

惠州市鑫永诚光电科技有限公司  
hui zhou Newopto photoelectric Technology Co., Ltd.

产 品 承 认 书  
SPEC FOR APPROVAL

|                   |                   |
|-------------------|-------------------|
| 客户名称<br>Customer  |                   |
| 产品型号<br>Model     | XYC-IRA4335A65-X4 |
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| 客户确认(Customer Signatures) |  |  |
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鑫永诚 4335 贴片红外 LED 是一款低功耗，使用 4335 外型封装的二极管，它具有发射功率强、受光角度均匀等优点，该款器件适用于电子白板，红外触控等其应用。

NEW OPTO 4335 SMD infrared LED is a low power consumption diode, which molded in 4335 package. The utility model has the advantages of strong transmitting power and uniform light angle, This device is suitable for electronic whiteboard, infrared touch control and other applications.

## 特性 Features

- 峰值波长 940nm Peak wavelength  $\lambda_p=940\text{nm}$
- 高可靠性 High reliability
- 低功耗 Low Power Consumption
- 符合 RoHS Compliant RoHS

## 应用 Applications

- 交互式电子白板 Interactive Electronic whiteboard
- 触摸式一体机 Touch type all-in-one machine

## 选用指示 Selection Guide

|                     |                  |
|---------------------|------------------|
| 芯片材质 Chip Materials | 胶体颜色 Resin Color |
| 砷化铝镓/硅 Ai GaAs/Si   | 透明 Water clear   |

**极限参数 Absolute Maximum Ratings at (Ta=25°C)**

| 电气特性<br>Electrical characteristics         | 符号<br>Symbol | 额定值<br>Rated Value | 单位<br>Unit |
|--------------------------------------------|--------------|--------------------|------------|
| 最大持续工作电流<br>Max continuous working current | IF           | 100                | mA         |
| 最大脉冲工作电流*<br>Max pulse current             | IFP          | 1000               | mA         |
| 反向击穿电压<br>Reverse breakdown voltage        | VR           | 5                  | V          |
| 最大功耗<br>Power dissipation                  | Pd           | 150                | mW         |
| 工作温度<br>Operating Temperature              | Topr         | -40~+85            | °C         |
| 储存温度<br>Storage Temperature                | Tstg         | -40~+100           | °C         |

Note: \* Pulse width≤100μs, Duty≤1%

**光学特性 Optical Characteristics (Ta=25°C)**

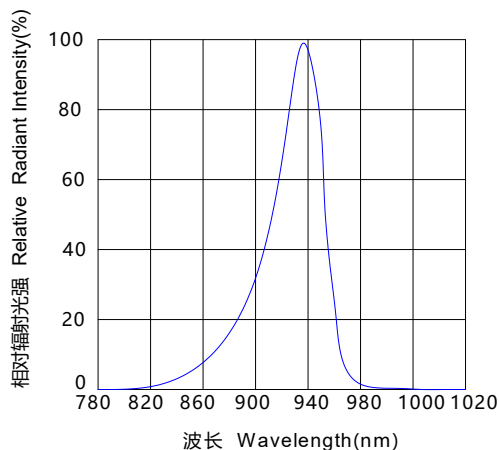
| 参数<br>Parameter             | 符号<br>Symbol | 测试条件<br>Test Condition |   | 最小<br>Min | 典型<br>Typ. | 最大<br>Max | 单位<br>Unit |
|-----------------------------|--------------|------------------------|---|-----------|------------|-----------|------------|
| 发射波长 Wavelength             | λp           | IF=50mA                |   | --        | 940        | --        | nm         |
| 辐射光强<br>Radiation intensity | Ie           | IF=50mA                |   | 20        | 27         | --        | mw/sr      |
| 正向电压<br>Forward Voltage     | VF           | IF=50mA                |   | 1.2       | 1.3        | 1.8       | V          |
| 反向电流<br>Reverse current     | IR           | VR=5V                  |   | --        | --         | 10        | μA         |
| 发射角度<br>Emission Angle      | 2θ½          | IF=50mA                | X | 63        | 66         | 73        | Deg.       |
|                             |              |                        | Y | 22        | 25         | 28        |            |
| 偏心角度<br>Deviation Angle     | Δθ           | IF=50mA                | X | -5        | --         | +5        | Deg.       |
|                             |              |                        | Y | -5        | --         | +5        |            |

