

# 产品规格书

## SPECIFICATION

XSSY P/N 产品型号 : SE03-LP2835S-1430-940

☐ 研发 R&D ☒ 量产供货 Mass Product

|                  |               |                       |                           |
|------------------|---------------|-----------------------|---------------------------|
| 修改履历<br>(Record) | 版本<br>Version | 制/修改日期<br>Revise Date | 制/修改内容<br>Revise Contents |
|                  | V1.0          | 2016/08/18            | 初版订制 First order          |
|                  | V1.1          | 2022/10/25            | 新模板更新 New template update |
|                  |               |                       |                           |
|                  |               |                       |                           |
|                  |               |                       |                           |
|                  |               |                       |                           |
|                  |               |                       |                           |

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版本 Rev : V1.1

## SE03-LP2835S-1430-940

### ■ 特点 Features :

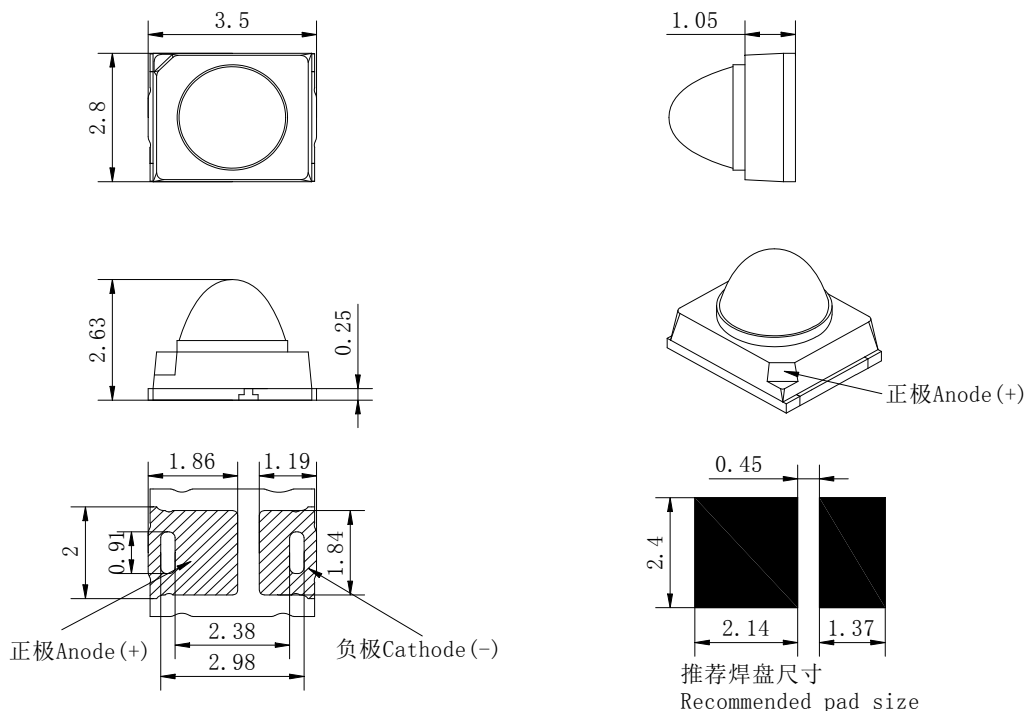
- 白色 PLCC 封装 White PLCC Package
- 适用于 SMT 组装 Suitable for SMT assembly
- 峰值波长 940nm Peak wavelength 940 nm
- 高效红外光源 IR lightsource with high efficiency



### ■ 应用 Applications :

- 监控摄像机辅助光源 Auxiliary light source for surveillance camera
- 红外数据传输 Infrared data transmission
- 红外传感器 Infrared sensor

### ■ 外观及推荐焊盘尺寸 Appearance and Recommended pad size :



#### 备注 Note :

1. 所有标注尺寸单位为毫米  
All dimensioning units are millimeters.
2. 除特别标注外，所有尺寸允许公差 $\pm 0.15\text{mm}$ 。  
All dimensions tolerances are  $\pm 0.15\text{mm}$  unless otherwise noted.

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## ■ 极限参数 Absolute maximum rating :

| 参数名称<br>Parameter              | 符号<br>Symbol | 最大额定值<br>Maximum Rating | 单位<br>Unit | 环境温度<br>Ambient temperature |
|--------------------------------|--------------|-------------------------|------------|-----------------------------|
| 功耗<br>Power Dissipation        | Pd           | 0.17                    | W          | Ta=25°C                     |
| 正向电流<br>Forward Current        | IF           | ≤100                    | mA         | Ta=25°C                     |
| 反向电压<br>Reverse voltage        | VR           | 5.0                     | V          | Ta=25°C                     |
| 工作温度<br>Operating Temperature  | TOPR         | -30°C~+85°C             | °C         |                             |
| 存储温度<br>Storage Temperature    | TSTG         | -40°C~+100°C            | °C         |                             |
| 回流焊温度<br>Soldering Temperature | TSOL         | 235°C for 5sec          | °C         |                             |

备注 Note :

采用超过上表所示的最大额定值使用本产品会导致可靠性问题，甚至出现失效。因使用不当而造成的产品失效，我司概不负责！

The use of this product beyond the maximum rating shown in the table above will lead to reliability problems and even failure. We are not responsible for the failure of products caused by improper use !

