# Data sheet

**Name：** 1206 黄色贴片式发光二极管

**Model：** CZ-1206QYC

客　　户：

客户料号：

版 本 号：A.1

日　　期：2015/7/15

| 客户承认栏 | | |
|---|---|---|
| | | |

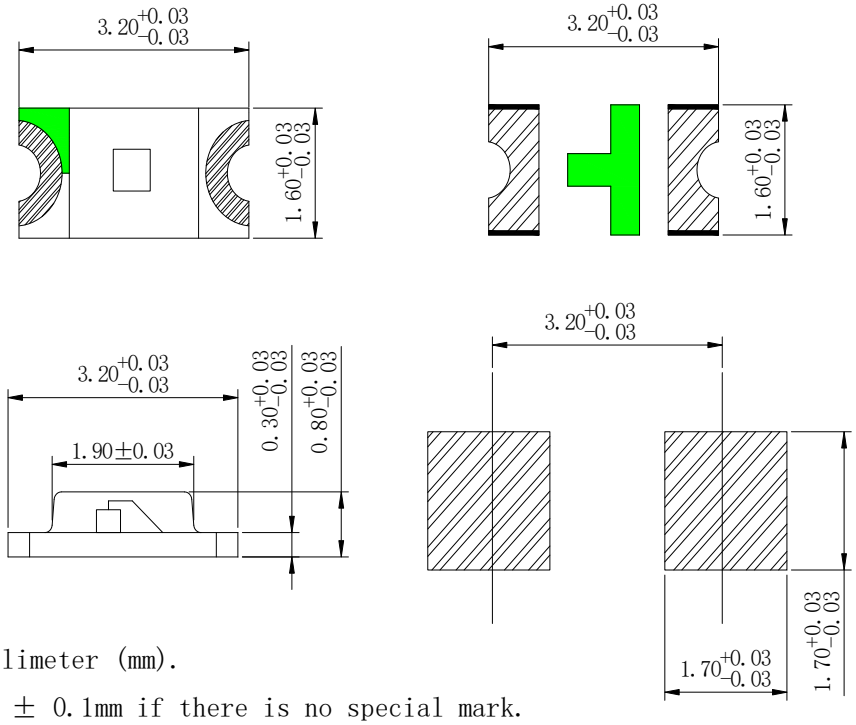
制定：　　审核：　　品管：

| | 产 品 规 格 书 | | | | | |
|---|---|---|---|---|---|---|
| | CZ-1206QYC | | | | | |
| | 版本 | A.1 | 发布日期 | 2015.7.15 | 页码 | 2of9 |

**1. product description**

- Dimensions ( L/W/H ) : 3.2×1.6×0.8 mm
- Color: bright yellow
- colloid: transparent flat colloid
- EIA specification standard packaging
- Environmental protection products, in line with ROHS requirements
- for automatic placement machines
- for infrared reflow soldering processes

