



广州市东裕光电科技有限公司

# 产品规格书

## SPECIFICATION

|                 |                          |
|-----------------|--------------------------|
| 客户名称 CUSTOMER   |                          |
| 产品名称 PRODUCTION | 贴片 SMD                   |
| 产品型号 MODEL      | DYWH-19-223/R6BHC-C03/2T |
| 版本号 VERSION NO  | A1.0                     |

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| 客户确认<br>CUSTOMER CONFIRMATION | 审 核<br>CHECKED BY | 编 制<br>PREPARED BY |
|-------------------------------|-------------------|--------------------|
|                               | 邓晓军               | 区家俊                |

## DYWH-19-223/R6BHC-C03/2T



### 产品描述 Descriptions

- 外观尺寸: 1.6\*1.5\*0.6mm , 红蓝双色贴片发光二极管

### 产品特性 Features

- 发光强度高, 功耗低 (High Luminous Intensity ,Low Power Dissipation,)
- 可靠性好, 使用寿命长 (Good Reliability and Long Life)
- 无铅 (Pb free)
- 符合 RoHS 要求 (This product itself will remain within RoHS compliant version)

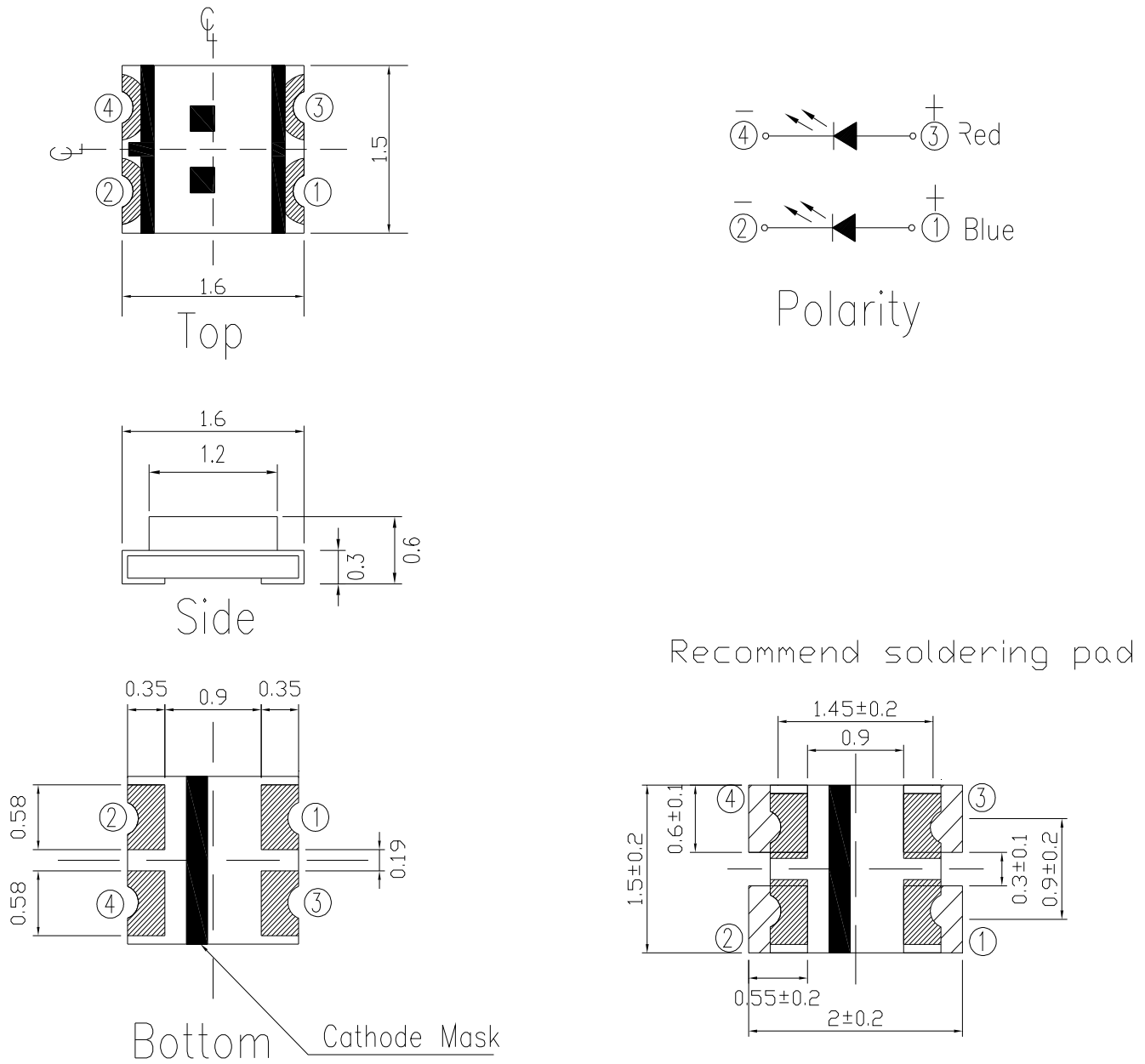
### 产品应用 Applications

- 办公室和家庭设备的指示灯 (Indicator and back light in office and family equipment.)
- LCD 背光源 (LCD Back Light)
- 光管应用 (Light pipe application)
- 一般应用 (General use)

### 包装方式 Packing Quantity Specification

- 编带 2000 个/卷 (2000PCS/rolls)

一、外形图 Outline dimensions:



注：所有尺寸均为毫米，除非另有说明，公差为±0.1。

Notes: All dimensions are in mm, tolerance is ±0.1 unless otherwise noted.

| 单位<br>Unit | 公差<br>Tolerance | 芯片材料<br>Die material | 发光颜色<br>Emission color | 胶体颜色<br>Lens color   |
|------------|-----------------|----------------------|------------------------|----------------------|
| mm         | ±0.1mm          | InGaN                | Red/Blue               | Water planar colloid |

※备注：承认书之编号和型号可用于查询，客户如有需要，请提供相应的编号和型号。

Remark: P/N & Model in samples approval sheet can be used to inquire, please provide corresponding P/N & model if customer need.

二、光电参数 Electro-Optical Characteristics:

(环境温度 Ambient temperature: 25℃, 环境湿度 Humidity: RH60%)

| 项目<br>Item                 | 符号<br>Symbol | 测试条件<br>Test condition | 发光颜色<br>Color | 最小值<br>Min. | 典型值<br>Type | 最大值<br>Max. | 单位<br>Unit |
