

Specification

规格书

| | |
|---------------------------------|------------------------------------|
| Shineon P/N 易美产品型号: | : 2835K06-XXX10-2S2P-T12-EC |
| Document number 文件编号: | NCYM-DS-RD |
| Customer 客户名称 | |
| Customer P/N 客户产品型号 | |

Customer Approved Production Parameter BIN

客户承认产品BIN表

| | | |
|--------------------------|-------------------------|-------------------------|
| IV/LM: 亮度/流明: | WL/XY: 波长/区块: | CCT: 色温: |
| VF: 电压: | Ra: 显指: | Other: 其它: |
| Approved By 审核 | | Checked By 确认 |
| | | |

Shineon Checked

易美审核

| Approval 核准 | Check 审核 | Design 设计 |
|-----------------------|--------------------|---------------------|
| 朱磊 | 朱磊 | 王磊 |

Features 特性

- Dimensions: 2.8x3.5x0.7mm. 封装尺寸: 2.8x3.5x0.7mm
- Wide viewing angle. 广视角
- Package : 4000pcs / reel. 包装: 每卷4000pcs
- ROHS Compliant. ROHS认证



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

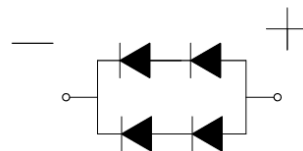
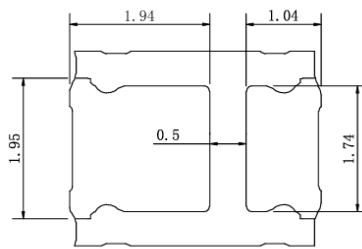
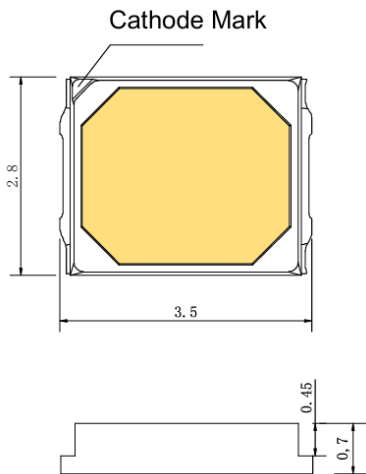
注意: 接触静电放电敏感元件时请采取适当的预防措施

Applications 应用

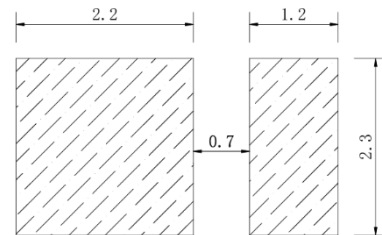
- Indoor lighting : LED tube, light bar 室内照明: LED灯管、灯条
- Decorative lighting: light flexible strips 装饰照明: 软灯条



◆ Package Dimensions 封装尺寸



◆ Recommended soldering pattern 建议焊盘尺寸图



Notes:

1. All dimensions in millimeters. 所有尺寸单位为mm
2. Thickness tolerance of copper plate is ± 0.02 mm. 铜材料片厚度公差为 ± 0.02 mm
3. Thickness tolerance of product is ± 0.05 mm. 产品厚度公差为 ± 0.05 mm
4. Tolerance is ± 0.1 mm unless otherwise noted. 如未特别注明, 默认公差为 ± 0.1 mm
5. Specifications are subject to change without notice. 规格如有变更, 恕不另行通知。

Absolute Maximum Ratings at Ts=25°C 最大限定参数

| Parameter 参数 | Symbol 符号 | Value 值 | Units 单位 |
|-----------------------------------|--------------|----------------------------------------|-------------|
| Forward Current 正向电流 | IF | 180 | mA |
| Peak Forward Current 正向脉冲电流 | IFP | 250 | mA |
| Power Dissipation 功耗 | PD | 1000 | mW |
| Electrostatic Discharge 静电击穿电压 | ESD | 2000HBM | V |
| Storage Temperature 储存温度 | Tstg | -40~+100 | °C |
| Operating Temperature 操作温度 | TOPR | -40 ~ +85 | °C |
| Soldering Temperature 焊接温度 | Tsld | Reflow Soldering: 260°C for 10 seconds | |
| Junction Temperature 结温 | TJ | 125 | °C |

