Part Number: XZMOLA143S

5.6mm x 3.0mm SURFACE MOUNT LED LAMP

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

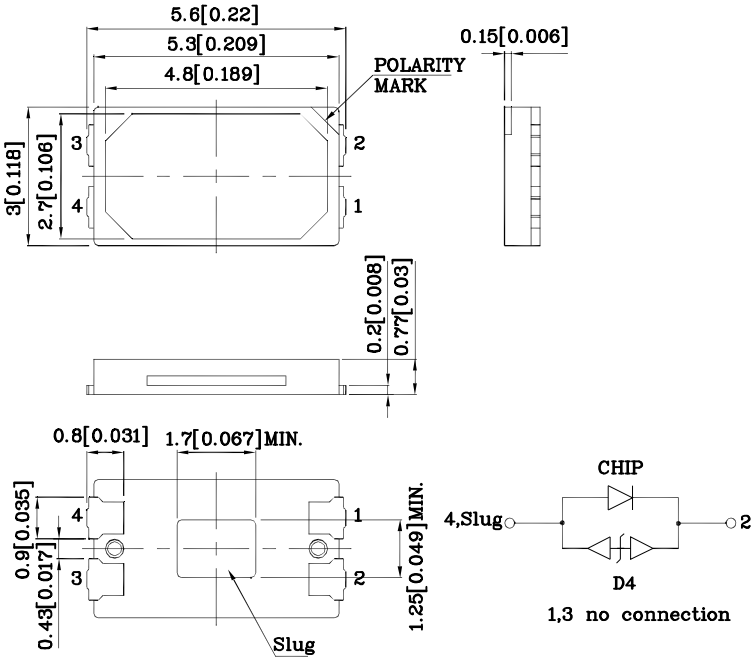
Features

- 5.6mm x 3.0mm x 0.77mm SMD LED
- IR-reflow compatible
- Standard Package: 2,000pcs / Reel
- White SMD package with silicone resin
- MSL (Moisture Sensitivity Level): 2a
- RoHS compliant

Typical Applications

- Entertainment and accent lighting
- Architectural lighting
- Ideal substitute for halogen and florescent lighting
- Automotive interior and exterior lighting
- Specialty lighting (Markers, Beacon, Pathway)

Package Schematics

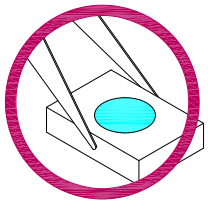


Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

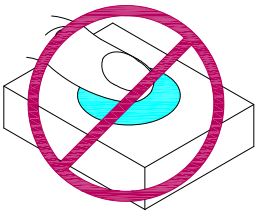
Handling Precautions

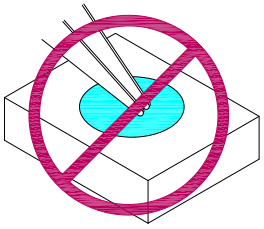
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.
As a result, special handling precautions need to be observed during assembly using 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.

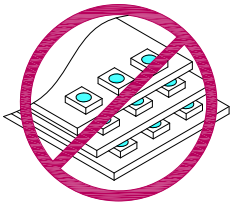


2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.

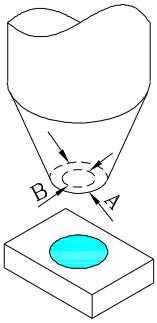




3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



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_2S 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=150mA) mcd		Luminous Flux CIE127-2007* (I_F=150mA) lm		Viewing Angle 2 θ 1/2
				Min.	Typ.	Min.	Typ.	
XZMOLA143S	Red	AlGaInP	Water Clear	3600*	4190*	12*	13.7*	120°

