AR180IRC-2A

2.15x2.4mm,Infrared LED

Subminiature Axial LED

Technical Data Sheet

Features:

- 2.15×2.40mm with 1.80mm lens.
- Small double-end package.
- EIA Std. package.
- Mono-color type.
- High reliability.
- Low forward voltage.
- Compatible with automatic placement equipment.
- The product itself will remain within RoHS compliant version.

Descriptions:

- The device is an infrared emitting diode in miniature SMD package which is molded in water clear epoxy.
- The device is much smaller than leaded components. Thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- The device is specially matched with photodiode, phototransistor and infrared receiver module.

Applications:

- PCB mounted infrared sensor.
- Infrared emitting for miniature light barrier.
- Floppy disk drive.
- Optoelectronic switch.
- Smoke detector.

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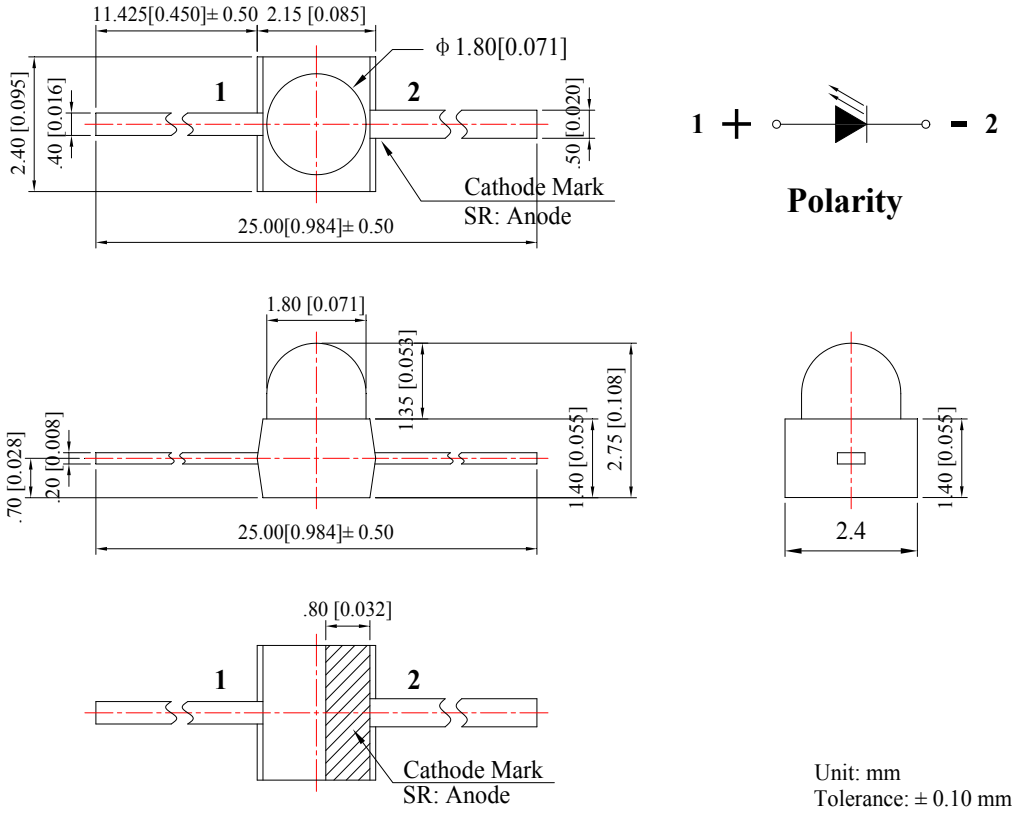
Part No.	Emitting Color	Lens Color
AR180IRC-2A	Infrared	Water Clear

Package Dimension:



Notes:

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

Technical Data Sheet

Absolute Maximum Ratings at Ta=25℃

Parameters	Symbol	Max	Unit
Power Dissipation	Pd	90	mW
Peak Forward Current	IFP	1.00	A
DC Forward Current	IF	50	mA
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-40℃ to +80℃	
Storage Temperature Range	Tstg	-40℃ to +85℃	
Soldering Temperature	Tsld	260℃ for 5 Seconds	