## ■ 光电特性 Electrical-optical characteristics :

| 参数名称<br>Parameter         | 符号<br>Symbol    | 条件<br>Condition | 最小<br>Min | 典型<br>Typ | 最大<br>Max | 单位<br>Unit |
|---------------------------|-----------------|-----------------|-----------|-----------|-----------|------------|
| 辐射通量<br>Radiant flux      | $\Phi_e$        | IF=70mA         | -         | 45        | -         | mW         |
|                           |                 | IF=100mA        | -         | 65        | -         | mW         |
| 辐射强度<br>Radiant intensity | Ie              | IF=70mA         | -         | 140       | -         | mW/Sr      |
|                           |                 | IF=100mA        | -         | 200       | -         | mW/Sr      |
| 正向电压<br>Forward Voltage   | VF              | IF=70mA         | 1.30      | 1.40      | 1.60      | V          |
|                           |                 | IF=100mA        | 1.30      | 1.45      | 1.70      | V          |
| 视角<br>Half-value Angle    | 2 $\theta$ 1/2  | IF=70mA         | -         | 30        | -         | Deg        |
| 光线光谱<br>Peak Wavelength   | $\lambda_p$     | IF=70mA         | 930       | 945       | 960       | nm         |
| 光谱线半波宽<br>Half-wave Width | $\Delta\lambda$ | IF=70mA         | -         | 35        | -         | nm         |
| 反向电流<br>Reverse Current   | IR              | VR=5.0V         | -         | -         | 10        | $\mu$ A    |

■ 电压的分档 Voltage classification :

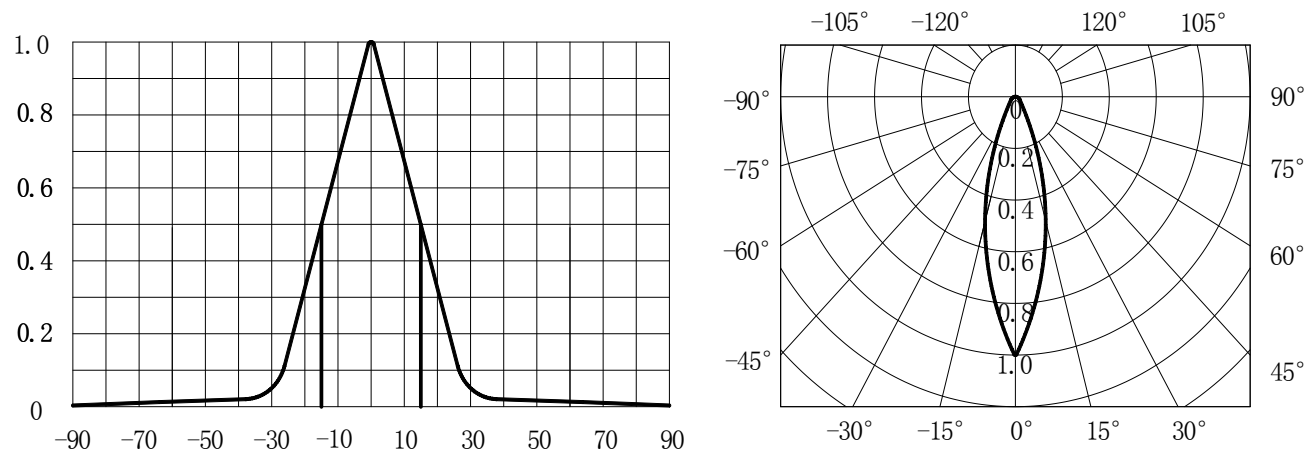
| IF=70mA | 档位 Stall | 最小 MIN | 最大 MAX |
|---------|----------|--------|--------|
|         | I        | 1.3V   | 1.4V   |
|         | II       | 1.4V   | 1.5V   |
|         | III      | 1.5V   | 1.6V   |

备注 Note :

1. 测量公差：电压 $\pm 0.1V$ ；辐射通量/辐射强度 $\pm 10\%$ ；波长 $\pm 1nm$ ；角度 $\pm 2^\circ$ 。  
Measurement tolerance :  $V_f \pm 0.1V$  ;  $\Phi_e/I_e \pm 10\%$  ;  $\lambda_p \pm 1nm$  ; Angle  $\pm 2^\circ$ .
2.  $\theta_{1/2}$  是半值角，指发光强度值为轴向强度值一半的方向与发光轴向（法向）的夹角。  
 $\theta_{1/2}$  is the half angle, which refers to the angle of the luminous intensity value in the direction of half of the axial intensity and the axial (normal) direction of the light emitting.
3. 所有测试都是基于旭晟现有的标准测试平台。  
All measurements were made under the standardized environment of XSSY.