Notes:
1. θ 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°C

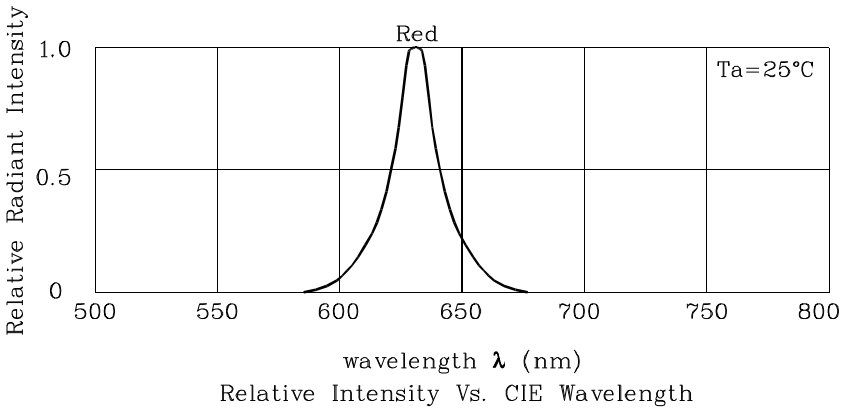
Parameter	Symbol	Value	Unit
Power Dissipation	P_D	450	mW
Junction Temperature [1]	T_J	110	°C
Operating Temperature	Top	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +85	°C
DC Forward Current [1]	I_F	150	mA
Reverse Voltage	V_R	5	V
Peak Forward Current [2]	I_{FM}	270	mA
Thermal Resistance [1] (Junction/ambient)	$R_{th\ j\text{-}a}$	130	°C/W
Thermal Resistance [1] (Junction/solder point)	$R_{th\ j\text{-}S}$	60	°C/W
Electrostatic Discharge Threshold (HBM)		8000	V

Notes:
1. Rth(j-a) Results from mounting on PC board FR4 (pad size≥16 mm² per pad)
2. 1/10 Duty Cycle, 0.1ms Pulse Width.
3. 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)

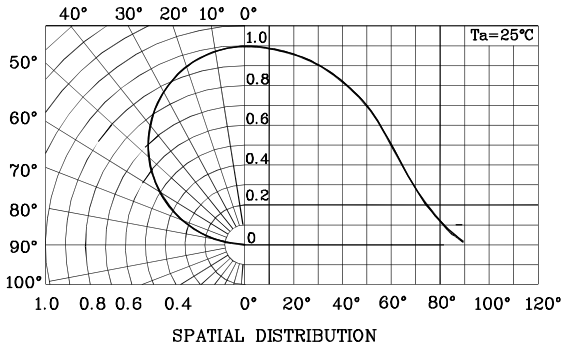
Electrical / Optical Characteristics at T_A=25°C

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
Wavelength at peak emission CIE127-2007* I_F=150mA	λpeak		631*		nm
Dominant Wavelength CIE127-2007* I_F=150mA	λdom [1]		623*		nm
Spectral bandwidth at 50% Φ REL MAX I_F = 150mA	△λ		25		nm
Forward Voltage I_F=150mA	V_F [2]	2	2.5	3.0	V
Allowable Reverse Current	I_R			85	mA
Temperature coefficient of λpeak I_F=150mA, -10°C≤ T≤100°C	TCλpeak		0.11		nm/°C
Temperature coefficient of λdom I_F=150mA, -10°C≤ T≤100°C	TCλdom		0.09		nm/°C
Temperature coefficient of V_F I_F=150mA, -10°C≤ T≤100°C	TC_V		-2.6		mV/°C

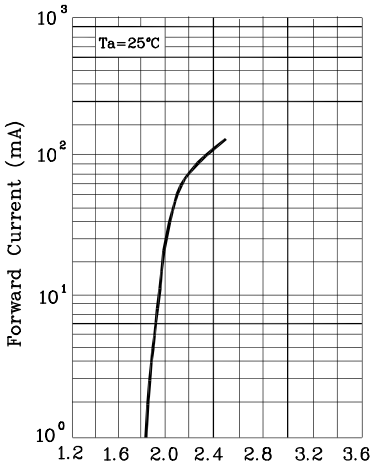
Notes:
1.The dominant Wavelength (λd) above is the setup value of the sorting machine. (Tolerance λd : ±1nm.)
2. Forward Voltage: +/-0.1V.
* Wavelength is in accordance with CIE127-2007 standards.