Electrical Optical Characteristics at Ta=25℃

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Radiant Intensity [a]	Ee	3.00	6.00	---	mW/sr	IF=20mA
		---	15.00	---		IF=100mA, tp=100μs, tp/T=0.01
Viewing Angle[b]	2θ1/2	---	25	---	Deg	IF=20mA
Peak Emission Wavelength	λp	---	940	---	nm	IF=20mA
Spectral Bandwidth	△λ	---	50	---	nm	IF=20mA
Forward Voltage	VF	0.80	1.20	1.50	V	IF=20mA
		---	1.60	1.80		IF=100mA, tp=100μs, tp/T=0.01
Reverse Current	IR	---	---	10	μA	VR=5V

Notes:

a. ALuminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

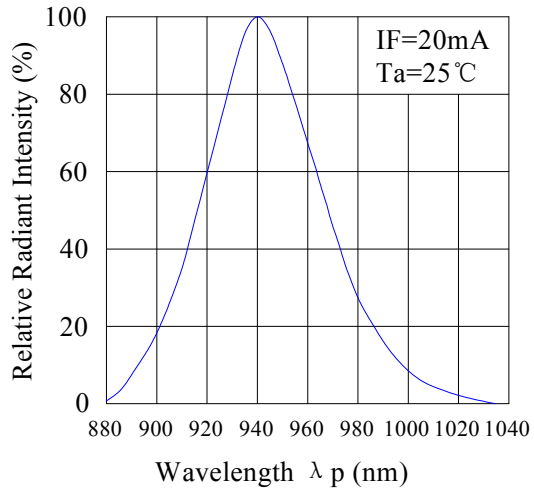
b. 2θ1/2 is the o -axis angle where the luminous intensity is 1⁄2 the peak intensity

