KENTO

# 深圳匡通电子有限公司

# SHENZHEN KENTO ELECTRONICCO.,LTD

## SPECIFICATION FOR APPROVAL

Product Name： LED SMD 1206 Bule color

Product number： KT-1206-B

Customer Name：

Version number： A.2

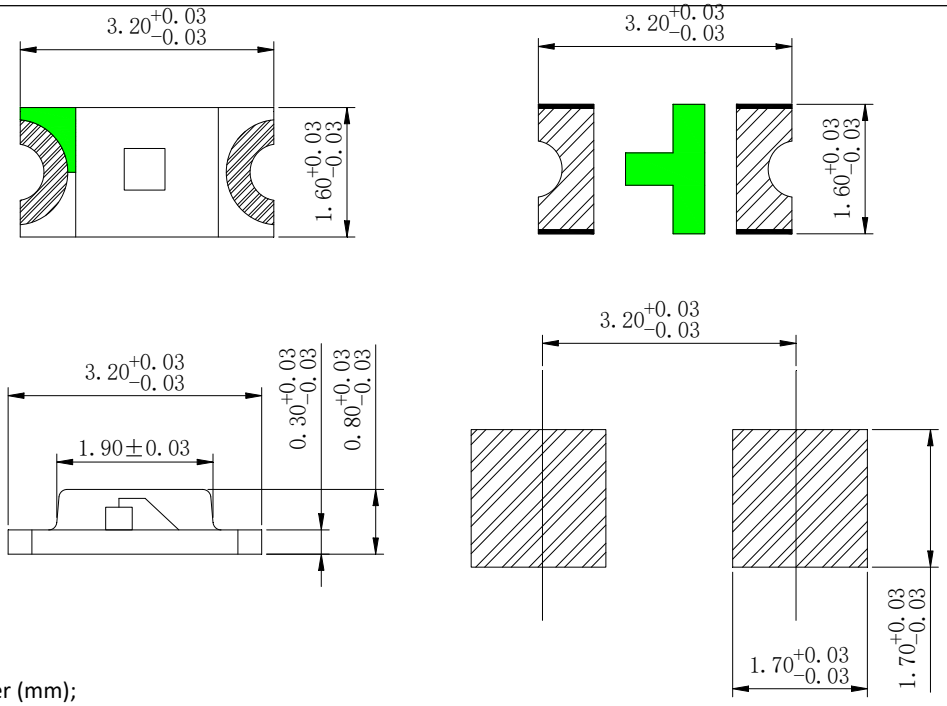
Date Prepared： 2015-4-18

| Customer recognition column | | |
|---|---|---|
| | | |

## 1. Product description

- Appearance size (L/W/H ): 3.2×1.6×0.8 mm
- Color: high-brightness blue
- Colloid: transparent flat colloid
- EIA standard packaging
- Environmentally friendly products, in line with ROHS requirements
- Suitable for automatic placement machine
- Suitable for infrared reflow soldering and wave soldering process

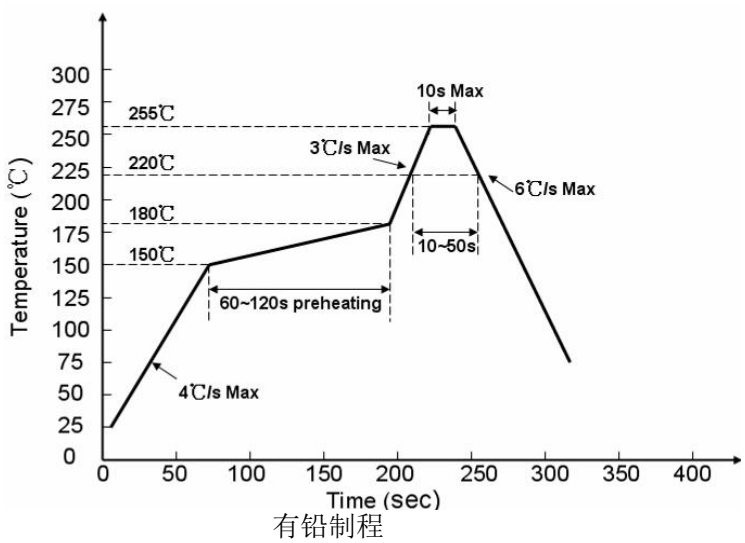
## 2. Dimensions and recommended pad size：