Electrical/Optical Characteristics at Ts=25°C 电性与光学特性

| Item 项目 | Symbol 符号 | Testcondition 测试条件 | Value | | | Unit 单位 |
|-------------------------------|-------------------|-----------------------|-------------|------------|-------------|------------|
| | | | Min. 最小值 | Typ 典型值 | Max. 最大值 | |
| Forward Voltage 正向电压 | VF | IF=150mA | 5.4 | 5.58 | 5.8 | V |
| Viewing Angle 发光角度 | 2θ _{1/2} | IF=150mA | --- | 120 | --- | deg |
| Luminous Flux 光通量 | Φ | IF=150mA | 140 | --- | 185 | Lm |
| Color Rendering Index 显色指数 | CRI80 | IF=150mA | 80 | --- | --- | -- |
| | CRI90 | IF=150mA | 90 | --- | --- | -- |
| Color Temperature 色温 | CCT | IF=150mA | 2600 | --- | 7000 | K |
| Thermal Resistance. (热阻) | RTHJ-S | IF=150mA | --- | 13 | --- | °C/W |

Notes 注:

- Luminous flux is measured with an accuracy of $\pm 5\%$. 光通量的测量精度为 $\pm 5\%$ 。
- The above forward voltage measurement allowance tolerance is $\pm 0.1V$. 以上所示电压测量误差 $\pm 0.1V$ 。
- CRI is measured with an accuracy of ± 2 . 显色指数测量精度为 ± 2 。
- All measurements were made under the standardized environment of Shineon. 所有测试都是基于易美现有的标准测试平台
- Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product. 使用功率不能超过规定的最大值。
- When the LEDs are in operation the maximum current should be decided after measuring the package temperature, junction temperature should not exceed the maximum rate. LED使用的最大电流需要根据散热条件确定, 结温不能超过最大值。
- ESD yield is over 90% at 2000V ESD (HBM). ESD protection during products handling is needed.
90%的LED通过人体模式ESD2000V 测试, 在操作时请注意静电防护。

Luminous Flux 光通量 (Tj=25°C)

| PRODUCT 产品 | Condition 条件 | Ra 显色指数 | Rank 等级代码 | Luminous Flux 光通量 | Unit 单位 |
|---------------------------|-----------------|------------|--------------|----------------------|------------|
| 2835K06-27X10-2S2P-T12-EC | 150mA | 80(H) | Q43 | 145-155 | LM |
| | | | Q53 | 155-165 | |
| | | 90(S) | Q4 | 140-150 | |
| 2835K06-30X10-2S2P-T12-EC | 150mA | 80(H) | Q53 | 155-165 | LM |
| | | | Q63 | 165-175 | |
| | | 90(S) | Q5 | 150-160 | |
| 2835K06-35X10-2S2P-T12-EC | 150mA | 80(H) | Q6 | 160-170 | LM |
| | | | Q7 | 170-180 | |
| | | 90(S) | Q53 | 155-165 | |
| 2835K06-40X10-2S2P-T12-EC | 150mA | 80(H) | Q63 | 165-175 | LM |
| | | | Q73 | 175-185 | |
| | | 90(S) | Q6 | 160-170 | |
| 2835K06-50X10-2S2P-T12-EC | 150mA | 80(H) | Q63 | 165-175 | LM |
| | | | Q73 | 175-185 | |
| | | 90(S) | Q6 | 160-170 | |
| 2835K06-57X10-2S2P-T12-EC | 150mA | 80(H) | Q63 | 165-175 | LM |
| | | | Q73 | 175-185 | |
| | | 90(S) | Q6 | 160-170 | |
| 2835K06-65X10-2S2P-T12-EC | 150mA | 80(H) | Q6 | 160-170 | LM |
| | | | Q7 | 170-180 | |
| | | 90(S) | Q53 | 155-165 | |

