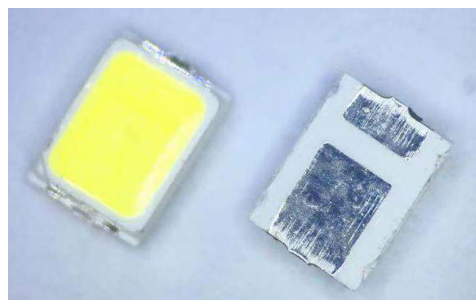




## 产 品 规 格 书

## PRODUCT SPECIFICATION



产品型号 (Product Model) : HS-2016Z1W-UW (350MA)

产品描述 (Product Description) : 2016 正白光 3 伏

产品制造商：深圳市鸿之森电子有限公司

| 市场部 | 核准  | 编制  | 时间        |
|-----|-----|-----|-----------|
| 杨锐  | 姚洪标 | 钟友青 | 2019-1-14 |

产品应用商：

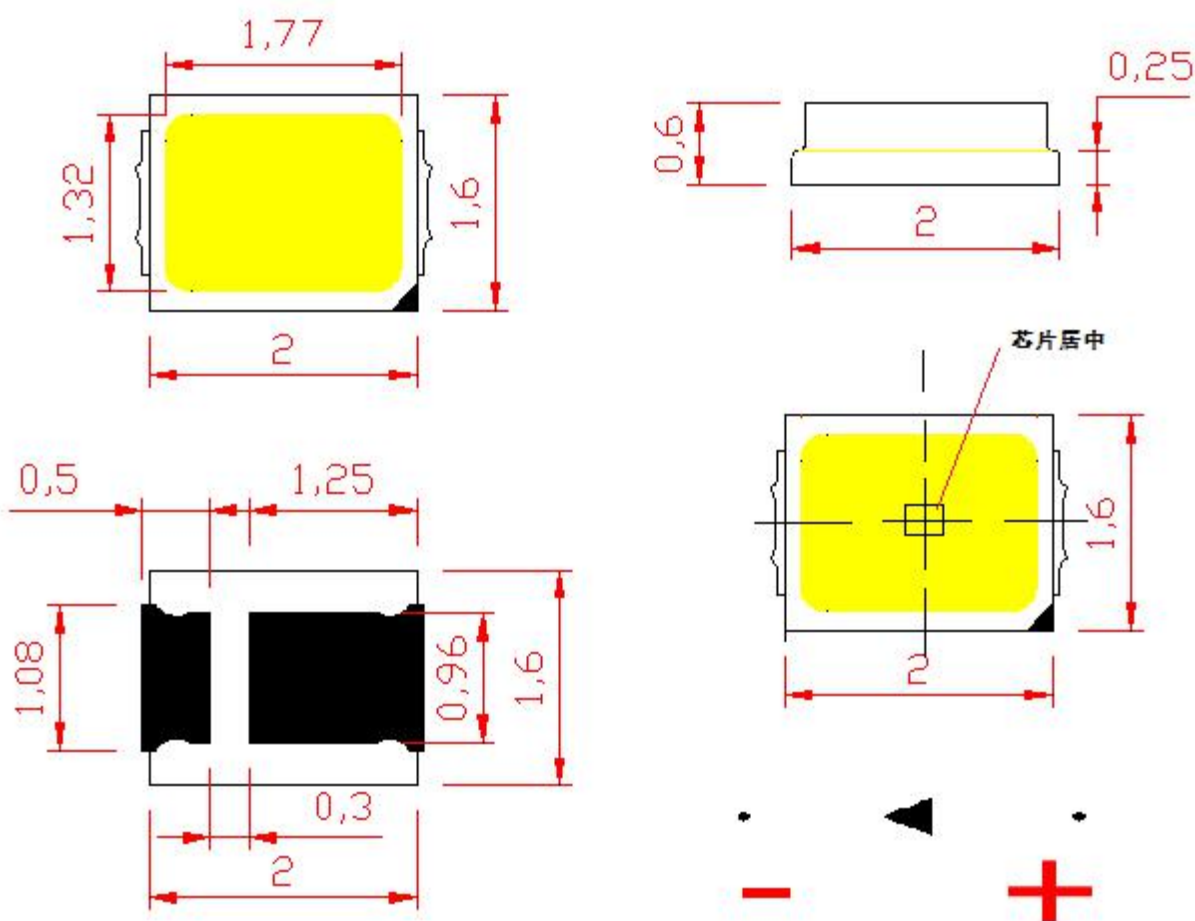
| 核准 | 确认 | 时间 |
|----|----|----|
|    |    |    |