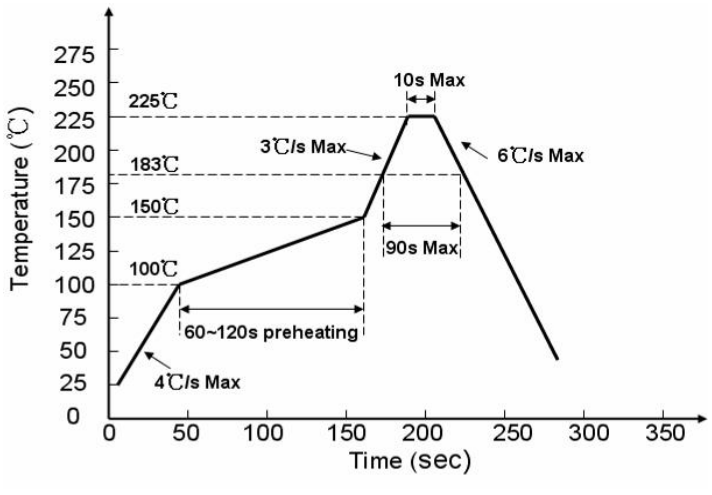

Note: 1. Unit: millimeter (mm);

2. Tolerance: ± 0.10 mm if there is no special mark;

## 3. Recommended welding temperature curve：




有铅制程




无铅制程

## 4. Maximum absolute rating（Ta=25℃）:

| Parameter | Symbol | Maximum rating | Unit |
|---|---|---|---|
| Power dissipation | Pd | 90 | mW |
| Peak pulsing current (1/10 duty cycle, 0.1ms pulse width) | IFP | 100 | mA |
| Forward DC working current | IF | 30 | mA |
| Reverse voltage | VR | 8 | V |
| Operating temperature range | Topr | -30°C ~ +85°C | |
| Storage temperature range | Tstg | -40°C ~ +90°C | |
| Welding Conditions | Tsol | 回流焊 ：260°C ， 10s<br>手动焊 ：300°C ， 3s | |

## 五、Photoelectric parameters (Ta=25℃):

| Parameter | Symbol | Min | Typ | Max | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Light Intensity | IV | | 40 | | mcd | IF = 5 mA |
| Half-light angle | 2θ1/2 | | 120 | | deg | IF = 5 mA (Fig.6) |
| Peak wavelength | λP | | 470 | | nm | IF = 5 mA (Fig.1) |
| Dominant wavelength | λd | | 468 | | nm | IF =5mA |
| Half wave width | Δλ | | 15 | | nm | IF = 5mA |
| Forward Voltage | VF | 2.8 | | 3.2 | V | IF = 5mA |
| Reverse current | IR | | | 10 | μA | VR = 8V |