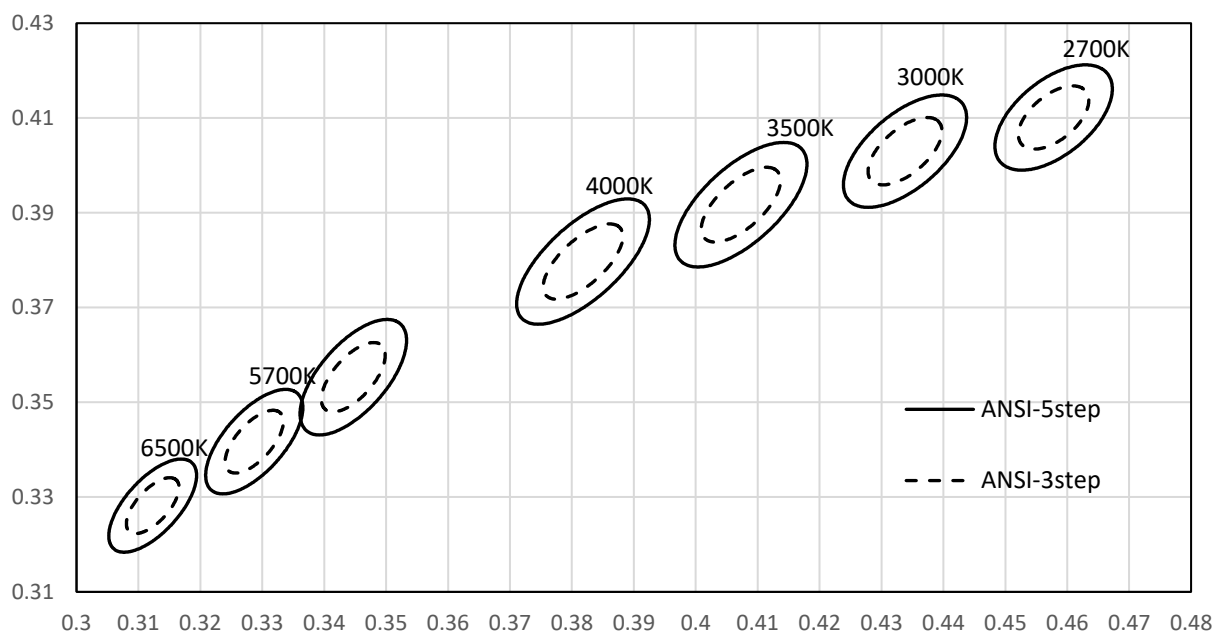
Forward Voltage 正向电压(Tj=25°C)

| Part Number 品名 | Condition 条件 | Rank 等级代码 | Forward Voltage 正向电压 | Unit 单位 |
|---------------------------|-----------------|--------------|-------------------------|------------|
| 2835K06-XXX10-2S2P-T12-EC | 150mA | C7 | 5.4-5.6 | V |
| | | C8 | 5.6-5.8 | |

Color Bin Definitions 色坐标

| Bin Code 等级代码 | Center Point | | MAJOR AXIS (a ,b). | | Theta。 |
|------------------|--------------|--------|--------------------|--------------------|--------|
| | x | y | 3-Step | 5-Step | |
| 2700 | 0.4578 | 0.4101 | (0.00774, 0.00411) | (0.0129, 0.00685) | 53.17 |
| 3000 | 0.4338 | 0.403 | (0.00834, 0.00408) | (0.0139, 0.0068) | 53.22 |
| 3500 | 0.4073 | 0.3917 | (0.00927, 0.00414) | (0.01545, 0.0069) | 54 |
| 4000 | 0.3818 | 0.3797 | (0.00939, 0.00402) | (0.01565, 0.0067) | 53.72 |
| 5000 | 0.3447 | 0.3553 | (0.00822, 0.00354) | (0.0137, 0.0059) | 59.62 |
| 5700 | 0.3287 | 0.3417 | (0.00747, 0.00318) | (0.01245, 0.00475) | 59.13 |
| 6500 | 0.3123 | 0.3282 | (0.00669, 0.00285) | (0.01115, 0.00475) | 58.57 |

