



厦门华联半导体科技有限公司

Xiamen Hualian Semiconductor Technology Co., Ltd.

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# 产品规格书

# SPECIFICATION

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产品名称：功率型红外 LED

DESCRIPTION: High Power IRLED

产品型号: HM35IP3WC2

PART NO. : HM35IP3WC2

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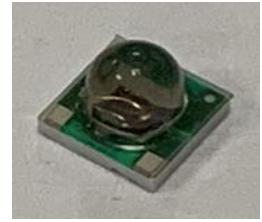
地 址： 厦门市翔安区舂阳南路 189 号

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## 1、特性 Features

HM35IP3WC2 为 850nm 红外发光二极管，采用 3535 陶瓷封装，具有发光强度高、寿命长、可靠性高等优点，应用于红外摄像机、安防系统、机器视觉系统等。

The 3535 ceramics-packaged LED is 850nm IR lights source ,with the advantages of high luminous intensity, low thermal resistance, long life and high reliability. It is widely used for infrared cameras, Surveillance systems, Machine vision systems etc.



- 硅胶封装。 Packaged with silicone material.
- 快速响应时间，可用脉冲驱动，使用寿命长。  
Fast response time. Pulse driven, very long operating life.
- 红外芯片尺寸：20mil×20mil。 IR Chip Size: 20mil×20mil.
- 发光半值角 25 度。  $2\theta_{1/2}$ : 25° .
- 焊接方式：红外回流焊。 Soldering method: IR reflow -soldering .

## 2、极限参数 Absolute Maximum Ratings (Ta=25°C)

表 1 极限参数

Table1 Absolute Maximum Ratings Package

参数 Parameter	符号 Symbol	额定值 Rating	单位 Unit
直流正向电流 DC Forward Current	$I_{FM}$	400	mA
正向脉冲电流 <sup>a</sup> Forward Pulse Current	$I_{FPM}$	1.2	A
耗散功率 Power Dissipation	$P_D$	0.8	W
反向电压 Reverse Voltage	$V_R$	5	V
工作温度范围 Operating Temperature	$T_{opr}$	-40~85	°C
贮存温度范围 Storage Temperature	$T_{st}$	-40~100	°C
回流焊温度（5 秒） Reflow Soldering Temperature (5Sec.)	$T_{sol}$	245	°C
结温 Junction Temperature	$T_J$	115	°C
抗静电能力 Electrostatic Discharge	ESD	±2000V HBM	
<sup>a</sup> 脉冲宽度 Pulse Width≤100 μs, 占空比 Duty≤1/10.			

### 3. 光电特性 Electro-Optical Characteristics( $T_a=25^{\circ}\text{C}$ ):

表 2 光电特性 (测试条件:  $I_F=400\text{mA}$ ,  $t_p=10\text{ms}$ ,  $V_R=5\text{V}$ )

Table2 Electro-Optical Characteristics Characteristics (Test Condition:  $I_F=400\text{mA}$ ,  $V_R=5\text{V}$ )

参数名称 Parameter	符号 Symbol	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
正向电压 Forward Voltage	$V_F$	1.4	—	2.3	V
反向电流 Reverse Current	$I_R$	—	—	10	$\mu\text{A}$
辐射强度 Radiant Intensity	$I_E$	150	250	—	$\text{mW/sr}$
光辐射功率 Radiant Power	$\Phi_e$	160	270	—	mW
峰值波长 Peak Wavelength	$\lambda_p$	—	850	—	nm
光谱半宽度 Half Spectrum Width	$\Delta\lambda$	—	40	—	nm
半值角 Half Value Angle	$\theta_{1/2}$	—	25	—	Deg.

注 Note:

●  $\theta_{1/2}$  指从产品法向往外, 光强为峰值 1/2 时的锥角。

$\theta_{1/2}$  is the off axis angle from lamp center line where the luminous intensity is 1/2 of the peak value.