■ 光学特性曲线 Optical property curve :

配光曲线 Light distribution curve



## ■ 光电特性曲线 Photoelectric characteristic curve :

Fig.1-Relative Radiant Flus vs. Forward Current

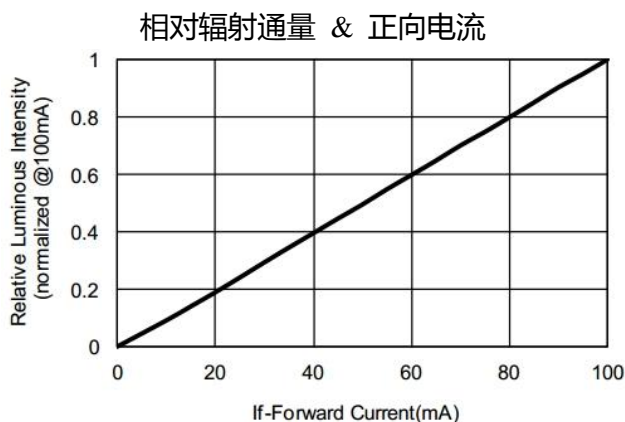


Fig.2-Forward Current vs. Forward Voltage

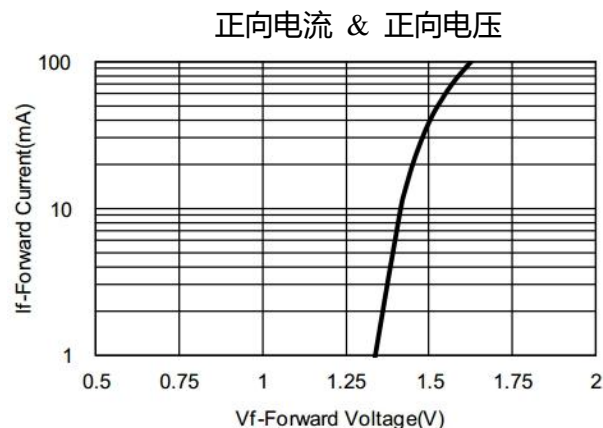


Fig.3-Relative Intensity (@100mA) vs. Ambient Temperature

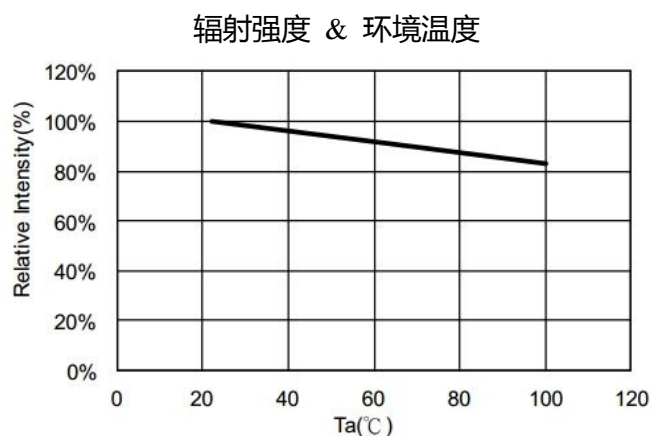


Fig.4-Forward Voltage (@100mA) vs. Temperature

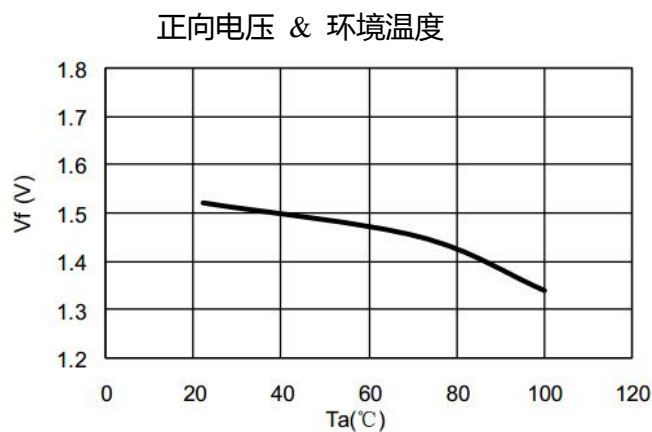


Fig.5- Peak Wavelength (@100mA) vs. Ambient Temperature.

