# Specifications for Approval

Customer Part No.:

Inhere Part No.: S2835LPIRT-W09

Part Name: 2835+LENS 发射管 LED

Spec Issue Date: 2017-12-05

Revision No.: A

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To Customer:

We submit herewith the following information for your approval:

■Sample ☐OQC Inspection Record ■LED Dimension

■Electrical Characteristics Curve ■Internal Circuit Diagram

■Soldering recommendation

| Prepared by: Lily | Checked by: Tom | Approved by: Tom |
|---|---|---|
| Date: 2017-12-05 | Date: 2017-12-05 | Date: 2017-12-05 |

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Customer Opinion

☐ Approve and no objection

☐ Reject with the following reason:

_____

inhere light for your mind 银河光电

东莞市银河光电有限公司
DongGuan Inhere Opto CO.,LTD.
地址:东莞市莞城科技园 D 幢
ADD:Guancheng Science & Technology Park, DongGuan
TEL: 0769-23320868 FAX: 0769-23320878
E-mail: bill@inhereopto.com
Http://www.inhereopto.com

**Features**

2.8mm x 3.5mm LED, 1.92mm thickness

Low power consumption

Wide view angle

Package: 3000pcs/reel

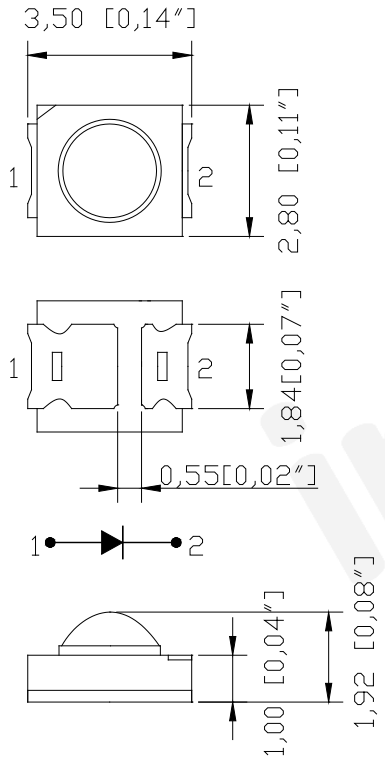
RoHS Compliant

**Applications**

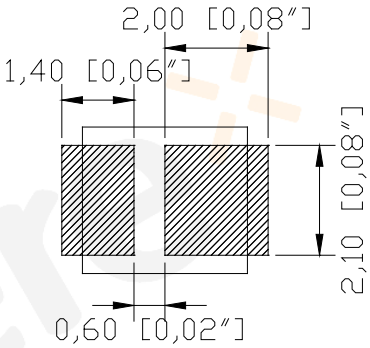
Ideal for back light and indicator

Various colors and lens types available

**Package outlines**




**Recommend Pad Layout**





| Part No. | Emitted color | Dice | Lens color |
|---|---|---|---|
| S2835LPIRT-W09 | Infrared | GaAlAs/ GaAlAs | Water transparent |

Notes:

All dimensions are in millimeters (inches);

Tolerances are ±0.10mm (0.004inch) unless otherwise noted.

**Absolute Maximum Ratings (Ta=25℃)**

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Forward current | If | ⩽100 | mA |
| Reverse voltage | Vr | ⩽10 | V |
| Power dissipation | Pd | 650 | mW |
| Operating temperature | Top | -40 ~+85 | ℃ |
| Storage temperature | Tstg | -20 ~+65 | ℃ |

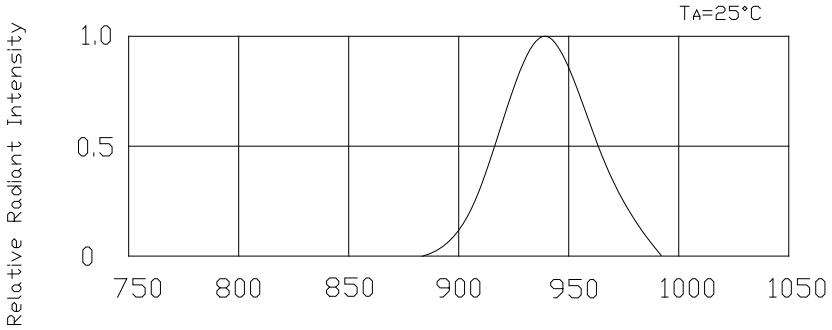
**Electro-Optical Characteristics (Ta=25℃)**

