# 深圳市晶盟电子科技有限公司

**Shen zhen jing au electronic technolodg to LTD**

# 产 品 规 格 书

SPECIFICATION

**客户名称（CUSTOMER）:**_____

**产品型号（MODEL）:** JM-ZJJM0201YO

| 制作<br>Prepared By | 审核<br>Checked By | 批准<br>Approved By |
|---|---|---|
| | | |
| 版本号 （The version number）: A0 | | |
| 发放日期 （Issuing date）: | | |

| 客户确认<br>Approveda Signatures | | |
|---|---|---|
| 研发确认<br>Checked By | 品管确认<br>Validated By | 采购确认<br>Validated By |
| | | |
| ☐接受（Qualified） | ☐不接受（Disqualified） | |

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# 产品及特性
# Products and Features

| 产品型号<br>Model | 芯片材料<br>Chip Materials | 发光颜色<br>Emitting Light | 胶体颜色<br>Lens Color |
|---|---|---|---|
| JM-ZJJM0201YO | AlGaInP | Orange | Transparent |

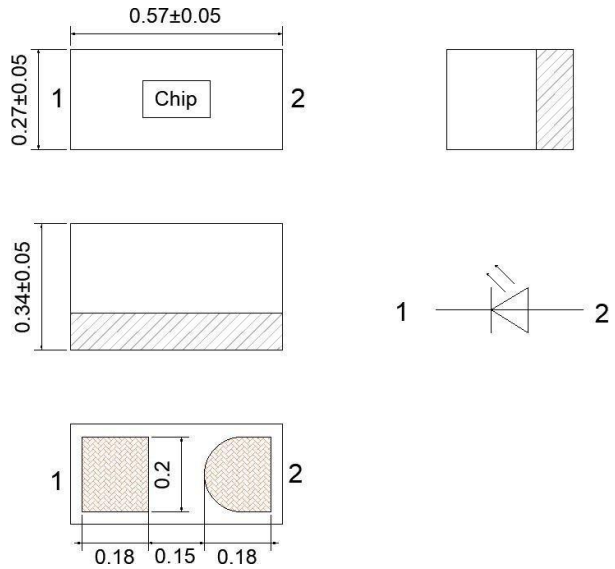
## 特性
## Features

- Mini LED 封装技术
  Mini LED Packaging technology
- 宽的发光角度
  Extremely wide viewing angle
- 低功耗
  Low power consumption
- 防潮级别： 1 级
  Moisture levels: level 1
- 符合 RoHS 规范
  Meet RoHS Certification

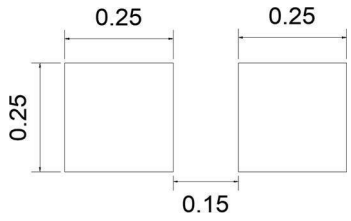
## 应用
## Applications

- 光学指示
  Optical indicator
- 室内显示
  Indoor display
- 智能电器
  Smart appliances
- 可穿戴和便携式设备
  Wearable and portable devices

## 封装尺寸
## Package Dimensions




## 建议焊盘尺寸图
## Recommended Soldering Pattern




**ATTENTION**
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

注意：操作时应注意静电敏感释放设备装置

备注（Notes）：

1. 所有标注尺寸单位为毫米。
   All dimension units are millimeters.
2. 除特别标注外，所有尺寸允许公差±0.1㎜。
   All dimension tolerance is ±0.1mm unless otherwise noted.

# 性能参数
# Performance Parameters

## (1) 电性与光学特性
## Electrical / Optical Characteristics at Ta=25°C

| 参数<br>Parameter | 符号Symbol | 最小<br>Min. | 平均<br>Typ. | 最大<br>Max. | 单位<br>Units | 测试条件<br>Test Conditions |
|---|---|---|---|---|---|---|
| 正向电压<br>Forward Voltage | $V_F$ | 1.8 | - - | 2.2 | V | IF=5mA |
| 亮度<br>Luminous Intensity | $I_V$ | 33 | - - | 64 | mcd | IF=5mA |
| 峰值波长<br>Peak Wavelength | $\lambda_{peak}$ | - - | 605 | - - | nm | IF=5mA |
| 主波长<br>Dominant Wavelength | $\lambda_{dom}$ | 595 | - - | 605 | nm | IF=5mA |
| 半波宽<br>Spectral Bandwidth at 50% | Δλ | - - | 16 | - - | nm | IF=5mA |
| 角度<br>Viewing Angle | 2θ1/2 | - - | 130 | - - | deg | IF=5mA |
| 反向电流<br>Reverse Current | IR | - - | - - | 10 | μA | VR = 5V |