**可靠性试验 Reliability Test**

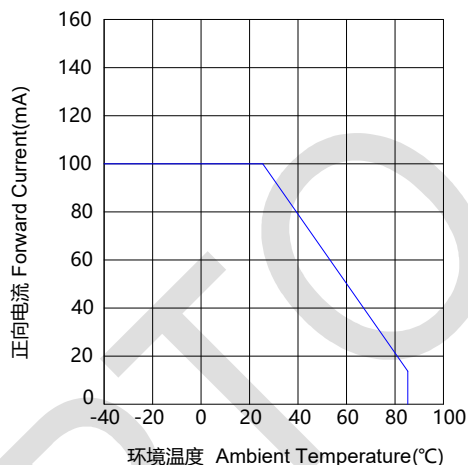
| 测试项目<br>Test Parameter                 | 参考标准<br>Reference<br>Criterion | 测试条件<br>Test Condition              | 时间<br>Time | 样品数<br>Quantity | Ac/R<br>e |
|----------------------------------------|--------------------------------|-------------------------------------|------------|-----------------|-----------|
| 耐焊接热<br>Resistance to Soldering Heat   | JESD22-B106                    | 250°C±5°C 5 sec                     | 2 次        | 22PCS           | 0/1       |
| 冷热冲击<br>Thermal Shock                  | JESD22-A104                    | +105 °C (30min) 5min -40 °C (30min) | 300 cycles | 22PCS           | 0/1       |
| 高温贮存<br>High Temperature storage       | JESD22-A103                    | Ta=+85°C                            | 1000H      | 22PCS           | 0/1       |
| 低温贮存<br>Low Temperature storage        | JESD22-A119                    | -40°C                               | 1000H      | 22PCS           | 0/1       |
| 寿命测试<br>Temperature Operating Life     | JESD22-A108                    | IF=100mA                            | 1000H      | 22PCS           | 0/1       |
| 高温高湿<br>High Temperature High Humidity | JESD22-A101                    | TC=85°C RH=85%                      | 1000H      | 22PCS           | 0/1       |
| 高压蒸煮<br>pressure cooking test          | JESD22-A102-C                  | Ta=121°C RH100%                     | 168H       | 22PCS           | 0/1       |

## 光电特性曲线 Typical electro-optical characteristics curves

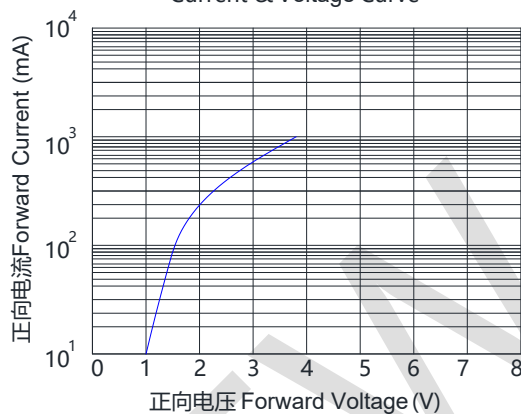
光谱分布特性曲线  
Relative Spectral Distribution



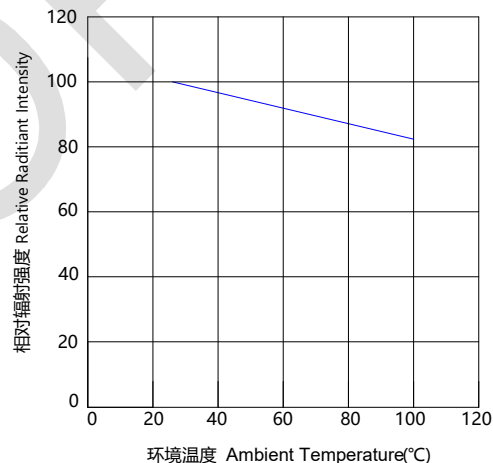
正向电流降额曲线  
Forward Current Derating Curve



