厦 门 华 联 电 子 有 限 公 司

**Xiamen Hualian Electronics Co. , Ltd.**

# 产品规格书

# Specification on Product

## 产品名称：940nm 红外发光二极管

**DESCRIPTION: 940nm INFRARED LED**

产品型号：**HV35281IR01CC**

PART NO.： **HV35281IR01CC**


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## 1、概述（General）：

HV35281IR01CC 是 AlGaAs/GaAs 红外发光二极管，具有响应速度快、辐射强度高、寿命长、可靠性高等优点，广泛应用于红外遥控系统中的红外光源。

The HV35281IR01CC is a AlGaAs on GaAs Infrared Light Emitting Diode, with the advantages of fast response time, high radiant intensity, long life and high reliability etc. It is widely used in Infrared Remote Control System as Infrared light Source .

## 2、特点（Features）：

- PLCC-2PIN 封装。PLCC-2PIN package.
- 快速响应时间，可用脉冲驱动，使用寿命长。Fast response time, Pulse driven. Long operating life.
- 无色透明封装 Water Clear Package.
- 符合 RoHS 及用户其他环保法律法规要求。
  RoHS compliant and satisfy the environmental law and regulation requirements of customers.

## 3、应用（Applications）

近红外遥控系统中红外光源 Infrared light Source in the Near Infrared Remote Control System

## 4、极限参数（Maximum Ratings） ($T_a$=25°C)

**表 1 极限参数**

**Table1 Absolute Maximum Ratings** **$T_a$=25℃**

| 参数名称 Parameter | 符号 Symbol | 额定值 Rating | 单位 Unit |
|---|---|---|---|
| 正向电流 Forward Current | $I_{FM}$ | 80 | mA |
| 正向脉冲电流 [a] Forward Pulse Current | $I_{FPM}$ | 800 | mA |
| 反向电压 Reverse Voltage | $V_R$ | 5 | V |
| 耗散功率 Power Dissipation | $P_M$ | 100 | mW |
| 工作环境温度 Operating Ambiance Temperature | $T_{aop}$ [b] | -25 ~ +85 | ℃ |
| 贮存温度范围 Storage Temperature Range | $T_{ST}$ | -40~+100 | °C |
| 回流焊温度（10 秒） Reflow Soldering Temperature (10Sec.) | $T_{sld}$ | 250 | ℃ |
| 手工焊温度（3 秒） Hand Soldering Temperature (3Sec.) | $T_{sld}$ | 300 | ℃ |

[a] 占空比 Duty：1/100，频率 Frequency：1KHZ。
[b] 工作环境温度参数符号只在极限参数表中用 Taop 表示，其他地方用 Ta 表示。
Parameter symbol of Operating Ambiance Temperature uses Taop only in table 1 Absolute Maximum Ratings, and uses Ta at other places.

