

SE2220IRC-2A

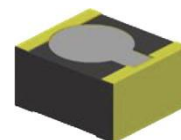
2.2x1.95mm, 940nm Infrared Emitters

Surface Mount Infrared Emitters

Technical Data Sheet

Features:

- Package in 8mm tape on 7" diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- View angle 40° (Typ.)
- Low forward voltage.
- The product itself will remain within RoHS compliant version.



Descriptions:

- SE2220IRC-2A is an infrared emitting diode with miniature MIDLED package.
- The device is spectrally matched with silicon photodiode and phototransistor.

Applications:

- Proximity sensing.
- Infrared emitting for miniature light barrier.
- Infrared communication links
- Optoelectronic switch.
- General IR illumination for cameras

Part No.	Emitting Color	Lens Color
SE2220IRC-2A	Infrared	Water Clear

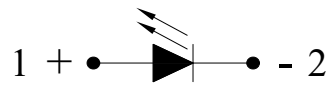
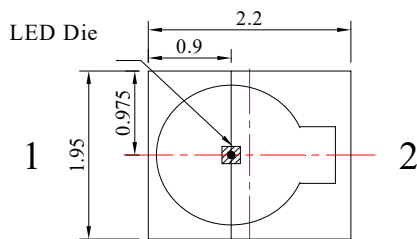
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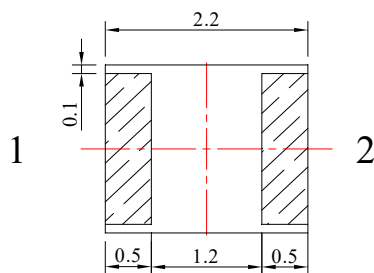
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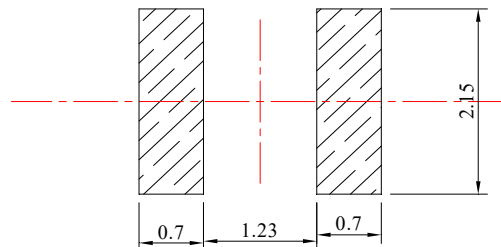
Package Dimension:



Polarity



Recommended Soldering Pad Dimensions



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	140	mW
Peak Forward Current* (a)	IFP	700	mA
DC Forward Current	IF	70	mA
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-40°C to +85°C	
Storage Temperature Range	Tstg	-40°C to +85°C	
Soldering Temperature*(b)	Tsld	260°C for 5 Seconds	

Notes:

*a: IFP Conditions--Pulse Width $\leq 100 \mu s$ and Duty $\leq 1\%$.

*b: Soldering time ≤ 5 seconds.

Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Radiant Intensity* (a)	I _E	25.0	50.0	---	mW/sr	IF=70mA tp=20ms
		55.0	65.0	80.0	mW/sr	IF=100mA tp=20ms
Viewing Angle*(b)	2θ 1/2	---	40	---	Deg	IF=20mA
Peak Emission Wavelength*(c)	λ _p	---	940	---	nm	IF=20mA
Spectral Bandwidth	Δλ	---	30	---	nm	IF=20mA
Forward Voltage	VF	1.10	1.40	1.80	V	IF=20mA
		1.30	1.60	2.00		IF=100mA (Pulse Width $\leq 100\mu s$, Duty $\leq 1\%$)
Reverse Current	IR	---	---	10	μA	VR=5V

Notes:

*a. Radiant Intensity tolerance is $\pm 10\%$.