The reference map color area 色区参考图

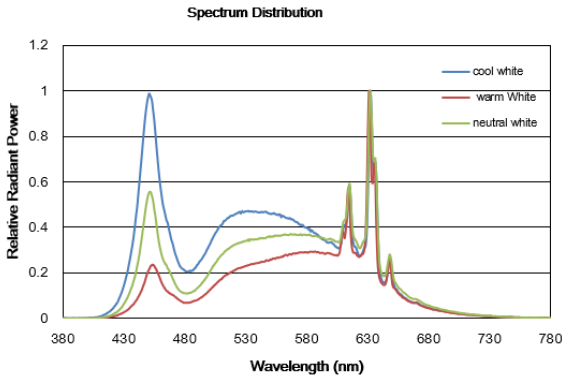


Notes 注:

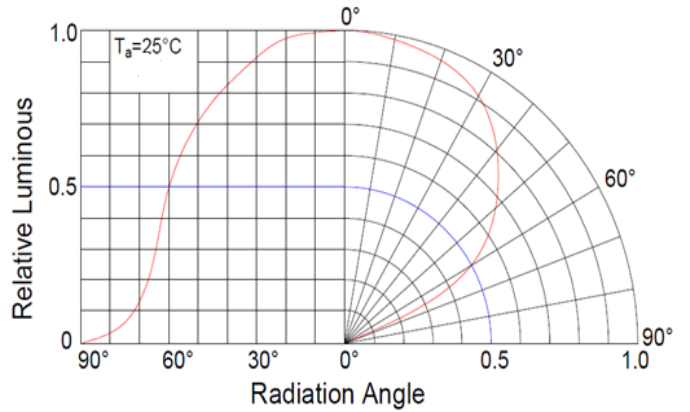
1.The above color coordinates measurement allowance tolerance is 0.005. 以上所示坐标测量误差 0.005。

2.Some color and CRI bins may have limited availability, please contact us before ordering. 部分颜色和显指可能有限制, 请在订购前与我们联系。

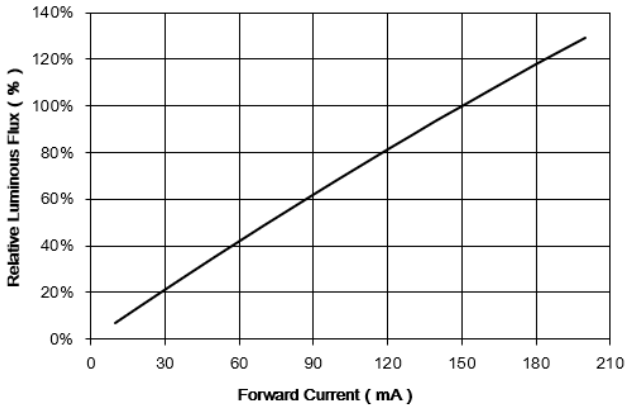
Typical optical characteristics curves 典型光学特性曲线



