

C3535SIRC-3B

3.5x3.5mm, Infrared LED

Ceramic Package Top View LED

Technical Data Sheet

Features:

- Small SMT ceramic package with high efficiency.
- Very long operating life .
- Low voltage DC operated.
- High radiant intensity.
- Peak Emission Wavelength $\lambda_p=850\text{nm}$.
- Instant light (less than 100 ns).
- High reliable.
- The product itself will remain within RoHS compliant Version.

Descriptions:

- The C3535 Infrared Emitting Diode is a high intensity diode.
- The device is spectrally matched with phototransistor, photodiode and infrared receiver module.

Applications:

- Optoelectronic switch.
- Floppy disk drive.
- Free air transmission system.
- Infrared applied system.
- Smoke detector.

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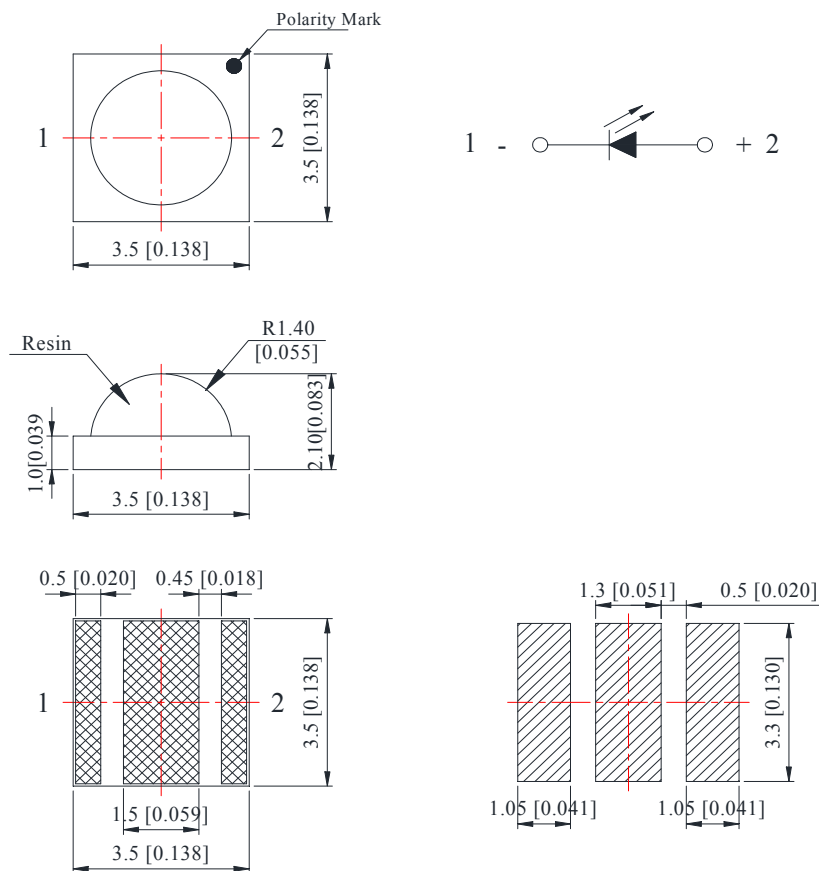
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Part No.	Emitting Color	Lens Color
C3535SIRC-3B	Infrared	Water Clear

Package Dimension:



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25 mm (.010") unless otherwise noted.

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Absolute Maximum Ratings at Ta=25°C

Parameters	Symbol	Max	Unit
Power Dissipation	Pd	1~3	W
Peak Forward Current ^(a)	IFP	1000	mA
DC Forward Current ^(b)	IF	700	mA
Electrostatic Discharge (HBM)	ESD	2000	V
LED Junction Temperature	Tj	120	°C
Operating Temperature Range	Topr	-40°C to +80°C	
Storage Temperature Range	Tstg	-40°C to +85°C	
Soldering Temperature	Tsld	260°C for 5 Seconds	

Notes:

a. Derate linearly as shown in derating curve.

b. Duty Factor = 10%, Frequency = 1 kHz

Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Radiant Intensity	IE	130	160	---	mW/sr	IF=350mA
	IE	300	330	---	mW/sr	IF=700mA
Radiant Flux	Po	150	200	---	mW	IF=350mA
	Po	300	400	---	mW	IF=700mA
Viewing Angle ^(a)	2θ1/2	---	120	---	Deg	IF=350mA
Peak Emission Wavelength	λp	---	850	---	nm	IF=350mA
Spectral Bandwidth	Δλ	---	45	---	nm	IF=350mA
Forward Voltage	VF	1.40	---	2.00	V	IF=350mA
Thermal Resistance Junction/ Solder Point	Rth	---	7	---	°C/W	IF=350mA
Reverse Current	IR	---	---	50	μA	VR=5V