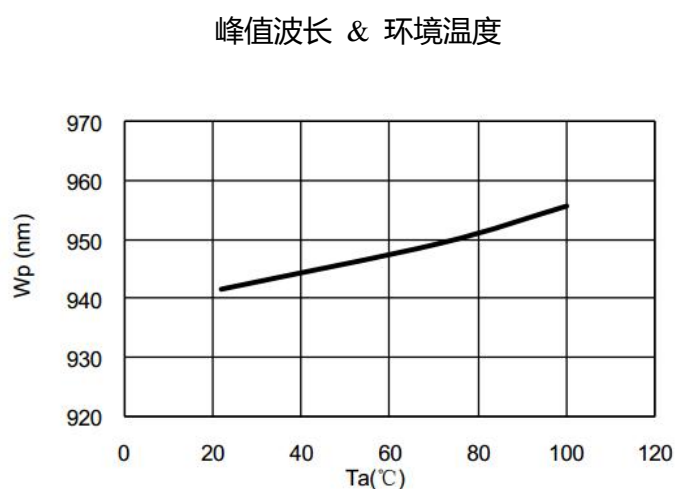
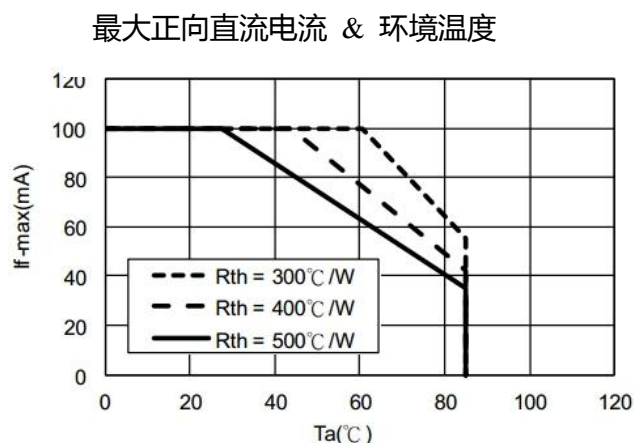


Fig.6- Maximum Driving Forward DC Current vs.Ambient Temperature  
(Derating based on Tj max=115°C)



## ■ 可靠性试验 Reliability Test Items Conditions

| 测试项目<br>Test item                                         | 参考标准<br>Reference standard | 测试条件<br>Test condition                         | 时间<br>Time | 数量<br>Number | 接受/拒收<br>Accept / Reject |
|-----------------------------------------------------------|----------------------------|------------------------------------------------|------------|--------------|--------------------------|
| 回流焊<br>Reflow soldering                                   | JESD22-B106                | Temp:235°C max<br>T=5sec                       | 3 times    | 22Pcs        | 0/1                      |
| 冷热冲击<br>Thermal Shock                                     | JESD22-A104                | 100°C±5°C 30min.<br>↑↓5min<br>-40°C±5°C 30min. | 100 Cycles | 22Pcs        | 0/1                      |
| 高温保存<br>High temperature storage                          | JESD22-A103                | Temp:100°C±5°C                                 | 1000Hrs    | 22Pcs        | 0/1                      |
| 低温保存<br>Low temperature storage                           | JESD22-A119                | Temp:-40°C±5°C                                 | 1000Hrs    | 22Pcs        | 0/1                      |
| 常温通电<br>Ambient temperature energization                  | JESD22-A108                | Ta=25°C±5°C<br>IF=70mA                         | 1000Hrs    | 22Pcs        | 0/1                      |
| 常温加速通电<br>Ambient temperature accelerated energization    | JESD22-A108                | Ta=25°C±5°C<br>IF=100mA                        | 1000Hrs    | 22Pcs        | 0/1                      |
| 高温高湿通电<br>High temperature and high humidity energization | JESD22-A101                | 85°C±5°C /85%RH<br>IF=70mA                     | 1000Hrs    | 22Pcs        | 0/1                      |

## ■ 失效判定标准 Criteria for Judgment

| 项目<br>Item              | 符号<br>Symbol | 测试条件<br>Test condition | 判定标准 Criterion |               |
|-------------------------|--------------|------------------------|----------------|---------------|
|                         |              |                        | 最小 MIN         | 最大 MAX        |
| 正向电压<br>Forward Voltage | VF           | IF=70mA                | --             | U.S.L* ) ×1.2 |
| 反向电流<br>Reverse Current | IR           | VR=5V                  | --             | U.S.L* ) ×2.0 |
| 辐射通量<br>Radiant Flux    | Φe           | IF=70mA                | L.S.L* ) ×0.7  | --            |

备注 Note :

1、USL : 标准值上限值, LSL : 标准值下限值

USL : Upper Standard Level, LSL: Lower Standard Level

2、以上技术数据仅为产品的典型值, 只作为参考, 不作为任何应用条件及应用方式的保证。

The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.