## ■ 产品特性 (Features)

- 长寿命 (Long operating life )
- 低维护成本 (Reduced maintenance costs )
- 高效 (More energy efficient )
- 低电压直流驱动 (Low voltage DC operated )
- 启动快 (Instant light )
- 符合RoHS标准 (RoHS compliant)

## ■ 外形尺寸 (Outline Dimension)



说明: ①所有标注尺寸单位为毫米 (All dimensions are millimeters) ;

②公差为 0.05 毫米 (Tolerance is 0.05 mm) 。



## ■ 最大绝对额定值 (Absolute maximum ratings) Ta=25℃

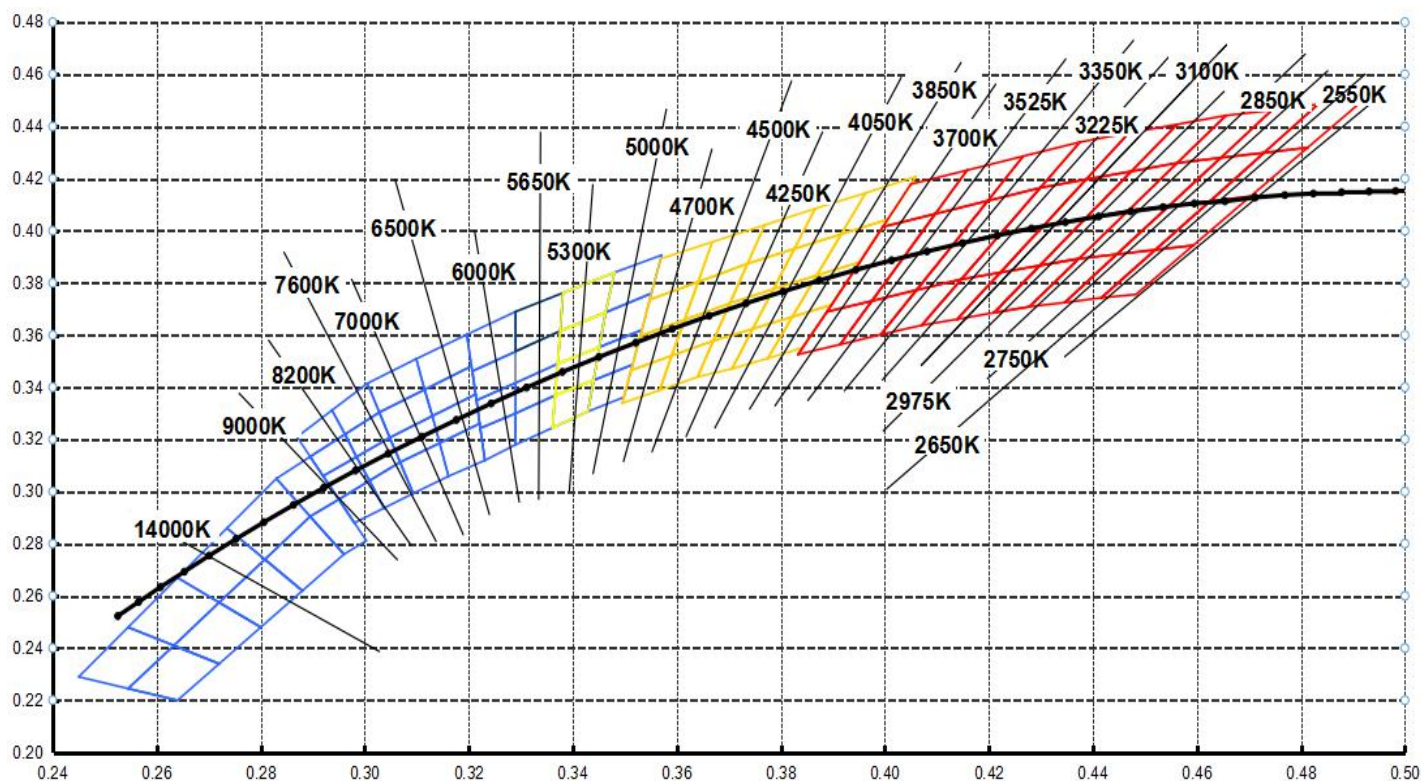
| 参数 Parameter                                                                                  | 符号 Symbol | 典型值 Typical   | 单 Unit |
|-----------------------------------------------------------------------------------------------|-----------|---------------|--------|
| 功率耗损 Power dissipation                                                                        | Pd        | 960           | mW     |
| 正向电流 Forward current                                                                          | If        | 350           | mA     |
| 反向电压 Reverse voltage                                                                          | Vr        | 5             | V      |
| 工作温度范围 Operating temperature range                                                            | Top       | -40 ~+85      | ℃      |
| 贮存温度范围 Storage temperature range                                                              | Tstg      | -40~+100      | ℃      |
| 最大脉冲电流 Peak pulsing current                                                                   | Ifp       | 650           | mA     |
| 抗静电能力 Electrostatic Discharge                                                                 | ESD       | 2000(HBM)     | V      |
| 焊接温度 Soldering temperature                                                                    | Tsol      | 230~240, ≤10s | ℃      |
| 备注：脉冲持续时间 ≤ 10msec，占空比 ≤ 1/10<br>IFP Conditions: Pulse Width ≤ 10msec. and Duty cycle ≤ 1/10. |           |               |        |