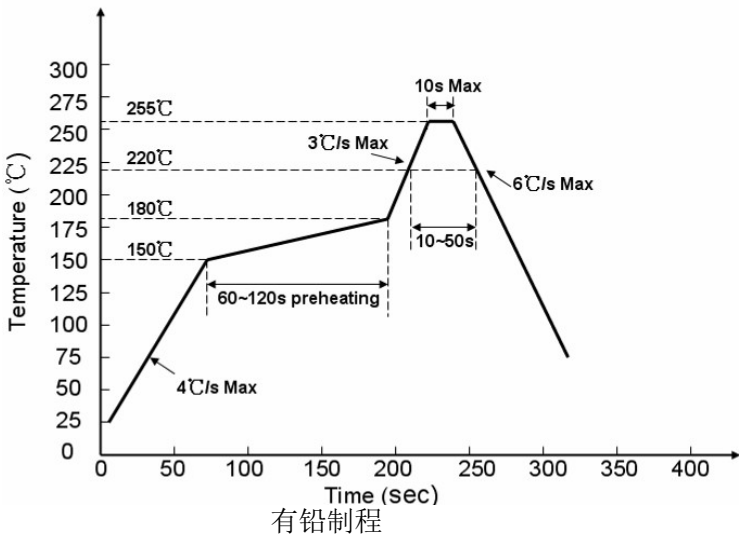
**2.外形尺寸及建议焊盘尺寸**



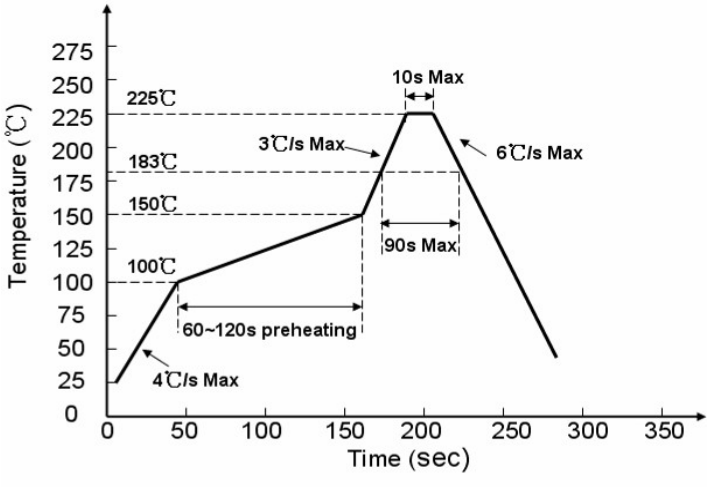

Note: 1. Unit: millimeter (mm).

2. Tolerance: ± 0.1mm if there is no special mark.

**3. Recommended welding temperature curve**




有铅制程




无铅制程

| | 产 品 规 格 书 | | | | | |
|---|---|---|---|---|---|---|
| | CZ-1206QYC | | | | | |
| | 版本 | A.1 | 发布日期 | 2015.7.15 | 页码 | 3of9 |

**4. Maximum absolute rating （Ta=25℃）**

| parameter | symbol | maximum rating | Unit |
|---|---|---|---|
| consumed power | Pd | 70 | mW |
| Maximum pulse current (1/10 duty cycle, 0.1ms pulse width) | IFP | 70 | mA |
| Forward DC operating current | IF | 30 | mA |
| backward voltage | VR | 5 | V |
| operating ambient temperature | Topr | -30°C ~ +85°C | |
| Storage ambient temperature | Tstg | -40°C ~ +90°C | |
| welding condition | Tsol | reflow soldering : 260°C ，10s Manual welding : 300°C ，3s | |

**五、photoelectric parameter （Ta=25℃）**

| parameter | symbol | Min | representative value | Max | Unit | test condition |
|---|---|---|---|---|---|---|
| light intensity | IV | | 130 | | mcd | IF = 20mA |
| Half light intensity Angle | 2θ1/2 | | 120 | | deg | IF = 20mA (Fig.6) |
| peak wavelength | λP | | 595 | | nm | IF = 20mA (Fig.1) |
| dominant wavelength | λd | | 590 | | nm | IF = 20mA |
| Half-wave width | Δλ | | 15 | | nm | IF = 20mA |
| forward voltage | VF | 1.8 | | 2.6 | V | IF = 20mA |
| countercurrent | IR | | | 10 | μA | VR = 8V |

wave length（nm）规格：误差±1nm

| H1 | H2 | H3 | H4 |
|---|---|---|---|
| 583-586 | 586-589 | 589-592 | 592-595 |

luminance（mcd）规格：误差±15%

| n2 | o1 | o2 | p1 | p2 |
|---|---|---|---|---|
| 89-100 | 100-130 | 130-160 | 160-200 | 200-250 |

VF（V）规格：误差±0.05V

| a2 | a3 | a4 | a5 |
|---|---|---|---|
| 1.7-1.9 | 1.9-2.1 | 2.1-2.3 | 2.3-2.5 |

Yellow BIN

| | 产 品 规 格 书 | | | | | |
|---|---|---|---|---|---|---|
| | CZ-1206QYC | | | | | |
| | 版本 | A.1 | 发布日期 | 2015.7.15 | 页码 | 4of9 |