| Parameter | Test Condition | Symbol | Value | | | Unit |
|---|---|---|---|---|---|---|
| | | | Min | Typ | Max | |
| Wavelength at peak emission | If=100mA | λp | 925 | 940 | 955 | nm |
| Spectral half bandwidth | If=100mA | Δλ | -- | 40 | -- | nm |
| Forward voltage | If=100mA | Vf | -- | 1.4 | 1.8 | V |
| Luminous Intensity | If=100mA | Ie | 30 | 105 | -- | mW/sr |
| Viewing angle at 50% IE | I If=100mA | 2θ1/2 | -- | 15 | -- | Deg |
| Reverse current | Vr=5V | Ir | -- | -- | 10 | μA |

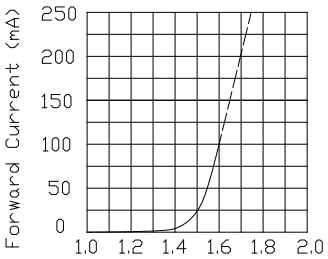
Note:

1. $\theta_{\frac{1}{2}}$ is the angle from optical centerline where the luminous intensity is $\frac{1}{2}$ the optical centerline value.
2. The tolerance of emission intensity (I e )is ±15％.
3. The tolerance of forward voltage is±0.05V
4. The tolerance of wavelength is±1nm.

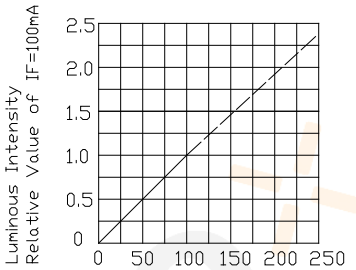
**Optical characteristic curves**



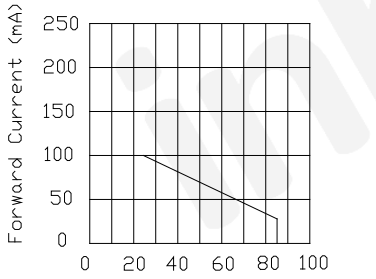

RELATIVE INTENSITY Vs.WAVELENGTH



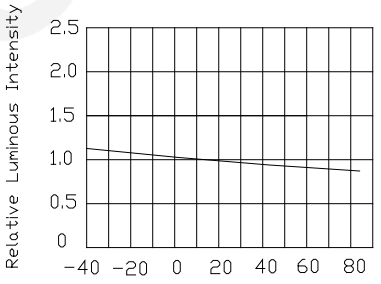

FORWARD CURRENT Vs.
FORWARD VOLTAGE



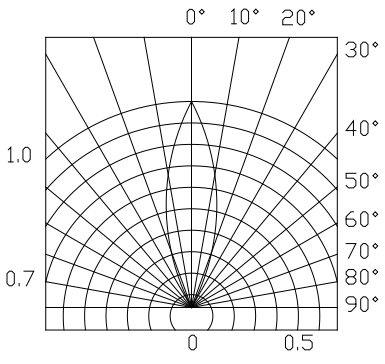

LUMINOUS INTENSITY Vs.
FORWARD CURRENT




FORWARD CURRENT
DERATING CURE



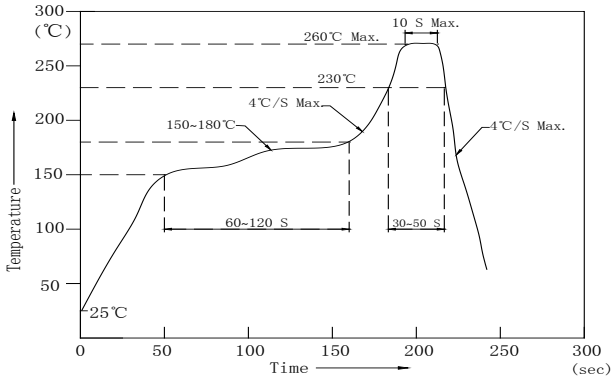

LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE




SPATIAL DISTRIBUTION

**Reflow Profile**

■ Reflow Temp/Time




Notes:

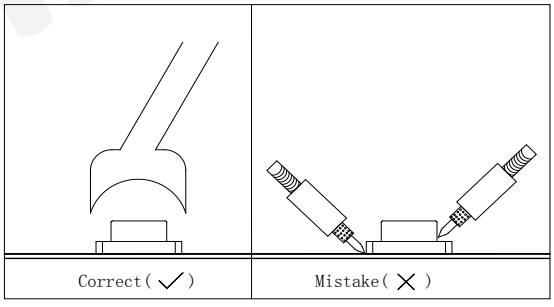
1. We recommend the reflow temperature 245℃ (±5℃). The maximum soldering temperature should be limited to 260℃.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■Soldering iron

Basic spec is ≤ 5sec when 320℃ (±20℃). If temperature is higher, time should be shorter (+10℃→ -1sec). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable .Surface temperature of the device should be under 350℃.