## (2) 绝对最大额定值

| 参数<br>Parameter | 符号<br>Symbol | 值<br>Rating | 单位<br>Units |
|---|---|---|---|
| 功耗<br>Power Dissipation | Pd | 45 | mW |
| 正向电流<br>Forward Current | IF | 20 | mA |
| 峰值正向电流<br>Peak Forward Current [5] | IFP | 40 | mA |
| 反向电压<br>Reverse Voltage | VR | 5 | V |
| 静电放电等级<br>Electrostatic Discharge (HBM) | ESD | 1000 | V |
| 操作温度<br>Operating Temperature | Topr | -40 ~ +85 | ℃ |
| 保存温度<br>Storage Temperature | Tstg | -20 ~ +60 | ℃ |
| 结温<br>Junction Temperature | Tj | ≤ 110 | ℃ |

备注(Note)：

1. q1/2 是半值角, 指光强是光学中心线光强的 1/2 处到光学中心线的角度。
   q1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2. 以上亮度的测试允许公差为±10%。
   The above luminous Intensity measurement allowance tolerance ±10%.
3. 以上主波长、峰值波长的测试允许公差为± 1nm。
   The above Peak Wavelength and Dominant WavelengthIndex measurement allowance tolerance of ± 1 nm.
4. 以上所示电压测量误差± 0. 1V。
   The above forward voltage measurement allowance tolerance is ± 0. 1V. 5.

脉宽 0.1ms, 周期 1/10。
1/10 Duty cycle, 0.1ms pulse width.

# 分 BIN 表
# Sorting Bins

## (1) 波长组 IF=5mA
## Wavelength Groups IF=5mA

| Groups | Dominant Wavelength (nm) | |
|---|---|---|
| | λdom MIN | λdom MAX |
| O1 | 595 | 597.5 |
| O2 | 597.5 | 600 |
| O3 | 600 | 602.5 |
| O4 | 602.5 | 605 |

## (2) 正向电压组 IF=5mA
## Forward Voltage Groups IF=5mA

| Groups | Forward Voltage (V) | |
|---|---|---|
| | $Vf_{MIN}$ | $Vf_{MAX}$ |
| V02 | 1.8 | 1.9 |
| V03 | 1.9 | 2.0 |
| V04 | 2.0 | 2.1 |
| V05 | 2.1 | 2.2 |

## (3) 亮度组 IF=5mA
## Brightness Groups IF=5mA

| Groups | Luminous Intensity (mcd) | |
|---|---|---|
| | $Iv_{MIN}$ | $Iv_{MAX}$ |
| LK | 33 | 41 |
| LL | 41 | 52 |
| LM | 52 | 64 |