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

*c. The dominant wavelength (λ_d) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

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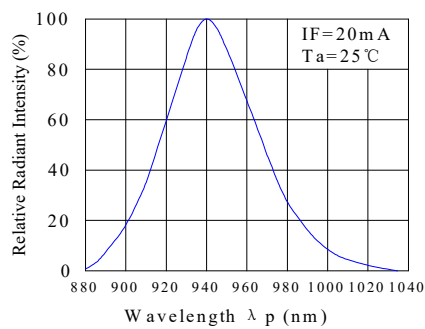
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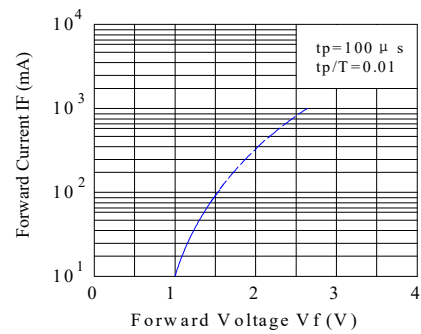
Technical Data Sheet

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

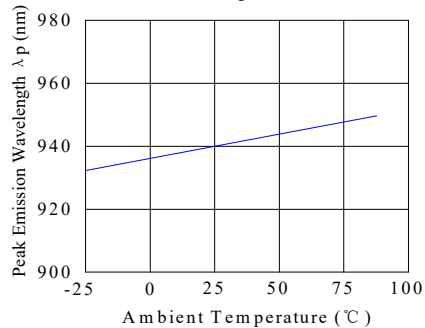
Spectral Distribution



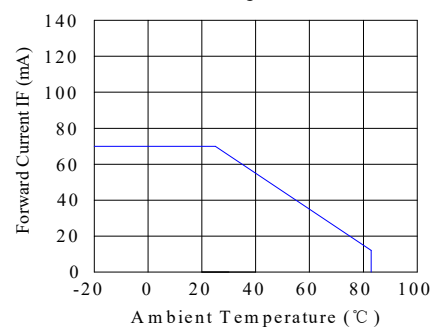
Forward Current & Forward Voltage



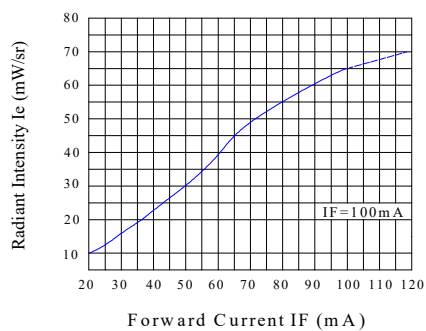
Peak Emission Wavelength & Ambient Temperature



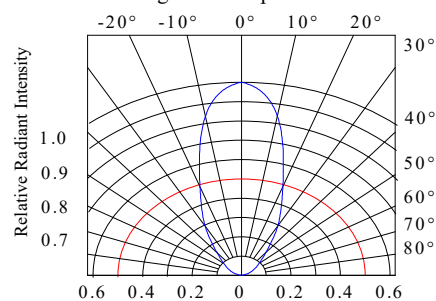
Forward Current & Ambient Temperature



Relative Intensity & Forward Current



Relative Radiant Intensity & Angular Displacement



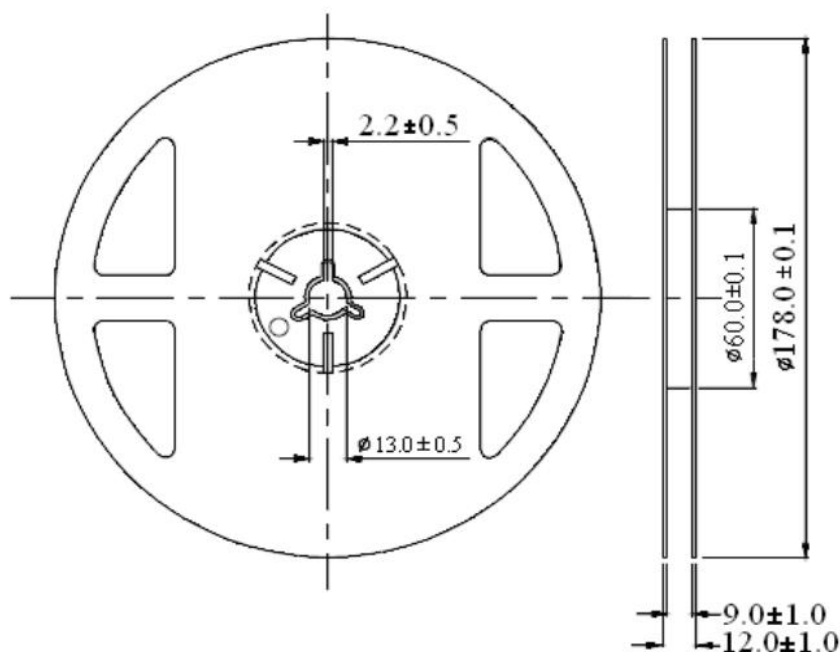
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Reel Dimensions:

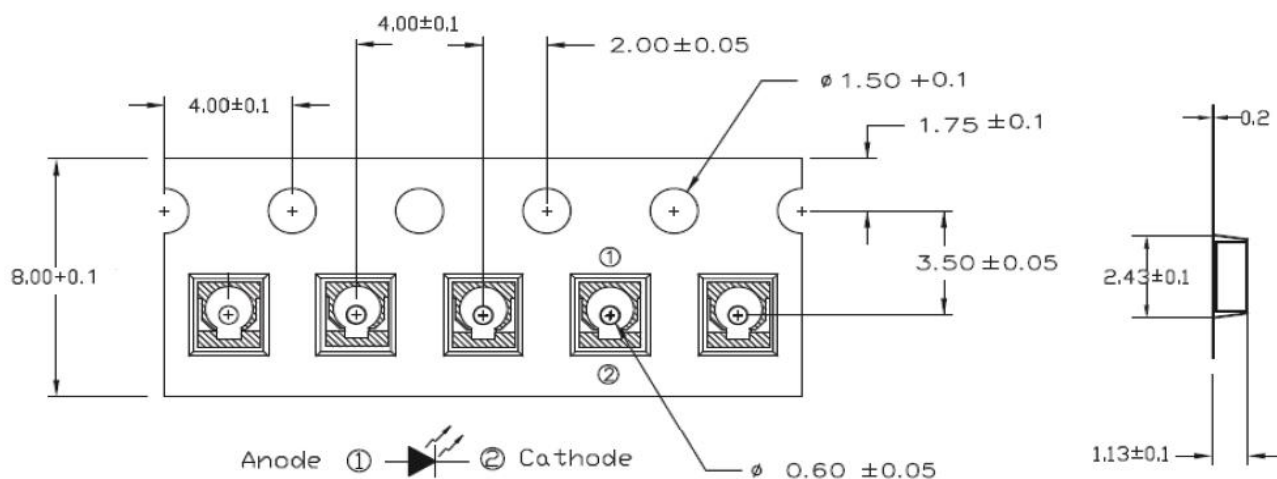


Unit: mm

Tolerance: $\pm 0.25\text{mm}$

Carrier Tape Dimensions:

Loaded quantity 2000 pcs per reel.