■Rework

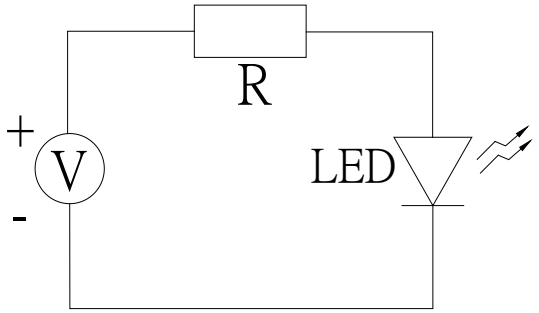
1. Customer must finish rework within 5 sec under 340℃.
2. The head of iron cannot touch copper foil
3. Twin-head type is preferred.




■ Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

**Test circuit and handling precautions**

■ Test circuit




**Storage**

1. Before opening the package, the LEDs should be kept under the condition <30℃and < 90%RH.After opening the package, the LEDs should be stored under the condition <30℃and < 70%RH.
2. The LEDs should be used within a year. And after opening the package, The LEDs should be used within 24hours.
3. If the desiccant is faded or the LEDs have exceeded the storage time, Re-baking is required under the condition 60±6℃ for 24 hours.
4. The lens of LEDs is prone to attract dust so the relevant steps should be taken to keep the emitter free of dust.

**Handling**

Handle the component along the side surfaces by using forceps or appropriate tools. The forceps or other appropriate tools should not put any pressure on the lens. It's also strictly forbidden to poke and press the lens.

**Thermal Management**

When the LED is drive by large current, the TJ (junction temperature) will exceed its limit, which will shorten lifetime of LEDs seriously. The thermal management should effectively reduce the resistance of products.

The general way foe the thermal management is to mount the LED on a metal core printed circuit board (MCPCB).It is recommended that the surface area of the MCPCB is at least 20 cm2 for 1W LED(and 30cm2 foe 3W LED),while we recommend using an additional heat sink, and the MCPCB heat-conducting adhesive with a thermal conductivity greater than 3.0W/mK. The thermal glue or paste should with a thermal conductivity greater than 3.0W/mK and its thickness must be less than 100um.

**Cleaning**

When cleaning is necessary, using clean soft cloth and dipping the isopropyl alcohol to erasure the dirt gently. Do not clean it with the solvents such as Acetone, lest erode or destroy the LEDs.

■ Electrical Notes

1. The LED cannot be drive reversely.
2. It's necessary to have the measures to limit the current Otherwise slight voltage shift may cause enormous current change and results in the failure of LEDs.
3. It is recommended that the drive current should be lower when the light output is enough for applying. It would be helpful to improve the product's reliability.

■ Antistatic

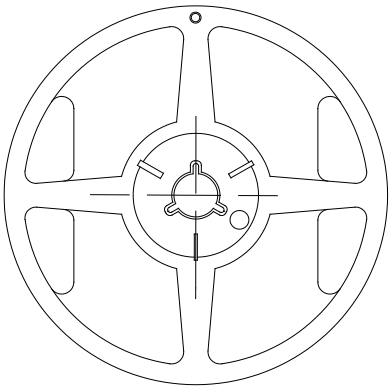
The LEDs are electrostatic sensitive devices, so antistatic steps should be taken during the processing.

