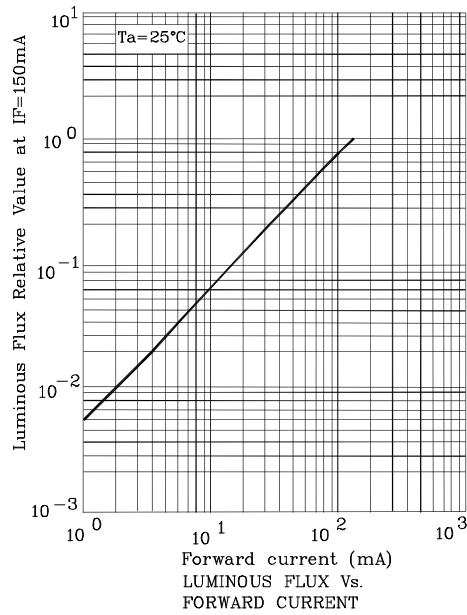
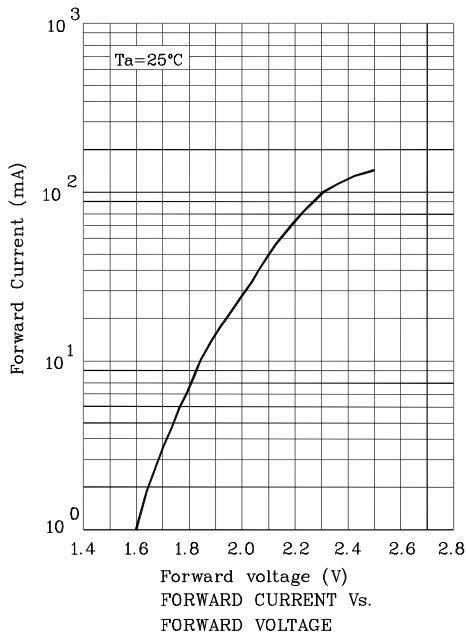
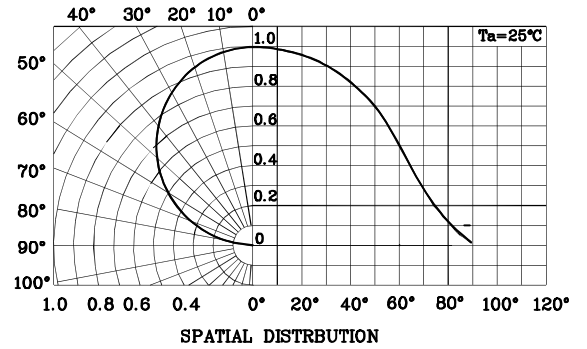
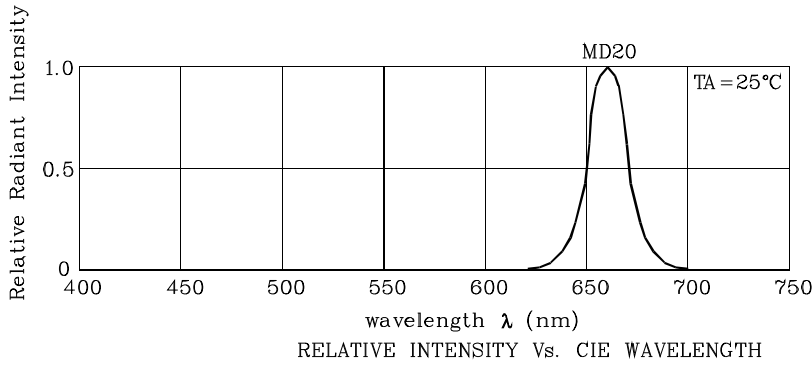
### Electrical / Optical Characteristics at $T_A=25^\circ\text{C}$