|----------------------------|--------------|------------------------|---------------|-------------|-------------|-------------|------------|
| 正向电压<br>Forward voltage    | VF           | IF=5mA                 | Red           | 1.7         | -           | 2.0         | V          |
|                            |              |                        | Blue          | 2.7         | -           | 3.0         |            |
| 反向电流<br>Reverse current    | IR           | VR=5V                  | Red           | -           | -           | 10          | μ A        |
|                            |              |                        | Blue          | -           | -           | 10          |            |
| 发光强度<br>Luminous intensity | IV           | IF=5mA                 | Red           | 18          | -           | 36          | mcd        |
|                            |              |                        | Blue          | 18          | -           | 36          |            |
| 主波长<br>Dominant wavelength | λ d          | IF=5mA                 | Red           | 615         | -           | 625         | nm         |
|                            |              |                        | Blue          | 470         | -           | 475         |            |
| 峰值波长<br>Peak wavelength    | λ p          | IF=5mA                 | Red           | -           | 632         | -           | nm         |
|                            |              |                        | Blue          | -           | 468         | -           |            |
| 视 角<br>Viewing Angle       | 2θ1/2        | IF=5mA                 | Red           | -           | 130         | -           | deg        |
|                            |              |                        | Blue          | -           | 130         | -           |            |

注(Notes): \*正向电压公差范围(Forward voltage tolerance): ±0.1v  
              \*光强度公差范围(Light intensitytolerance range): ±10%、  
              \*波长公差范围(wavelength tolerance): ±1.0nm