## 六、Characteristic curve of photoelectric parameter representative value

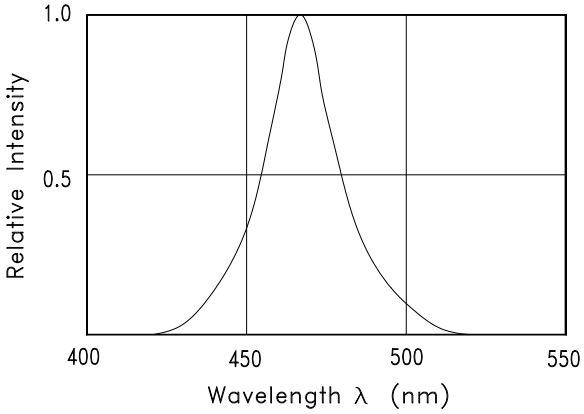



Fig1. RELATIVE INTENSITY VS. WAVELENGTH

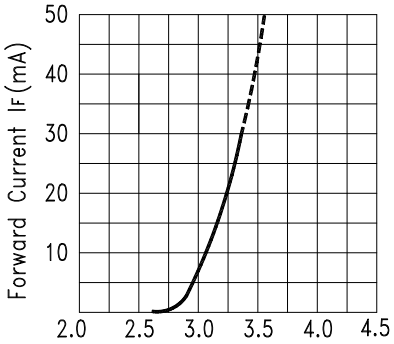



Fig.2 Forward Current vs. Forward Voltage

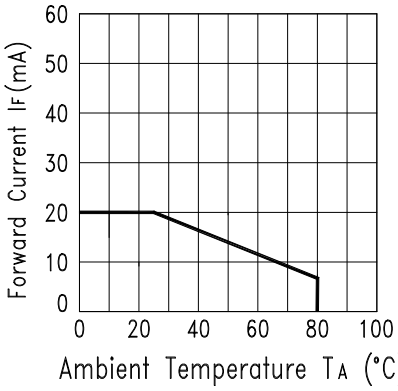



Fig.3 Forward Current Derating Curve

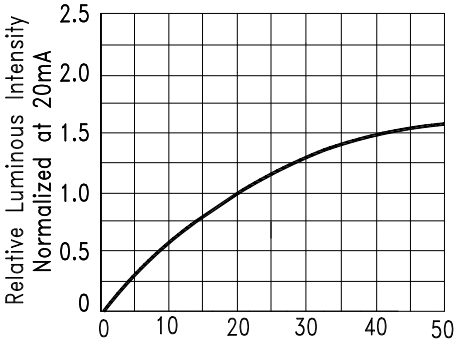