Notes:

a. 2θ1/2 is the o-axis angle where the luminous intensity is 1/2 the peak intensity

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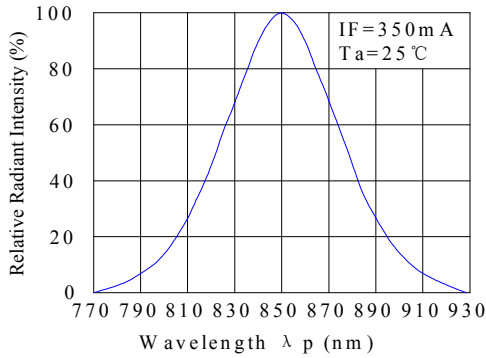
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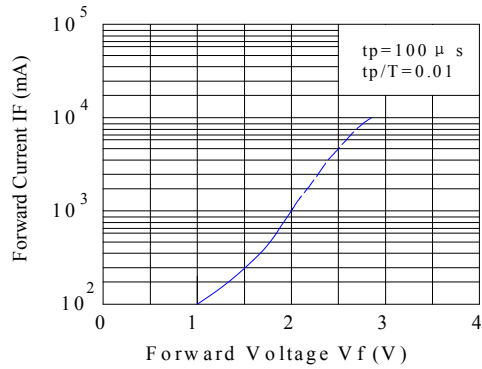
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Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)

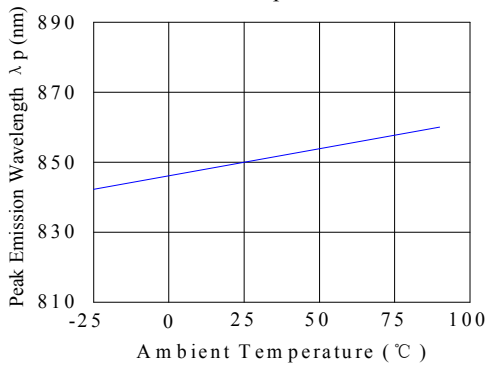
Spectral Distribution



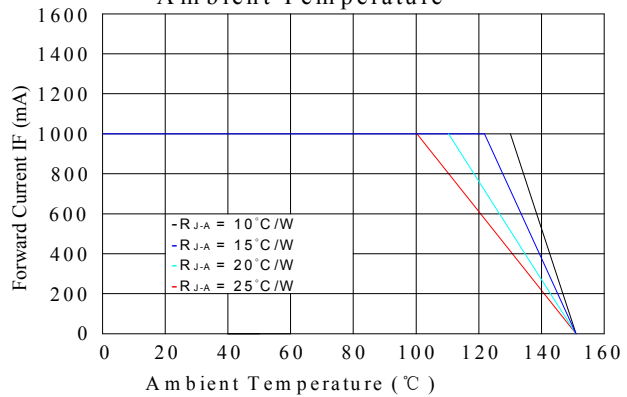
Forward Current & Forward Voltage



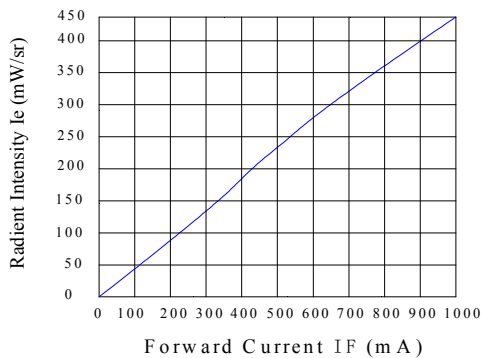
Peak Emission Wavelength & Ambient Temperature



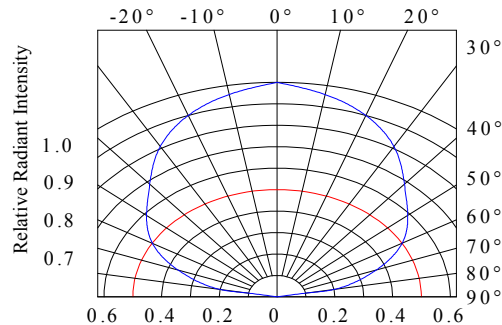
Maximum Forward Current & Ambient Temperature