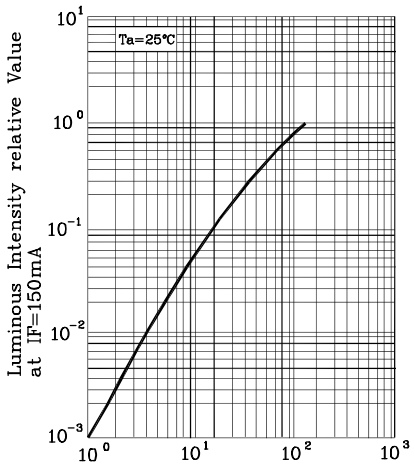
Relative Intensity Vs. CIE Wavelength



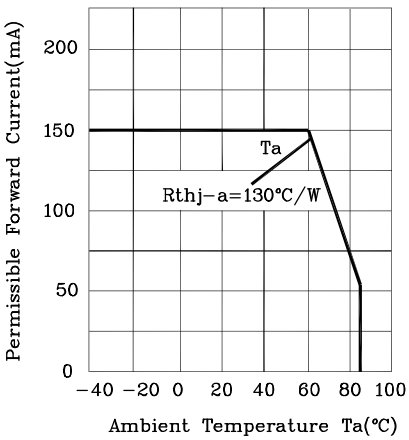
SPATIAL DISTRIBUTION



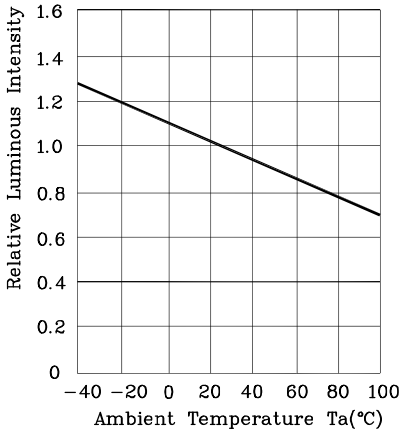
Forward voltage (V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



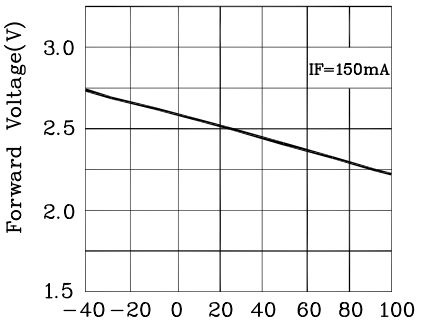
Forward current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



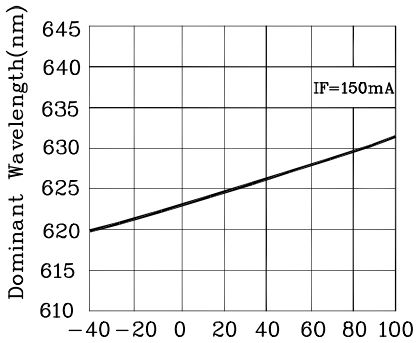
Ambient Temperature Ta(°C)
FORWARD CURRENT
DERATING CURVE



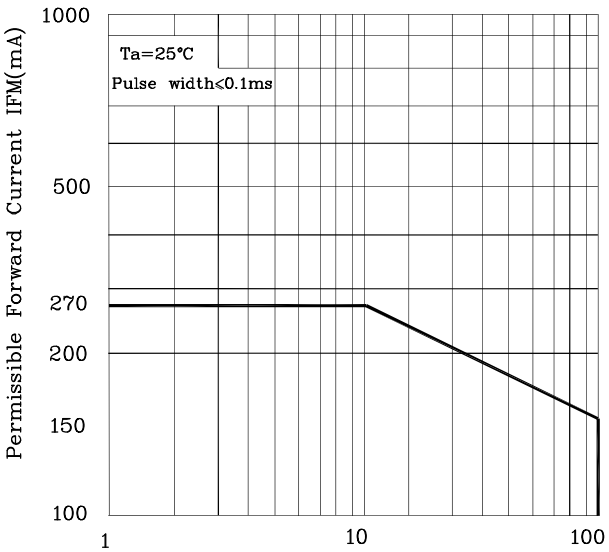
Ambient Temperature Ta(°C)
LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE



FORWARD VOLTAGE VS.
AMBIENT TEMPERATURE



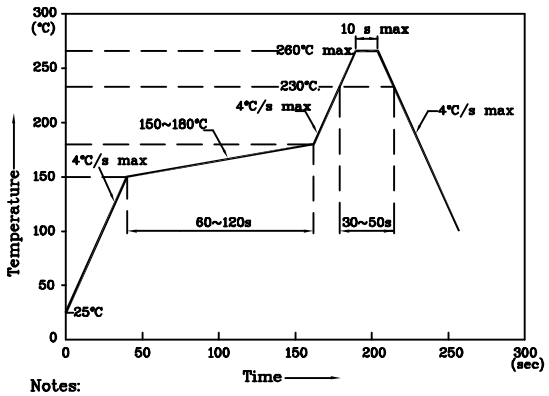
DOMINANT WAVELENGTH VS
AMBIENT TEMPERATURE