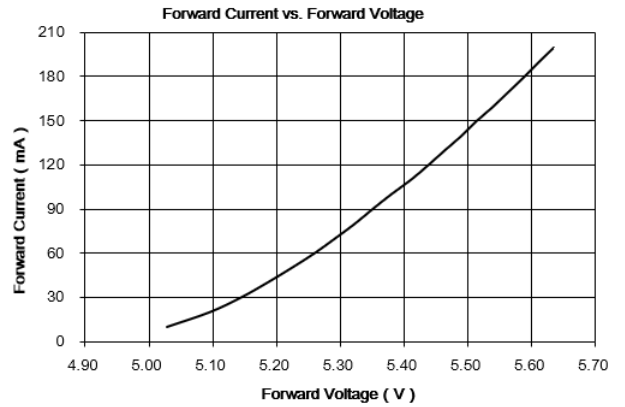
Typical spectral distribution
典型光谱分布



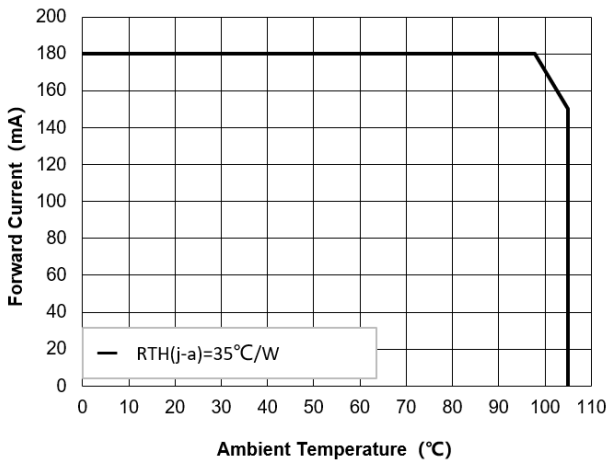
Typical Light-Emitting Angle Radiation Pattern
典型发光角度辐射图



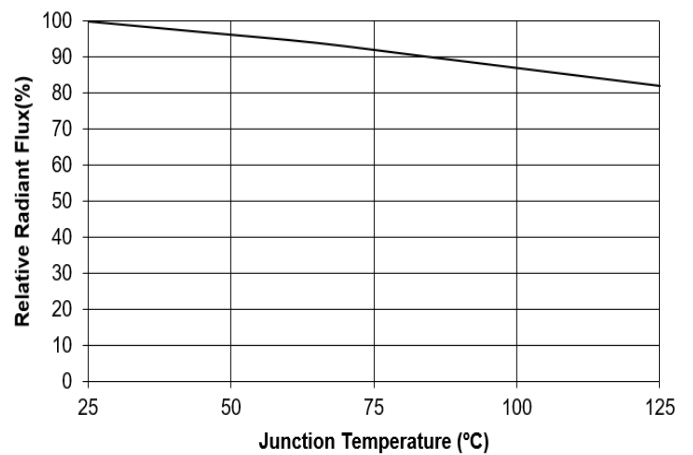
Forward Current Vs. Relative Intensity
正向电流与相对光强特性曲线



Forward Voltage Vs. Forward Current
伏安特性曲线

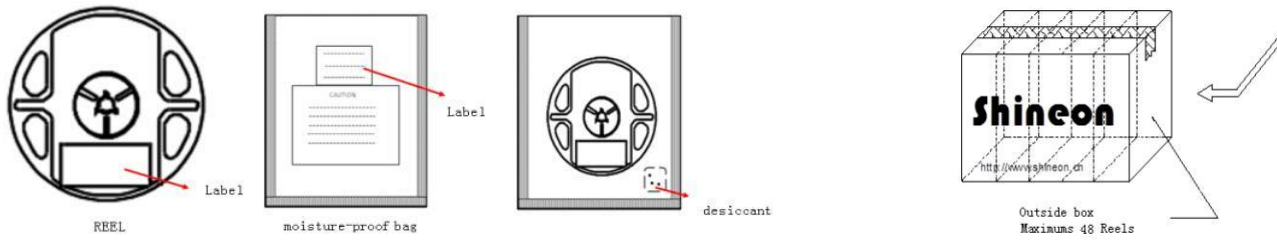


Forward Current VS Soldering Temperature
Carrier Tape Dimension 载带尺寸



Solder Temperature Vs Relative Intensity
温度与相对光强特性曲线

Moisture Resistant Packing Process 防潮包装过程



Notes注:

Package : P/N、 Manufacturing data Code No. and quantity to be indicated on a damp proof Package. 包装 : 品名、生产数据代码和数量须在防潮包装上注明