3、以上可靠性试验是基于旭晟现有实验平台单颗 LED 在良好散热条件验证下的结果。客户端将 LED 应用于串、并联线路时, 需自行评估电流、电压分配、散热等问题。

The above reliability tests is based on the verification of a single LED of XSSY's existing experimental platform, the reliability experiment was taken under good heat dissipation conditions. when customers applies the LED to the series and parallel circuit, should take consideration of all the factors such as the current, voltage distribution, heat dissipation and others.

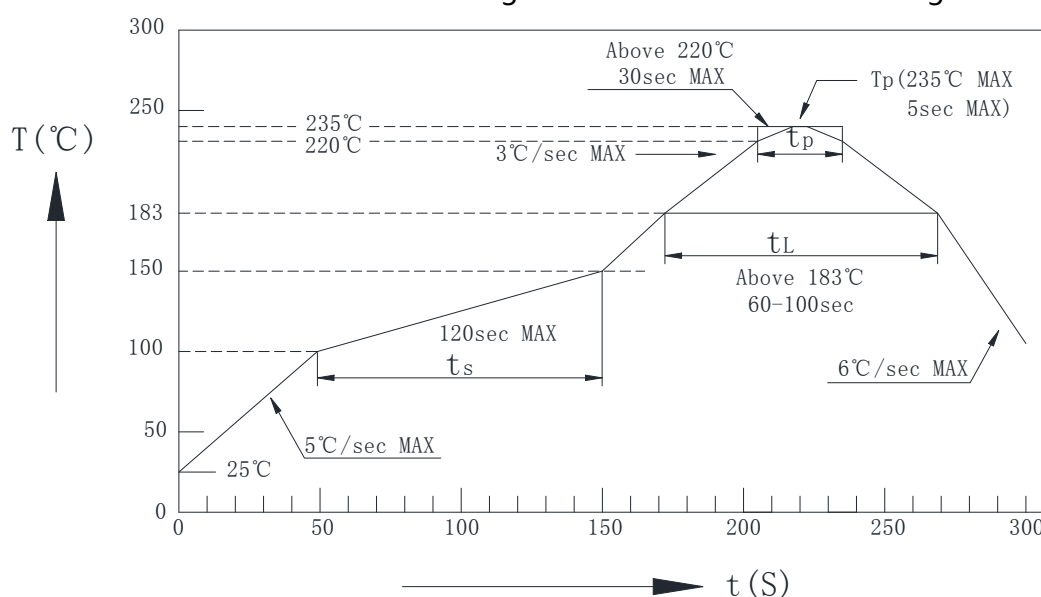
## ■ 焊接指导 Guideline for soldering :

### 1、使用烙铁焊接 Hand soldering

- 当手工焊接时, 要保持电烙铁温度在 300 摄氏度以下, 并且焊接时间小于 3 秒, 电烙铁不可接触胶体。  
During the soldering, the electronic soldering iron must be kept under the temperature of 300°C and the soldering time must not be beyond 3 seconds. No touch between the electronic soldering iron and colloid.
- 手工焊接只可进行一次, 重复焊接不保证产品是否完好。  
Handwork soldering is only allowed once. We won't take responsibility for more than that.

### 2、回流焊接 : Reflow soldering

- 推荐使用以下无铅回流焊接温度图进行  
Use the conditions shown in the under Figure of Pb-Free Reflow Soldering.



**Reflow soldering curve 回流焊曲线图**

(产品最高可耐 235°C 回流焊, 但建议最高温度设为 220°C)

(Product is highest resistant to 235°C reflow but suggested the highest temperature of 220°C within)

参数说明 parameter description

| 特征<br>Profile Feature                                                                                              | 符号<br>Symbol   | 无铅锡膏<br>Pb-Free(SnAgCu)Assembly |     |     | 单位<br>Unit |
|--------------------------------------------------------------------------------------------------------------------|----------------|---------------------------------|-----|-----|------------|
|                                                                                                                    |                | Min                             | Tpy | MAX |            |
| 预热升温速率 ( T <sub>smax</sub> 至 T <sub>p</sub> )<br>Ramp-up rate to preheat (25°C to 150°C)                           | /              |                                 | 2   | 5   | °C/s       |
| 预热 : 时间 ( t <sub>smin</sub> 至 t <sub>smax</sub> )<br>Time t <sub>s</sub> (T <sub>smin</sub> to T <sub>smax</sub> ) | t <sub>s</sub> | 60                              | 100 | 120 | s          |
| T <sub>smax</sub> 升至峰值温度的速度<br>Ramp-up rate to peak (T <sub>smax</sub> to T <sub>p</sub> )                         | /              |                                 | 2   |     | °C/s       |
| 液相线温度 (TL)<br>Liquidus temperature                                                                                 | TL             | 183                             |     |     | °C         |
| 超过液相线温度的时间 (tL)<br>Time above liquidus temperature                                                                 | tL             |                                 | 80  | 100 | s          |
| 峰值温度 (T <sub>p</sub> )<br>Peak temperature                                                                         | T <sub>p</sub> |                                 | 220 | 235 | °C         |
| 与实际峰值温度 (T <sub>p</sub> ) 相差 5°C 以内的保持时间<br>Time within 5°C of the specified peak temperature T <sub>p</sub> -5°C  | tP             | 10                              | 20  | 30  | s          |
| 降温速度<br>Ramp-down rate ( T <sub>p</sub> to 100°C )                                                                 | /              |                                 | 3   | 6   | °C/s       |
| 降温时间<br>Time ( 25°C to T <sub>p</sub> )                                                                            | /              |                                 |     | 480 | s          |