## ■ 电器光学特性 (Electrical & Optical Characteristics) Ta=25℃

| 项目 Item                      | 测试条件 Test Condition | 符号 Symbol | 最小值 Min. | 典型值 Typ. | 最大值 Max. | 单位 Unit |
|------------------------------|---------------------|-----------|----------|----------|----------|---------|
| 正向电压 Forward voltage         | If=350mA            | Vf        | 3.2      | --       | 3.4      | V       |
| 光通量 Luminous intensity       | If=350mA            | Iv        | 90       | --       | 120      | Lm      |
| 显示指数 Color rendering index   | If=350mA            | Ra        | 70       | --       | --       | --      |
| 色温 Color tempareture         | If=350mA            | CCT       | 5500     | --       | 6000     | K       |
|                              |                     |           | 6000     | --       | 6500     |         |
| 色座标 CIE Chromaticity         | If=350mA            | X         | --       | 0.31     | --       | --      |
|                              | If=350mA            | Y         | --       | 0.33     | --       | --      |
| 半功率角 Viewing angle at 50% Iv | If=350mA            | 2 θ 1/2   | --       | 120      | --       | Deg     |
| 反向电流 Reverse current         | Vr=5V               | Ir        | --       | --       | 5        | μA      |



## 色座标分布图 (Color coordinate distribution map)



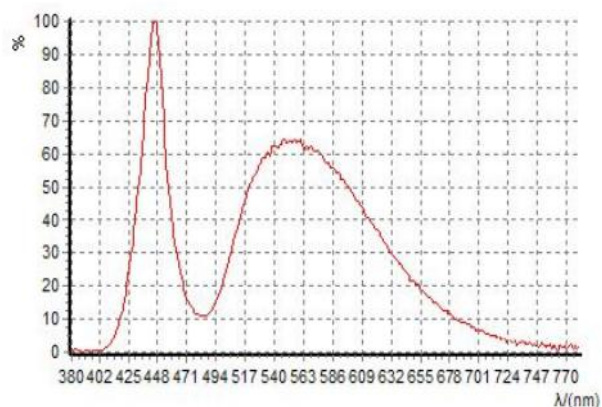
## 色座标参数 (Chromatic coordinate parameter)

