

## SPEC FOR APPROVAL

<b>Customer</b>	
<b>Model</b>	<b>CL-SFD281IR-06</b>
<b>PartNo.</b>	
<b>EditDate</b>	<b>2021-06-01</b>
<b>Edition</b>	<b>A1</b>

<b>Approval</b>	<b>Check</b>	<b>Edit</b>

<b>Customer Signatures</b>		



CIEL LIGHT 2835 infrared LED is a low power consumption diode, which molded in 2835 package . The utility model has the advantages of strong transmitting power and uniform light angle , The device is goes for smoke detectors security monitoring and other applications.

## Features

- Peak wavelength  $\lambda_p=940\text{nm}$
- High reliability
- Low Power Consumption
- RoHS RoHS compliant

## Applications

- Infrared applications systems
  - Infrared equipment
  - Infrared Illumination for cameras
  - Machine vision systems
  - CCD cameras
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**Absolute Maximum Ratings at (Ta=25°C)**

Electrical characteristics	Symbol	Rated Value	Unit
Max continuous working current	IF	100	mA
Max pulse current	IFP	1000	mA
Reverse voltage	VR	5	V
Power dissipation	Pd	160	mW
Operating Temperature	Topr	-30--+85	°C
Storage Temperature	Tstg	-40--+100	°C

Note: \* Pulse width  $\leq 100\mu\text{s}$ , Duty  $\leq 1\%$

**Elector-Optical Characteristics (Ta=25°C)**

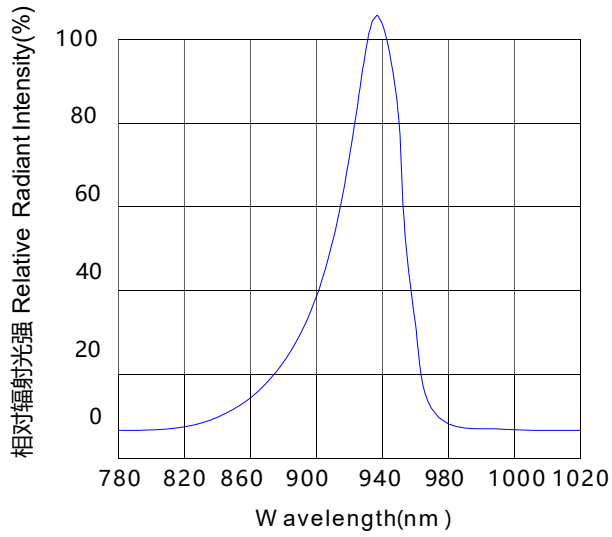
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Photosensitive peak wavelength	$\lambda_p$	IF=20mA	--	940	--	nm
luminous power	Po	IF=100mA	--	50	--	mW
Radiant Intensity	le	IF=100mA	15	25	--	mW/sr
Forward Voltage	VF	IF=100mA	--	1.45	1.8	V
Reverse current	IR	VR=5V	--	--	10	$\mu\text{A}$
Viewing Angle $\theta$	$2\theta_{1/2}$	IF=20mA	--	30	--	deg