Fig.4 Relative Luminous Intensity vs. Forward Current

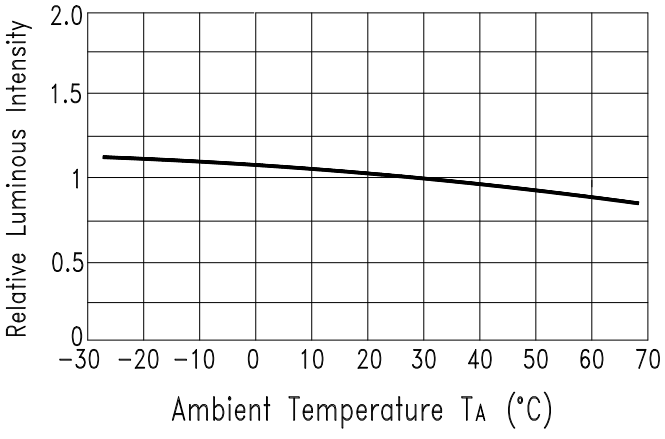



Fig.5 Luminous Intensity vs.Ambient Temperature

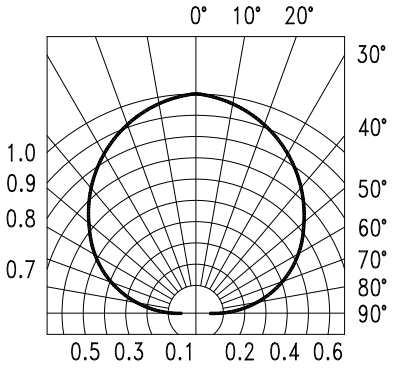


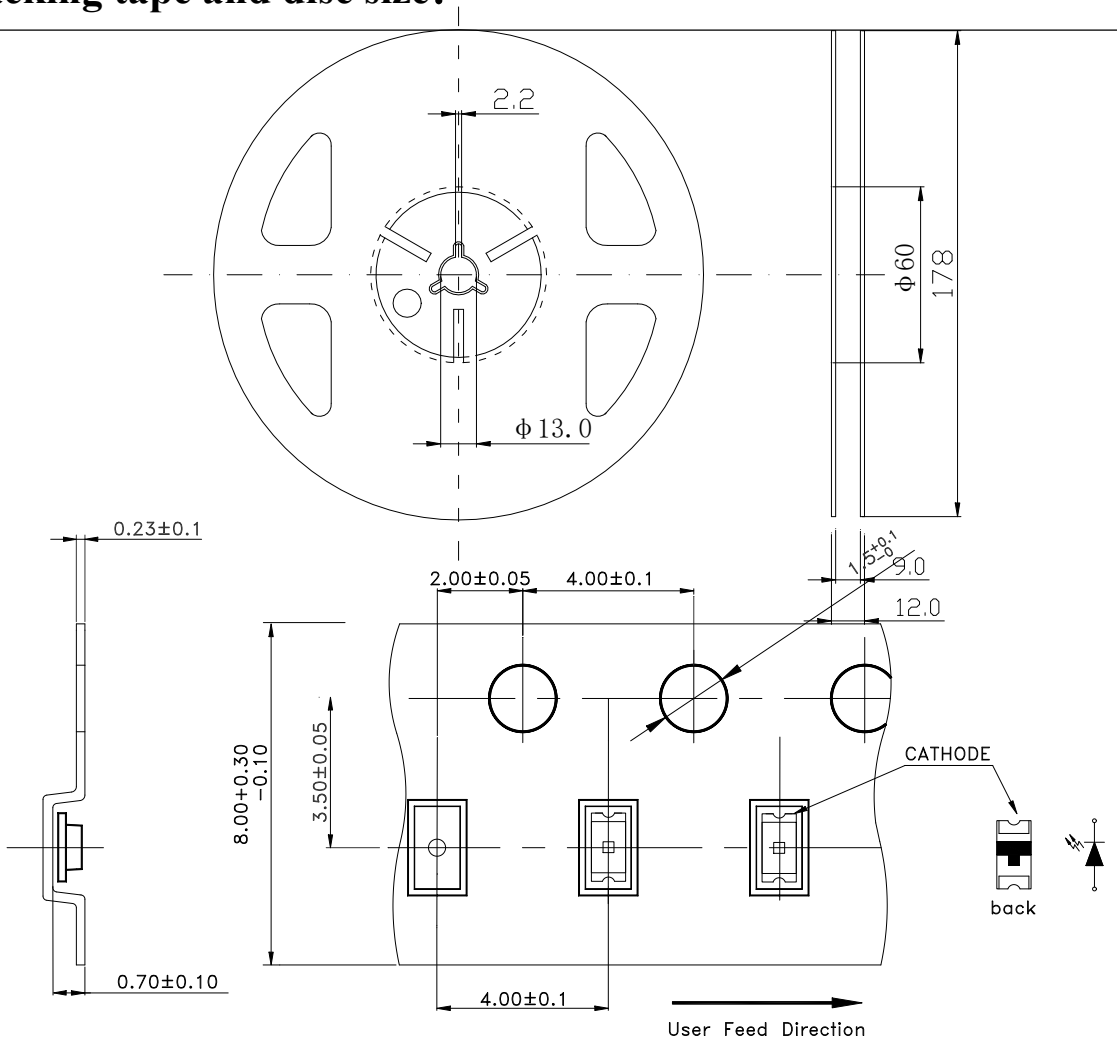

Fig.6 Spatial Distribution

Note: Unless otherwise noted, the test environment temperature is 25 + 3 C