备注 Note :

1、回流焊次数不可超出两次，两次回流焊的时间间隔如果超出 24 小时，LED 可能由于吸湿而损坏。

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.

2、在回流焊接升温过程中，请不要对 LED 施加任何压力。

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

3、回流焊之后冷却过程中，不要对材料施加外力，也不要震动，回流焊后不能采取急剧冷却的方式。

Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering. Do not rapidly cool device after soldering.

## ■ 使用注意事项 Using Guide

### 1、存储 Storage

| 种类<br>Conditions |                                    | 温度<br>Temperature         | 湿度<br>Humidity | 时间<br>Time  |
|------------------|------------------------------------|---------------------------|----------------|-------------|
| 储存<br>Storage    | 拆包前<br>Before Opening Aluminum Bag | $\leq 30^{\circ}\text{C}$ | $\leq 75\%$    | 1 年 Year    |
|                  | 拆包后<br>After Opening Aluminum Bag  | $\leq 30^{\circ}\text{C}$ | $\leq 60\%$    | 24 小时 Hours |
| 烘烤 Baking        |                                    | $75^{\circ}\text{C}$      | /              | 12 小时 Hours |

#### 1.1 打开包装袋前 ( Before Opening Aluminum Bag )

- 在温度不超过  $30^{\circ}\text{C}$  及湿度不超过  $75\%\text{RH}$  条件下, LED 可以保存一年, 建议采用带干燥剂的防潮铝箔袋的包装方式, 存放在恒温恒湿箱中。达不到要求的环境下, 尽量保证在 6 个月内使用完毕。  
The LEDs can be preserved for 1 year in condition of temperature no more than  $30^{\circ}\text{C}$  and humidity no more than  $60\%\text{RH}$ . Recommended for moisture-proof foil bag with desiccant packaging methods and stored in the constant temperature and humidity box. Can not reach the requirements under the environment of the guarantee as far as possible in six months after use.

#### 1.2 打开包装后 ( Before Opening Aluminum Bag )

- 本产使用密封防潮抗静电袋包装,并附有干燥剂,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指示卡来确定,湿度显示小于或等于  $10\%$  时,使用前须进行烘烤。  
Moisture proof and anti-electrostatic package with moisture absorbent material is used. 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  $10\%$ , Must be baked before use.
- 开封后,产品必须 24 小时内使用完(建议工作环境温度不高于  $30^{\circ}\text{C}$ ,湿度不高于  $60\%$ ),如未使用完,余料须存放在温度不高于  $30^{\circ}\text{C}$ ,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  $30^{\circ}\text{C}$  or less and humidity less than  $10\%\text{RH}$ . It is recommended that the product be operated at the workshop condition of  $30^{\circ}\text{C}$  or less and humidity less than  $60\%\text{RH}$ .
- 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: $75\pm 5^{\circ}\text{C}$ ,持续时间 12H。  
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 :  $75\pm 5^{\circ}\text{C}$  for 12 hours.

## 2、静电防护 Electrostatic protection

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.

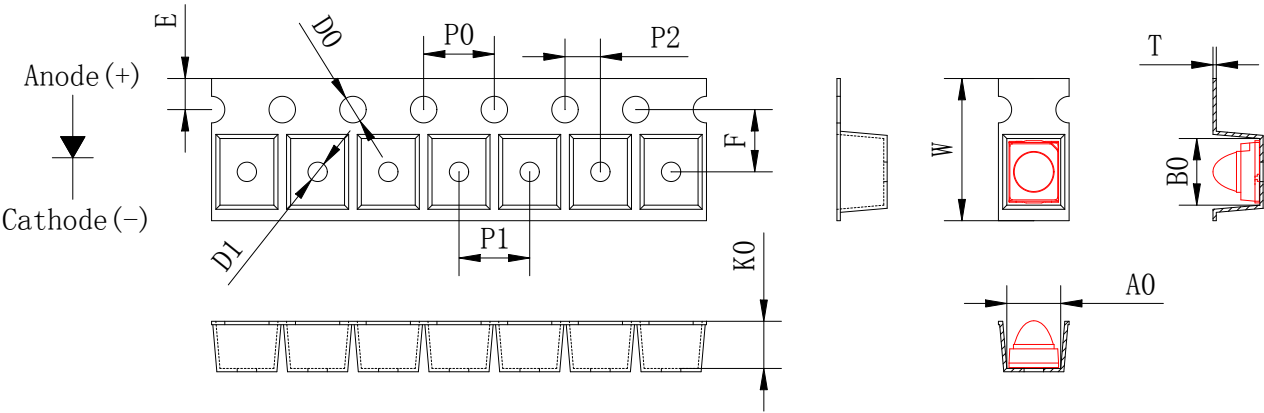
- 将产品和外界之间的摩擦减到最低以避免静电产生。  
Minimize friction between the product and surroundings to avoid static buildup.
- 所有的产品设备和测试仪器必须接地。  
All production machinery and test instruments must be electrically grounded.
- 操作人员必须配戴静电环。  
Operators must wear anti-static bracelets.
- 进入带电设备工作区域时需穿防静电服。  
Wear anti-static suit when entering work areas with conductive machinery.