**Reliability Test**

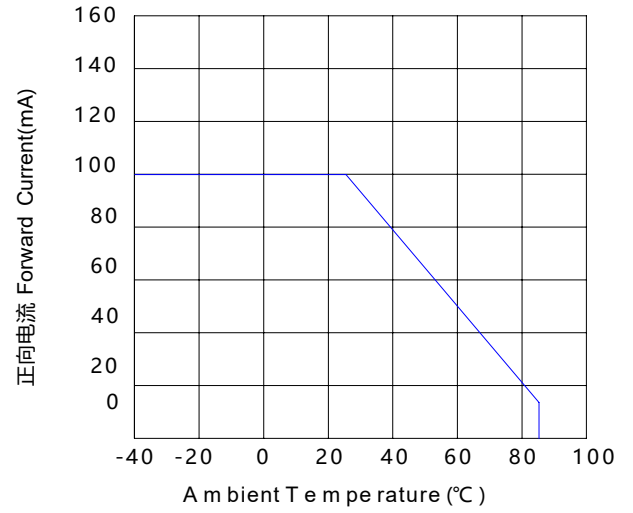
Test Parameter	Reference Criterion	Test Condition	Time	Quantity	Ac/Re
Resistance to Soldering Heat	JESD22-B106	220°C±5°C	5 sec	22PCS	0/1
Thermal Shock	JESD22-A104	+105°C(30min)5min -40°C(30min)	100 cycles	22PCS	0/1
High Temperature storage	JESD22-A103	TC=+100°C	1000H	22PCS	0/1
Low Temperature storage	JESD22-A119	TC -40°C	1000H	22PCS	0/1
Life Test	JESD22-A108	Vce=5V	1000H	22PCS	0/1
High Temperature High Humidity	JESD22-A101	TC=85°C RH=85%	1000H	22PCS	0/1