### 三、光电参数分 BIN 规格/Photoelectric parameters are divided into BIN specifications

#### 3.1.红光亮度分BIN 规格/Red light Bin Range of Luminous Intensity

| Bin | Min | Max | Unit | Condition |
|-----|-----|-----|------|-----------|
| A   | 18  | 26  | mcd  | IF =5mA   |
| B   | 26  | 36  |      |           |

Notes: Tolerance of Luminous Intensity:  $\pm 11\%$

#### 3.2.红光电压分BIN 规格/ Red light Bin Range of Forward Voltage

| Bin | Min | Max | Unit | Condition |
|-----|-----|-----|------|-----------|
| 1   | 1.7 | 1.8 | V    | IF = 5mA  |
| 2   | 1.8 | 1.9 |      |           |
| 3   | 1.9 | 2.0 |      |           |

Notes: Tolerance of Forward Voltage:  $\pm 0.05V$

#### 3.3.蓝光亮度分BIN 规格/Blue light Bin Range of Luminous Intensity

| Bin | Min | Max | Unit | Condition |
|-----|-----|-----|------|-----------|
| A   | 18  | 26  | mcd  | IF =5mA   |
| B   | 26  | 36  |      |           |

Notes: Tolerance of Luminous Intensity:  $\pm 11\%$

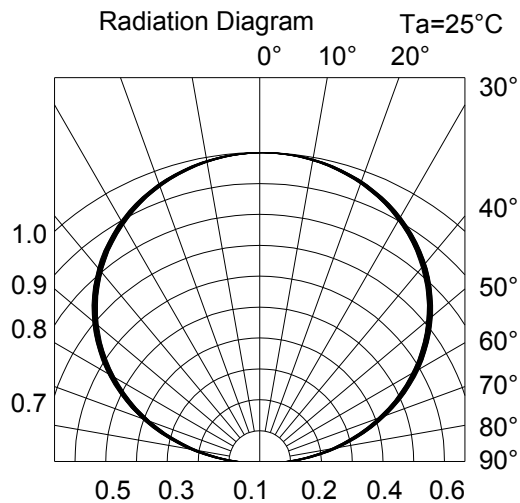
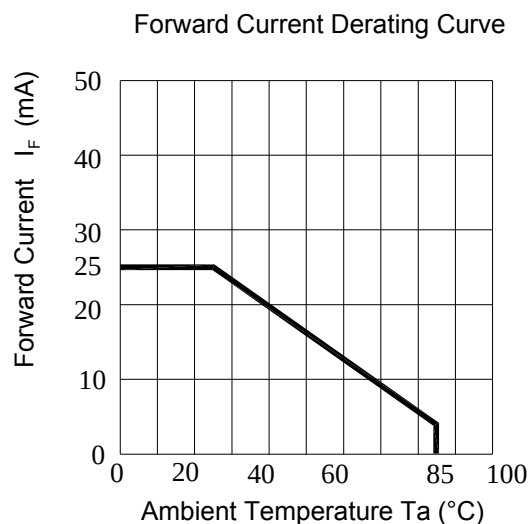
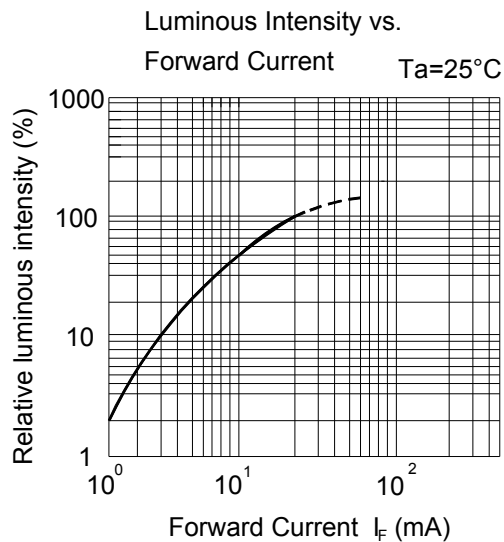
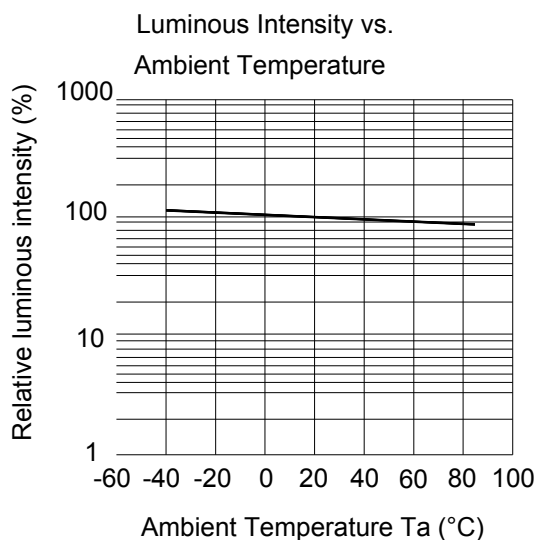
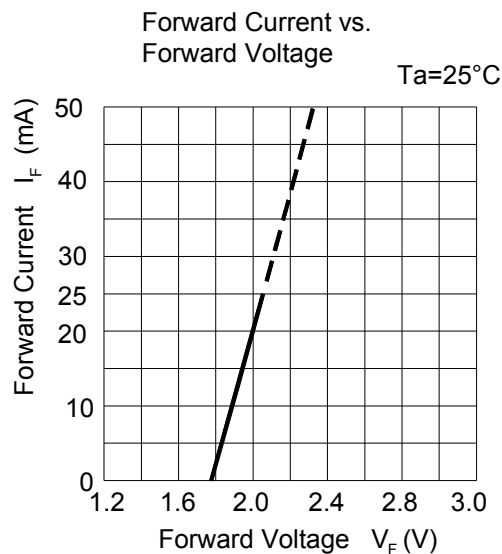
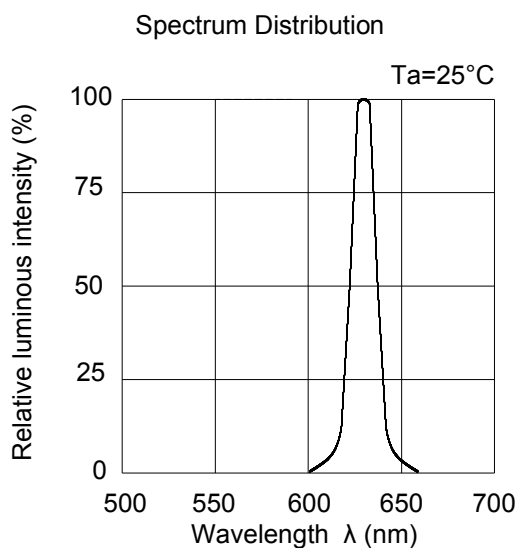
#### 3.4.蓝光电压分BIN 规格/ Blue light Bin Range of Forward Voltage

| Bin | Min | Max | Unit | Condition |
|-----|-----|-----|------|-----------|
| 1   | 2.7 | 2.8 | V    | IF =5mA   |
| 2   | 2.8 | 2.9 |      |           |
| 3   | 2.9 | 3.0 |      |           |