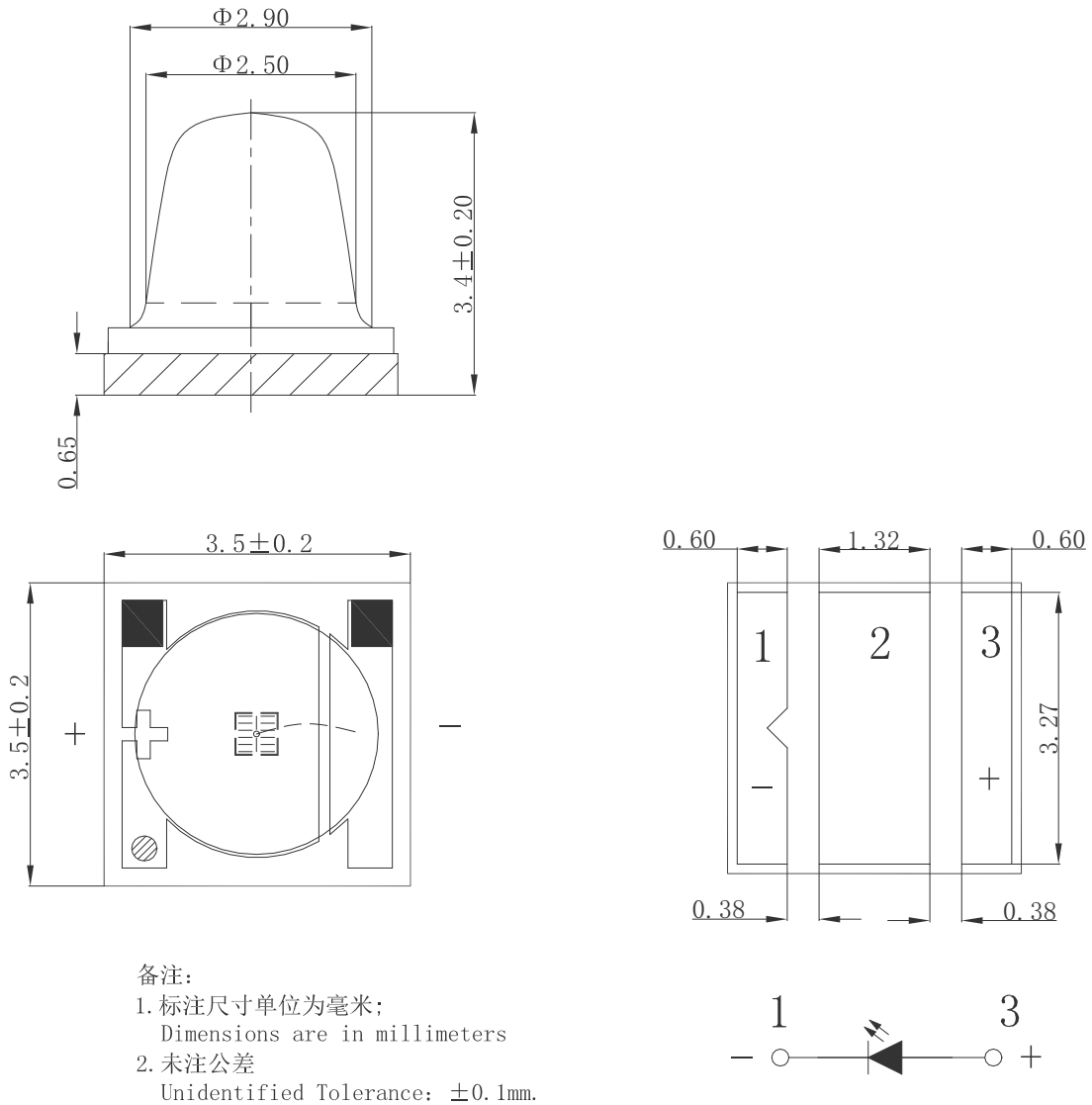
● 光辐射功率, 峰值波长等光参数是在良好散热条件下点亮产品测得, 管壳温度应小于  $45^{\circ}\text{C}$ 。

The optical parameters of power LED such as radiant power ,pak wavelength were tested in good radiating conditions. The temperature of LED surface is less than  $45^{\circ}\text{C}$ .