Reliability Test Items And Conditions 信赖性测试项目及条件

| Test Items 项目 | Test Condition 测试条件 | Time 时间 | Quantity 数量 | Ac/Re 接收/拒收 |
|----------------------------------------------------------------|-------------------------------------|------------|----------------|----------------|
| Reflow 回流焊 | Temp:260°Cmax T=10 sec | 2times. | 20Pcs | 0/1 |
| Thermal Shock 冷热冲击 | -44°C 15min ↑↓10s 125°C 15min | 100 cycle | 20Pcs | 0/1 |
| High Temperature Storage 高温保存 | Temp:100. °C | 1000Hrs. | 20Pcs | 0/1 |
| Low Temperature Storage 低温保存 | Temp:-40°C | 1000Hrs. | 20Pcs | 0/1 |
| High Temperature High Humidity Life Test 高温高湿通电 | 60°C/ 90%RH IF=150mA | 500Hrs. | 20Pcs | 0/1 |
| Temperature Humidity Storage 高温高湿储存 | TA=85°C RH=85% | 500Hrs. | 20Pcs | 0/1 |
| Steady State Operating Life of High Temperature 高温点亮稳态老化 | Ts=85°C, IF=Max | 1000Hrs. | 20Pcs | 0/1 |
| Steady State Operating Life of Low Temperature 低温点亮稳态老化 | Ta=-40°C, IF=Max | 1000Hrs. | 20Pcs | 0/1 |
| Solder Ability (SA) 可焊性 | 245°C5sec, 95% | 5sec | 11Pcs | 0/1 |
| Life Test 常温通电 | TA=25°C, IF=150mA | 1000Hrs. | 10Pcs. | 0/1 |

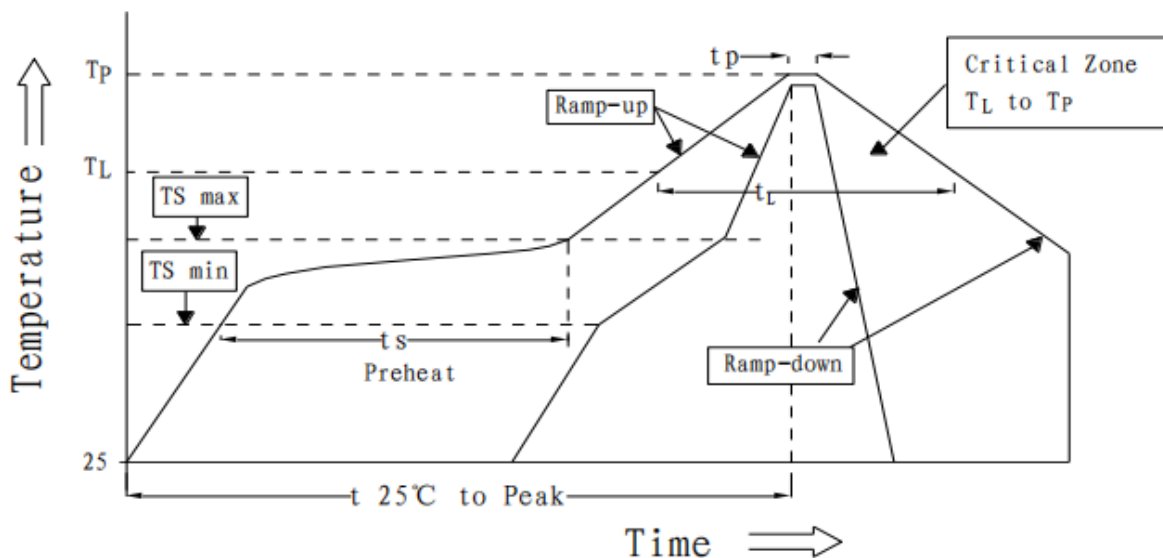
| Test Items 项目 | Symbol 符号 | Test Condition 测试条件 | Criteria For Judgement 判定标准 | |
|-------------------------|--------------|-----------------------------|--------------------------------|-----------------------|
| | | | Min. 最小 | Max. 最大 |
| Forward Voltage 正向电压 | VF | IF=150mA | - | U.S.L*)x1.1 |
| Reverse Current 反向电流 | IR | VR =7V | - | U.S.L*)x2.0 |
| Luminous Flux 光通量 | LM | IF=150mA | L.S.L*)x0.7 | - |
| CCX&CCY X坐标&Y坐标 | x,y | IF=Typical Current 典 型电流 | | Shift<0.02 漂移<0.02 |