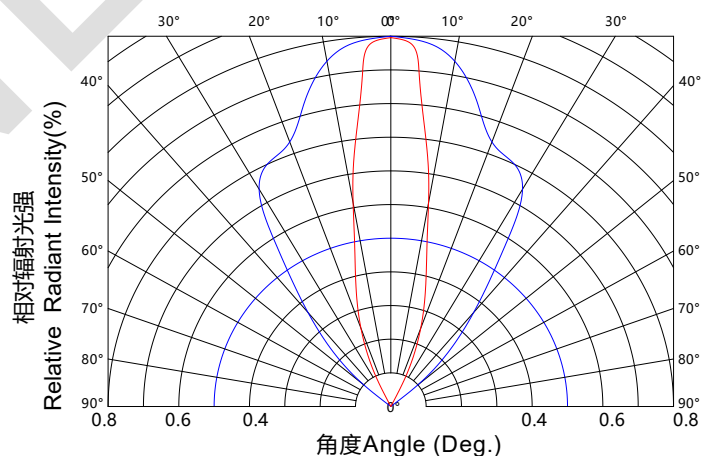
电流vs电压曲线图  
Current & Voltage Curve



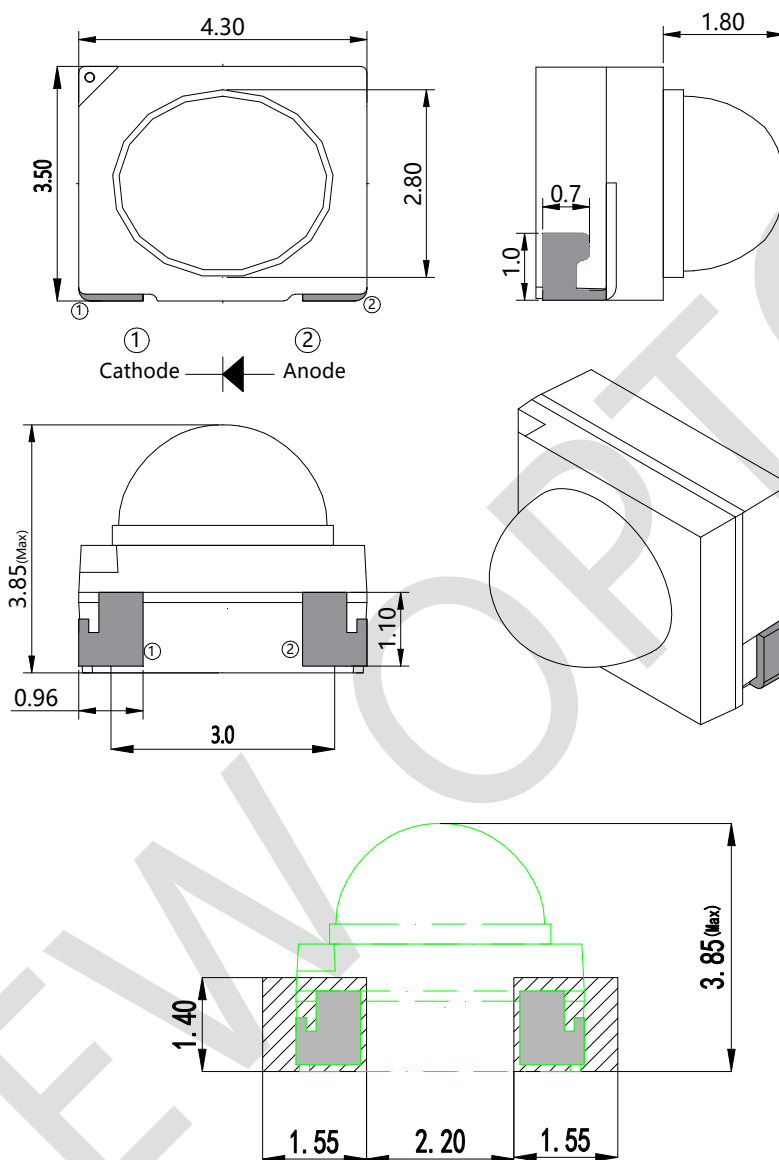
辐射强度 VS 环境温度曲线  
Relative radiant intensity VS Ambient Temperature