## 3、其他事项 Others

- 通过使用适当的工具从材料侧面夹取材料，不可直接用手或者尖锐金属压胶体表面。  
Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry .
- 设计电流时，LED 工作的电流不能超过规定的最大值，同时还需要使用保护电阻，否则微小的电压变化会引起较大电流变化，可能导致产品损毁；电路设计必须保证只有在开启或者关闭的时候出现正向电压的变化，不要施加反向电压，否则会损坏 LED。  
In designing a circuit,the current through each LED can not be exceed the absolute maximum rating specified for each LED.In the meanwhile,resistors for protection should be applied,otherwise slight voltage shift will cause big current change,burn out may happen. The driving circuit must be designed to allow forward voltage only when it is ON or OFF.If the reverse voltage is applied to LED, migration can be generated resulting in LED damage.
- LED 容易因为自身的发热和环境温度改变而改变，温度升高会降低 LED 发光效率，所以在设计时应充分考虑散热问题。  
Hermal design is paramount importance because heat generation may result in the Characteristics decline,such as radiation intensity decreased.Please consider the heat generation of the LEDs when making the system design.
- LED 的工作环境及 LED 适配的材料中硫元素及化合物成分不可超过 100PPM,这只是一个建议，不做任何品质保证。  
LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material. This is provided for informational purposes only and is not a warranty or endorsement.
- 为了防止外界物质进入 LED 内部以照成 LED 的损伤，其所处环境及应用的套件所含单一的溴元素和氯元素不可超过 900PPM,且溴元素和氯元素的总含量需小于 1500PPM。这只是一个建议，不做任何品质保证。  
In order to prevent ex- ternal material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM, the single content of Chlorine element is required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external materials of the application products is required to be less than 1500PPM. This is provided for informational purposes only and is not a warranty or endorsement.

■ 包装规格 Packing specification :

载带尺寸 Carrier Dimension

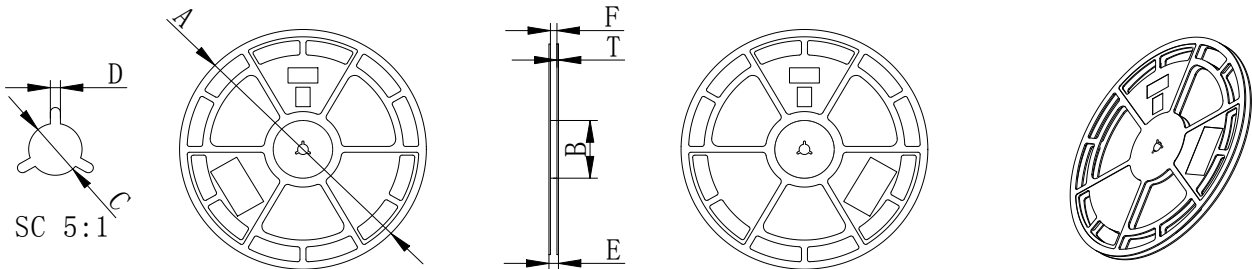


| TIEM | W     | A0    | B0    | K0    | E     | F     | D0    | D1    | P0    | P1    | P2    | T     |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| DIM  | 8.00  | 3.05  | 3.75  | 2.65  | 1.75  | 3.50  | 1.50  | 1.10  | 4.00  | 4.00  | 2.00  | 0.20  |
| TOLE | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.10 | ±0.03 |

备注 Note :

- 1. 任意 10 个链孔累积误差不超过+/-0.2mm ;  
Any 10 chain hole accumulate error not over +/-0.2mm.
- 2. 载带长度方向 100mm 距离的非平行度不超过 1mm ; 超过 250mm 不计算累计误差 ;  
100mm carrier length non parallelism not over 1mm and over 250mm not count accumulate error ;
- 3. 非指明 , 公差范围为 : +/-0.1mm ;  
Except special signs , all dimensions tolerance +/-0.1mm ;
- 4. 材料 : 黑色 , 防静电材料 ;  
Material : black , anti-static ;
- 5. 所有尺寸符合 EIA-481-E 的要求。  
All dimensions accord with EIA-481-E requirement.