七、**Labels and logos:：**

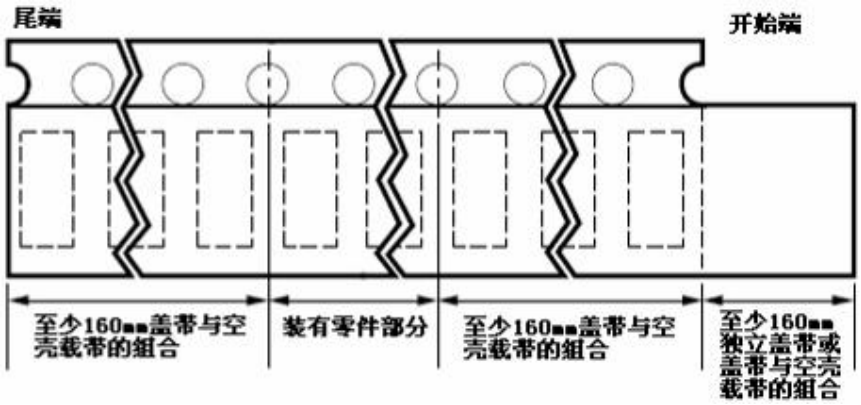
CAT: Light intensity (unit (mcd))
HUE: Wavelength (unit (nm))
REF: Voltage (Unit (V)

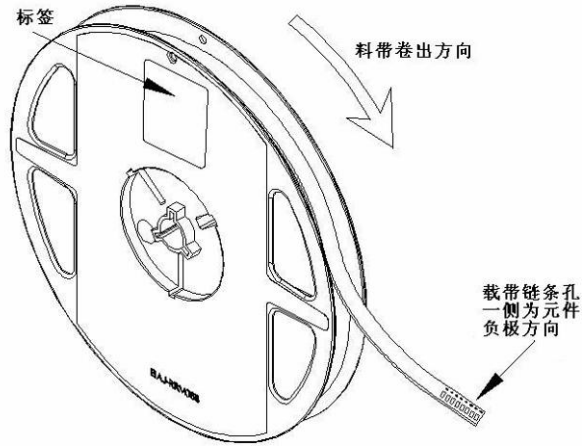
## 八、 Packing tape and disc size：



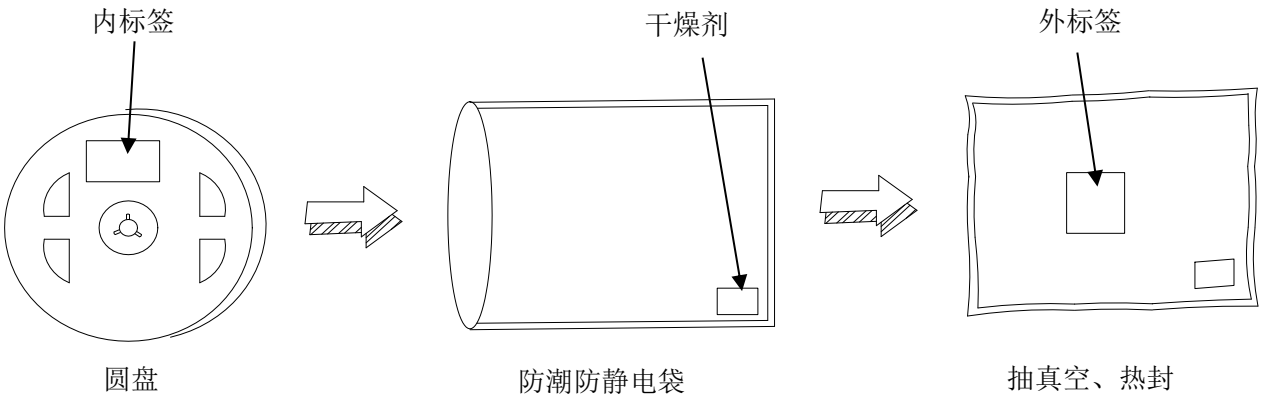

Note: 1. The size unit is millimeter (mm);
2. The size tolerance is ±0.1mm;