辐射光强分布特性曲线  
Radiant Intensity Spatial Distribution



产品外型尺寸 Package outline



推荐焊盘尺寸  
Recommend Pad siz

备注：所有尺寸单位均为 mm，如无特殊说明误差范围为 $\pm 0.1$ mm

Note: All dimensions in mm, tolerance is  $\pm 0.1$ mm unless otherwise noted

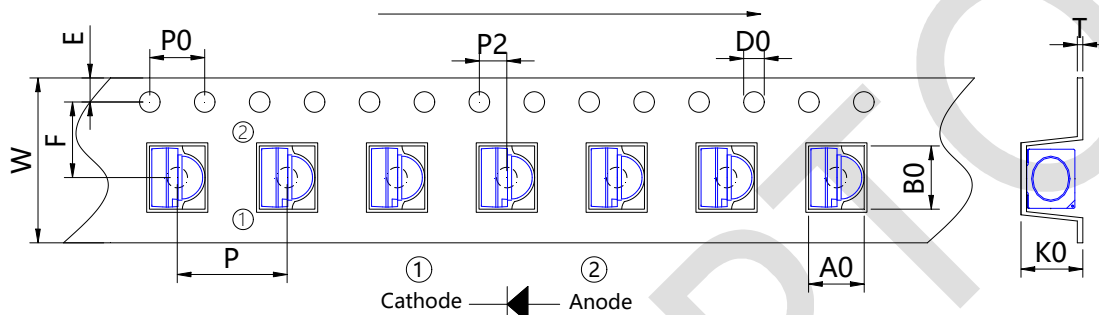
## 包装规格 Packing Specification

### ■ 卷盘规格 Carrier Tape

编带 2000pcs/卷 Quantity 2000 pcs Per Reel

编带产品前空 50pcs, 后空 $\geq 100$ pcs。

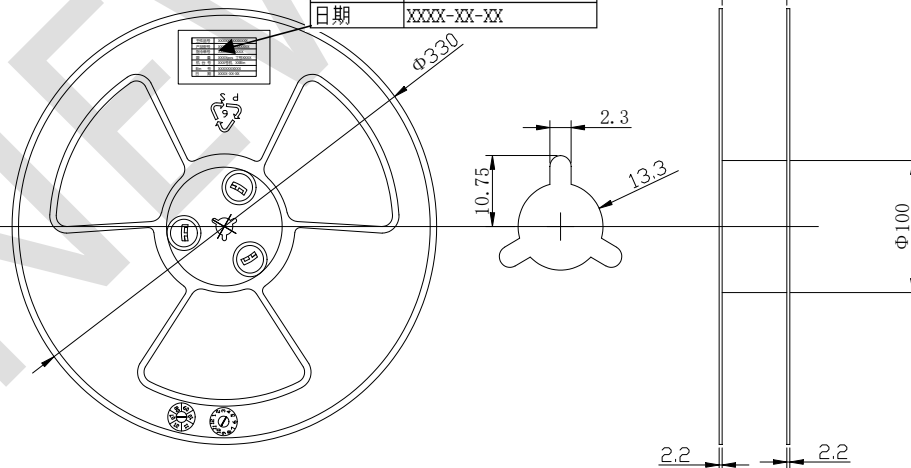
### Progressive direction 使用方向



| 符号 Symbol | A0             | B0              | K0              | P0            | P             | P2            |
|-----------|----------------|-----------------|-----------------|---------------|---------------|---------------|
| 规格 SPEC   | 3.85 $\pm$ 0.1 | 4.5 $\pm$ 0.1   | 3.7 $\pm$ 0.1   | 4.0 $\pm$ 0.1 | 8.0 $\pm$ 0.1 | 2.0 $\pm$ 0.1 |
| 符号 Symbol | W              | T               | E               | F             | D0            |               |
| 规格 SPEC   | 12.0 $\pm$ 0.3 | 0.40 $\pm$ 0.05 | 1.75 $\pm$ 0.10 | 5.5 $\pm$ 0.1 | 1.5 $\pm$ 0.1 |               |