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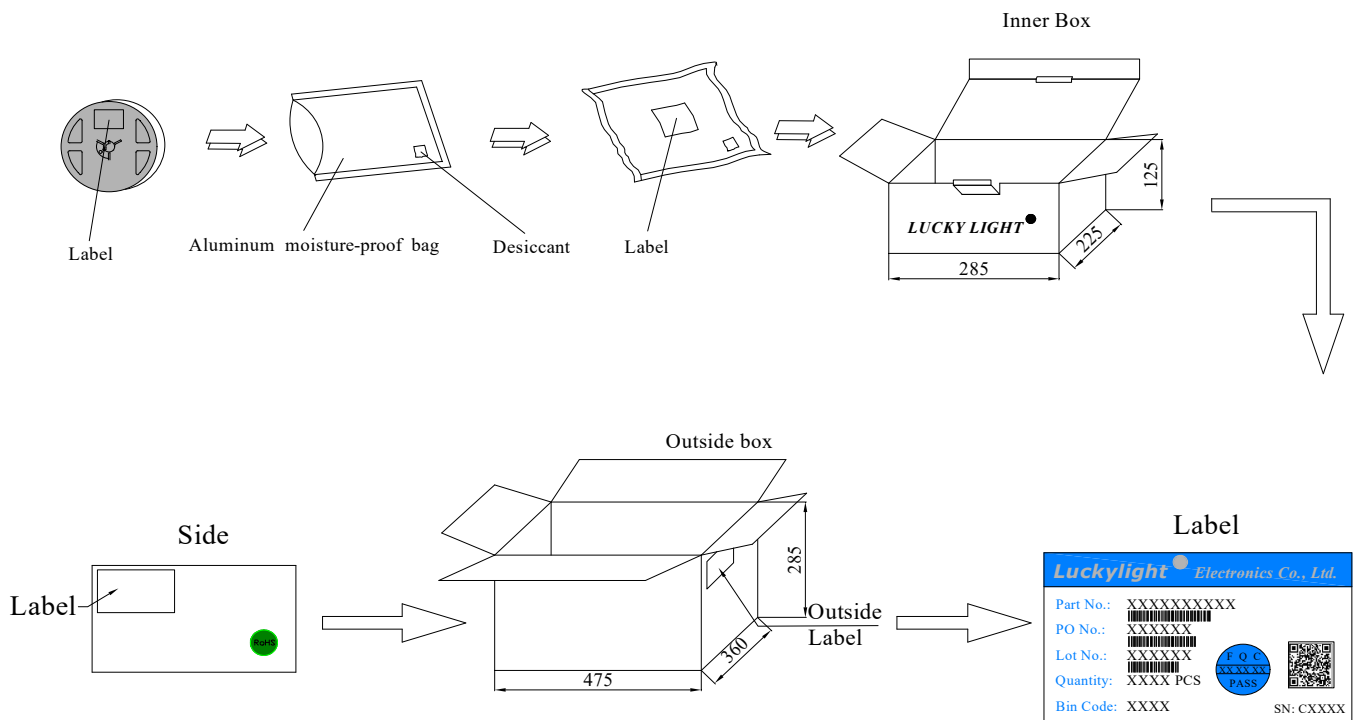
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Packing & Label Specifications:

Moisture Resistant Packaging:



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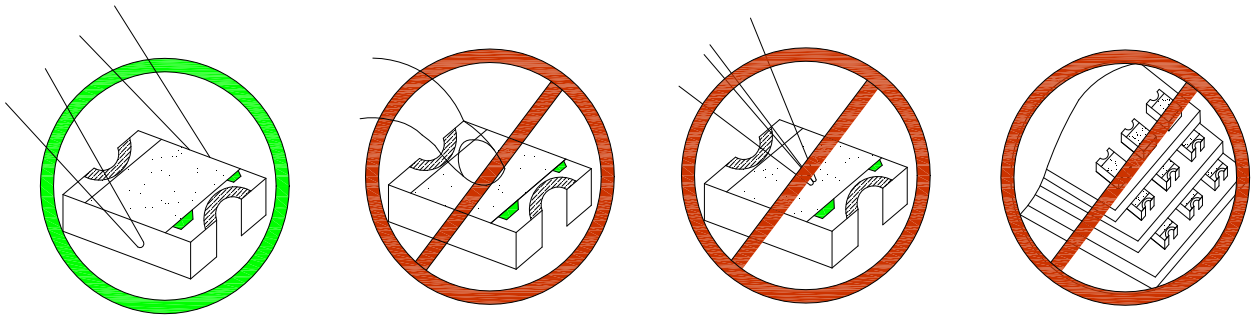
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CAUTIONS