● 上表中  $V_F$ 、 $\Phi_e$  等参数均是华联电子有限公司的仪器测量数值:

The above  $V_F$ 、 $\Phi_e$  parameters are tested by Hualian's instrument;

### 4、外形尺寸 Package Dimensions



#### 推荐焊盘尺寸 Suggest Soldering Pad Dimensions

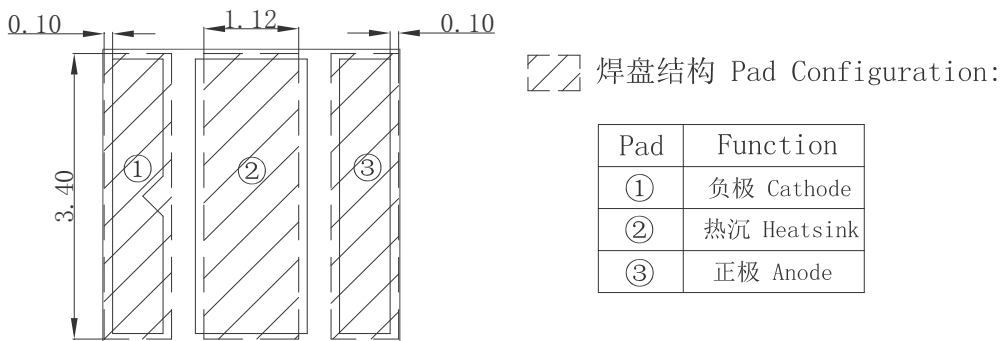


图 1 外形尺寸 Figure1 Package Dimensions

5. 光电特性曲线图 Characteristics Curve(@Ta=25°C):

Fig.1 – Relative Radiant Flux vs. Forward Current

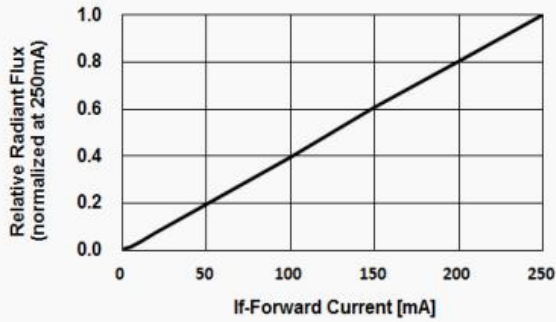


Fig.2 – Forward Current vs. Forward Voltage

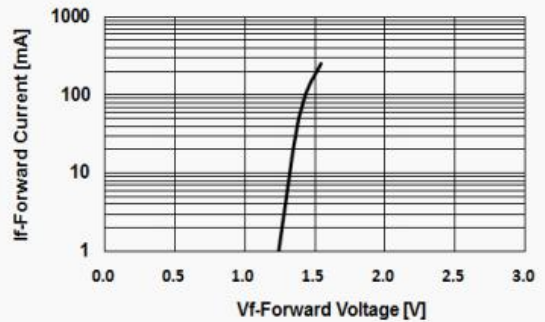


Fig.3 – Relative Radiant Flux (@250mA) vs. Ambient Temperature

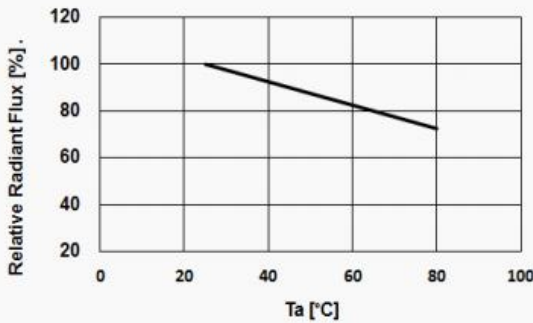


Fig.4 – Forward Voltage (@250mA) vs. Ambient Temperature

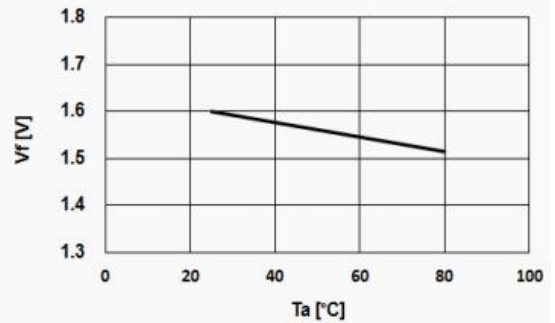


Fig.5 – Peak Wavelength (@250mA) vs. Ambient Temperature

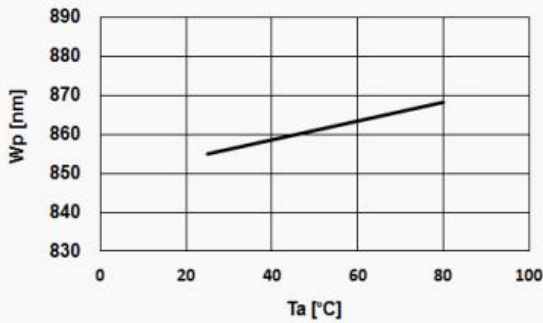


Fig.6 – Maximum Driving Forward DC Current vs. Ambient Temperature (De-rating based on Tj max. = 115°C)