### ■ 卷轴尺寸 Reel Dimensions

|      |                |
|------|----------------|
| 主件品号 | XXXXXXXXXX     |
| 产品型号 | XXXXXXXXXX     |
| 指令单号 | XXXXXXXXXX     |
| 数量   | XXXX PCS 工号XXX |
| 机台号  | XX号机 XXBin     |
| Bin号 | XXXXXXXXXX     |
| 日期   | XXXX-XX-XX     |



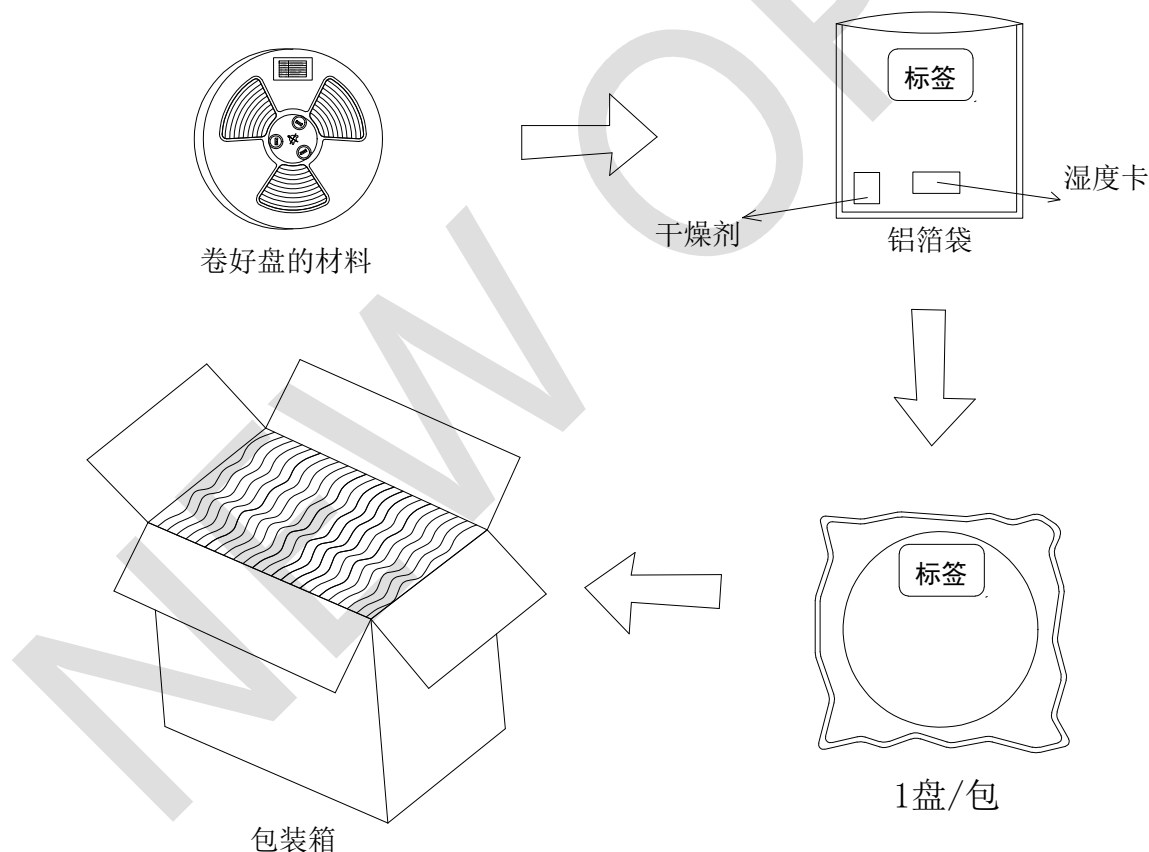
备注：若无特别标注，图中尺寸公差为 $\pm 0.2$ mm，单位=mm

Note: Tolerance s unless mentioned  $\pm 0.2$ mm. Unit=mm

■ 标签规格 Label specification

|                                                                     |                 |                                                                                     |
|---------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|
| <p>NEW OPTO 惠州市鑫永诚光电科技有限公司<br/>鑫 永 诚 光 电</p>                        |                 |                                                                                     |
| <p>Tel: 0752-7987222 Fax: 0752-7987000<br/>http://www.xycgd.com</p> |                 |                                                                                     |
| 料号                                                                  | Material Number |                                                                                     |
| 型号                                                                  | Model Number    |  |
| 数量                                                                  | Quantity        |                                                                                     |
| 日期                                                                  | Date            |                                                                                     |