Permissible Forward
Current VS Duty Cycle

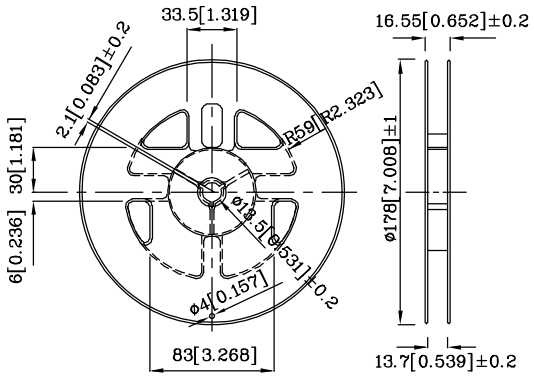
LED is recommended for reflow soldering and soldering profile is shown below.

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

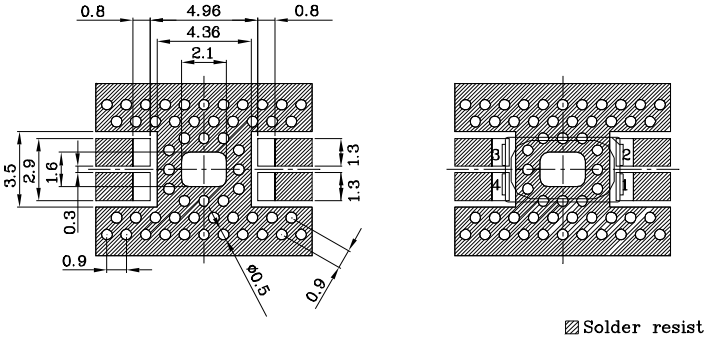


Notes:
1. Maximum soldering temperature should not exceed 260°C
2. Recommended reflow temperature: 145°C-260°C
3. Do not put stress to the epoxy resin during high temperatures conditions

Reel Dimension

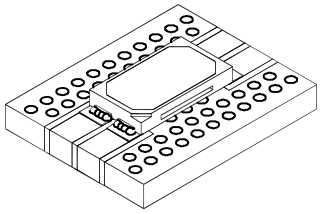


Recommended Soldering Pattern (Units : mm; Tolerance: ±0.1)

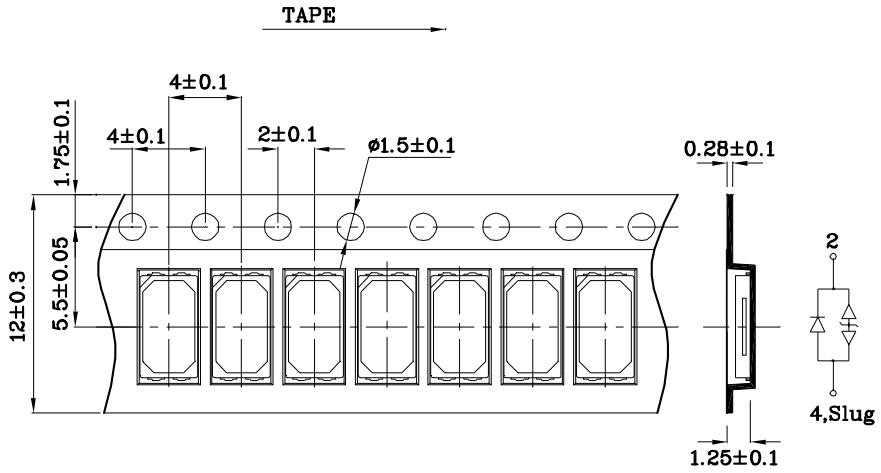


0.8mm FR4-Based Boards
For both the open via PTH and filled and capped via design, the finished hole diameter is 0.5mm. A smaller diameter will lead to an increase of thermal resistance. The recommended distance between two holes is 0.4 mm.This results in a minimal pitch of 0.9mm between the vias.