## 六、Photoelectric parameter represents value characteristic curve

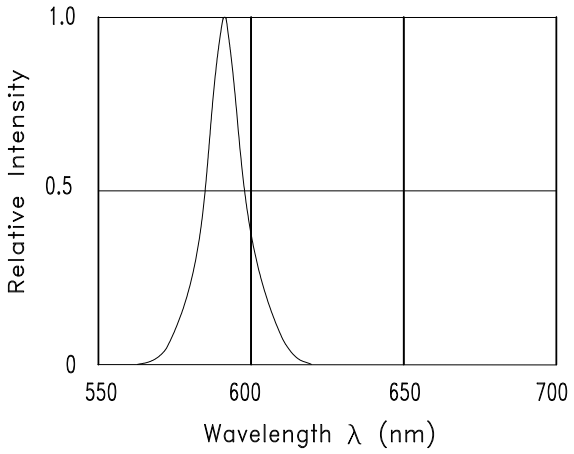



Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

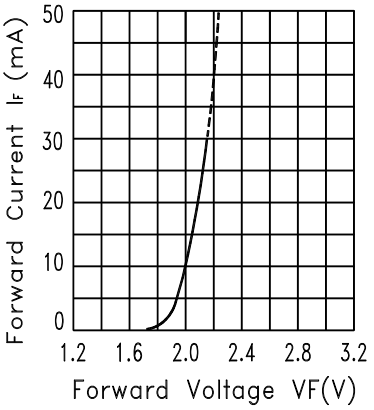



Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

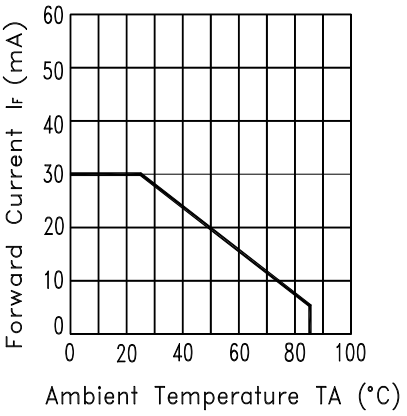



Fig.3 FORWARD CURRENT DERATING CURVE

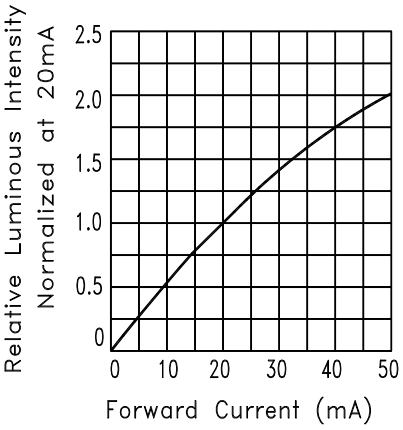



Fig.4 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

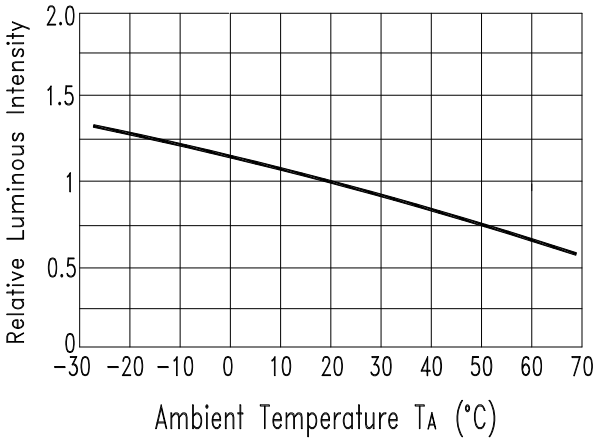



Fig.5 Luminous Intensity vs.Ambient Temperature