# 典型光学特性曲线图
# Typical optical characteristics curves at Ta=25°C

Fig.1 正向电压与正向电流特性曲线

Forward Voltage vs. Forward Current

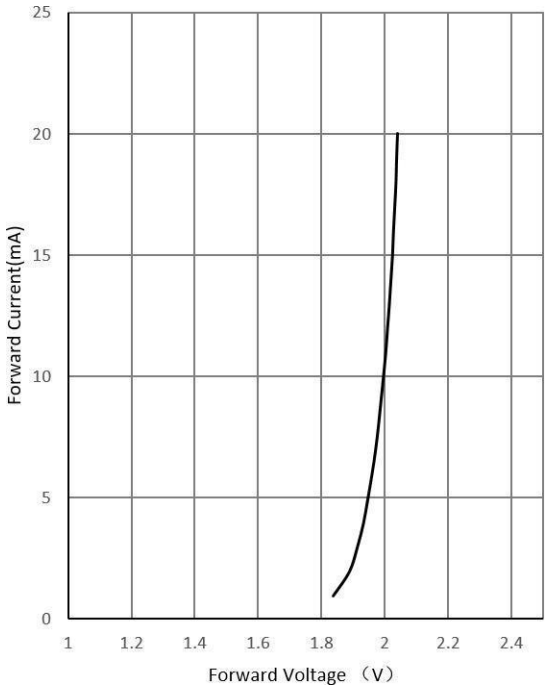



Fig.2 正向电流与相对光强特性曲线

Forward Current vs. Luminous Intensity

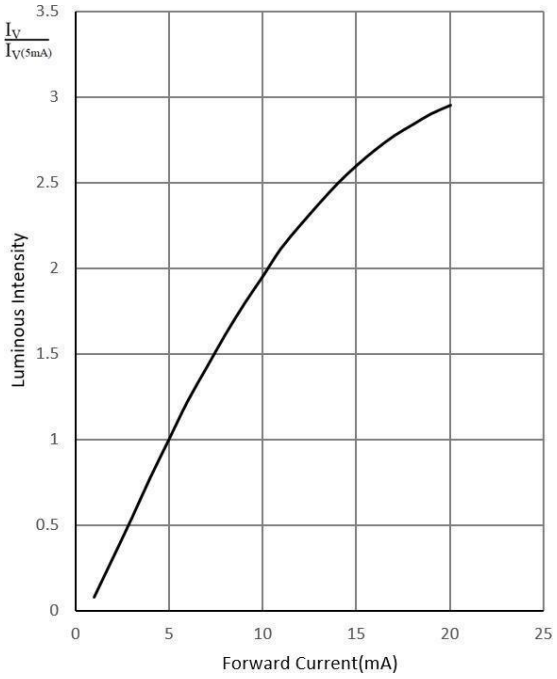



Fig.3 焊盘温度与正向电流特性曲线

Soldering Temperature vs. Forward Current

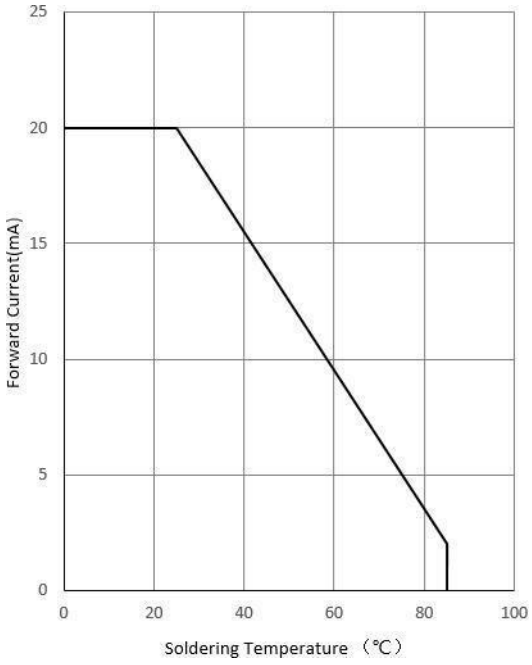
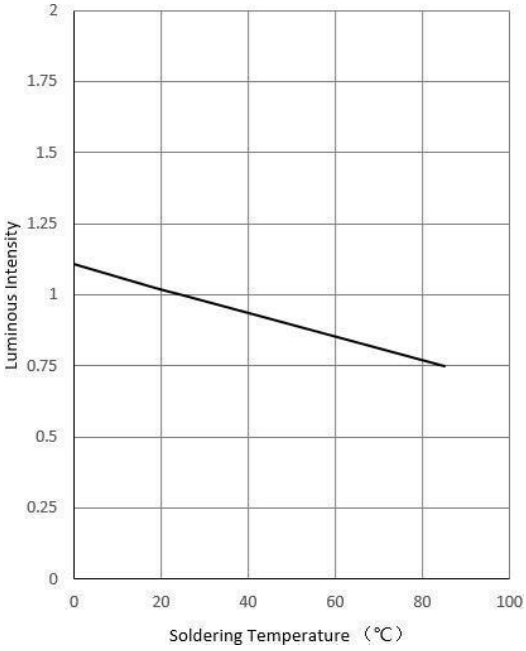