|                         |        |        |                         |        |        |                         |        |        |                         |        |        |
|-------------------------|--------|--------|-------------------------|--------|--------|-------------------------|--------|--------|-------------------------|--------|--------|
| 55R<br>(5300-<br>5650K) | 0.3290 | 0.3538 | 58S<br>(5650-<br>6000K) | 0.3207 | 0.3462 | 62R<br>(6000-<br>6500K) | 0.3115 | 0.3391 | 68S<br>(6500-<br>7000K) | 0.3028 | 0.3304 |
|                         | 0.3290 | 0.3690 |                         | 0.3196 | 0.3602 |                         | 0.3099 | 0.3509 |                         | 0.3005 | 0.3415 |
|                         | 0.3381 | 0.3762 |                         | 0.3290 | 0.3690 |                         | 0.3196 | 0.3602 |                         | 0.3099 | 0.3509 |
|                         | 0.3376 | 0.3616 |                         | 0.3290 | 0.3537 |                         | 0.3205 | 0.3481 |                         | 0.3115 | 0.3391 |
| 55C<br>(5300-<br>5650K) | 0.3290 | 0.3417 | 58A<br>(5650-<br>6000K) | 0.3215 | 0.3350 | 62C<br>(6000-<br>6500K) | 0.3130 | 0.3290 | 68A<br>(6500-<br>7000K) | 0.3048 | 0.3207 |
|                         | 0.3290 | 0.3538 |                         | 0.3207 | 0.3462 |                         | 0.3115 | 0.3391 |                         | 0.3028 | 0.3304 |
|                         | 0.3376 | 0.3616 |                         | 0.3290 | 0.3537 |                         | 0.3205 | 0.3481 |                         | 0.3115 | 0.3391 |
|                         | 0.3371 | 0.3490 |                         | 0.3290 | 0.3417 |                         | 0.3213 | 0.3373 |                         | 0.3130 | 0.3290 |
| 55D<br>(5300-<br>5650K) | 0.3290 | 0.3300 | 58B<br>(5650-<br>6000K) | 0.3222 | 0.3243 | 62D<br>(6000-<br>6500K) | 0.3144 | 0.3186 | 68B<br>(6500-<br>7000K) | 0.3068 | 0.3113 |
|                         | 0.3290 | 0.3417 |                         | 0.3215 | 0.3350 |                         | 0.3130 | 0.3290 |                         | 0.3048 | 0.3207 |
|                         | 0.3371 | 0.3490 |                         | 0.3290 | 0.3417 |                         | 0.3213 | 0.3373 |                         | 0.3130 | 0.3290 |
|                         | 0.3366 | 0.3369 |                         | 0.3290 | 0.3300 |                         | 0.3221 | 0.3261 |                         | 0.3144 | 0.3186 |
| 55U<br>(5300-<br>5650K) | 0.3290 | 0.3180 | 58T<br>(5650-<br>6000K) | 0.3231 | 0.3120 | 62U<br>(6000-<br>6500K) | 0.3161 | 0.3059 | 68T<br>(6500-<br>7000K) | 0.3093 | 0.2993 |
|                         | 0.3290 | 0.3300 |                         | 0.3222 | 0.3243 |                         | 0.3144 | 0.3186 |                         | 0.3068 | 0.3113 |
|                         | 0.3366 | 0.3369 |                         | 0.3290 | 0.3300 |                         | 0.3221 | 0.3261 |                         | 0.3144 | 0.3186 |
|                         | 0.3361 | 0.3245 |                         | 0.3290 | 0.3180 |                         | 0.3231 | 0.3120 |                         | 0.3161 | 0.3059 |

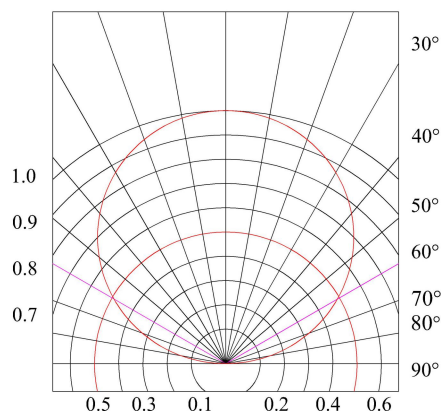


## ■ 典型光电特性曲线 (Typical optical characteristics curves)

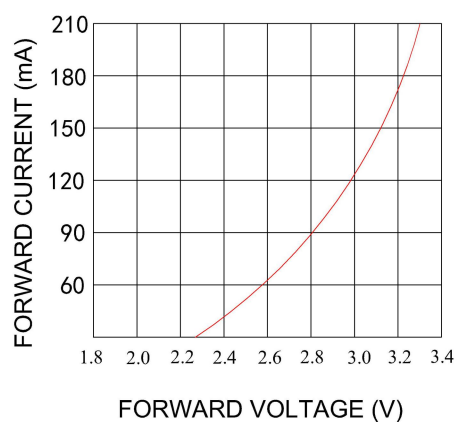
### ◆ 发射光谱 (Emission spectrum)