Notes: Tolerance of Forward Voltage:  $\pm 0.05V$

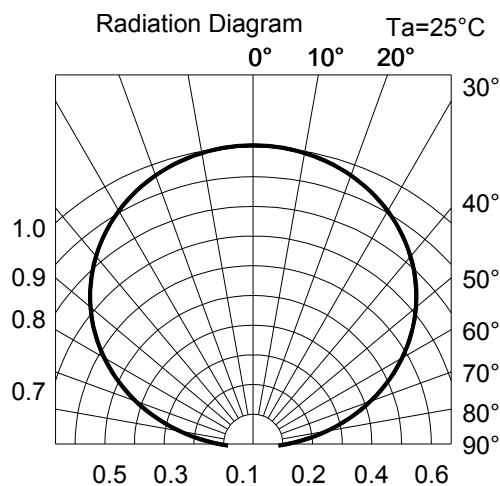
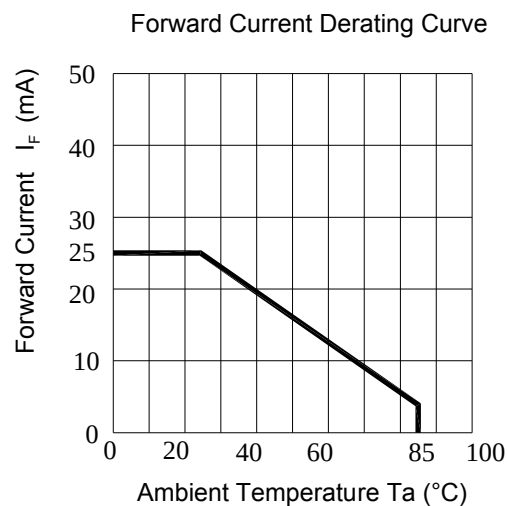
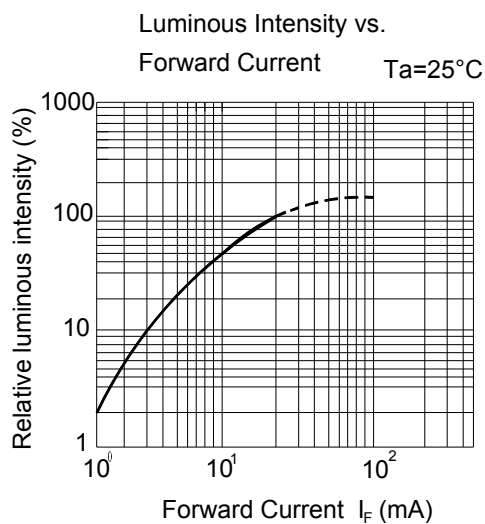
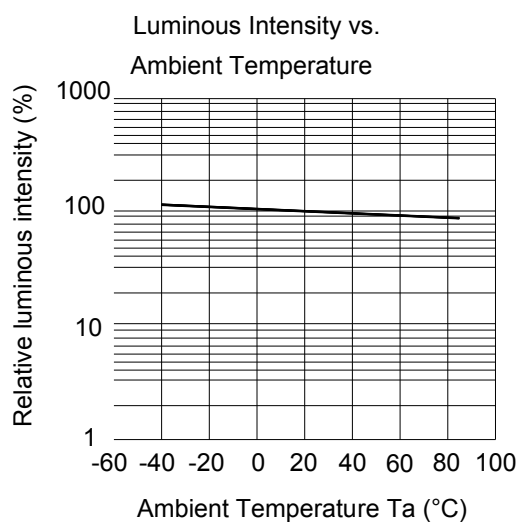
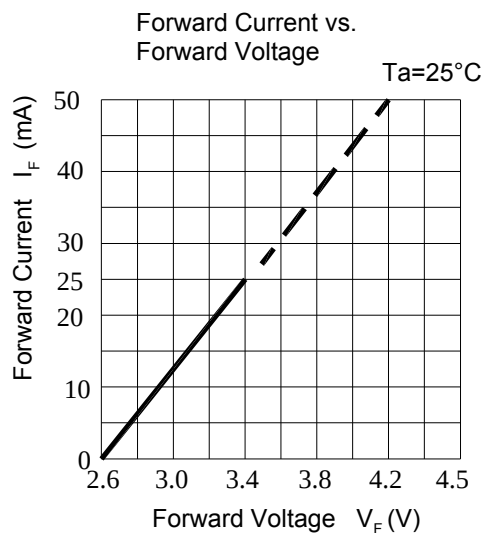
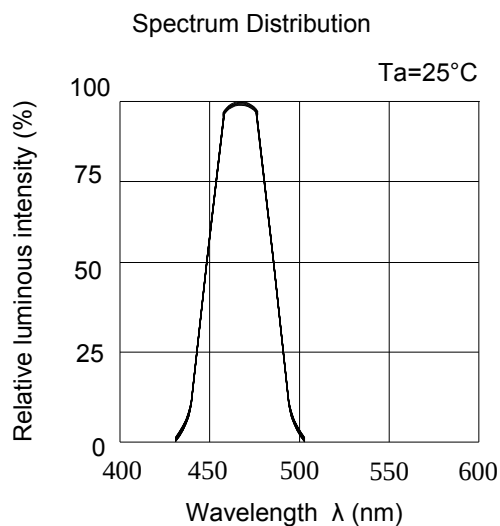
#### 四、典型光电特性曲线图 Typical photoelectricity characteristic curve chart:

Red:



## 典型光电特性曲线图 Typical photoelectricity characteristic curve chart:

Blue:





五、极限参数 Absolute Maximum Rating:

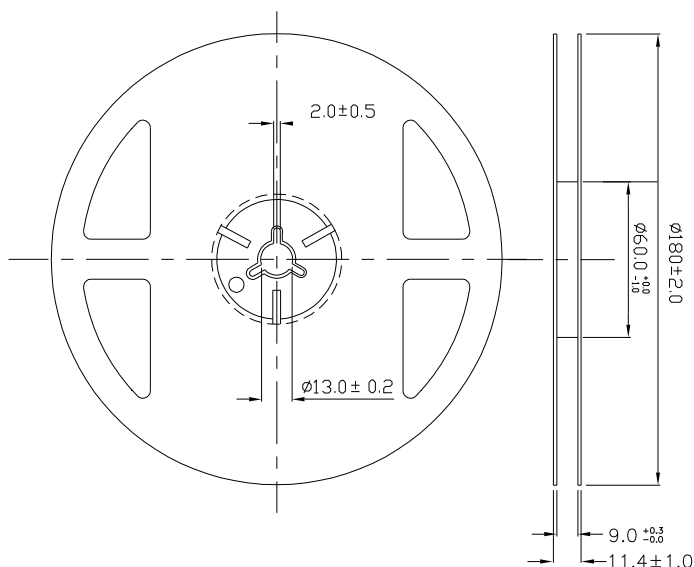
(环境温度 Ambient temperature: 25°C, 环境湿度 Humidity: RH60%)

| 参 数/ Parameter                                     | 符号Symbol           | 最大额定值/ Rating                                                         |     | 单 位/ Unit |
|----------------------------------------------------|--------------------|-----------------------------------------------------------------------|-----|-----------|
| 消耗功率/ Power Dissipation                            | Pd                 | Red                                                                   | 60  | mW        |
|                                                    |                    | Blue                                                                  | 100 |           |
| 最大脉冲电流/ Peak Forward Current<br>(1/10占空比, 0.1ms脉宽) | IFP                | Red                                                                   | 60  | mA        |
|                                                    |                    | Blue                                                                  | 60  |           |
| 正向直流工作电流/ DC Forward Current                       | IF                 | Red                                                                   | 20  | mA        |
|                                                    |                    | Blue                                                                  | 20  |           |
| 反向电压/Backward Voltage                              | VR                 | Red                                                                   | 5   | V         |
|                                                    |                    | Blue                                                                  | 5   |           |
| 静电放电<br>Electrostatic Discharge                    | ESD <sub>HBM</sub> | Red: 2000                                                             |     | V         |
|                                                    |                    | Blue: 150                                                             |     |           |
| 工作温度范围<br>Operating Temperature Range              | Topr               | -40℃ ~ +85℃                                                           |     |           |
| 存储温度范围<br>Storage Temperature Range                | Tstg               | -40℃ ~ +90℃                                                           |     |           |
| 焊接条件<br>Soldering Condition                        | Tsol               | 回流焊/ Reflow soldering : 260℃ , 10s<br>手动焊/ Hand soldering : 300℃ , 3s |     |           |