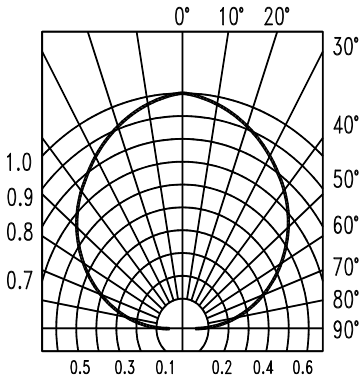



Fig.6 SPATIAL DISTRIBUTION

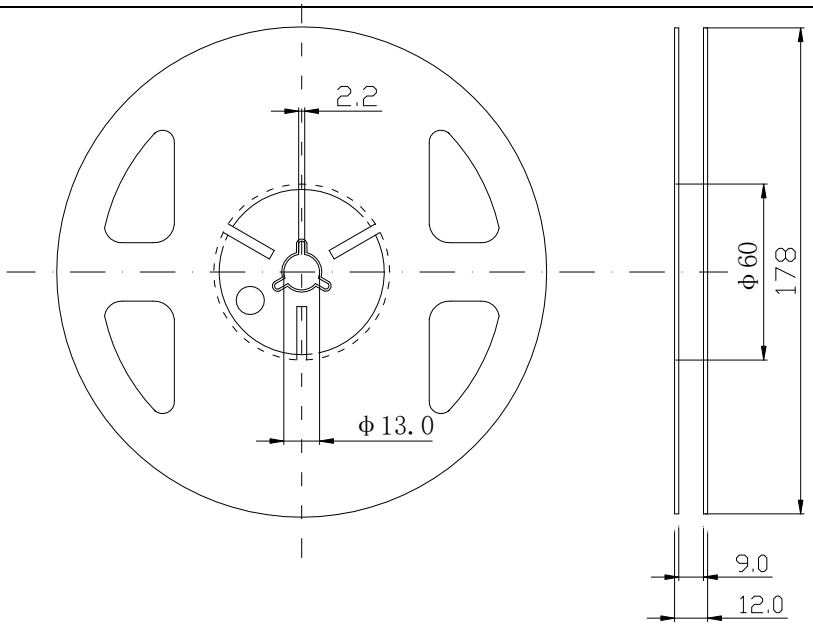
Note: If not otherwise indicated, the test ambient temperature is 25±3℃

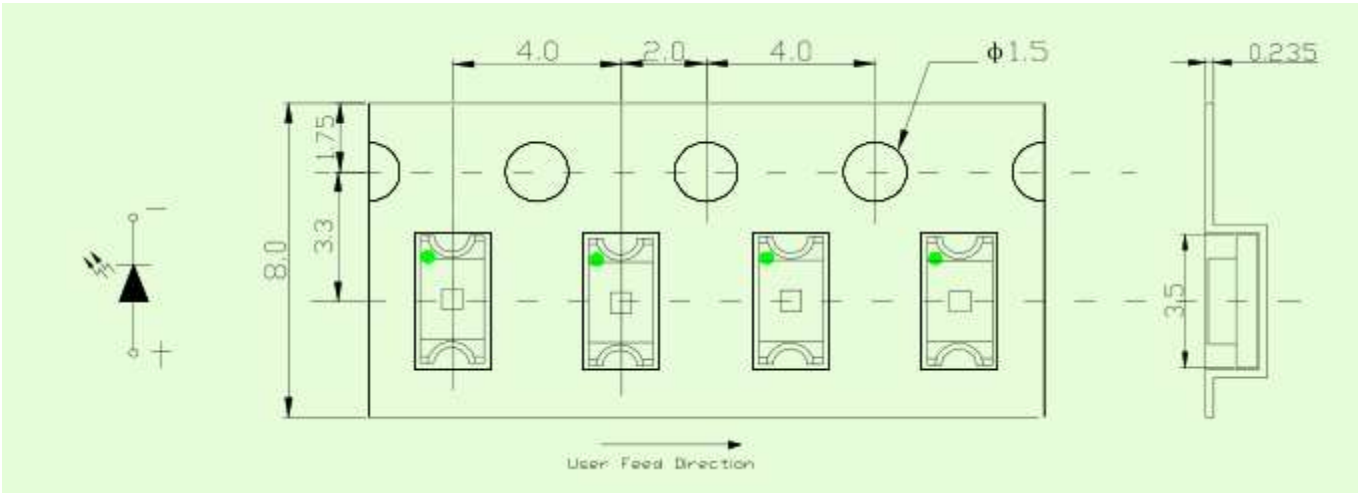
| | 产 品 规 格 书 | | | | | |
|---|---|---|---|---|---|---|
| | CZ-1206QYC | | | | | |
| | 版本 | A.1 | 发布日期 | 2015.7.15 | 页码 | 5of9 |

## 七、Labels and signs：

CAT：light intensity （单位（mcd））
HUE：wave length （单位（nm））
REF：voltage （单位（V））

## 八、Packaging belt and disc dimensions




Note: 1. The size unit is millimeter (mm).
2. The dimensional tolerance is ±0.1mm。