Fig.4 焊盘温度与相对光强特性曲线

Soldering Temperature vs. Luminous Intensity



# 典型光学特性曲线图
# Typical optical characteristics curves at Ta=25°C

Fig.5 相对光谱分布曲线

Relative Intensity Vs. CIE Wavelength

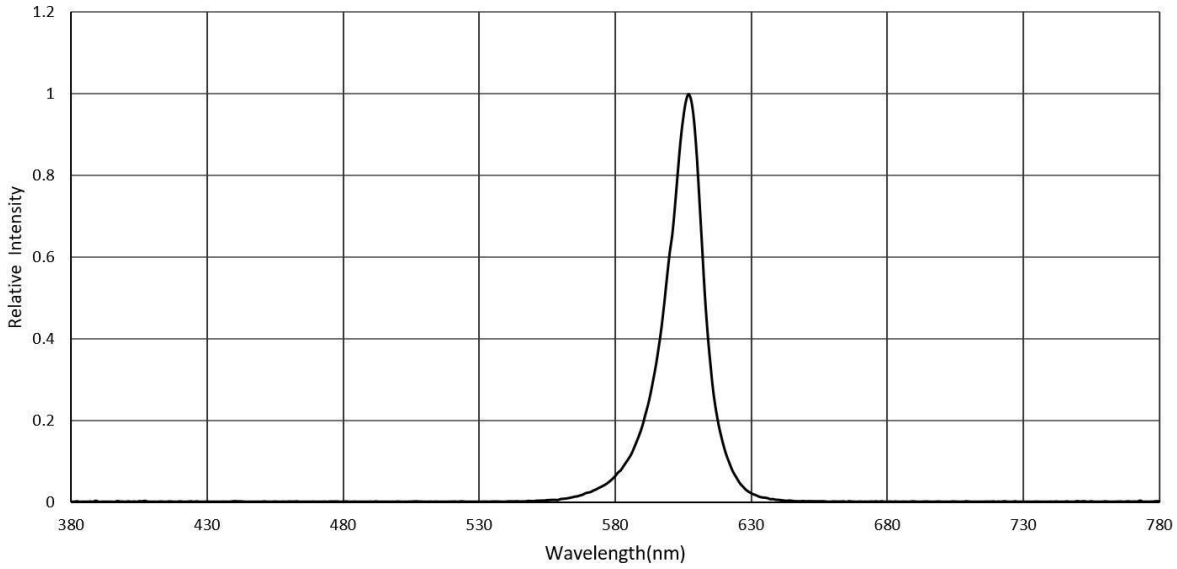
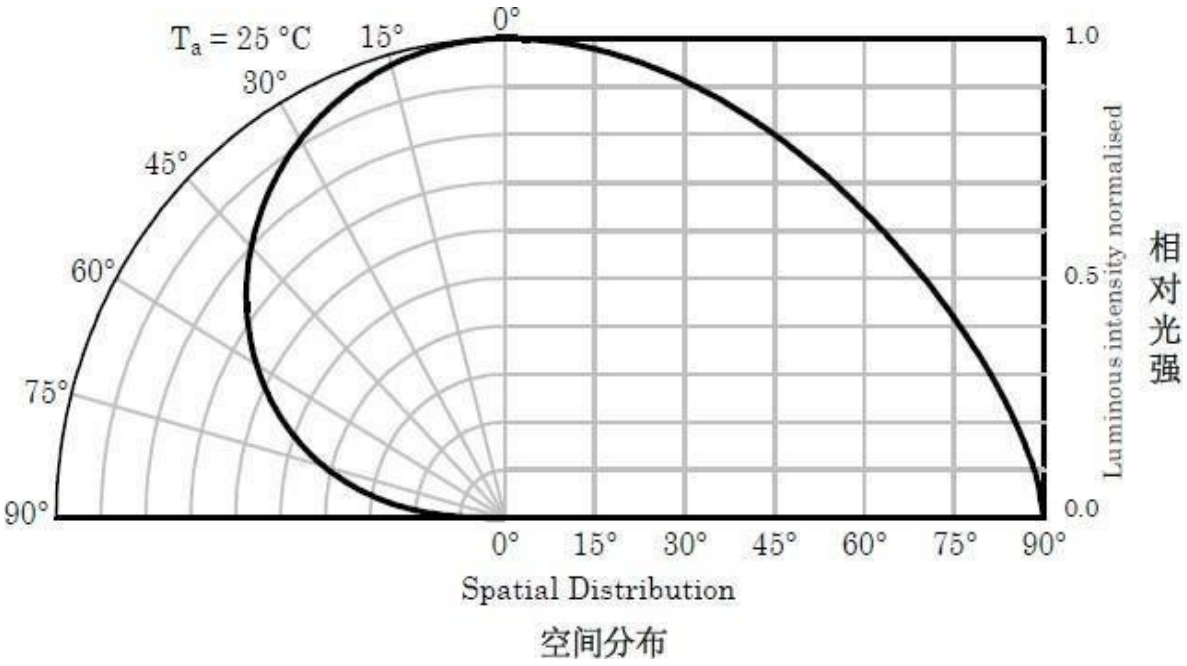