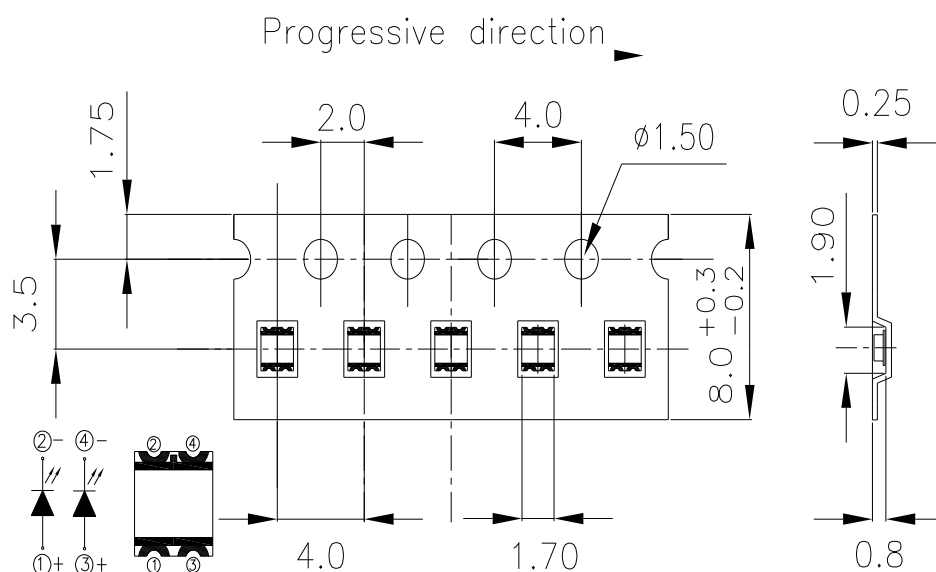


## 六、包装载带与圆盘尺寸 Package carrier and disk dimensions

### (1) 卷轴包装尺寸 PackageDimension



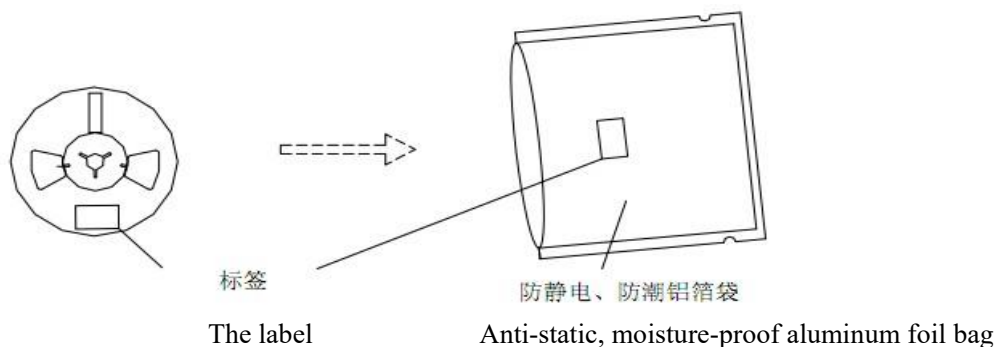
### (2) 载带编带的尺寸 CarrierTapeDimension



装载数量 Loaded Quantity

2000 个/卷 (2000PCS/rolls)