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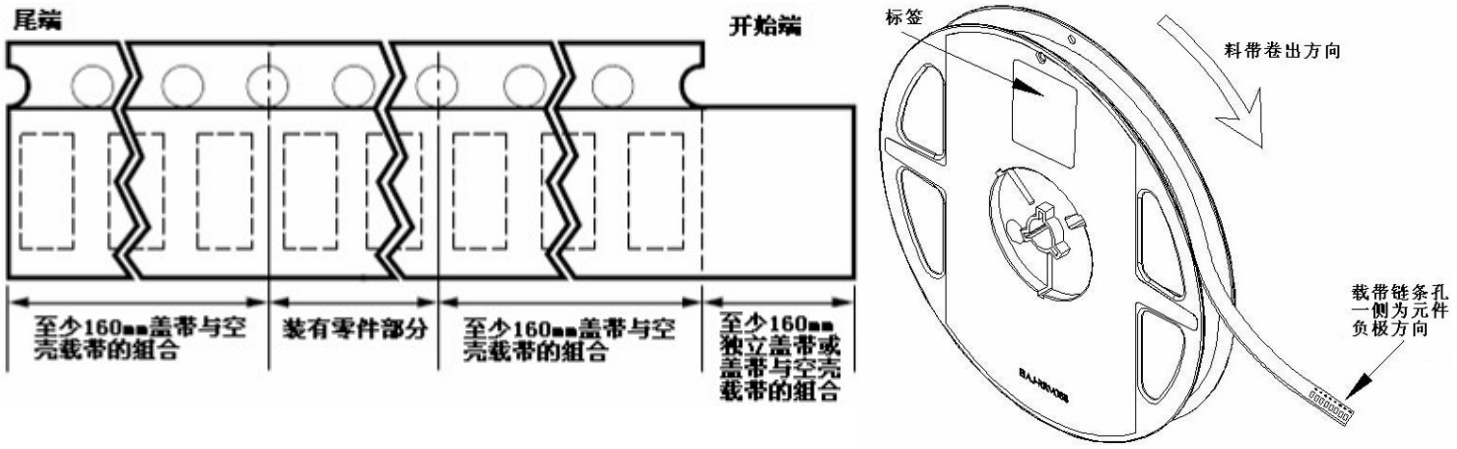
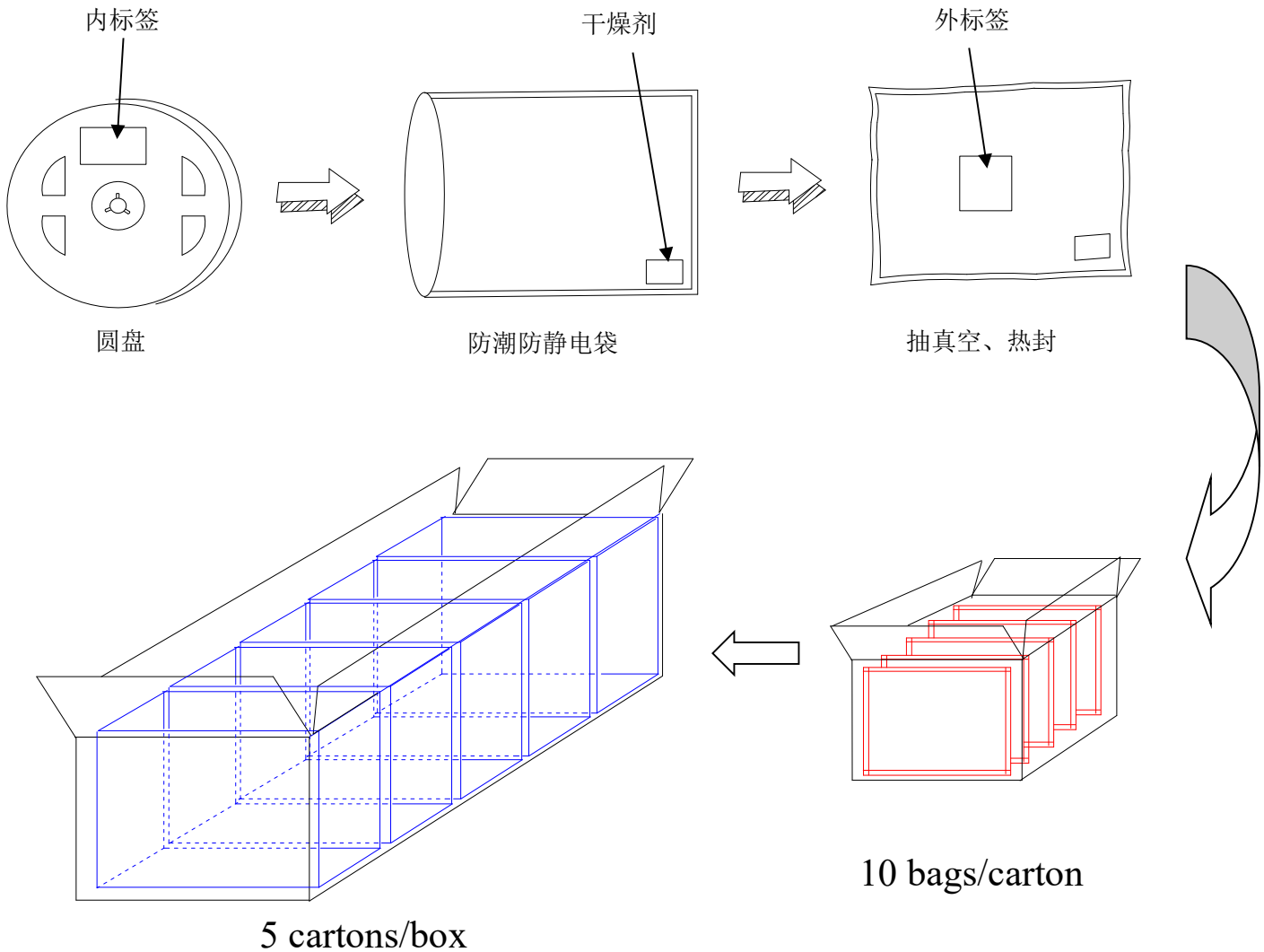
|---|---|---|---|---|---|---|
| | CZ-1206QYC | | | | | |
| | 版本 | A.1 | 发布日期 | 2015.7.15 | 页码 | 6of9 |