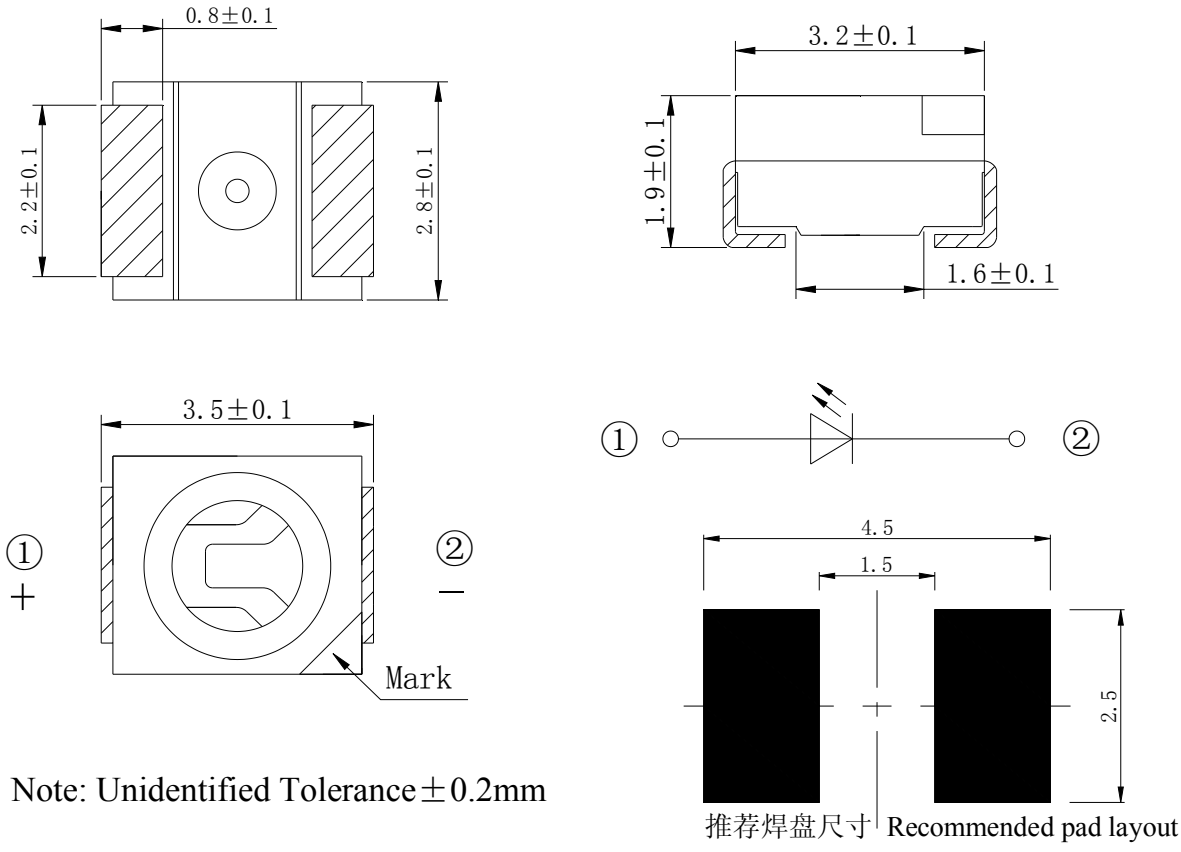
## 5、光电参数（Optoelectric Characteristics）($T_a$=25°C)

**表 2 光电参数**

**Table2 Opto-Electrical Characteristics** **$T_a$=25℃**

| 参数 Parameter | 符号 Symbol | 测试条件 Test condition | 最小 Min. | 典型 Typ. | 最大 Max. | 单位 Unit |
|---|---|---|---|---|---|---|
| 正向电压 Forward Voltage | $V_F$ | $I_F$=50mA | — | 1.30 | 1.60 | V |
| 反向电流 Reverse Current | $I_R$ | $V_R$=5V | — | — | 10 | μA |
| 辐射强度 Radiant Intensity | $I_E$ | $I_F$=20mA | 1.0 | 1.6 | — | mW/sr |
| | | $I_F$=50mA | 2.0 | 4.0 | — | |
| | | $I_F$=350mA，tp=100μs | 12 | 25 | — | |
| 辐射功率 Radiant Power | $P_{O1}$ | $I_F$=20mA | — | 5.0 | — | mW |
| | $P_{O2}$ | $I_F$=50mA | — | 12 | — | mW |
| 峰值发射波长 Peak Radiation Wave Length | $\lambda_P$ | $I_F$=50mA | — | 940 | — | nm |
| 光谱半宽度 Half Spectrum Width | $\Delta\lambda$ | $I_F$=50mA | — | 50 | — | nm |
| 半强度角 Radiation Angle of Half Intensity | $\theta_{1/2}$ | $I_F$=50mA | — | 120 | — | deg |
| 开关时间 Switch Time | $t_r/t_f$ | $I_{FP}$=100mA ,f=1KHz, $t_p/T$=1% | — | 1/1 | — | μs |