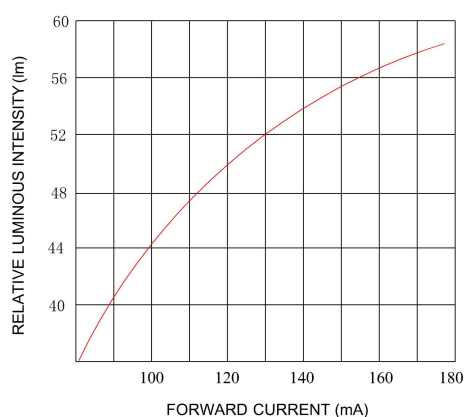
### ◆ 典型辐射分布图 (Typical radiation distribution map)



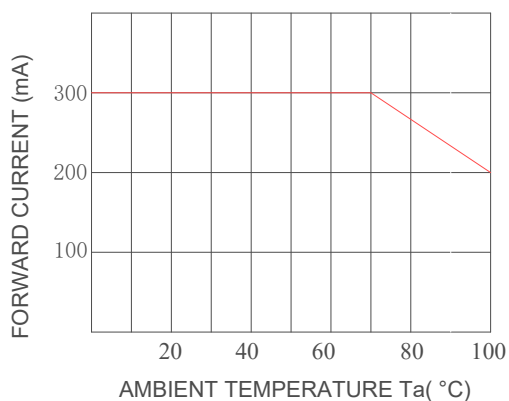
### ◆ 福安特性 (V-A characteristic)



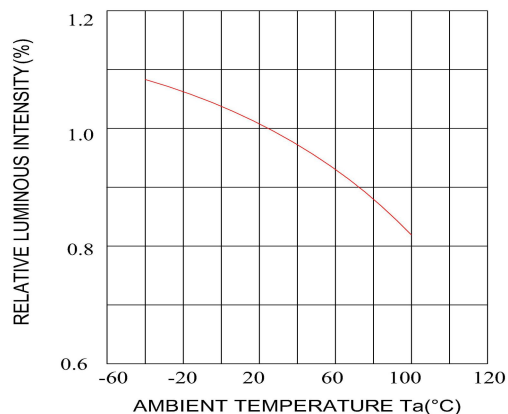
### ◆ 亮度特性 (Luminance characteristic)



### ◆ 温度与电流关系 (Temperature and current characteristic)



### ◆ 温度与亮度关系 (Temperature and brightness characteristic)





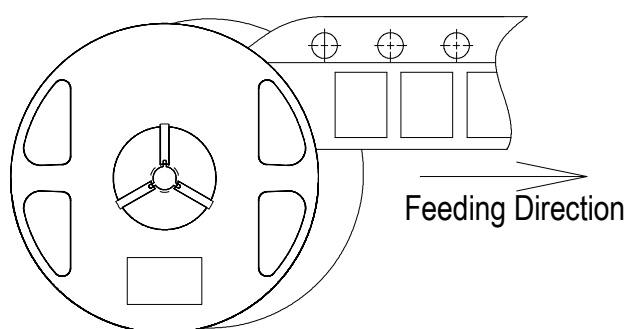
## ■ 可靠性试验 (Reliability test)

| 测试项目<br>Test project                                  | 测试条件<br>Test conditions   | 测试周期<br>Test cycle | 样品数量<br>Sample quantity | 允收<br>Ac/Re |
|-------------------------------------------------------|---------------------------|--------------------|-------------------------|-------------|
| 常温老化<br>Normal temperature aging                      | Ta=25℃<br>IF=350mA        | 1000H              | 22pcs                   | 0/1         |
| 高温老化<br>High temperature aging                        | Ta=85℃<br>IF=350mA        | 500H               | 22pcs                   | 0/1         |
| 高温存储<br>High temperature storage                      | Ta=100℃                   | 1000H              | 22pcs                   | 0/1         |
| 低温存储<br>Cryogenic storage                             | Ta=-40℃                   | 1000H              | 22pcs                   | 0/1         |
| 冷热冲击<br>Thermal Shock                                 | -40℃/30min~<br>100℃/30min | 100 cycles         | 22pcs                   | 0/1         |
| 回流焊<br>Reflow test                                    | Ta=260℃<br>T=10s          | 3 times            | 22pcs                   | 0/1         |
| 高温高湿老化<br>High temperature and high<br>humidity aging | 85℃/85%RH<br>IF=350mA     | 500H               | 22pcs                   | 0/1         |
| 硫化实验<br>Vulcanization experiment                      | Ta=85℃                    | 2H                 | 10pcs                   | 0/1         |
| 红墨水实验<br>Red ink experiment                           | Ta=85℃                    | 2H                 | 22pcs                   | 0/1         |
| 静电测试<br>Antistatic test                               | 2000V HBM                 | 1 times/pcs        | 10pcs                   | 0/1         |