## Typical electro-optical characteristics curves

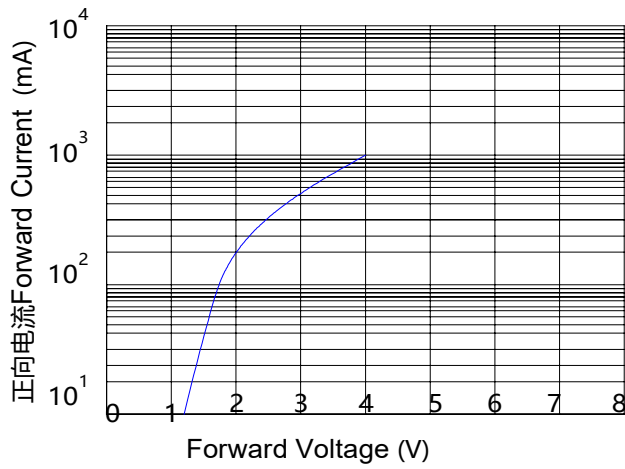
Relative Spectral Distribution



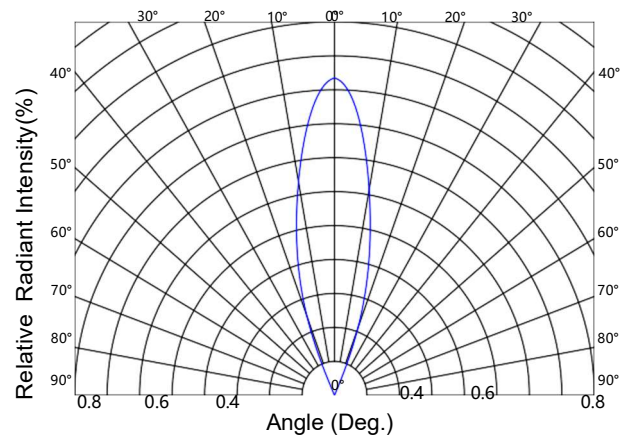
Forward Current Derating Curve



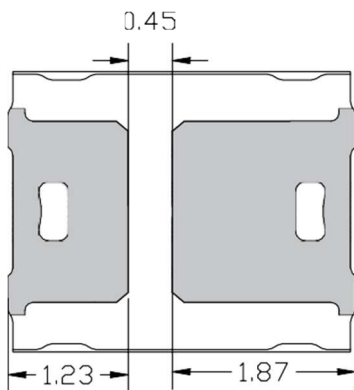
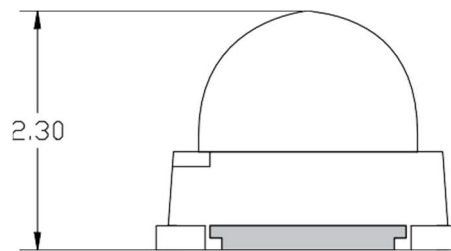
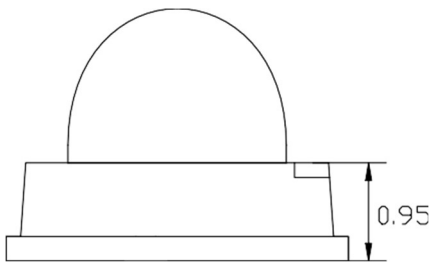
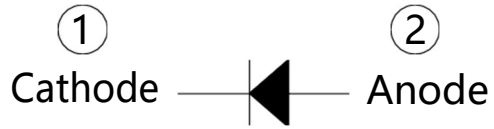
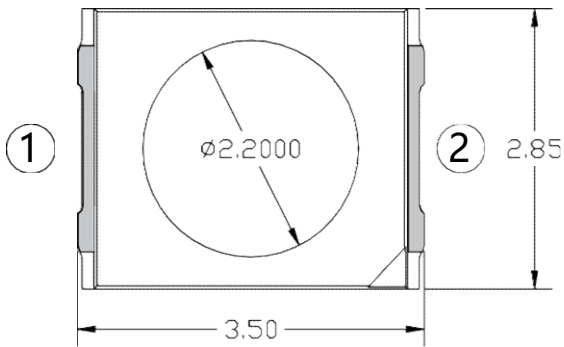
Current & Voltage Curve



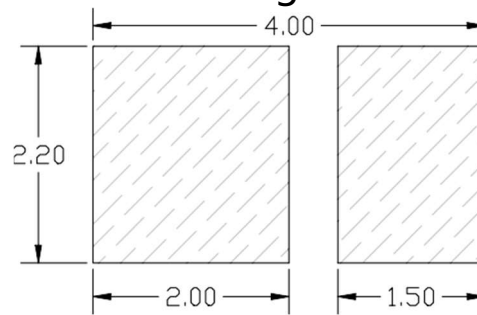
Radiant Intensity Spatial Distribution



**Package outline dimensions**



**Soldering Patterns**



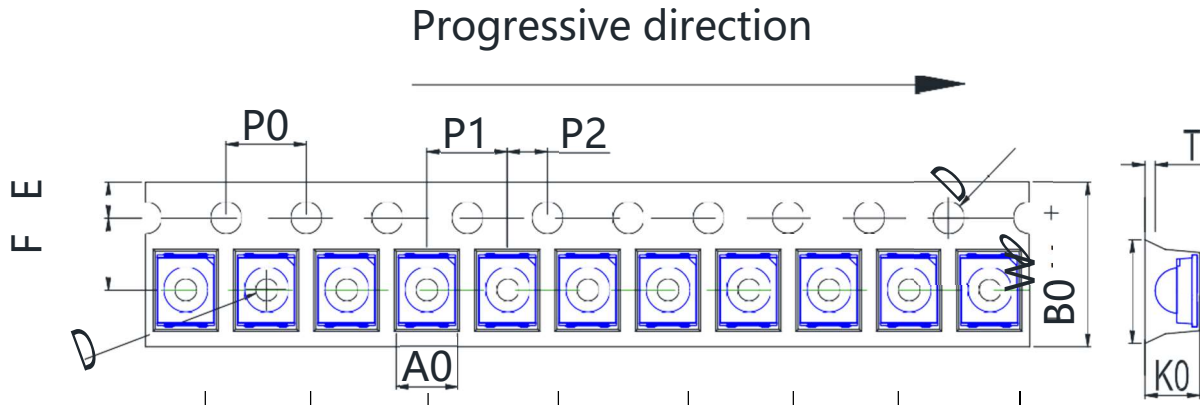
Note: All dimensions in mm, tolerance is  $\pm 0.15$ mm unless otherwise noted