**6、外形尺寸与电原理图 Package Dimensions and Circuit Diagram：**




Note: Unidentified Tolerance±0.2mm

## 7、特性曲线 （Characteristics Curve）

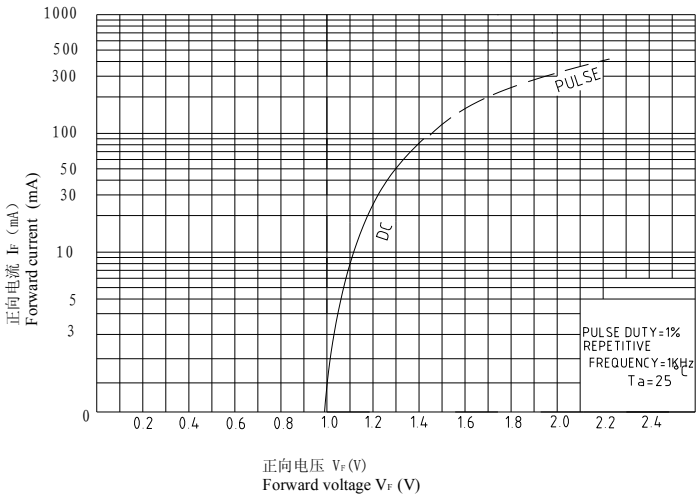



**Fig.1 Forward Current vs. Forward Voltage**

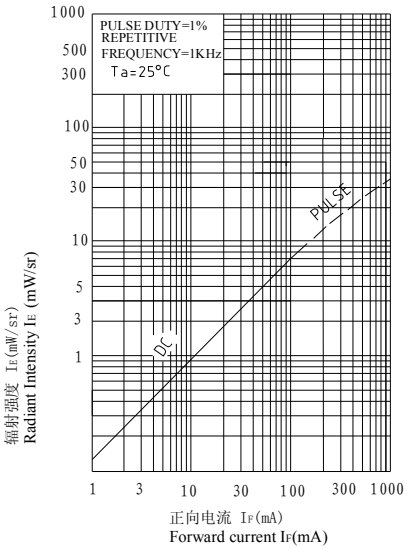



**Fig.2 Radiant Intensity vs. Forward Current**

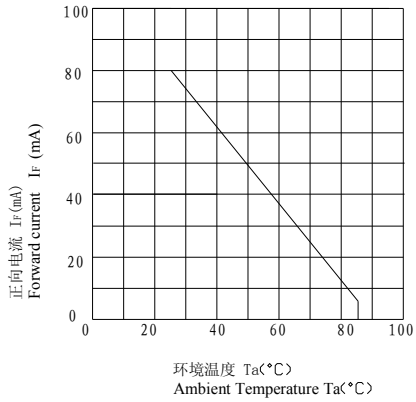



**Fig.3 Forward Current vs. Ambient Temperature**

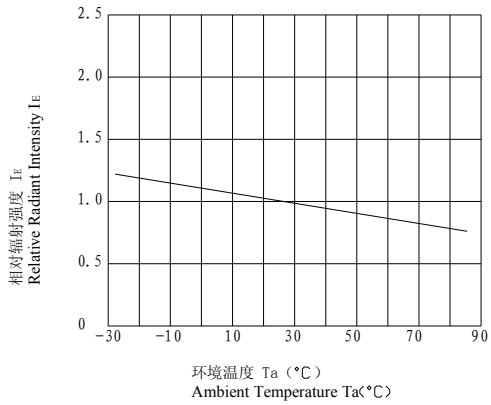



**Fig.4 Relative Radiant Intensity vs. Ambient Temperature**

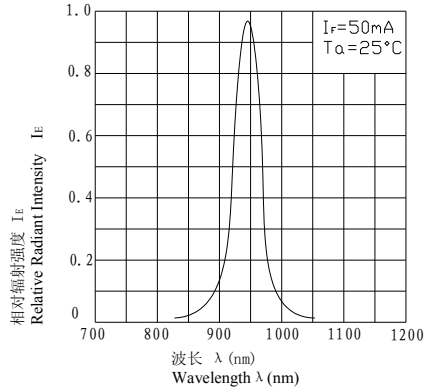



**Fig.5 Relative Radiant Intensity vs. Wavelength**

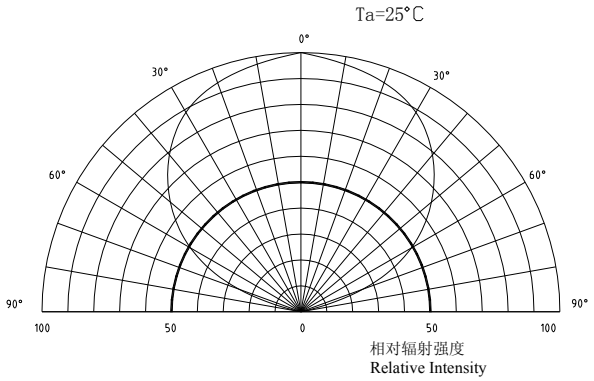
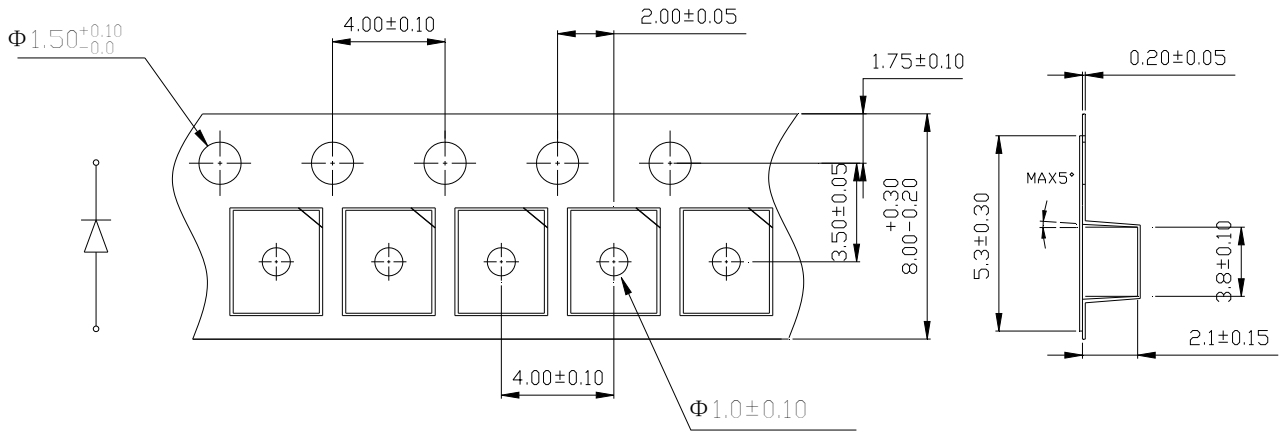