Fig.6 相对光强分布特性曲线

The intensity distribution curve



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

| No. | 项目<br>Items | 参考标准<br>Reference | 测试条件<br>Test Condition | 测试<br>Test Hours/ Cycles | 试验数量<br>Quantity | 判据<br>Criterion |
|---|---|---|---|---|---|---|
| 1 | 回流焊<br>Soldering | GB/T 4937.20-2018 | Tsol*： 245 0-5 ℃ | 5-10 sec | 1000 pcs | 0/1000 |
| 2 | 冷热冲击<br>Thermal Shock | JESD22-A104-C | 125℃ ～ -40℃<br>15min 15min | 200Cycles | 1000 pcs | 0/1000 |
| 3 | ESD 测试<br>ESD Test | ACE(Q101-002) | 500V-4000V | 5 Hrs | 10 pcs | 0/10 |
| 4 | 沾锡性测试<br>Tin staining test | EIAJ ED-4701/300 | Temp:100℃ | 1000Hrs | 22 pcs | 0/22 |
| 5 | 渗透测试<br>Penetration test | / | 回流焊后纯红墨水浸泡 | 24 Hrs | 64 pcs | 0/64 |
| | | / | 回流焊后高压蒸煮 | 20mins | 64 pcs | 0/64 |
| 6 | 高温高湿<br>High Temperature & Humidity | GB/T2423-50 | Temp:85℃<br>RH: 85% | 1000Hrs | 20pcs | 0/20 |

## 失效判定标准
## Criteria For Judging Damage

| 项目<br>Items | 符号<br>Symbol | 测试条件<br>Test condition | 判断标准<br>Failure Criteria |
|---|---|---|---|
| 正向电压<br>Forward Voltage | $V_F$ | $I_F$ = 5mA | 初始值± 10%<br>The initial value plus or minus 10% |
| 反向电流<br>Reverse Current | $I_{GB}$ | $V_B$ = 5V | $I_R$≤ 10 μA |
| 亮度<br>Luminous Intensity | $I_{LEDV}$ | $I_F$ = 5 mA | 平均 $I_{LEDV}$ 衰减≤ 30%，单个 $I_{LEDV}$ 衰减≤ 50%<br>Average I*LEDV* attenuation 30% or less, a single I*LEDV* attenuation 50% or less |
| 回流焊<br>Soldering | / | $I_F$ = 5 mA | 材料无内部裂痕、无材料间爆裂、无剥离、无死灯<br>Material without internal cracks, no material between stripped no deaded light |