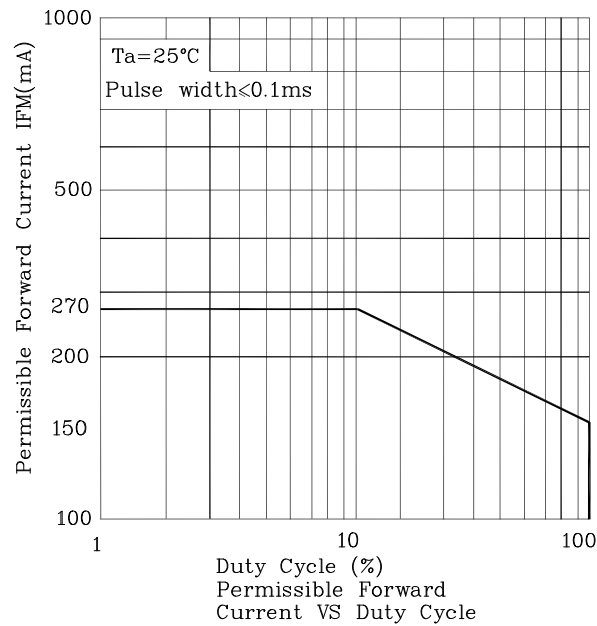
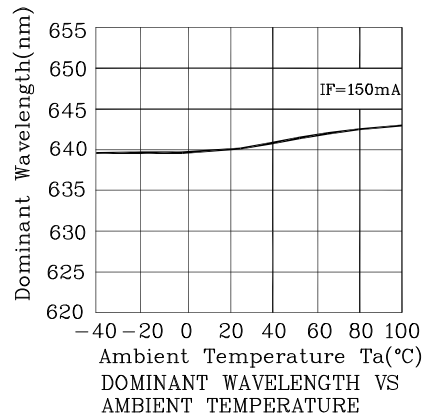
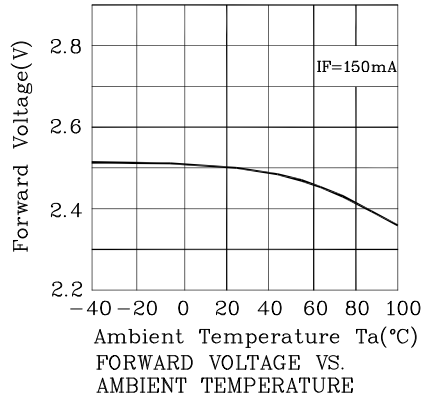
Parameter	Symbol	Value		Unit
		Typ.	Max.	
Wavelength at peak emission CIE127-2007* $I_F=150\text{mA}$	$\lambda_{peak}$	660*		nm
Dominant Wavelength CIE127-2007* $I_F=150\text{mA}$	$\lambda_{dom}$ [1]	640*		nm
Spectral bandwidth at 50% $\Phi_{REL\ MAX}$ $I_F=150\text{mA}$	$\Delta\lambda$	20		nm
Forward Voltage $I_F=150\text{mA}$	$V_F$ [2]	2.5	3.1	V
Allowable Reverse Current	$I_R$		85	mA
Temperature coefficient of $\lambda_{peak}$ $I_F=150\text{mA}$ , $-10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC\lambda_{peak}$	0.09		nm/°C
Temperature coefficient of $\lambda_{dom}$ $I_F=150\text{mA}$ , $-10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TC\lambda_{dom}$	0.03		nm/°C
Temperature coefficient of $V_F$ $I_F=150\text{mA}$ , $-10^\circ\text{C} \leq T \leq 100^\circ\text{C}$	$TCV$	-2.7		mV/°C

Notes:

1. The dominant Wavelength ( $\lambda_d$ ) above is the setup value of the sorting machine. (Tolerance  $\lambda_d : \pm 1\text{nm}$ .)
2. Forward Voltage: +/-0.1V.

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

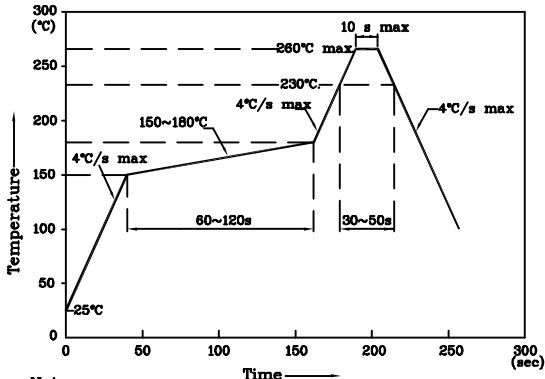




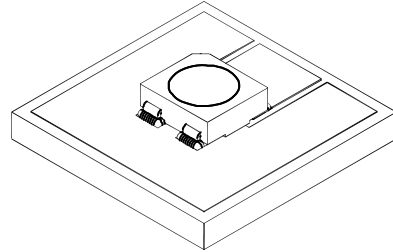
LED is recommended for reflow soldering and soldering profile is shown below.