**Fig.6 Relative Radiant Intensity vs. Angular Displacement**

## 8、 包装方式 （Way of Packing）

未注公差：±0.1 mm。All measurements are ±.1mm unless otherwise indicated.）

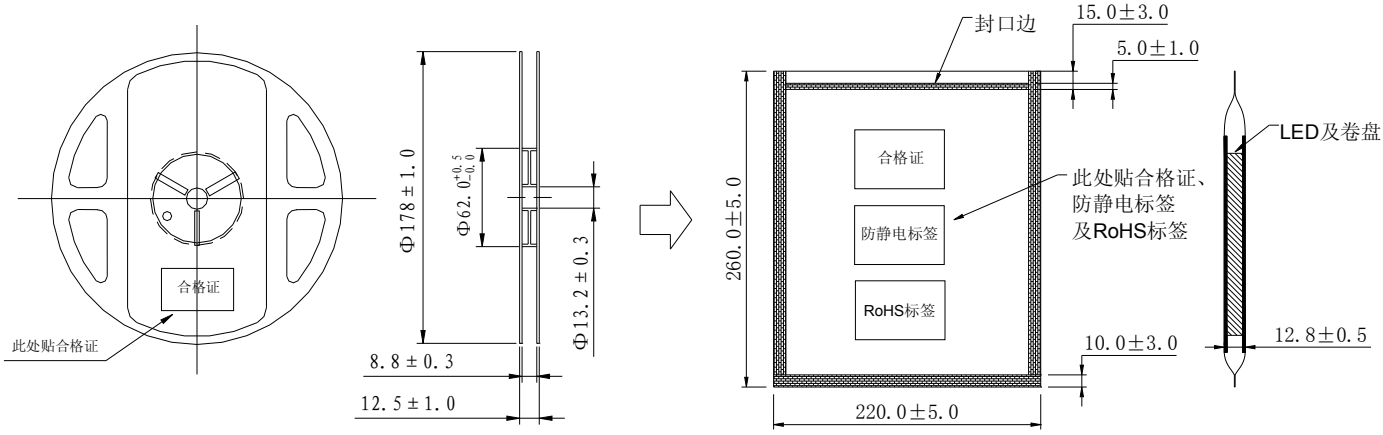
8.1 编带规格 Taping



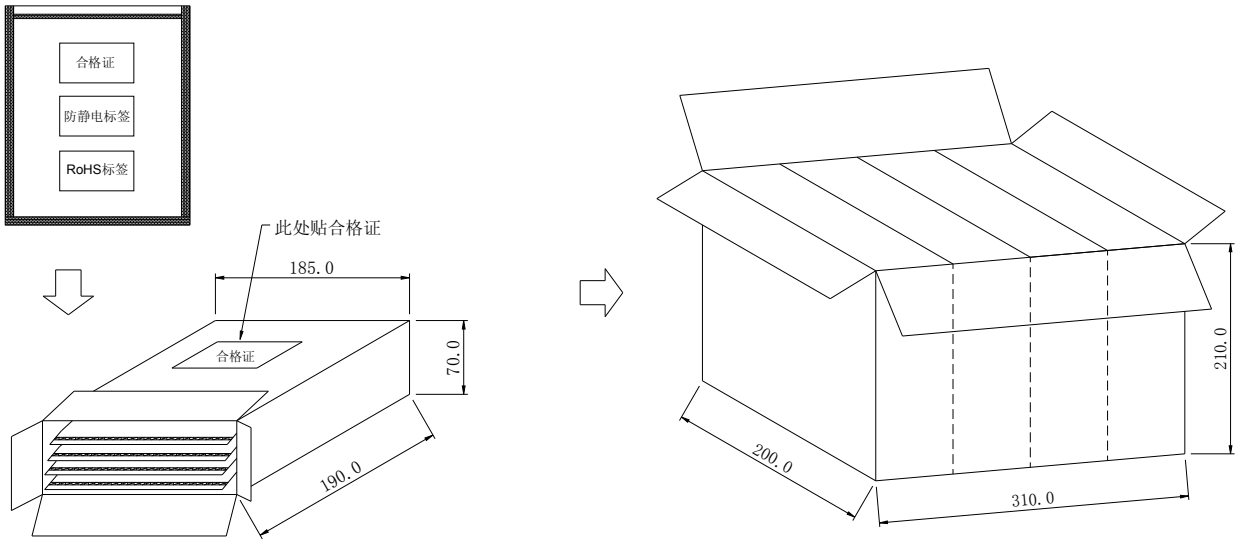

8.2 卷盘及铝箔袋规格 Reel and bag

卷盘 Reel：1000pcs/reel。

防静电铝箔袋 Bag：1000pcs/bag。




8.3 包装纸箱规格 Cardboard box



# 9. 使用注意事项 Precautions for Use

### 9.1 干燥包装 Dry pack

1) 运输及储存中避免吸潮。

Avoid absorbing moisture at any time during transportation or storage.

2) 卷轴采用防潮防静电包装（可根据用户的要求或选择采用特殊的包装材料），包装袋密封后装货。

Every reel will be packaged in the moisture barrier anti-static bag (Specific bag material will depend upon customers' requirement or selection). And the bag is well sealed before shipment.

### 9.2 储存 Storage

1) 请在符合以下要求的环境中储存本产品。It's recommended to store the products in the following conditions:

湿度 Humidity: 60%RH Max.

温度 Temperature:5℃~30℃.

2) 密封包装搁架时间 12 个月 Shelf life in sealed bag:12 month at＜40℃ and ＜90%RH.