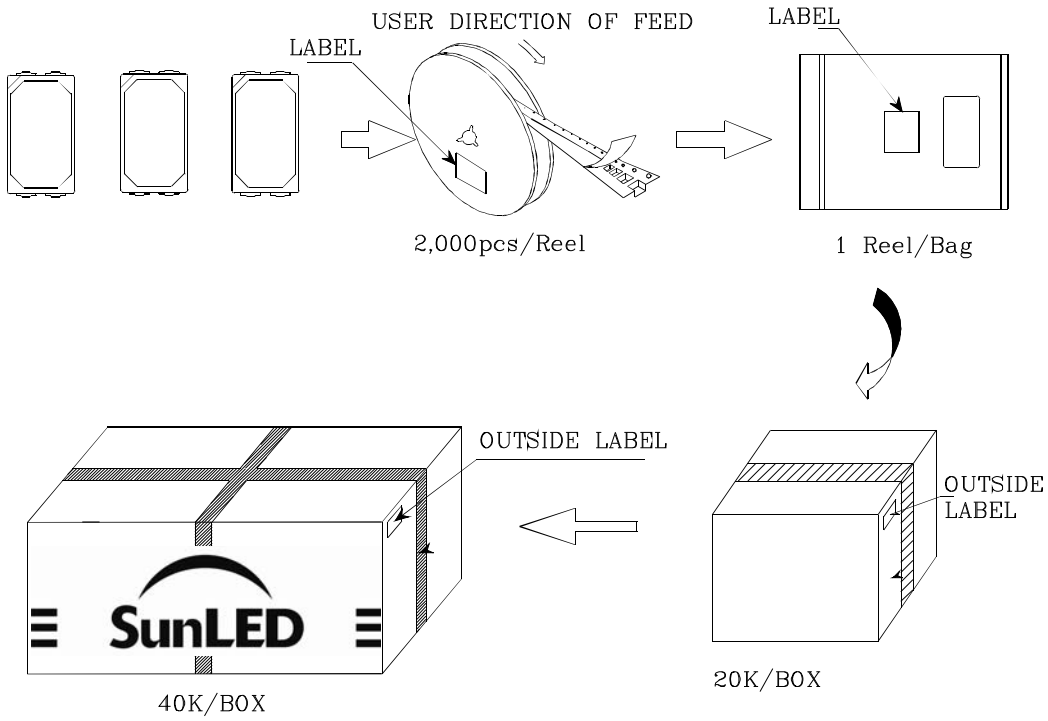
❖ **The device has a single mounting surface. The device must be mounted according to the specifications.**

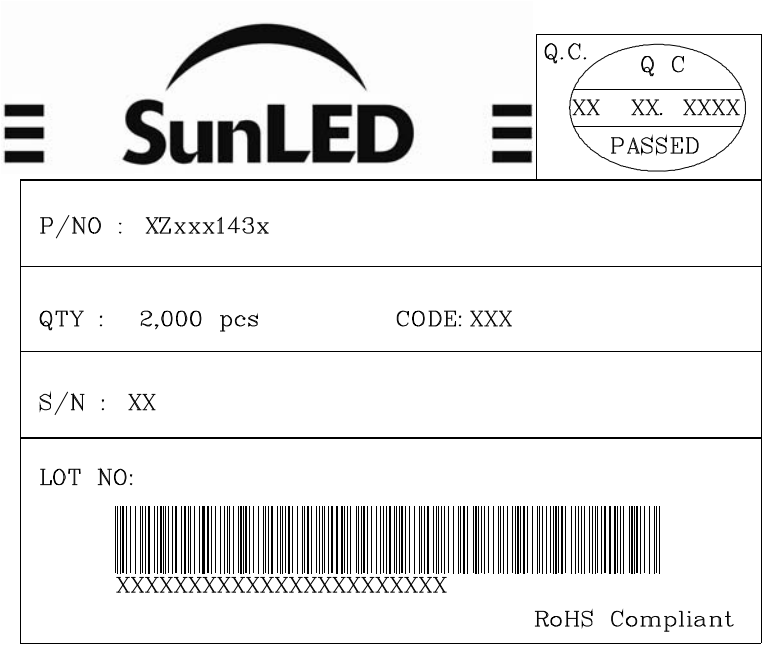


❖ **Tape Specification (Units : mm)**



PACKING & LABEL SPECIFICATIONS





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