■ 包装步骤 Moisture Resistant Packing Process



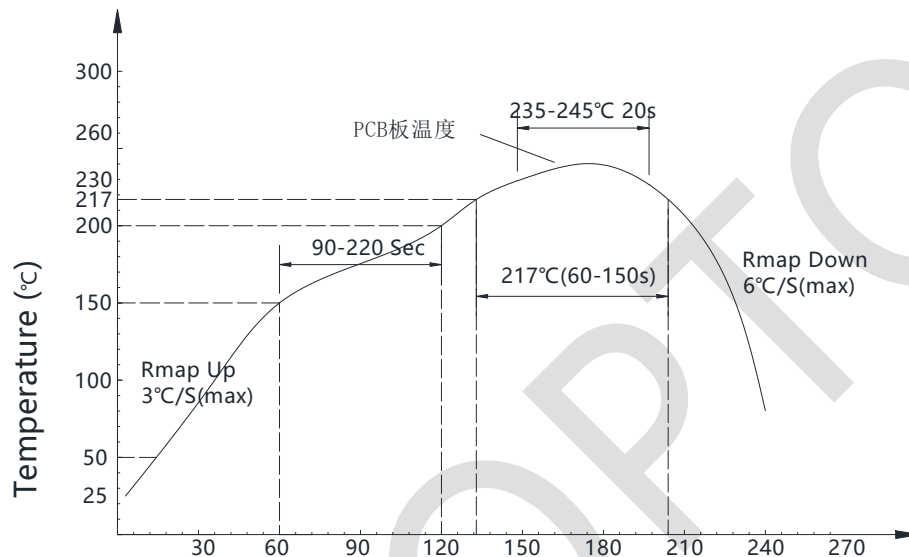
注意 Note:

- 1.使用真空防潮包装方式 Vacuum moisture-proof packaging;
- 2.每个铝箔袋内需放干燥剂、湿度卡 Place desiccant and humidity card in each aluminum foil bag;

## 回流焊 Reflow

### ■ 回流焊接：推荐使用以下无铅回流焊接温度图进行

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



### ■ 回流焊接 Reflow Soldering

- 回流焊次数不可以超过一次，否则 ALS 可能损坏。

Reflow soldering should not be done more than once, or ALS will be damaged.

- 当焊接时，不要在材料受热时用力压胶体表面。

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

- 建议回流链速：80-100cm/min（回流炉以 8 温区为基准，温区越多建议使用链速更快）

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.)

### ■ 络铁焊接 Soldering iron

- 如使用手工焊接，建议使用小于 25 瓦的电烙铁，络铁温度必须空置在 300°C 以下，焊接时间需控制在 3 秒钟以内，且每个点击只能焊接一次。

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.

- 当焊接时，不要在材料受热时用力压胶体表面。

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

- 手工焊接只可焊接一次。

The hand solder should be done only one time

- 器件外部温度在 40°C 以下时，才可以对其进行处理。避免高温时操作对 LED 造成损伤。

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.

#### ■ 清洗 Cleaning

在焊接后推荐使用酒精进行清洗，在温度不高于 30°C 的条件下持续 3 分钟，不高于 50°C 的条件下持续 30 秒。使用其他类似溶剂清洗前，请先确认使用的溶剂不会对 LED 的封装和环氧树脂部分造成损伤。

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.

#### ■ 修补 Repairing

LED 回流焊后不应该修复，当修复是不可避免时，必须使用双头烙铁，但必须事先确认此种方式会不会损坏 LED 本身的特性。

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.

注意：此一般指导原则并不适用于所有 PCB 设计和焊接设备的配置。具体工艺收到诸多因素的影响，请根据特定的 PCB 设计和焊接设备来确定焊接方案。

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.