**Packing Specification**

■ Carrier Tape

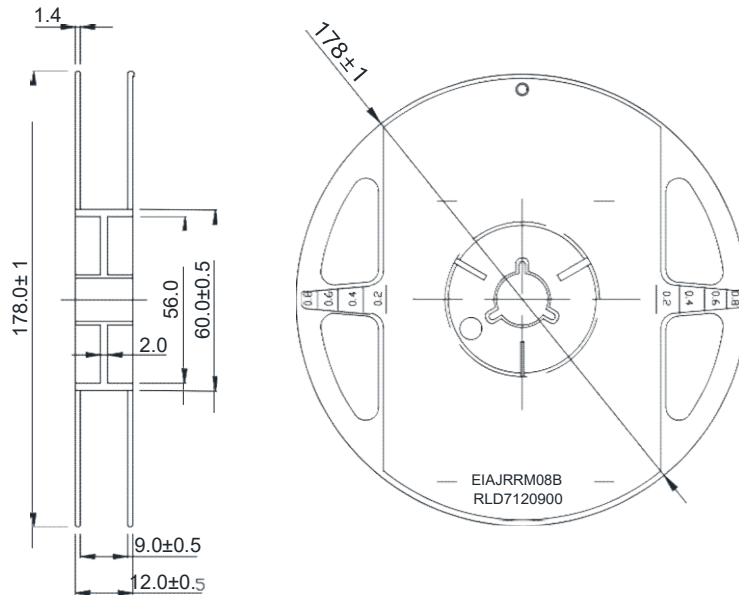
Reel Specifications Carrier Tape

Taping 2000pcs/reel Quantity 2000 pcs Per Reel



Symbol	A0	B0	K0	P0	P1	P2
SPEC	3.05±0.1	3.75±0.1	2.15±0.1	4.0±0.1	4.0±0.1	2.0±0.1
Symbol	W	T	E	F	D0	D1
SPEC	8.0±0.1	0.25±0.05	1.75±0.10	3.5±0.1	1.5±0.1	1.1±0.05

■ Reel Dimensions



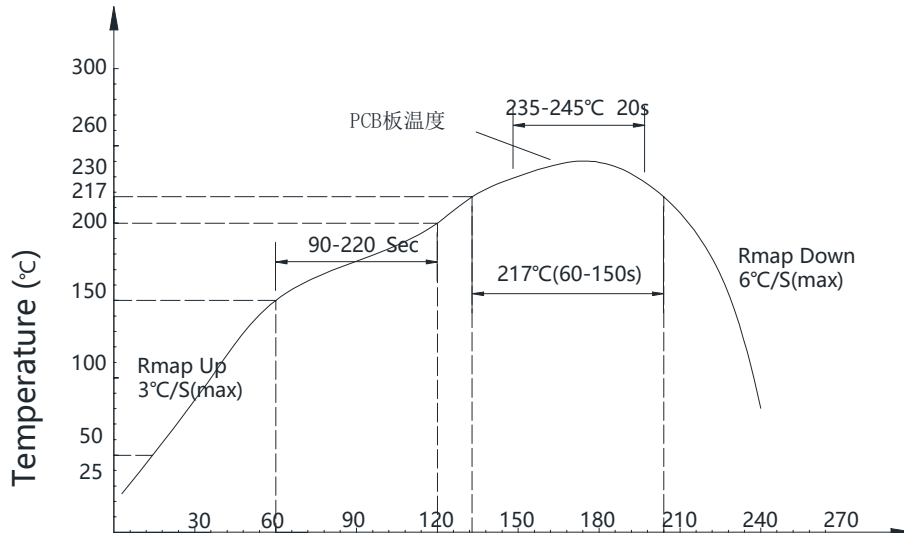
Tolerance s unless mentioned ±0.01mm. Unit=mm





## Reflow

- Reflow Soldering: Use the conditions shown in the under Figure of PB-Free Reflow Soldering.