Relative Intensity & Forward Current



Relative Radiant Intensity & Angular Displacement



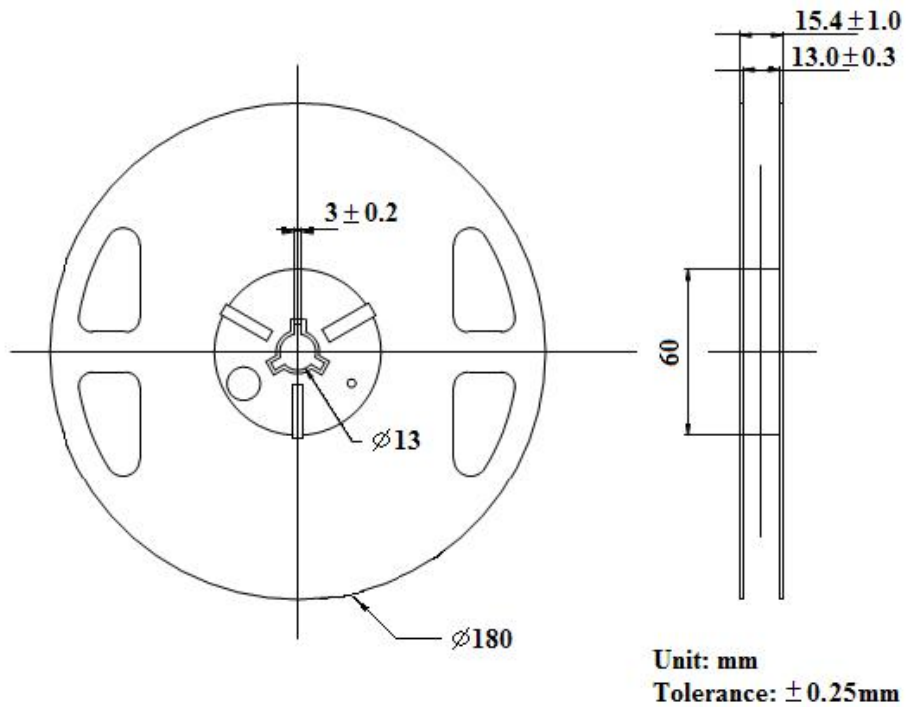
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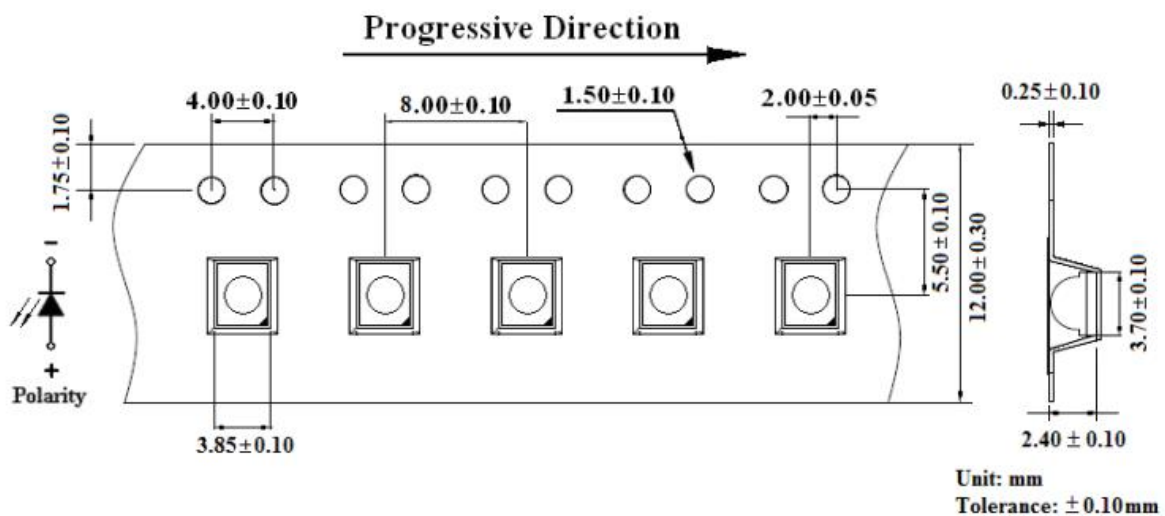
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Reel Dimensions:



Carrier Tape Dimensions:

Loaded quantity 1000 pcs per reel.