3) 包装袋打开后请在 24 小时内装配使用（在≤30℃/60%RH 的工厂环境下），或贮存在密闭环境中（≤20%RH）。After the bag is opened, devices that will be subjected to infrared reflow, or equivalent processing must be: Mounted within 24hs at factory conditions of ≤30℃/60%RH, or Stored at ≤20%RH with zip-lock sealed.

### 9.3 烘烤 Baking

若产品在未密封的包装袋内搁置超过 24 小时，建议采用 60±3℃×(24~48 小时)条件进行烘烤后再焊接：

It's recommended to baking before soldering when the pack is unsealed after 24hs. The condition is: 60±3℃×（24~48hrs）.

### 9.4 应用（焊接） Application (Soldering)

9.4.1 手工焊接（我们建议应尽量避免采用这钟方法）

Manual soldering (We do not recommend this method strongly.)

1) 焊锡材料：SnAg0.3Cu0.7。Soldering tin material: SnAg0.3Cu0.7。
2) 在手工焊接前先进行烘烤，可避免器件突然受热开裂。To prevent cracking, please bake before manual soldering.
3) 引脚焊接最高 280℃不超过 3 秒，3 次。Lead：Not more than 3 seconds ,3times@Max 280℃.
4) 手工焊接时，请注意避免损伤器件环氧体或引线焊脚。（焊接时不要对器件施加外力）。In manual soldering, take care not to damage the package especially terminal or resin. (Do not give stress to the product when soldering.)
5) 已焊接过的器件请不要回用。Do not use again if you remove the soldered product
6) 建议使用带温度控制的烙铁。It is recommended using an iron with a temperature control.