## 九、Disc and carrier winding direction and hole specification：




## 十、packaging：



## 十一、Reliability test：

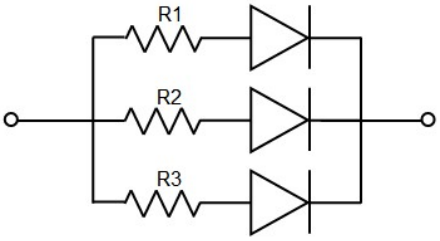
| category | test item | testing environment | test time | reference standard |
|---|---|---|---|---|
| endurance test | operating life | Continuous lighting with maximum rated current at room temperature; | 1000 hour (-24hour，+72hour) | MIL-STD-750D:1026<br>MIL-STD-883D:1005<br>JIS C 7021:B-1 |
| | High temperature and high humidity | IR-Reflow In-Board, 2 Times<br>Ambient temperature Ta= 65±5℃, relative humidityRH= 90～95% | 240hour (± 2hour) | MIL-STD-202F:103B<br>JIS C 7021:B-11 |
| | high-temperature storage | environment temperature Ta= 105±5℃ | 1000hour (-24hour，+72hour) | MIL-STD-883D:1008<br>JIS C 7021:B-10 |
| | low temperature storage | environment temperature Ta= -55±5℃ | 1000hour (-24hour，+72hour) | JIS C 7021:B-12 |
| 环境测试 | thermocycling | 105℃ ～ 25℃ ～ -55℃ ～ 25℃<br>30mins 5mins 30mins 5mins | 10cycles | MIL-STD-202F:107D<br>MIL-STD-750D:1051<br>MIL-STD-883D:1010 |
| | thermal shock | IR-Reflow In-Board, 2 Times<br>85 ± 5℃ ～ -40℃ ± 5℃<br>10mins 10mins | 10cycles | MIL-STD-202F:107D<br>MIL-STD-750D:1051<br>MIL-STD-883D:1011 |
| | Tin resistance test | Solder temperatureT.sol= 260 ± 5℃ | 10 ± 1secs<br>2times | MIL-STD-202F:210A<br>MIL-STD-750D:2031<br>JIS C 7021:A-1 |
| | Infrared reflow welding There's a lead process | Heating rate (183 ° C to maximum) : maximum 3 ° C/second<br>Maintain temperature at 125(±25) ° C: no more than 120 seconds<br>Maintain temperature above 183 ° C: 60-90 seconds | -------- | MIL-STD-750D:2031.2<br>J-STD-020C |
| | Infrared reflow welding Lead-free process | Heating rate (217 ° C to maximum) : maximum 5 ° C/s<br>Maintain temperature at 175(±25) ° C: no more than 180 seconds<br>Maintain temperature above 217℃ : 50-70 | -------- | MIL-STD-750D:2031.2<br>J-STD-020C |
| | weldability test | Solder temperature T.OL = 235 ± 5℃<br>Immersion speed: 25± 2.5mm/SEC<br>Tinning rate ≧90% of pad area | Immersion time: 2±0.5 seconds | MIL-STD-202F:208D<br>MIL-STD-750D:2026<br>MIL-STD-883D:2003<br>IEC 68 Part 2-20<br>JIS C 7021:A-2 |