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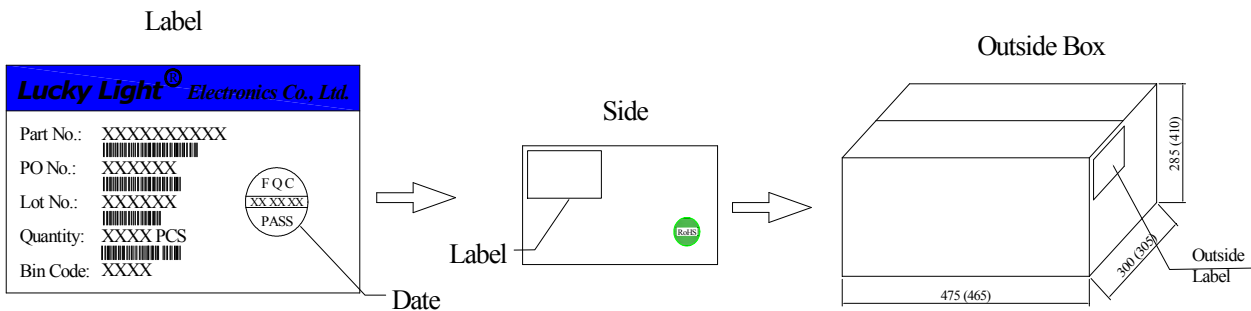
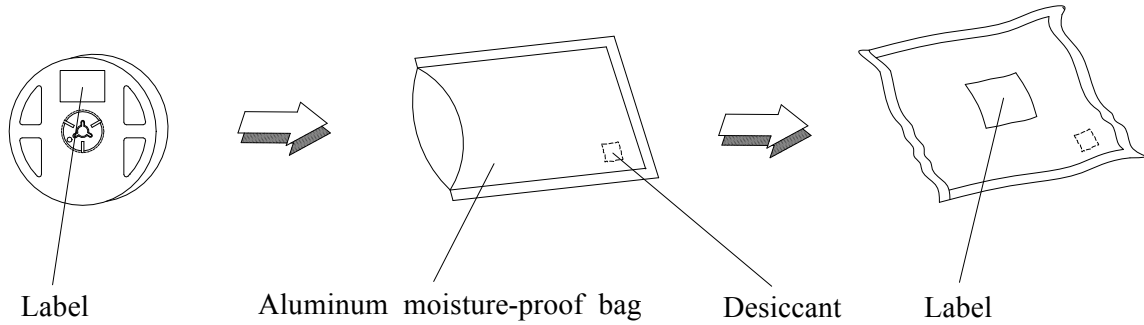
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Packing & Label Specifications:

Moisture Resistant Packaging:



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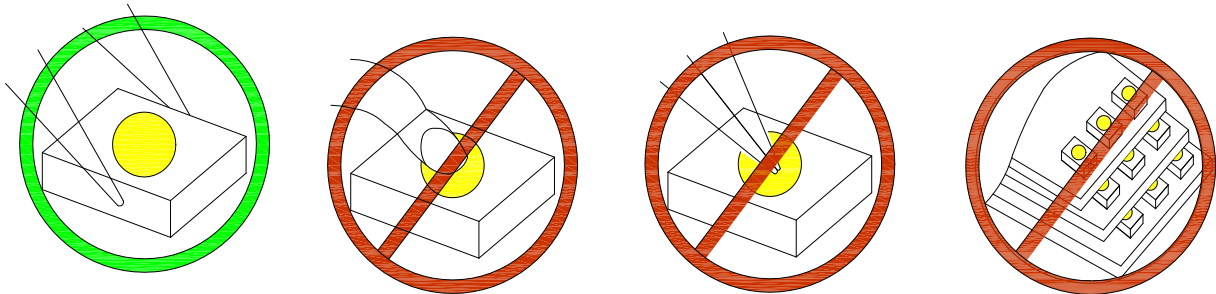
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CAUTIONS

1. Handling Precautions:

- 1.1. Handle the component along the side surfaces by using forceps or appropriate tools.
- 1.2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.
- 1.3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



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.

2. Storage

- 2.1. Do not open moisture proof bag before the products are ready to use.
- 2.2. Before opening the package, the LEDs should be kept at 30°C or less and 60%RH or less.
- 2.3. The LEDs should be used within a year.
- 2.4. After opening the package, the LEDs should be kept at 30°C or less and 60%RH or less.
- 2.5. The LEDs should be used within 24 hours after opening the package.
- 2.6. If the moisture adsorbent material has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 65±5°C for 24 hours.