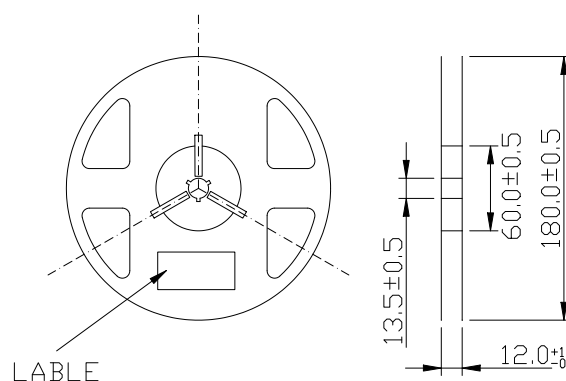


## 卷盘包装规格 (Reel packaging specification)

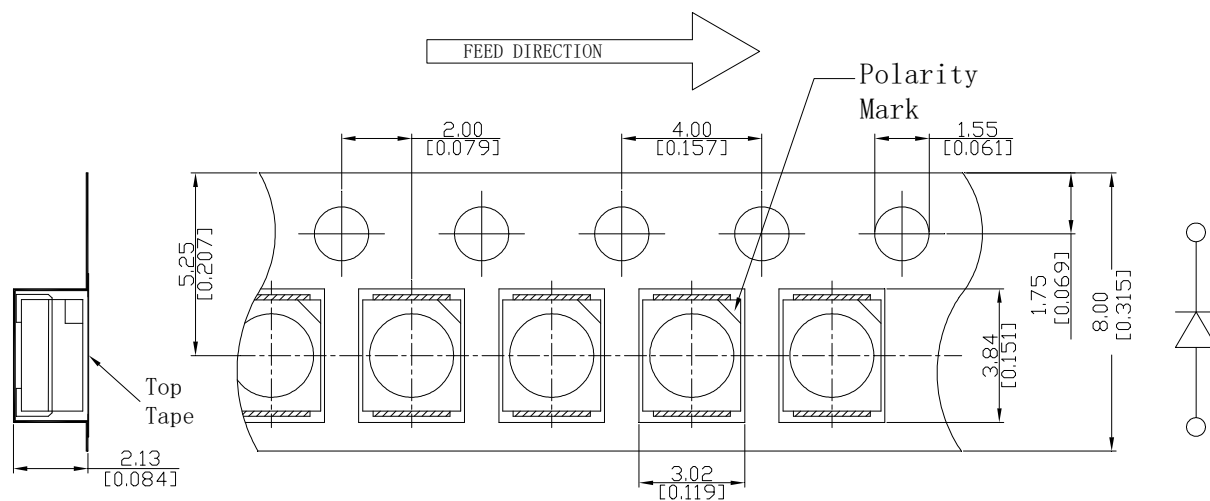
### ◆ 卷带输送方 (Feeding Direction)



### ◆ 卷盘尺寸 (Dimensions of Reel)



### ◆ 卷带尺寸 (Dimensions of Tape)



### 备注 (NOTES):

- 1、无材料部分同样用上封带密封;

No material part is also sealed with sealing tape.

- 2、材料缺口 (负极) 方向, 与卷带齿孔方向一致;