Criteria For Judging Damage 失效判定标准

Notes注:

- 1.U.S.L: Upper standard level规格上限, L.S.L: Lower standard level 规格下限
- 2.The Reliability tests are based on Shineon existing test platform. 信赖性测试基于易美现有的测试平台。
- 3.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. 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。

SMT Reflow Soldering Instructions SMT回流焊说明



| | |
|-----------------------------------------------|------------|
| 平均升温速度 (T _{max} 至 T _p) | 最高 3 °C/ 秒 |
| 预热: 最低温度 (T _{min}) | 150 °C |
| 预热: 最高温度 (T _{max}) | 200 °C |
| 预热: 时间 (T _{min} 至 T _{max}) | 60 - 120 秒 |
| 限时维持高温: 温度 (TL) | 217 °C |
| 限时维持高温: 时间 (tL) | 最多60 秒 |
| 峰值 / 分类温度 (T _p) | 260 °C |
| 限时峰值分类温度: 时间 (tp) | 最多10 秒 |
| 与实际峰值温度 (T _p) 相差 5 °C 以内的保持时间 | 最多30 秒 |
| 降温速度 | 最高 6 °C/ 秒 |
| 25 °C 升至峰值温度所需时间 | 最多 8 分钟 |

Notes 注:

- 1.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. 回流焊次数不可以超过两次, 两次回流焊的时间间隔如果超过24小时, LED可能由于吸湿而损坏。
- 2.When soldering,do not put stress on the LEDs during heating.当焊接时, 不要在材料受热时用力压胶体表面。

Soldering Iron 烙铁焊接

- (1) When hand soldering, keep the temperature of iron below less 300°C less than 3 seconds

当手工焊接时, 烙铁的温度必须小于 300°C, 时间不可超过 3 秒。

- (2) The handsolder should be done only one time.手工焊接只可焊接一次。

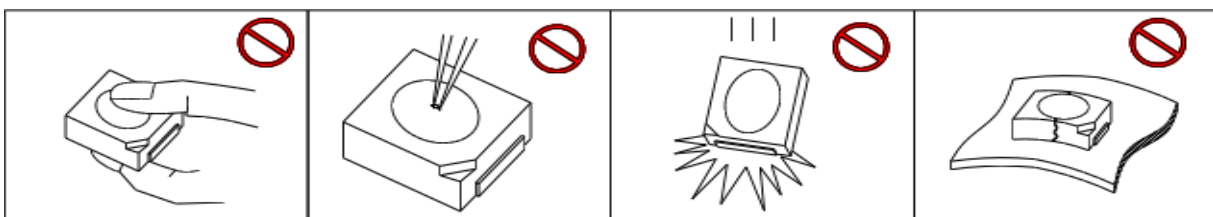
Repairing 修补

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 whether the characteristics of LEDs will or will not be damaged by repairing. LED 回流焊后不应该修复, 当必须修复时, 必须使用双头烙铁, 而且事先应确认此种方式会不会损坏 LED 本身的特性。

Handling Precautions 使用注意事项

- (1) The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package.

The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper. LED 封装胶为硅胶, 表面较软, 用力按压胶体表面会影响 LED 可靠性, 因此应有预防措施避免在按压器件, 当使用吸嘴时, 胶体表面的压力应是恰当的。