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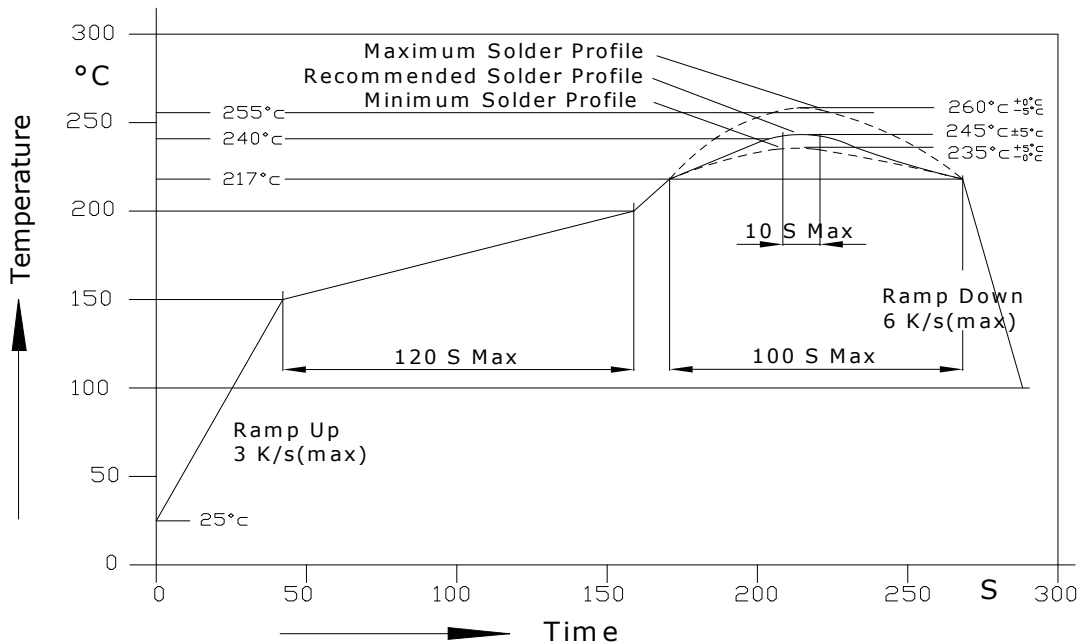
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3. Soldering Condition

3.1. Pb-free solder temperature profile



3.2. Reflow soldering should not be done more than two times.

3.3. When soldering, do not put stress on the LEDs during heating.

3.4. After soldering, do not warp the circuit board.

3.5. Recommended soldering conditions:

Reflow soldering		Soldering iron	
Pre-heat	150~200°C	Temperature	300°C Max.
Pre-heat time	120 sec. Max.	Soldering time	3 sec. Max.
Peak temperature	260°C Max.		(one time only)
Soldering time	10 sec. Max.(Max. two times)		

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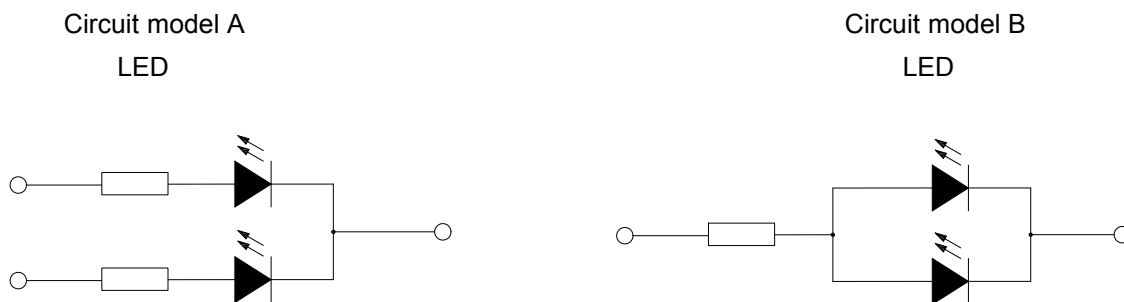
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3.6. Because different board designs use different number and types of devices, solder pastes, reflow ovens, and circuit boards, no single temperature profile works for all possible combinations.

However, you can successfully mount your packages to the PCB by following the proper guidelines and PCB-specific characterization.

4. Drive Method

4.1. An LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit A below.



- Recommended circuit.
- The brightness of each LED might appear different due to the differences in the I-V characteristics of those LEDs.

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