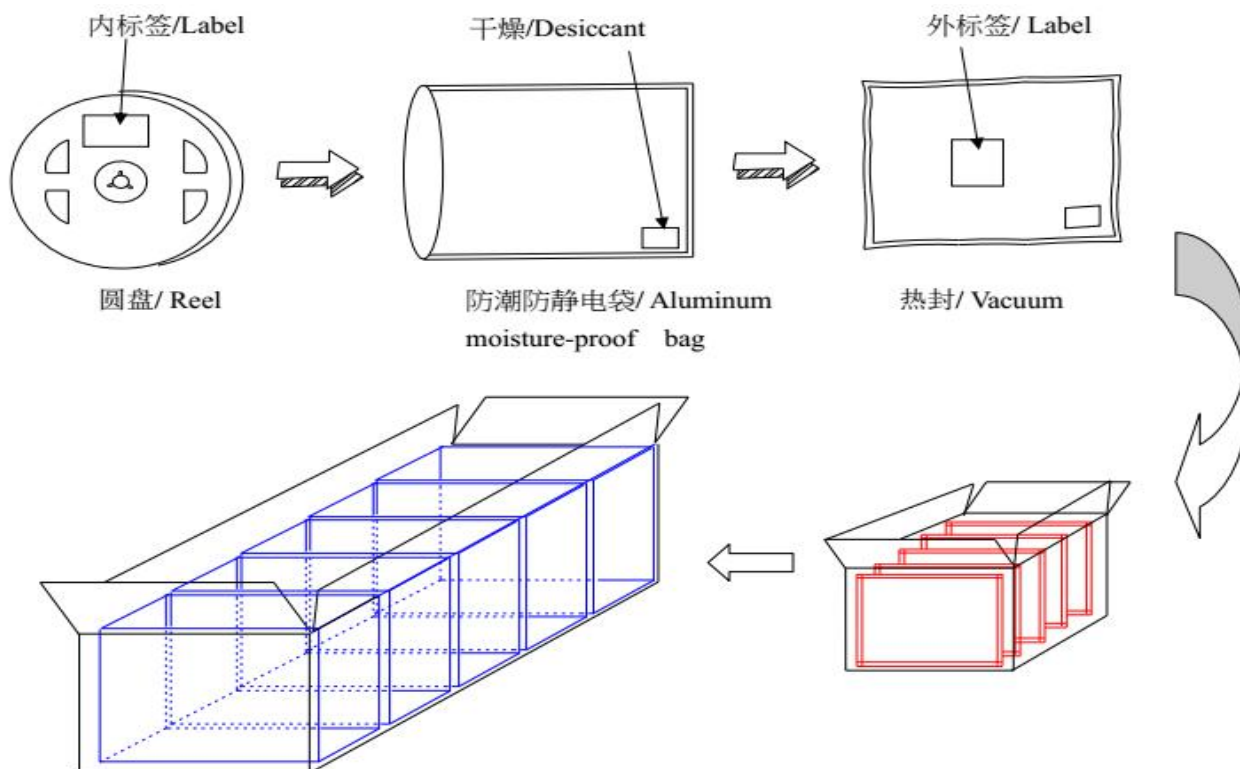
The direction of material gap (negative pole) is the same as that of the coiling hole.

- 3、5000pcs/卷

5000 pcs/ Reel.

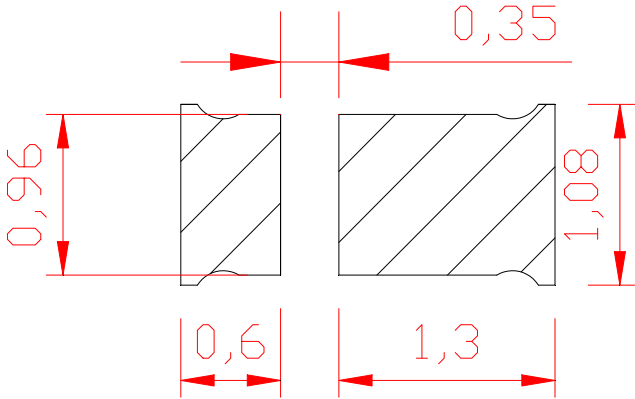
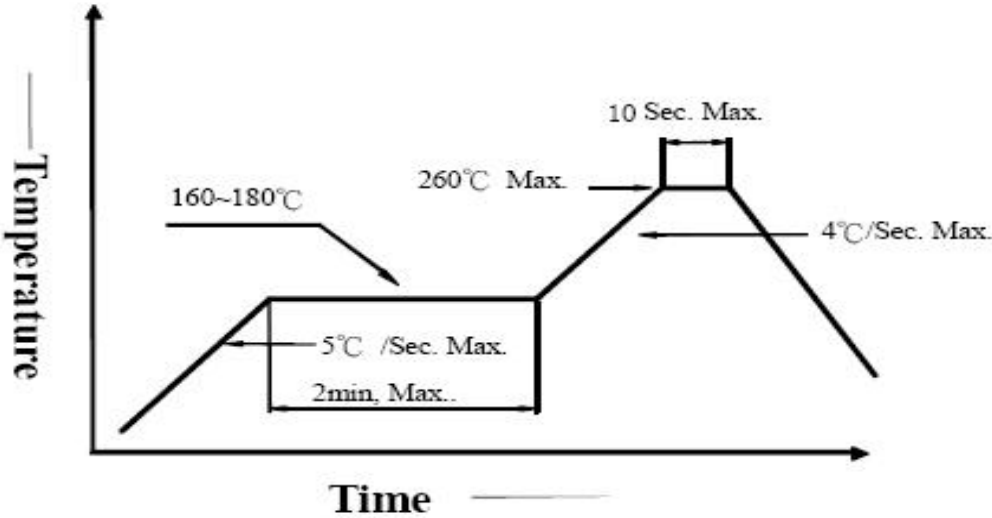