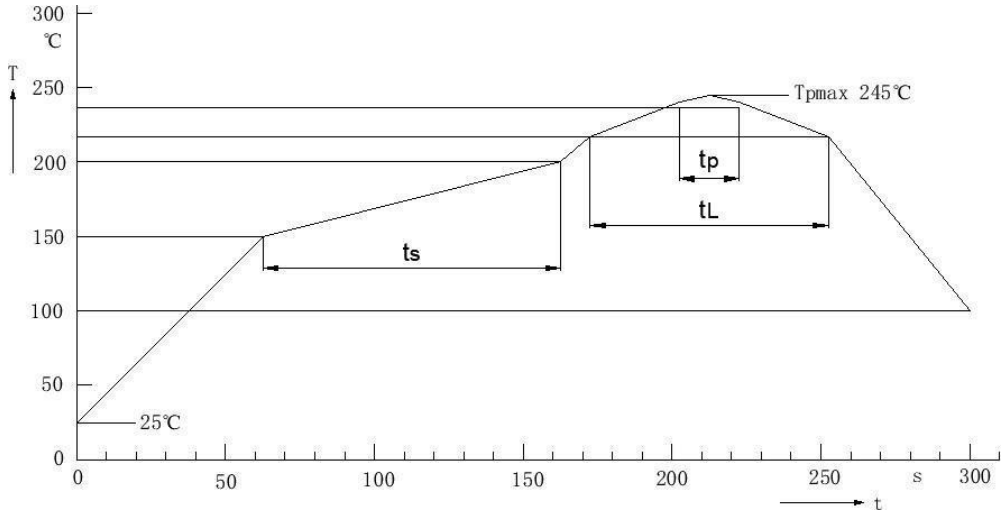
备注(Note）：

1. Tsol为回流焊时锡液的温度； Temp为实验温度。
   Tsol for reflow soldering tin fluid temperature; Temp for experimental temperature.
2. 数据工作表中所示的技术信息仅限于典型特征和电路实例引用的产品.它既不构成工业特性的保证,也不构成任何许可的授权。
   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.

# 回流焊温度曲线图
# Temperature curve of reflow soldering

LED 建议使用回流焊，温度曲线参考如下：

LED is recommended for reflow soldering and soldering profile is shown below ：

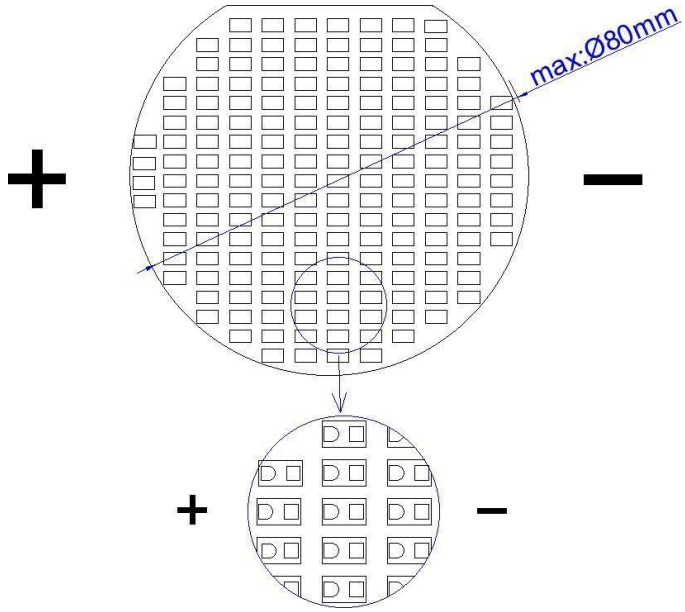


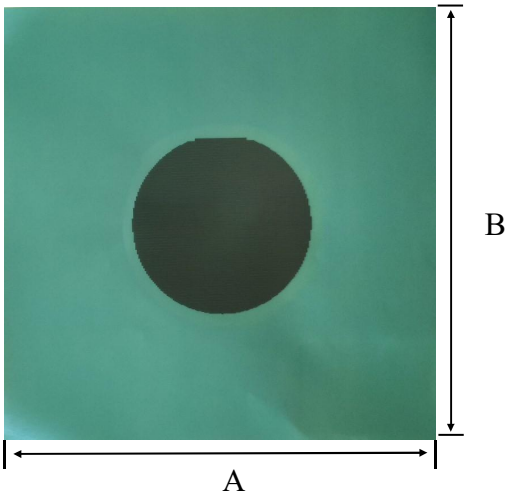

| 曲线特征<br>Prefile Feature | 符号<br>Symbol | 无铅组装<br>Pb-Free(SnAgCu) Assembly | | | 单位<br>Unit |
|---|---|---|---|---|---|
| | | 最小值<br>Minimum | 推荐值<br>Recommendation | 最大值<br>Maximum | |
| 预热升温速率：25℃ 至 150℃<br>Ramp-up to preheat: 25℃ to 150℃ | | | 2 | 3 | K/s |
| 时间： $T_{smin}$ 至 $T_{smax}$<br>Time： $T_{smin}$ to $T_{smax}$ | $t_s$ | 60 | 100 | 120 | s |
| 峰值升温速率:$T_{smax}$ 至 $T_p$<br>Ramp-up rate to peak: $T_{smax}$ to $T_p$ | | | 2 | 3 | K/s |
| 液相线温度<br>Liquidus temperature | $T_L$ | | 217 | | ℃ |
| 超过液相线温度的时间<br>Time above liquidus temperature | $t_L$ | | 80 | 100 | s |
| 峰值温度<br>Peak temperature | $T_p$ | | | 245 | ℃ |
| 温度保持在指定峰值温度$T_p$ -5K 的 5℃范围内的时间Time within 5℃ of the specified peak temperature $T_p$ -5K | $t_p$ | | | 10 | s |
| 降温速度： $T_p$ 至 100℃ | | | 3 | 6 | K/s |
| 时间：25℃至 $T_p$<br>Time: 25℃ to $T_p$ | | | | 480 | s |