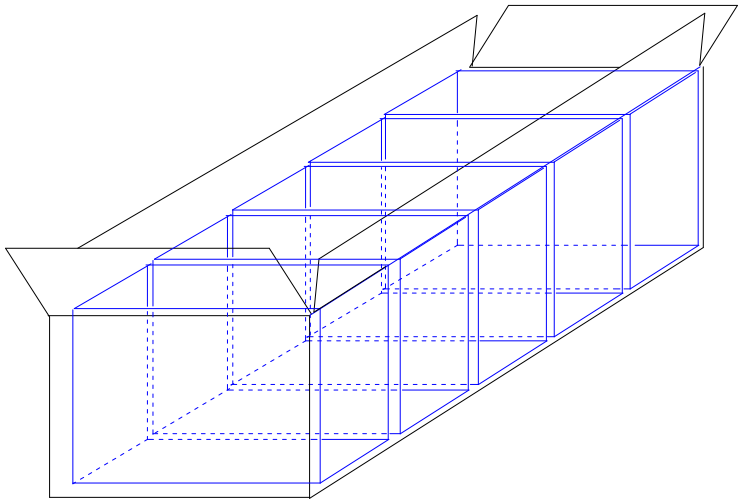
## 九、Disc and carrier tape unwinding direction and cavity specifications:



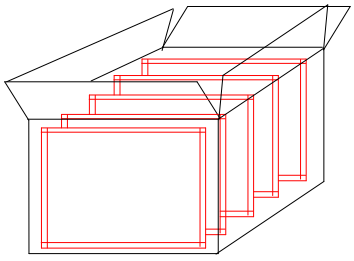




## 十、Inner packaging and outer packaging:



5 cartons/box



10 bags/carton

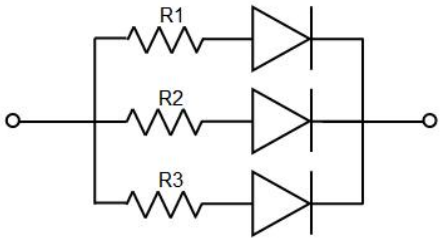
## 十一、 Reliability test:

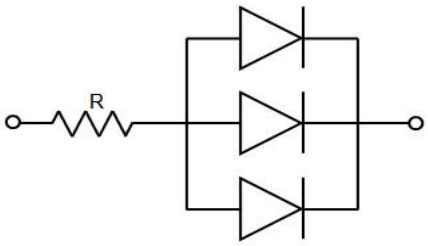
| Poject | TEST ITEM | TEST ENVIRONMENT | TEST TIMES | Failure LED sums（PCS） |
|---|---|---|---|---|
| Durability test | Life span | Continuous lighting with maximum rated current at room temperature;<br>Test at 20mA. | 1000 hours<br>(- 24 hours, + 72 hours) | MIL-STD-750D:1026<br>MIL-STD-883D:1005<br>JIS C 7021:B-1 |
| | High temperature and humidity storage | IR-Reflow In-Board, 2 Times<br>Ambient temperature Ta= 65±5℃, relative humidity RH= 90～95% | 240 hours<br>(+ 2 hours) | JESD22-A101 |
| | Hig temperature storage | Ambient temperature Ta= 105±5℃ | 1000 hours<br>(-24 hours, +72 hours) | MIL-STD-883D:1008<br>JIS C 7021:B-10 |
| | Low temperature storage | Ambient temperature Ta= -55±5℃ | 1000 hours<br>(-24 hours, +72 hours) | JIS C 7021:B-12 |
| Environmental testing | T<br>perature cycle | 105℃ ～ 25℃ ～ -55℃ ～ 25℃<br>30mins 5mins 30mins 5mins | 10 cycles | 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 | 10 cycles | MIL-STD-202F:107D<br>MIL-STD-750D:1051<br>MIL-STD-883D:1011 |
| | Tin resistance test | Solder temperature T.sol= 260 ± 5℃ | 10 ± 1secs<br>2times | MIL-STD-202F:210A<br>MIL-STD-750D:2031<br>JIS C 7021:A-1 |
| | Infrared reflow soldering<br>Lead process | Heating rate (183℃ to the highest value): maximum 3℃/sec<br>Maintain the temperature at 125(±25)℃: no more than 120 seconds<br>Maintain the temperature above 183℃: 60-150 seconds | -------- | MIL-STD-750D:2031.2<br>J-STD-020C |
| | Low temperature storage | Heating rate (217℃ to the highest value): maximum 3℃/sec<br>Maintain the temperature at 175(±25)℃: no more than 180 seconds<br>Maintain the temperature above 217℃: 60-150 seconds | -------- | MIL-STD-750D:2031.2<br>J-STD-020C |
| | Temperature cycle | Soldering temperature T.sol = 235 ± 5℃<br>Immersion speed: 25±2.5 mm/sec<br>Soldering rate ≧95% pad area | Immersion time：2±0.5 秒 | 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、Attention：