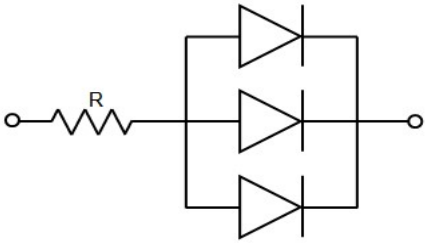
## 十二、matters need attention：

Use:

1. LED is a current drive component, and slight changes in voltage will produce large current fluctuations, resulting in the destruction of components. Customers should use resistors in series for current limiting protection.

In order to ensure the parallel use of multiple LED time color consistency, it is recommended to use A separate resistor for each branch, as shown in mode A in the following figure; If the circuit shown in mode B in the following figure is used, the LED light color may be different due to the different volt-ampere characteristics of each LED.




**电路模式 A** **电路模式 B**

1. Too high ambient temperature will affect the brightness of the LED and other performance, so in order to make the LED have a better performance should be away from the heat source.
2. Photoelectric parameter tolerance:

Forward voltage REF/VF: + 0.1V

Brightness CAT/IV: + 15%

Wavelength HUE/WLD: + 1nm

Storage:

1. If the original package is not opened, the recommended storage environment is: temperature: 5℃~30℃; Humidity:

Below 85%RH.

2. After opening the original package, the recommended storage environment is: temperature 5~30°C; Humidity below 60%.
3. LED is a humidity sensitive component, in order to avoid moisture absorption of components, it is recommended to open the package, store it in a sealed container with desiccant, or store it in a nitrogen moisture-proof cabinet.
4. After opening the package, the component should be used within 168 hours (7 days); And welding should be done as soon as possible after the patch.
5. If the desiccant fails or the component is exposed to air for more than 168 hours (7 days), it should be dehumidified.

Baking condition: 60℃, 24 hours.

ESD protection

LED (especially InGaN structure of blue, emerald green, purple, white, pink LED) is electrostatic sensitive components, static electricity or current overload will destroy the LED structure. LED electrostatic damage or current overload may lead to abnormal performance, such as large leakage current, low VF, or failure to light and so on. So please note the following:

1. Wear an ESD wrist strap or ESD gloves when touching leds.

cleanse

It is recommended to use alcohol solution such as isopropyl alcohol to clean the LED, and do not use corrosive solution to clean the LED.

weld

1. For reflow welding conditions, refer to the temperature curve on the first page.
2. Reflow welding shall not exceed two times.
3. Manual welding is only recommended in the case of repair and heavy industry; The maximum welding temperature should not exceed 300 degrees and must be completed within 3 seconds. The maximum power of the soldering iron should not exceed 30W.
4. During the welding process, it is strictly prohibited to touch the colloid at high temperature.
5. After welding, it is forbidden to apply external force to the colloid, and it is forbidden to bend the PCB to avoid the impact of the components.

other

1. The LED definition described in this specification is applied to the range of ordinary electronic equipment (such as office equipment, communication equipment, etc.). If there are more stringent reliability requirements, especially when the failure or failure of components may directly endanger life and health (such as aerospace, transportation, traffic, medical equipment, safety protection, etc.), please inform our business personnel in advance.
2. High-brightness LED products may cause damage to the human eye when lit, and should be avoided from directly above.
3. For the purpose of continuous improvement, product appearance and parameter specifications may be changed without prior notice.