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

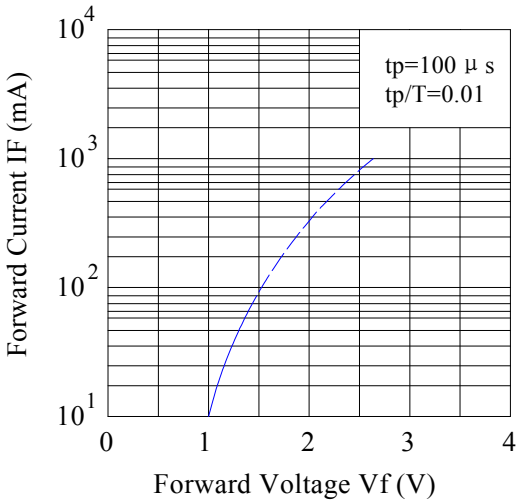
Technical Data Sheet

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

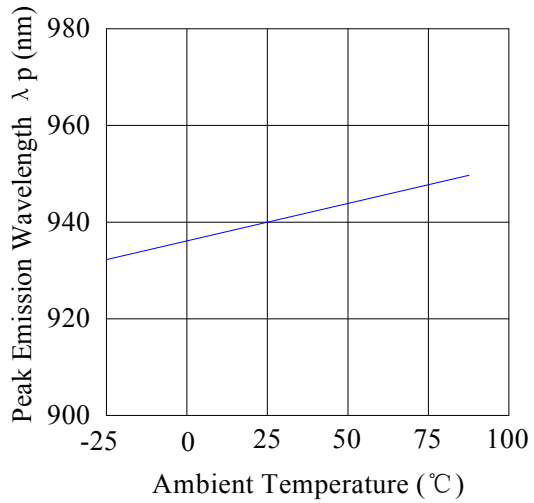
Spectral Distribution



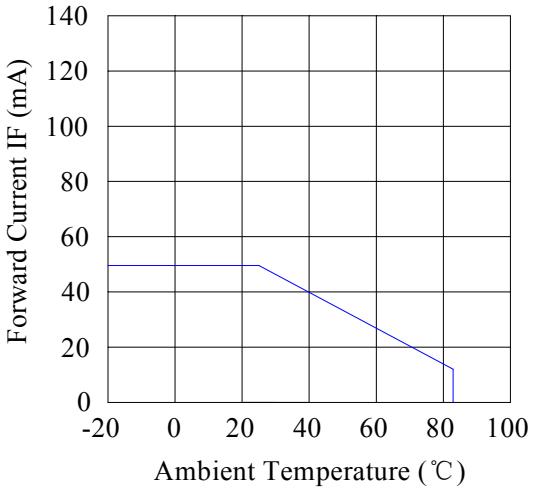
Forward Current & Forward Voltage



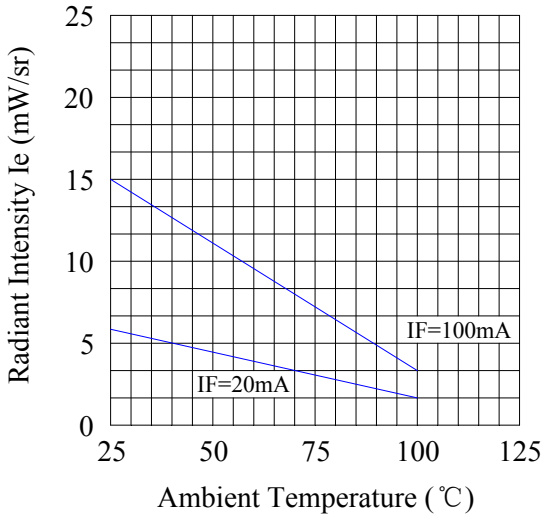
Peak Emission Wavelength &
Ambient Temperature



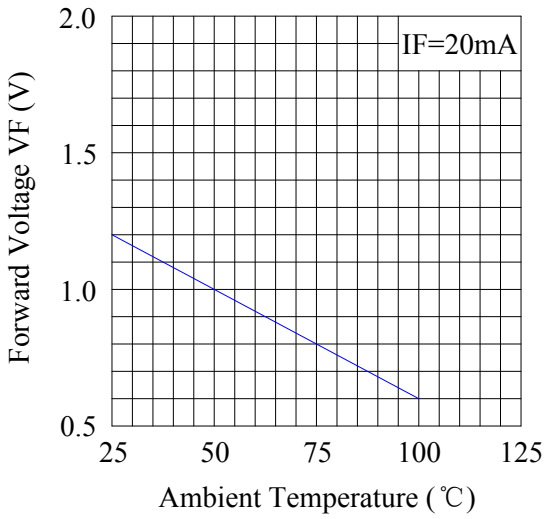
Forward Current &
Ambient Temperature



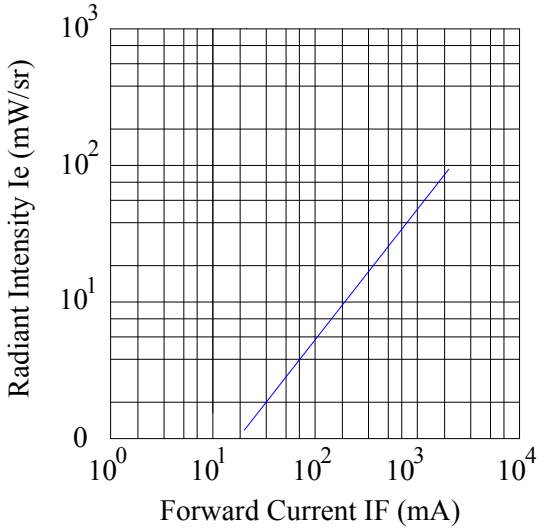
Relative Intensity &
Ambient Temperature