### (3) 标签及标识/ Label Explanation:



七、可靠性实验项目 Reliability Test Project

| 描述<br>Description        | 项目<br>Item                                | 测试标准<br>Test criterion                              | 测试条件<br>Test condition                                                 | 测试时间<br>Test time | 数量<br>Qty. | 失效数量<br>Fail Qty. |
|--------------------------|-------------------------------------------|-----------------------------------------------------|------------------------------------------------------------------------|-------------------|------------|-------------------|
| 寿命测试<br>Life test        | 常温寿命测试<br>Life test (room temperature)    | JIS7021:B4                                          | Ta=25°C±5°C, IF=5 mA                                                   | 1000Hrs           | 22         | 0                 |
| 环境测试<br>Ambience<br>test | 高温存储<br>High temperature store            | JIS7021:B10<br>MIL-STD-202:210A<br>MIL-STD-750:2031 | Ta=85°C±5°C                                                            | 1000Hrs           | 22         | 0                 |
|                          | 低温存储<br>Low temperature store             | JIS7021:B12                                         | Ta= -35°C±5°C                                                          | 1000Hrs           | 22         | 0                 |
|                          | 高温高湿测试<br>High temperature/ humidity test | JIS7021:B11<br>MIL-STD-202:103D                     | Ta=85°C±5°C<br>RH=85%                                                  | 1000Hrs           | 22         | 0                 |
|                          | 冷热冲击测试<br>Cold / Heat strike test         | JIS7021:B4<br>MIL-STD-202:107D<br>MIL-STD-750:1026  | 30min<br>-10°C±5°C←→100°C±5°C<br>5min                      5min        | 50Cycles          | 22         | 0                 |
|                          | 冷热循环测试<br>Cold and heat cycle test        | JIS7021:A3<br>MIL-STD-202:107D<br>MIL-STD-705:105E  | 5min 5min 5min<br>-35°C ~ 25°C ~ 85°C ~ -35°C<br>30min 5min 30min 5min | 50Cycles          | 22         | 0                 |

八、失效判定标准 Criteria For Judging Damage

| Test Items<br>项目         | Symbol<br>符号 | Test Condition<br>测试条件 | Judging For Damage<br>判定标准 |          |
|--------------------------|--------------|------------------------|----------------------------|----------|
|                          |              |                        | Min. 最小                    | Max. 最大  |
| Forward Voltage<br>正向电压  | VF           | IF=5mA                 | --                         | U.L*x1.1 |
| Reverse Current<br>反向电流  | IR           | VR = 5V                | --                         | U.L*x2.0 |
| Luminous Intensity<br>光强 | Mcd          | IF=5mA                 | L.L*x0.7                   | --       |

U.L: Upper standard level 规格Max  
L.L: Lower standard level 规格Min

## 九、注意事项 Note

### 1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change ( Burn out will happen ).

### 2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package: The LEDs should be kept at 30°C or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 1 year under 30°C or less and 60% RH or less.

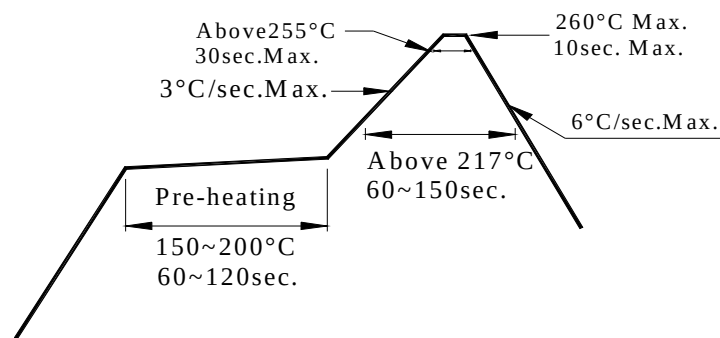
If unused LEDs remain, it should be stored in moisture proof packages.

2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment : 60±5°C for 24 hours.

### 3. Soldering Condition

#### 3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

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

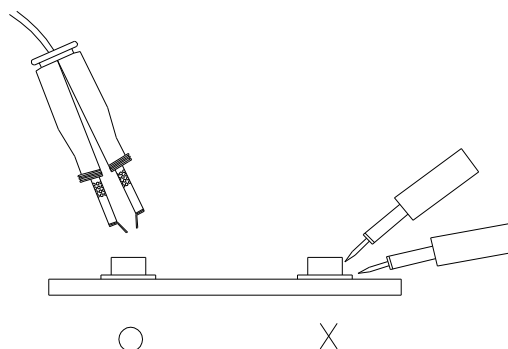
3.4 After soldering, do not warp the circuit board.

### 4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 350°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

### 5. Repairing

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 beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



## Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.