## ■ Reflow Soldering

- Reflow soldering should not be done more than once, or ALS will be damaged.
- When soldering, do not put stress on the ALS during heating.
- Please be sure the speed of the chain is 80-100cm/min (The reflow furnace is based on 8 temperature zone, the more temperature zone, the faster speed of the chain is recommended.)

## ■ Soldering Iron

- If manual soldering is used, the use of a soldering iron of less than 25W is recommended, and the temperature of the iron must be kept below 300°C, with soldering time within 2 seconds.
- When soldering, do not put stress on the LEDs during heating.
- The hand solder should be done only one time.
- Handling of the SMD LED should be done when the package has been cooled down to below 40°C or less. This is to prevent LED failures due to thermal-mechanical stress during handling.

### ■ Cleaning

- It is recommended that alcohol be used as a solvent for cleaning after soldering. Cleaning is to go under 30°C for 3 minutes or 50°C for 30 seconds. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.
- Reflow soldering should not be done more than two times. In the case of more than 24 hours passed soldering after first, LEDs will be damaged.

### ■ Repairing

- Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed in advance the characteristics of LEDs will or will not be damaged by repairing.

Note: This general guideline may not apply to all PCB designs and configurations of all soldering equipment. The technique in practice is influenced by many factors, it should be specialized base on the PCB designs and configurations of the soldering equipment.

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## Precautions

Thanks for using relevant LED products of CIEL LIGHT Co., Ltd. in order to enhance your understanding of the characteristics of our products, as far as possible to reduce or avoid unnecessary damage to the product due to human factors, and make it can better service your production. We give corresponding instructions, According to the characteristic in the process of standard use. At the same time, even if the same specifications LED, in the practical application field its reliability are related to overall system design level, mode of operation and conditions of use. This Instructions can't cover all questions may encounter during customer use process, We sincerely apologize for any inconvenience this may cause!

### ■ Product declaration

- In order to confirm the product is right for using purpose , pretest is necessary before use . We don' t guarantee the product application introduction don' t contravene any patent . The corresponding import and export legal responsibility should be taken by customers . Please verify relevant provision about the LED product in each country and district beforehand . We may change material and specifications from time to time in the interest of product development, without prior notification or public announcement.

### ■ Storage

- Moisture proof and anti-electrostatic package with moisture absorbent material is used, Packaged products have 2 months to save time.
  - Before opening the package, the product should be kept at 30°C or less and humidity less than 60%RH 的环境中.
  - Seal anti-electrostatic bag humidity card should immediately check bag humidity indicator card in the open the bag after, Humidity is less than or equal to 30%, Must be baked before use.
  - After opening the package, the product should be soldered within 24 hours. If not, please store at 30°C or less and humidity less than 10%RH. It is recommended that the product be operated at the workshop condition of 30°C or less and humidity less than 60%RH.
  - If the moisture absorbent material has fade away or the LEDs have exceeded the storage time, baking treatment should be performed based on the following condition : 65±5°C for 24 hours.
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## ■ Static Electricity

The following procedures may decrease the possibility of ESD damage.

- Minimize friction between the product and surroundings to avoid static buildup.
- All production machinery and test instruments must be electrically grounded.
- Operators must wear anti-static bracelets.
- Wear anti-static suit when entering work areas with conductive machinery.
- All workstations that handle IC and ESD-sensitive components must maintain an electrostatic potential of 150V or less.

## ■ The safe temperature for LEDs working

- The high temperature will make the LED's Luminous Intensity decreased radically, if LEDs worked in hot environment for a long time, they will be disabled easily. When LEDs are working in a closed array, we suggest that the LED's surface temperature should be lower than 55°C and the leg's temperature should be lower than 75°C.

## ■ Others

- Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry. Handle the component along the side surfaces by using forceps or appropriate tools.
- The epoxy resin of encapsulation is fragile, so please avoid scratch or friction over the epoxy resin surface. While handling the product with tweezers, do not hold by the epoxy resin, be careful.