## During usaing：

1. LED is a current driving element, and the slight change of voltage will produce a large current fluctuation, which will cause the element to be damaged. The customer should use resistance series connection as current limiting protection
2. In order to ensure the light color consistency of multiple LEDs in parallel, it is recommended to use a separate resistor for each branch, as shown in mode a below; As shown in mode B below, LED light color may differ due to different volt ampere characteristics of each LED




**电路模式 B**

3.Too high ambient temperature will affect the brightness and other performance of LED, so in order to make LED have better performance, i should be far away from the heat source.

4.Photoelectric parameter tolerance:

Forward voltage REF / VF： ± 0.02V

Brightness CAT / IV： ± 11%

Wavelength HUE / WLD： ± 1nm

## Storage:

1. Without opening the original packaging, the recommended storage environment is: Temperature: 5℃~30℃; Humidity: 85%RH or less. When the stock is more than 2 months, it should be dehumidified before use. The condition is 60℃/ 8 hours.
2. After opening the original packaging, the recommended storage environment is: temperature 5~30°C; humidity below 60%.
3. LED is a humidity sensitive element. To avoid moisture absorption, it is recommended to store it in a closed container with desiccant or in a nitrogen moisture-proof cabinet after opening the package.
4. After opening the package, the components should be used within 48 hours (2 days); and soldering should be done as soon as possible after mounting.
5. If the desiccant fails or the component is exposed to the air for more than 48 hours (2 days), it should be dehumidified.

## ESD electrostatic protection

LEDs (especially blue, emerald, purple, white, and pink LEDs with InGaN structure) are electrostatic sensitive components, and static electricity or current overload will destroy the LED structure. LED damage by static electricity or current overload may cause abnormal performance, such asexcessive leakage current, low VF, or failure to light up, etc. So please note the following:

1. Wear an anti-static wrist strap or anti-static gloves when touching LEDs.

2. All machinery and equipment, tools, work tables, material racks, etc., should be properly grounded (the grounding impedance value is within

Baking conditions: 60°C, 24 hours.

10Ω).

3. Use anti-static bags, anti-static boxes, and anti-static turnover boxes to store or transport LEDs. It is strictly forbidden to use ordinary plastic products.

4. It is recommended to use ion fans to suppress the generation of static electricity during operation.

5. The electrostatic field voltage is less than 100V within an environmental range of 1 foot away from the LED element.

## Cleaning

It is recommended to use alcohol solutions such as isopropanol to clean the LED, and it is strictly prohibited to use corrosive solutions.

## Welding

1. For reflow soldering conditions, refer to the temperature curve on the first page.

2. The number of reflow soldering should not exceed twice.

3. It is only recommended to use manual welding in the case of repair and heavy work; 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 forbidden to touch the colloid at high temperature.

5. After soldering, it is forbidden to apply external force to the colloid, and it is forbidden to bend the PCB to avoid impact on 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 component failure or failure may directly endanger life and health (such as aerospace, transportation, transportation, medical equipment, safety protection, etc.), please inform us in advance Division business staff.

2. High-brightness LED products may cause damage to human eyes when lit, so avoid looking directly from above.

3. For the purpose of continuous improvement, product appearance and parameter specifications may be subject to improved changes without prior notice.

4. Please avoid using materials containing sulfur to avoid affecting the plating surface.

5. Corrosive gases will deteriorate the surface of the LED plating and affe ct the weldability and optical properties. For example: sulfur.