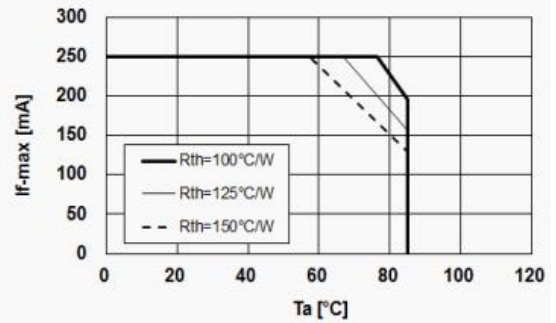


Fig.7 Relative Radiant Intensity vs. Wavelength

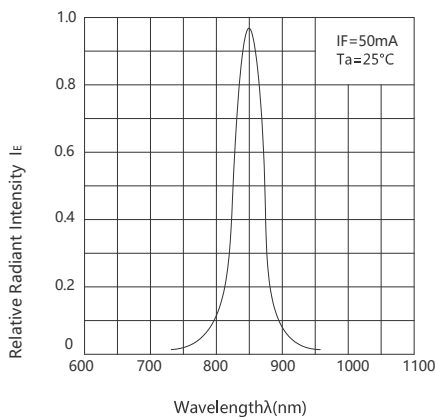
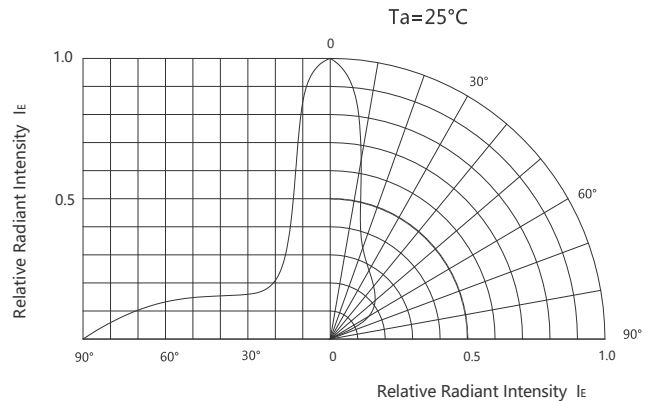