1. 回流焊不可以做两次以上。
   Reflow soldering should not be done more than two times.
2. 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 .

# 包装
# Packaging

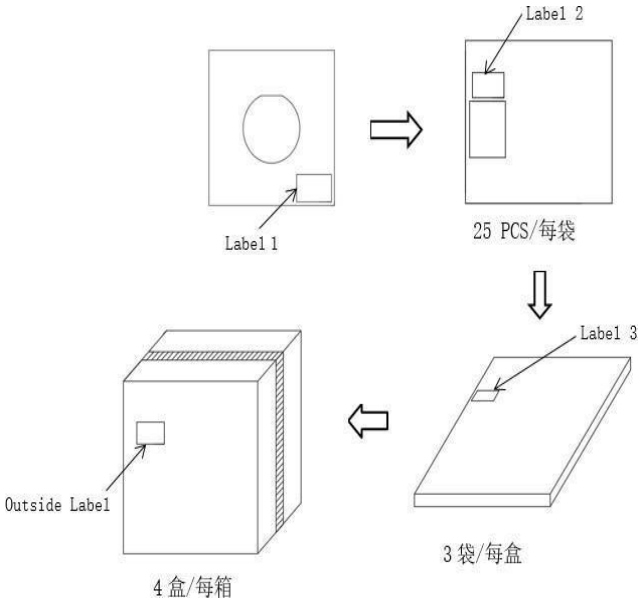
（1） 蓝膜尺寸单位
Blue Tape Dimension (Units : mm)




蓝膜尺寸(AxB) = 200*200 mm
Blue Tape（AxB) = 200*200

（2） 包装方式
Package Method




（3） 标签样式
Label Mode

## 修补
## Repairing

LED 回流焊后不应该修复，当修复是不可避免时，必须使用加热平台或热风枪进行修复，但必须事先确认此种方式会或不会损坏 LED 本身的特性。

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, Must use heating platform or hot air gun to repair . It should be confirmed in advance whether the characteristics of LEDs will or will not be damaged by repairing.

## 注意事项
## Cautions

1. 本产品为MINI LED 封装器件，用力按压产品可能会造成产品断裂或暗裂，影响可靠性。因此应有预防措施避免在封装的零件上的施加强大压力，当使用吸嘴时，产品表面的压力应是恰当的。

This product is a MINI LED packaged , Pressing the product forcefully may cause the product to break or crack and affect its reliability. Therefore, preventive measures should be taken to avoid applying strong pressure on the packaged parts. When using suction When mouth, the pressure on the surface of the product should be appropriate.

2. 产品是静电敏感器件，使用过程中应注意静电防护，避免 LED 芯片被静电击穿损坏。

This product is an electrostatic sensitive device. Pay attention to electrostatic protection during use to prevent the LED chip from being damaged by electrostatic breakdown.

3. 本产品使用密封防潮抗静电袋包装，未开封的产品保质期为 6 个月。未开封前产品须存放在温度 0-30℃，20%-60％RH 的环境中。

This product is packaged in a sealed, moisture-proof and antistatic bag. The max storage period before opening the package is 6 month. Before opening the package, The product must be stored in an environment with a temperature of 0-30℃ and 20%-60%RH.

4. 开封后，产品应在 72 小时内用完。否则应该以静电袋密封包装后保存在防潮柜中。我们建议 1 个月内使用完。

After opening, the product should be used up within 72 hours. Otherwise, it should be sealed in an electrostatic bag and stored in a moisture-proof cabinet. We recommend using it within 1 month.