卷轴尺寸 Reel Dimension(6000pcs/reel)



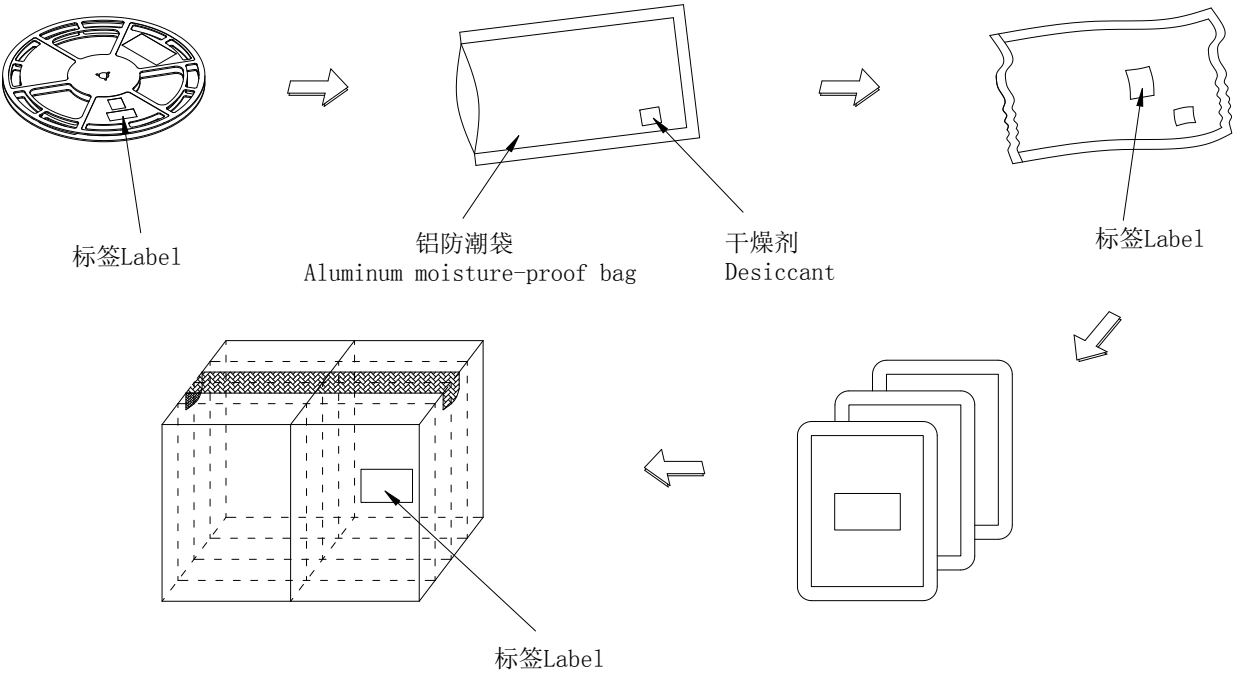
| ITEM | A     | B      | C      | D     | E      | F      | T      |
|------|-------|--------|--------|-------|--------|--------|--------|
| DIM  | 330.2 | 79.5   | 14.3   | 2.70  | 12.70  | 8.70   | 2.00   |
| TOLE | ± 2.0 | ± 0.20 | ± 0.20 | ± 2.0 | ± 0.30 | ± 0.30 | ± 0.20 |

标签 Label:

| XSSY <sup>®</sup> 旭晟半导体 物料标示单 |  |      |  |
|-------------------------------|--|------|--|
| 产品型号                          |  | 物料编码 |  |
| 生产批号                          |  | 生产日期 |  |
| 电 压                           |  | 数 量  |  |
| 波 长                           |  | QC判定 |  |
| 机台号                           |  |      |  |

| XSSY <sup>®</sup> 广东省旭晟半导体股份有限公司                                             |         |
|------------------------------------------------------------------------------|---------|
| 湿敏等级: Level 5a                                                               | 温 馨 提 示 |
| 使用说明:                                                                        |         |
| 1. 开封后, LED产品在小于或等于30℃/60%RH车间需24小时内使用完毕。若开封后未使用需放置在65℃烤箱中存储, 或重新使用包装袋抽真空存储。 |         |
| 2. 若超出24小时未使用完需抽真空存储并进行深度除湿处理。                                               |         |
| 3. 建议焊接工艺使用回流焊低温 (200℃) 锡膏作业。                                                |         |

防潮袋包装 Moistureproof static bag packing :



\*本产品为潮湿敏感产品, 需放置在密封防静电袋中, 内置干燥剂和湿度卡。

This product is moisture-sensitive and should be placed in a sealed anti-electrostatic bag with a built-in desiccant and humidity card.