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 168 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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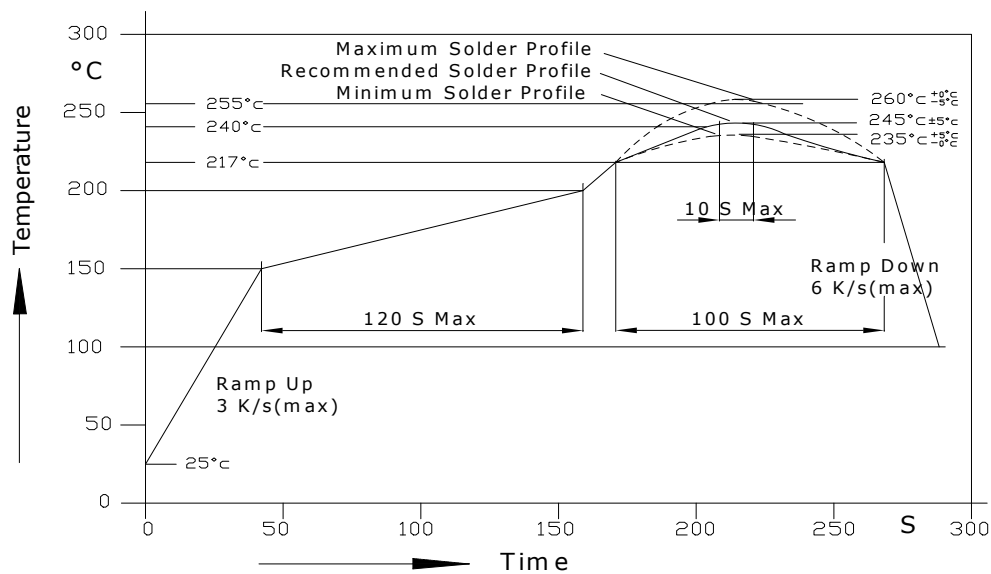
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3. Soldering Condition

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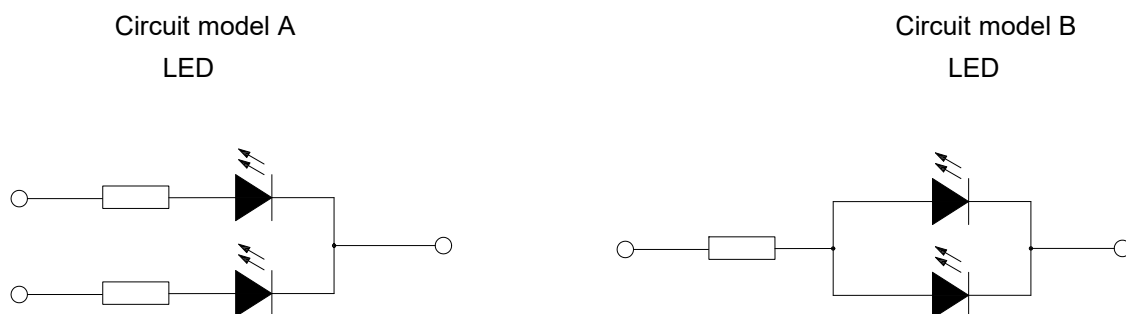
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3.6. Because different board designs use different number and types of devices, solder pastes, reflow ovens, and circuit boards, no single temperature profile works for all possible combinations.

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.



a. Recommended circuit.

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

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Revision History

Date	Revision History	Version	Writer	
			Drawn	Approved
12-Sep-2017	Datasheet Created	G-Rev-1	Li	JoJo
10-Oct-2017	The data for radiation intensity at IF= 100mA	G-Rev-2	Li	JoJo
25-Oct-2017	The title description modified	G-Rev-3	Li	JoJo
8-Dec-2017	The testing conditions for Peak Forward Current have been noted.	G-Rev-4	Li	Zhou
9-Dec-2023	Modified the test conditions and data	G-Rev-5	Li	Zhou