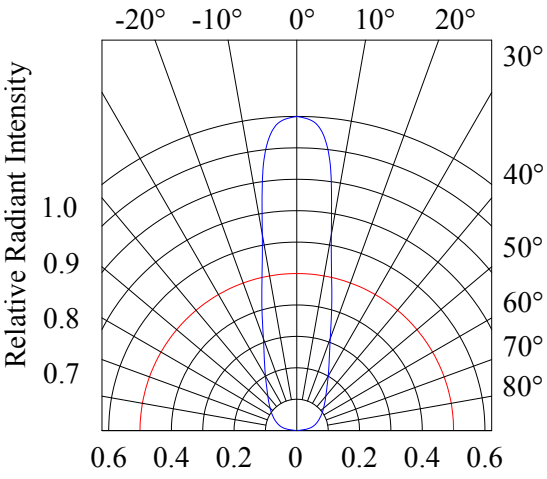
Forward Voltage &
Ambient Temperature



Relative Intensity & Forward Current

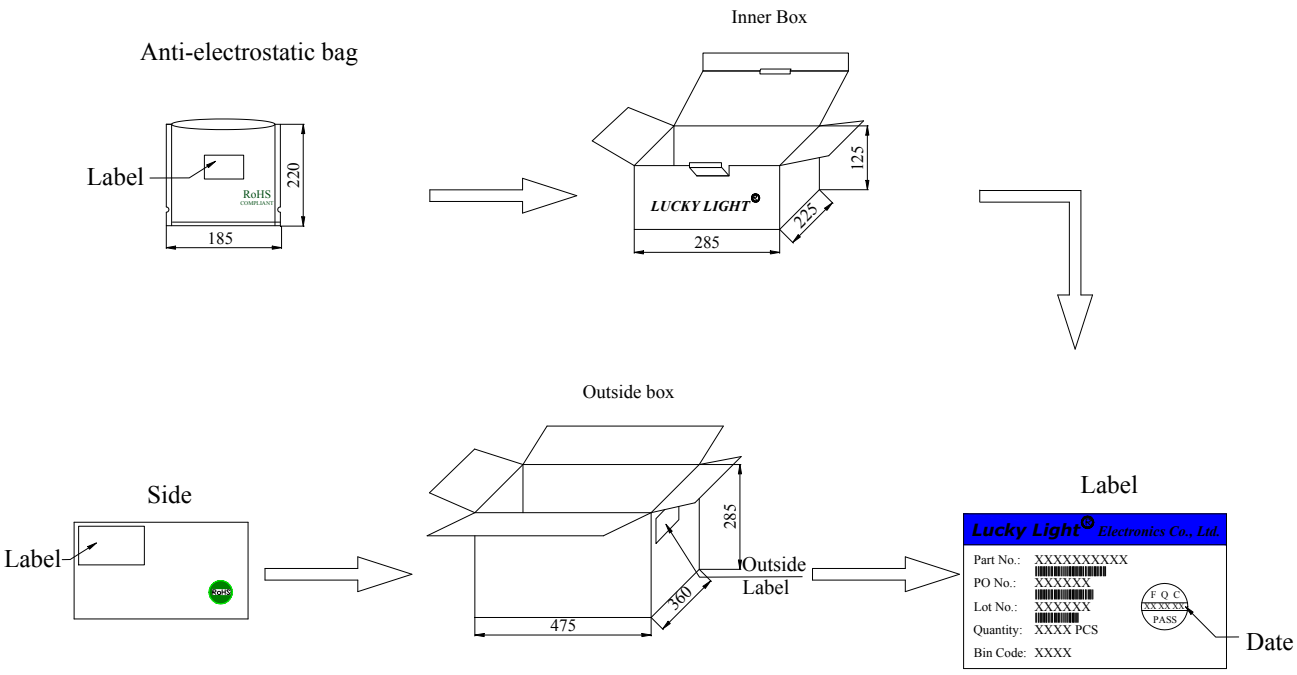


Relative Radiant Intensity
& Angular Displacement



Packing & Label Specifications:

Moisture Resistant Packaging:



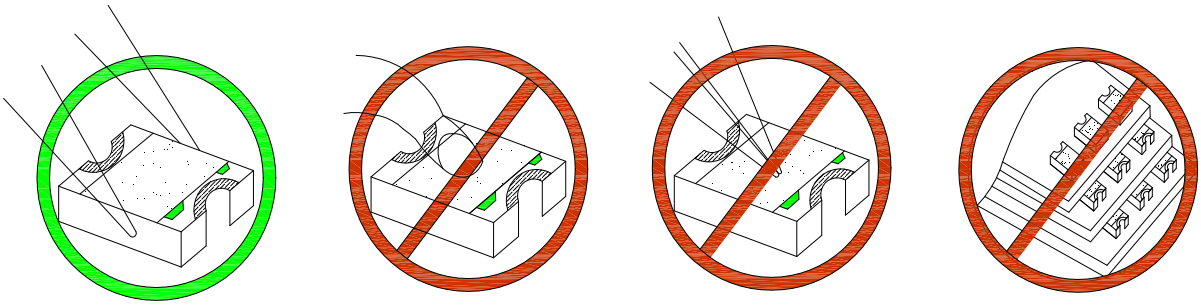
Packing Quantity:

a. 1000 PCS/bag.

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.



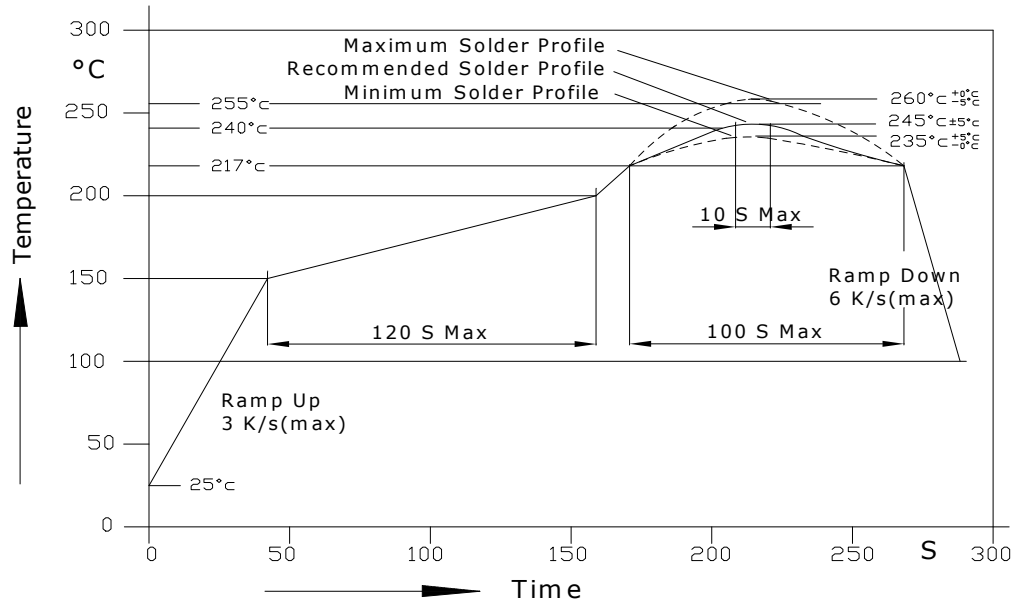
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using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

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)		

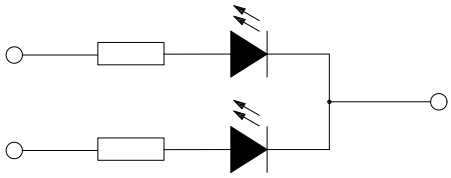
3.6. Because different board designs use different number and types of devices, solder pastes, reflow ovens, and circuit boards, no single temperature profile works for all possible combinations.

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

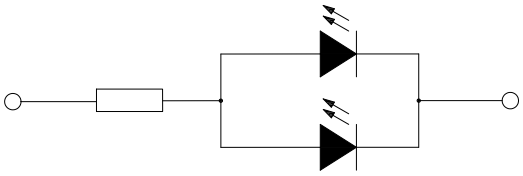
4. Drive Method

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.

Circuit model A
LED



Circuit model B
LED



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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