## 使用注意事项 Precautions

感谢您使用深圳市鑫永诚光电科技有限公司的系列 LED 产品，为增进您对我司产品特性的了解，也为方便您快速掌握产品的基本操作，为尽量减少或避免因人为等因素造成不必要的产品损坏，使其能够更好的为您的生产服务，特针对使用过程中的一些规范使用作相应说明，同事即使是同一规格 LED，在实际应用领域其可靠性与整体系统设计水平、作业方式、使用条件均相关。本使用说明不可能涵盖客户使用过程中可能碰到的所有问题，由此带来的不便，敬请谅解！

Thanks for using relevant LED products of Shenzhen Newpoto Optoelectronic Technology 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!

### ■ 产品声明

- 使用本产品之前，请贵司务必预先进行测试，以便确认是否适合使用目的，产品介绍的用途并不保证不抵触任何专利，有关 LED 产品的进出口法律责任应由客户担负，请预先查清每以国家或地区的有关规定，产品可能会因性能提供或规格参数改变等缘故，恕不经预告更改，我们要求量产前签订正式的产品规格书

In order to confirm if it is right for the purpose, Pretest is necessary before use the product. This product presentation does not guarantee not contravene any patent. Relate to imports and exports LED product Legal liability should be responsible by customer please verify relevant provision about the LED product in your Target market. We may change specifications from time to time in the interest of product development, without prior notification or public announcement. An agreement of formal product specifications is required prior to mass production.

### ■ 储存 Storage

- 本产品使用密封防潮防静电袋包装,并附有干燥剂,未开封的产品保存时间 2 个月。

Moisture proof and anti-electrostatic package with moisture absorbent material is used, packaged products have 2 months to save time.

- 开封前,产品须存放在温度不高于 30℃,湿度不高于 60%RH 的环境中。

Before opening the package, the product should be kept at 30°C or less and humidity less the 60%RH 的环境中。

- 密封防静电袋内的湿度卡应在打开袋子后立即查看袋内的湿度卡来确定,湿度显示小于或等于 30%时,使用前须进行烘烤。

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.

- 开封后,产品必须 168 小时内使用完(建议工作环境温度不高于 30℃,湿度不高于 60%),如未使用完,余料须存放在温度不高于 30℃,湿度不高于 10% 的环境中。

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.

- 对于尚未焊接的 LED,如果吸湿剂或包装失效,或者产品没有符合以上有效存储条件,烘烤可以起到一定的性能恢复效果。烘烤条件:65±5℃,持续时间 24H。

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.

#### ■ 静电 Static Electricity

以下操作可降低静电破坏的可能性。The following procedures may decrease the possibility of ESD damage.

- 将产品和外界之间的摩擦减到最低以避免静电产生。

Minimize friction between the product and surroundings to avoid static buildup.

- 所有的产品设备和测试仪器必须接地。

All production machinery and test instruments must be electrically grounded.

- 操作人员必须配戴静电环。

Operators must wear anti-static bracelets.

- 进入带电设备工作区域时需穿防静电服。

Wear anti-static suit when entering work areas with conductive machinery.

- 所有操作 IC 和 ESD 敏感器件元器件的工作台必须保持低于 150V 的静电保护。

All workstations that handle IC and ESD-sensitive components must maintain an electrostatic potential of 150V or less.

#### ■ 反压保护 Reverse voltage protection

通常LED的反向漏电流都会很小,不会影响正常使用. 如果长期遭受超过其所能承受的反向电压冲击时,LED会损伤,反向漏电流会迅速变大,引起显示屏零灰度下串光的发生. 在设计中, 要注意控制反向电压, 建议加在 LED 上的反向电压值不超过 10V.

In generally the reverse current of LED is very small, it can't effect using the component normally, but when it often suffered the reverse voltage which exceed the limits of the component than it will be damaged, the reverse current increases rapidly causing the string light display gray scale so when designing, please pay attention to control the reverse voltage we suggest the reverse voltage less than 10V.

#### ■ 温度保护 The safe temperature for LEDs working

LED 在高温条件下, 衰减会加速,本身应力也会增大, 若长期处于高温环境下, 极容易出现失效. 对于高密度排列使用的情况,建议在使用过程中灯面温度不超过 55°C, 灯脚温度不超过 75°C.