## ■ 纸箱包装规格 (Carton packaging specification)





## ■ 使用重要事项 (Importation for user)

|                                                                   |                                                                                      |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| <p>建议焊盘尺寸<br/>(Recommended pad size)</p>                          |    |
| <p>无铅回流焊规范<br/>(Specification for lead free reflow soldering)</p> |  |

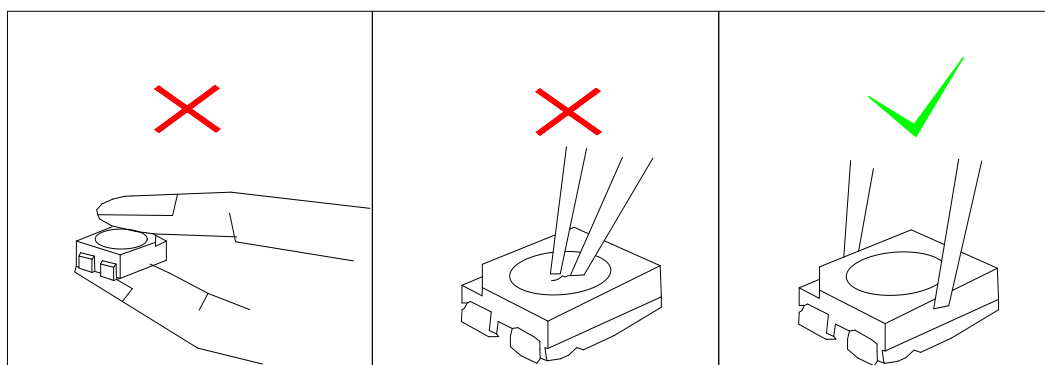
### 说明 (Note) :

- 1、焊接时请不要重压 LED 灯 (Do not press LED lamp when welding) ;
- 2、焊接后温度未回降到常温时请勿扭曲线路板 (Do not distort the circuit board when the temperature does not return to normal temperature after welding) ;
- 3、手工焊接时, 烙铁温度不高于 300℃, 每个焊脚焊接时间不超过 3 秒  
(The temperature of the iron should be lower than 300℃ and soldering within 3sec per solder-pad is to be observed) ;



- 4、必须注意的是把这些灯放到装置中使用，不可接触 LED 灯的胶体表面，以避免其受到破坏导致死灯或减少光效率。

( Caution must be used in handing this device to avoid damage to the lens surfaces that will reduce optical efficiency ) 。



## ■ 存储重要事项 (Important storage items)

- 1、请在未准备使用 LED 之前不要打开防静电袋子

( Do not open the moisture proof bag before ready to use the LEDs ) ；

- 2、LED 在未开封之前应保存在 30℃ 以下，湿度在 60% 以下的环境中，最长保存期为 1 年

( The LEDs should be kept at 30℃ or less and 60%RH or less before opening the package. The max. storage period before opening the package is 1 year ) ；

- 3、打开包装待后，LED 需保存在 30℃/40% 湿度以下的条件，且必须在 4H 内使用完

( After opening the package, the LEDs should be kept at 30℃/40%RH or less, and it should be used within 4 hours ) ；

- 4、如果 LED 超出了第 3 点要求，则 LED 必须经过烘烤才能使用。

烘烤条件为：60±5℃，12 个小时

( If the LEDs be kept over the condition of 3, baking is required before mounting.

Baking condition as below: 60±5℃ for 12 hours ) 。