**Test Items and Results of Reliability**

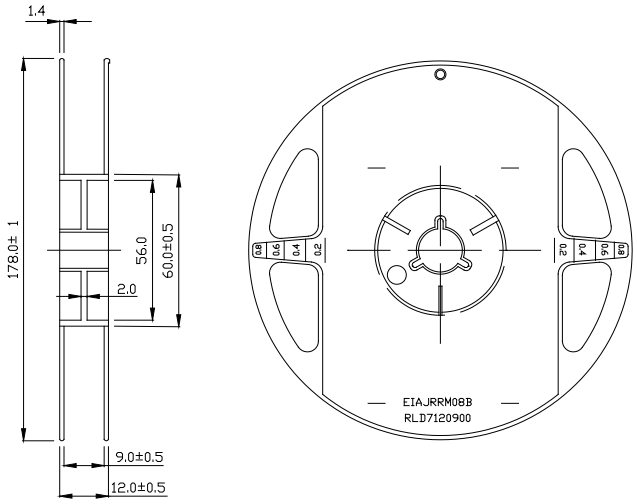
| Test Item | Test Conditions | Standard Test Method | Note | Number of Test |
|---|---|---|---|---|
| Reflow Soldering | Ta=260±5℃,Time=10±2S | JB/T 10845-2008 | 3times | 0/22 |
| Salt Atmosphere | Ta=35±3℃,PH=6.5～7.2 | GB/T 2423.17-2008 | 24hrs | 0/22 |
| Temperature Cycling | -40±5℃ 30±1min<br>↑→(25℃/5±1min)↓<br>100±5℃ 30±1min | GB/T 2423.22-2012 | 100cycles | 0/22 |
| Thermal Shock | Ta=-40±5℃～100±5℃,<br>15±1min dwell | GB/T 2423.22-2012 | 100cycles | 0/22 |
| High Humidity High Temp. Cycling | Ta=30±5℃～65±5℃,<br>90±5%RH,24hrs/1cycle | GB/T 2423.4-2008 | 10cycles | 0/22 |
| High Humidity High Temp. Storage Life | Ta=85±5℃,ψ(%)=85±5%RH | GB/T 2423.3-2006 | 1000hrs | 0/22 |
| High Temperature Storage Life | Ta=100±5℃,non-operating | GB/T 2423.2-2008 | 1000hrs | 0/22 |
| Low Temperature Storage Life | Ta=-40±5℃,non-operating | GB/T 2423.1-2008 | 1000hrs | 0/22 |
| Life Test | Ta=26±5℃,@20mA,<br>ψ(%)=25%RH～55%RH | -- | 1000hrs | 0/22 |
| High Humidity High Temp. Operating Life | Ta=85±5℃,@20mA,<br>ψ(%)=85%RH | GB/T 2423.3-2006 | 500hrs | 0/22 |
| Low Temperature Operating Life | Ta=-20±5℃,@20mA | GB/T 2423.1-2008 | 1000hrs | 0/22 |

**2835+LENS Series SMD Chip LED Lamps Packaging Specifications**

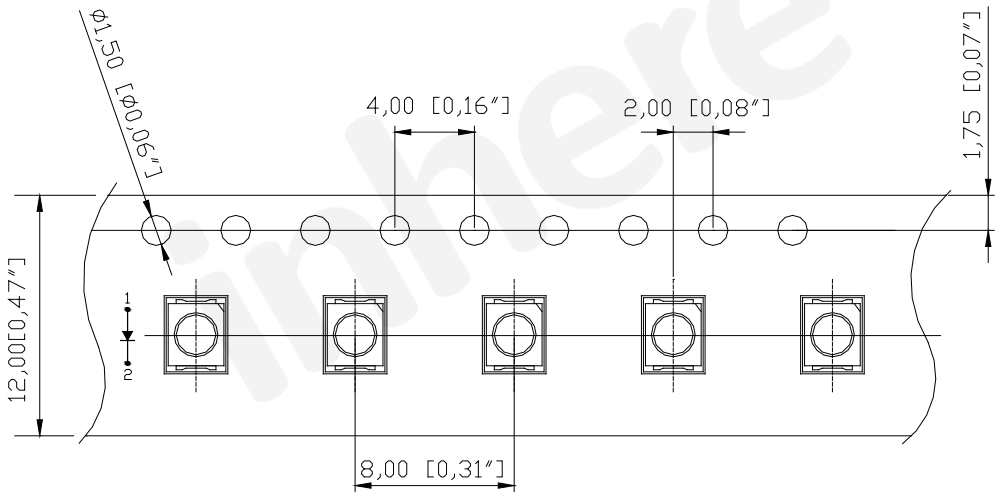
- **Feeding Direction**



- **Dimensions of Reel (Unit: mm)**




- **Dimensions of Tape (Unit: mm)**




Notes:

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4. 3,000pcs/Reel.