❖ 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)

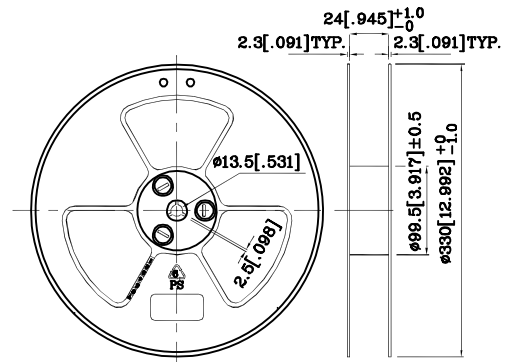
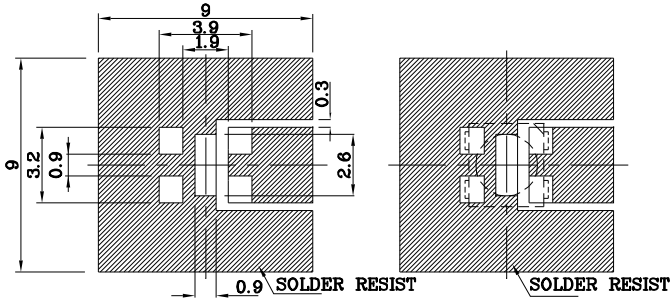


- Notes:
1. Maximum soldering temperature should not exceed 260°C
  2. Recommended reflow temperature: 145°C-260°C
  3. Do not put stress to the epoxy resin during high temperatures conditions

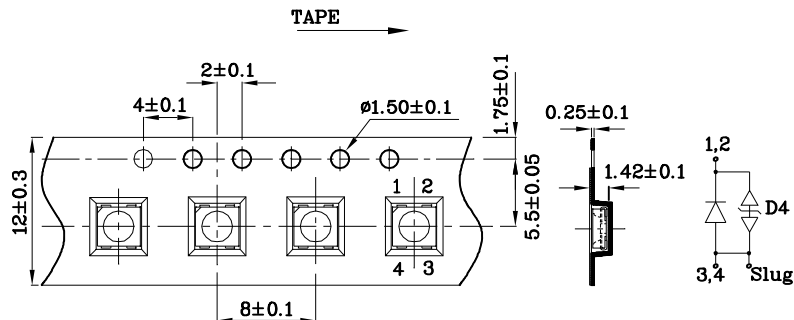


❖ Reel Dimension

❖ Recommended Soldering Pattern

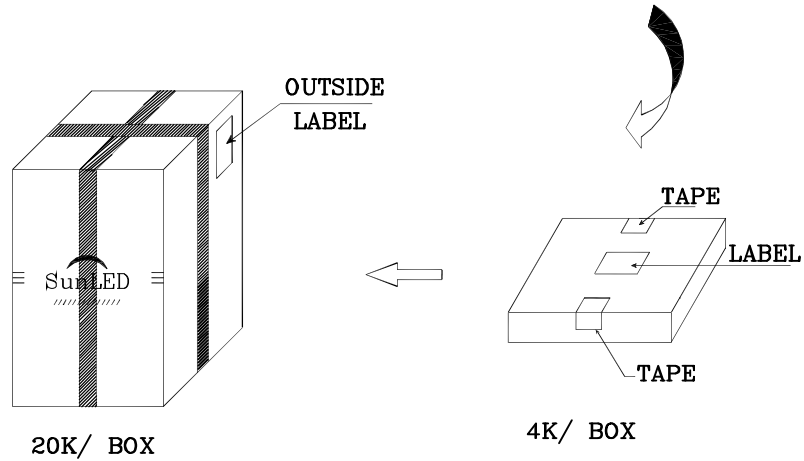
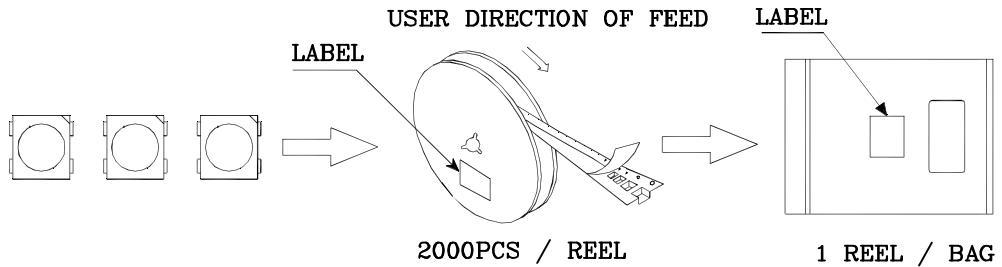

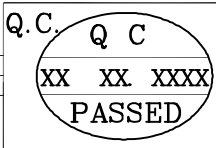



❖ Tape Specification (Units : mm)





PACKING & LABEL SPECIFICATIONS

P/NO : XZxxx92x	
QTY : 2000 pcs	CODE: XXX
S/N : XX	
LOT NO :	
 XXXXXXXXXXXXXXXXXXXXXXXXXXXX	
RoHS Compliant	