The high temperature will make the LED's Luminous Intensity deceased 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.

#### ■ 其他事项 Others

- 请勿直接触摸或操作硅胶透镜表面, 这可能会损坏内部的电路, 拿取时用镊子或合适的工具夹在元件的侧边。

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.

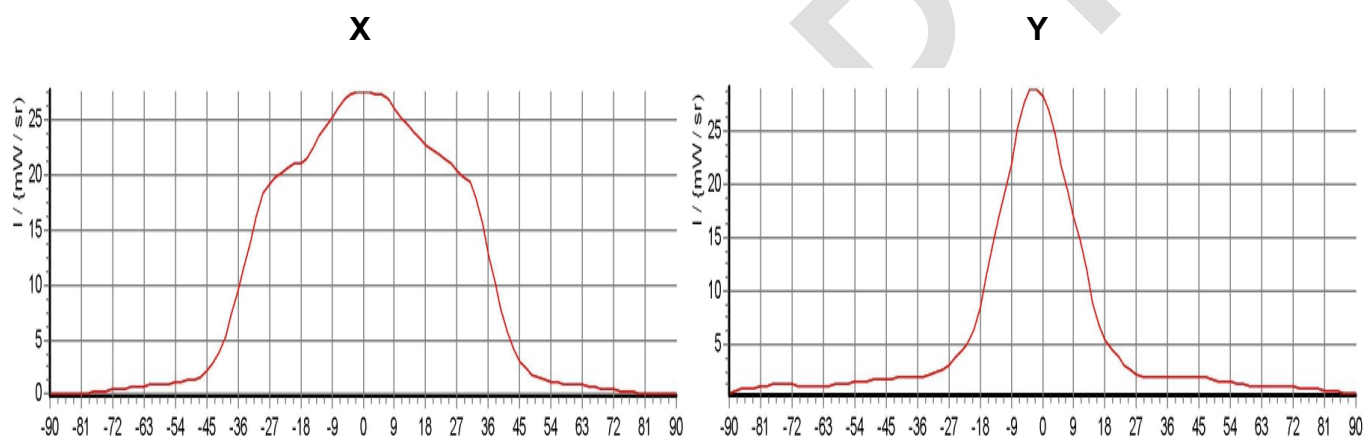
- LED 的环氧树脂封装部分相当脆弱, 请勿用坚硬、尖锐的物体刮、擦封装树脂部分。在用镊子夹取的时候也应当小心注意。

The epoxy resin of encapsulation is fragile, so please avoid scratch or friction over the epoxy resin surface. While handing the product with tweezers, do not hold by the epoxy resin, be careful.

## LED 光色电测试系统测试报告 LED Photometric Colorimetric and Electric Test Report

| 测试设置 Test set         |              | 典型参数 Representative       |               |
|-----------------------|--------------|---------------------------|---------------|
| 测试仪器 Instrument model | ZWL-600      | 正向电流 I(Forward)           | 50.0 mA       |
| 起始角度 Angle (start)    | 0 Deg.       | 正向电压 V(Positive)          | 1.35 V        |
| 终止角度 Angle (stop)     | 180 Deg.     | 反向电压 V(reverse)           | 5.00 V        |
| 步进角度 Angle (step)     | 1.8 Deg.     | 漏电流 I(Leakage)            | 48.00 $\mu$ A |
| 点亮电流 I (warm-up)      | 50 mA        | 光强扩散角 25% Spread angle25% | 78.69 Deg.    |
| 预热时间 warm-up Time     | 500 ms       | 光强扩散角 50% Spread angle50% | 67.87 Deg.    |
| 曲线类型 Curve type       | 光强空间分布曲线     | 光强扩散角 75% Spread angle75% | 48.19 Deg.    |
| 光强标准 IV Standard      | 红外 CIE-A(远场) | 峰值光强 IV(peak)             | 27.50mW/sr.   |
| 测试电流 Test             | 50.0 mA      | 零度光强 deviation angle      | 27.50mW/sr.   |

### 光强空间分布曲线 Light distribution



### 角度-光强 极坐标分布图 Angle-MCD Polar Plot