9.4.2 回流焊 Reflow soldering

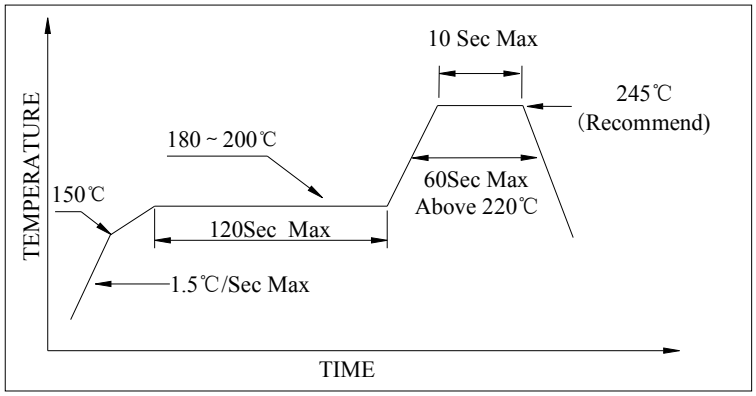
1) 推荐锡膏规格 Recommend tin glue specifications:

a)熔点 Melting temperature:217℃

b)组分 Contains: SnAg3Cu0.5

2) 回流焊次工序必须在器件冷却至室温后进行。Never take next process until the component is cooled down to room temperature after reflow.

3) 推荐回流焊接参数(测试于器件硅胶体表面),如下图所示:The recommended reflow soldering profile (measuring on the surface of the LED silicon ) is following:




**9.5 清洗 Cleaning**

焊接后清洗的条件 The conditions of cleaning after soldering:

1) 清洗剂推荐采用乙醇(如 IPA)。An alcohol-based solvent such as Isopropyl Alcohol (IPA) is recommended.

2) 温度×时间 Temperature×Time:＜50℃×30sec, or ＜30℃×3min

3) 超声清洗 Ultra sonic cleaning: ＜15W/bath; Bath volume: 1 liter max.

4) 恢复 Curing:100℃ max, ＜3min

**9.6 吸起及放置注意事项 Cautions of pock and place**

1) 高温时避免对器件硅胶体施加外力。 It should be avoided to load stress on the silicon during high temperature.

2) 避免外界物品导致器件硅胶刮伤或擦伤。 Avoid rubbing or scraping the silicon by any object.

3) 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。

Electric-static may cause damage to the component. Please confirm that the equipment is grounding well. Using an ionize fan is recommended.

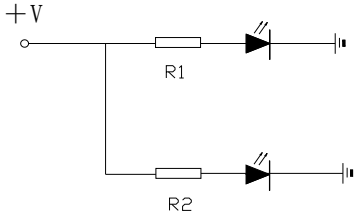
4) 硅胶体正面法向承受按压力需小于 5 牛顿,按压次数小于 3 次。上线自动贴片时,吸嘴(外直径建议 2mm 以上)对准产品的 PPA 支架体部分.不宜接触到硅胶体。Please do not force over 5 nekton impact or pressure to silicon surface of LEDs of the modules ,And less than 3 times. Automatic working, Sucking mouth(Outer diameter greater than 2mm) on the part of the product PPA, Not touching the silicon.

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

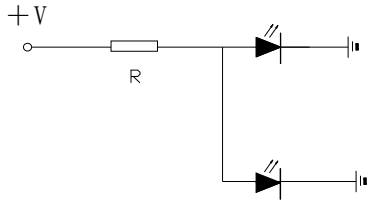
1)推荐使用电路 Recommended Electric Circuit

LED 使用时，需串联一限流电阻，以保证 LED 工作电流稳定性，进而保证 LED 的可靠性以及亮度的一致性。

When LED is used, it is needed a current limiting resistor in series for the stability of LED operating current, to ensure the LED reliability and keep the luminous intensity coherence.




Correct




Wrong

2)任何应用必须符合器件的极限参数。

Any application should refer to the specifications of absolute maximum ratings.

3)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.

4) 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.

# 更改记录表

# Engineering Change Notice-Record

| 版次<br>EDITION | 更改日期<br>DATE | 主要更改内容<br>MAIN CONTENT | 拟 制<br>PREPARED | 确 认<br>CHECKED | 审核<br>AUDITED |
|---|---|---|---|---|---|
| 1.0 | 2013-05 | 新版发行 New Edition | | | |
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