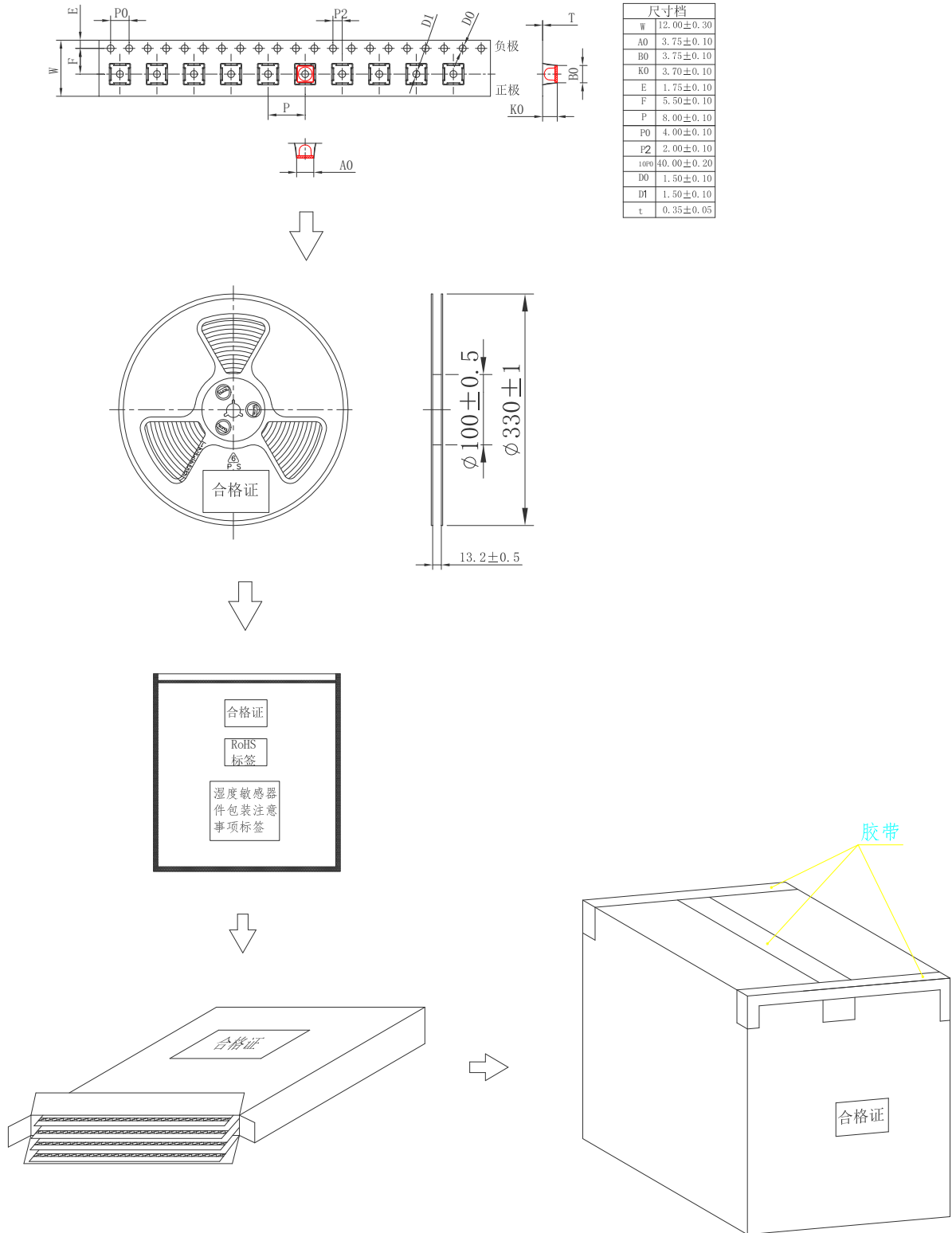
Fig.8 Relative Radiant Intensity vs. Angular Displacement



## 6. 包装方式 Packing

6.1 编带规格 Taping (未注公差:  $\pm 0.1$ 。All measurements are  $\pm 1\text{mm}$  unless otherwise indicated.)

包装数量: 2000 只/盘. Loaded quantity: 2000pcs/reel

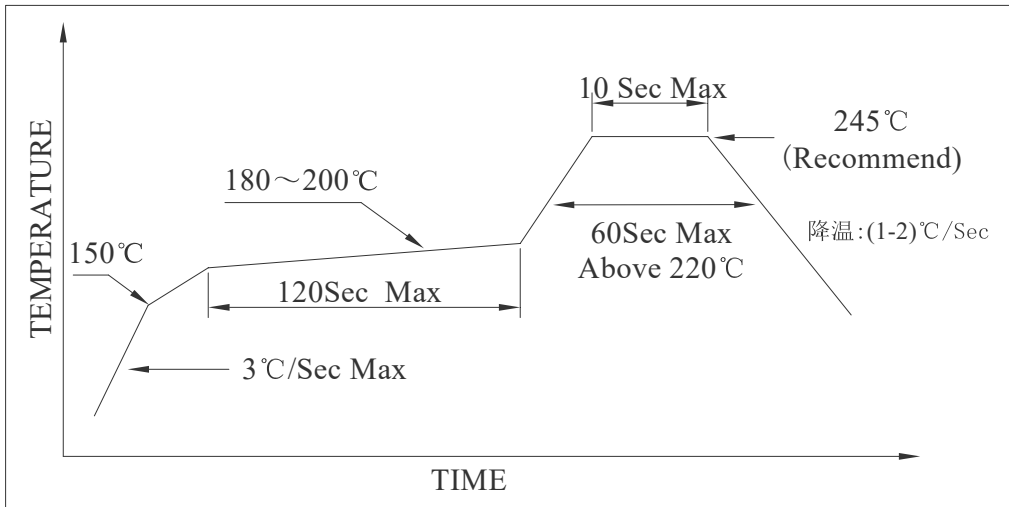


## 6.2 标签 Label



## 7. 焊接条件 Soldering Conditions

推荐红外回流焊条件 Reflow Soldering Conditions:



注意事项 matters need attention:

7.1 回流焊只允许过一次。

Reflow soldering is only allowed once.