- (2) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board. LED 灯珠不要焊接在弯曲的 PCB 板上，焊接之后，也不要弯折线路板。
- (3) Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering. Do not rapidly cool device after soldering. 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，不要采用激剧冷却的方式。
- (4) 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. LED 工作环境及与 LED 适配的材料中硫元素及化合物成份不可超过 100PPM。这只是一个建议，不作任何品质担保。
- (5) In order to prevent external 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. 为了防止外界物质进入 LED 内部以造成 LED 的损伤，所处环境及所用套件等等，单一的溴元素含量要求小于 900PPM，单一氯元素含量要求小于 900PPM，溴元素与氯元素总含量必须小于 1500PPM，这只是一个建议，不作任何品质担保。
- (6) VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures can penetrate silicone encapsulants of LEDs and discolor when exposed to heat and photonic energy. The result can be a significant loss of light output from the fixture. Knowledge of the properties of the materials selected to be used in the construction of fixtures can help prevent these issues. Shineon advises against the use of any chemicals or materials that have been found or are suspected to have an adverse affect on device performance or reliability. To verify compatibility, Shineon recommends that all chemicals and materials be tested in the specific application and environment for which they are intended to be used. Attaching LEDs, do not use adhesives that outgas organic vapor. 应用套件中的挥发性物质会渗透到 LED 内部，在通电产生光子及热的条件下，会导致 LED 变色，进而造成严重光衰，提前了解套件材料能够避免产生这些问题。易美反对使用任何对 LED 器件的性能或者可靠性有害的物质或材料，不管这些材料是已经证实了的还是仅仅怀疑有害。针对特定的用途和使用环境，易美建议对所有的物质和材料进行相容性的测试。在贴装 LED 时候，不要使用能产生有机挥发性气体的粘结剂。
- (7) In designing a circuit, the current through each LED must 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. 设计电路时，通过 LED 的电流不能超过规定的最大值，同时，还需使用保护电阻，否则，微小的电压变化将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，不要施加反压，否则会损坏 LED。
- (8) Thermal Design is paramount importance because heat generation may result in the Characteristics decline, such as brightness decreased, Color change and so on. Please consider the heat generation of the LEDs when making the system design. LED 容易因为自身的发热和环境的温度改变而改变，温度升高会降低 LED 发光效率，影响发光颜色，所以在设计时应充分考虑散热问题。
- (9) Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust, requiring special care during processing. In cases where a minimal level of dirt and dust particles cannot be guaranteed, a suitable cleaning solution must be applied to the surface after the soldering of components. Refond suggests using isopropyl alcohol for cleaning. In case other solvents are used, it must be assured that these solvents do not dissolve the package or resin. Ultrasonic cleaning is not recommended. Ultrasonic cleaning may cause damage to the LED. 与其他封装胶相比，硅胶通常较软，表面易吸附脏物，应用时应特别注意，当对产品洁净度要求较高时，回流焊以后需要采用恰当的清洗方式，我们推荐用异丙醇作清洗剂，如

需要用到其他清洗剂，必须保证不会破坏封装体，超声清洗可能会对 LED 带来损害，不推荐这种清洗方式。

Storage 储存

| Conditions 种类 | | Temperature 温度 | Humidity 湿度 | Time 时间 |
|------------------|------------------------------------|-------------------|----------------|--------------------------------|
| Storage 储存 | Before Opening Aluminum Bag 拆包前 | ≤30°C | ≤75% | Within 1 Year From Date 一年内 |
| | After Opening Aluminum Bag 拆包后 | ≤30°C | ≤60% | 24hours 24小时 |
| Baking 烘烤 | | 60 ±5°C | - | ≥24hours 大于24小时 |

- (10) If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time baking treatment should be performed after unpacking and based on the following condition (65±5) °C for above 24 hours.如果干燥剂或包装失效，或者产品不符合以上有效储存条件，需拆包后进行烘烤，烘烤条件：60±5°C，大于 24 小时。
- (11) If the package is flatulence or damaged, please notify the sales staff to assist.如果包装胀气或者破损，请通知销售人员协助处理。
- (12) Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). 像其他的半导体电子器件一样，LED 对静电过流击穿非常敏感，需要做好防护。
- (13) Other points for attention, please refer to our relevant information.其它注意事项请参照易美相关资料。

Declare 申明

This specification is written both in English and in Chinese and the latter is formal.
产品规格书以中英文方式书写，若有冲突以中文版本为准。