7.2 回流焊过程中不要对灯体施加压力。

Do not apply pressure to the lamp body during reflow

7.3 回流焊完成之后不要压挤基板、不可压到胶体部分。

After reflow welding is completed, do not press the heat dissipation plate, do not press to the colloidal part.

7.4 若有比较低熔点的锡膏，TP 可以适当降低。

If there is a lower melting point of solder paste, TP can be appropriately reduced.

## 8. 应用注意事项 Cautions of Application

8.1 防潮 Dry pack

8.1.1 运输及储存中避免吸潮。

Avoid absorbing moisture at any time during transportation or storage.

8.1.2 产品未使用前请不要拆开防潮包装，请在以下推荐环境下储存本产品。

Do not open the moisture proof bag before the products are ready to use. It's

recommended to store the products in the following conditions:

湿度 Humidity: 60%RH Max.

温度 Temperature: 0-30°C.

8.1.3 产品拆封后请在 24 小时内完成焊接工作，如无法用完应在 30 度以下，30% 湿度以下保存。

After this bag is opened, devices that will be applied to infrared reflow, wave soldering, or equivalent soldering process must be:

a. Completed within 24 hours;

b. Stored at less than 30%RH.

8.1.4 如产品的焊接时间或保存条件不能符合上面要求，产品使用前需进行烘烤，烘烤条件：温度(60±3)°C,时间 24h。

If the LEDs have exceeded the above conditions, baking treatment should be performed using the following conditions:24 hours at (60±3)°C.

8.1.5 若袋内湿度指示卡的适度指示超过30%，元件必须按8.1.4条件进行烘烤。

If the bag HIC shows more than 30%RH , baking treatment should be performed, conditions refer to item 8.1.4。

8.1.6 产品的包装有效期为3个月，超过有效期使用时需按8.1.4中规定进行烘烤。

Product should be used within 3 months, otherwise baking treatment should be performed, conditions refer to item 8.1.4。

8.2 静电会导致器件损伤，请确认设备接地良好，有条件可采用离子风机消除静电。

Electro-static may cause damage to the component. Please confirm that the equipment is grounding well. Using an ionized fan to eliminate electro-static is recommended.

8.3 产品为硅胶封装，请勿按压硅胶表面。

The product is covered with silicone resin. Please avoid mechanical stress on LED lens.

8.4 请勿在硅胶表面留下指印。

Avoid leaving fingerprints on silicone resin parts.

8.5 编带产品的使用 Carrier tape handling

8.5.1 请勿扭曲 LED 编带。



Do not twist the carrier tape.

8.5.2 编带 LED 卷曲收纳时，卷曲直径需大于 6mm。

The inward bending diameter should not be smaller than 6cm for each carrier tape.

8.5.3 请勿反向卷曲编带。

Do not bend the tape outward.

8.6 必要时，可以用无尘布蘸无水酒精轻拭产品表面的方式去除产品表面污染或者杂质。

If needed, use dust-free cloth and absolute alcohol to gently clean the dirt from the lens surface.

8.7 设计及应用注意事项 Cautions of design and applications

8.7.1 LED 必须串联一个保护电阻，避免开关时反向电压过大。

It should be done to connect with a current-limiting serial resistor. Avoid to drive reverse voltage over the specifications of LED when ON/OFF.

8.7.2 推荐焊盘的尺寸并不适用于所有客户，请参考实际焊接工艺进行调节。

The dimensions of the recommended soldering pattern may not meet every user. Please confirm and study first before designing the soldering pattern in order to obtain the best performance of soldering.

8.7.3 避免在装配板上与其他器件相接触。

Do not contact with any component on the assembly board.

8.7.4 任何应用必须保证应用条件不超过器件极限参数的范围。

Any application should not exceed the absolute maximum ratings of products.

## 更改记录表

### Engineering Change Notice-Record

版次 EDITION	更改日期 DATE	主要更改内容 MAIN CONTENT	拟制 PREPARED	确认 CHECKED
1.0	2023-04	新版发行 New Edition		