



СВЕТОДИОДЫ BEELED – ТЕХНИЧЕСКОЕ ОПИСАНИЕ

| | | |
|----------------------------|--------------------|------------------|
| Product type: Chip LED | | |
| Product name: 1206 Red LED | | |
| Part No.: 1206EJ-001 | | |
| Sample No.: | | |
| | | |
| 签核 (Signatures) | | |
| 核准(Approved) | 审核(Checked) | 制定(Drawn) |
| 王娟 | 周宏 | 阮国成 |

| | | |
|-----------------------------------|--|--|
| 客户 (Customer) | | |
| 公司名称(Corporation): | | |
| 物料编码(Material No.): | | |
| 物料名称(Part No.): | | |
| 客户确认 (Customer Signatures) | | |
| | | |
| | | |

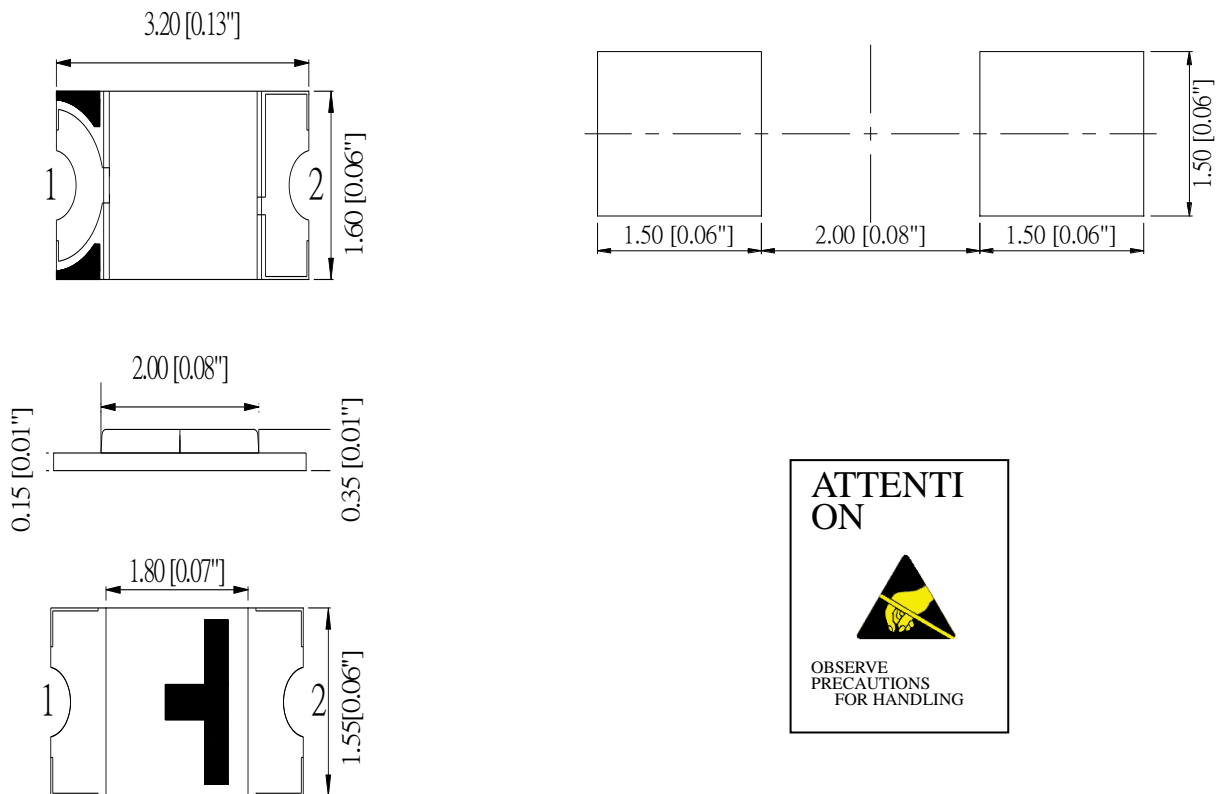
Feature

- *Low power consumption
- *Long life-solid state reliability
- *Available on tape and reel
- *RoHS compliant

特征

- *低能耗
- *寿命长
- *易于装贴
- *符合 RoHS 要求

Package outline dimensions (产品外型尺寸)



Note:

1. All dimensions are in millimeters (mm);
2. X.X is +/-0.1mm, X.XX is +/- 0.05mm unless otherwise noted;
3. The device has a single mounting surface, the device must be mounted according to the specifications.

Electrical characteristics data sheet

Selection Guide (选用指示)

| Part No. (产品型号) | Emitted Color (发光颜色) | Resin color (胶体颜色) | Viewing Angle (发光角度) $2\theta_{1/2}$ |
|--------------------|-------------------------|-----------------------|---|
| 1206EJ-001 | Red | Water transparent | 130° |

Absolute Maximum Ratings at Ta=25°C (极限参数)

| Parameter (项目) | Symbol (符号) | Value (数值) | Unit (单位) |
|---|-------------|--------------|-----------|
| Power dissipation (功率消耗) | Pd | 70 | mW |
| DC Forward Current (正向电流) | If | 30 | mA |
| Peak Forward Current ⁽¹⁾ (峰值电流) | Ifp | 70 | mA |
| Reverse Voltage (反向电压) | Vr | 5 | V |
| Electro-Static-Discharge ⁽²⁾ (HBM) | ESD | 1000 | V |
| Operating Temperature (工作环境温度) | Topr | -25to+85 | °C |
| Storage Temperature (储存温度) | Tstg | -40to+100 | °C |
| Lead Solder Temperature (焊接温度) | Tsol | 250 for 5sec | °C |

Notes:

- 1/10 duty cycle, 0.1ms pulse width
2. The products are sensitive to static electricity and must be carefully taken when handling products.

Electrical/Optical Characteristics Ta=25°C (电子光学特性)

| Parameter (参数) | Symbol (符号) | Condition (条件) | Value (数值) | | | Unit |
|---------------------------|-------------|----------------|------------|------|------|------|
| | | | Min. | Typ. | Max. | |
| Forward voltage (正向电压) | VF | If=20mA | 1.8 | -- | 2.4 | V |
| Luminous intensity (发光强度) | IV | If=20mA | 80 | 100 | -- | mcd |
| Dominant wavelength (主波长) | WLD | If=20mA | 624 | -- | 634 | nm |
| Peak wavelength (峰值波长) | WLP | If=20mA | --- | 646 | --- | nm |
| Reverse current(反向电流) | Ir | Vr=5V | --- | --- | 10 | μA |

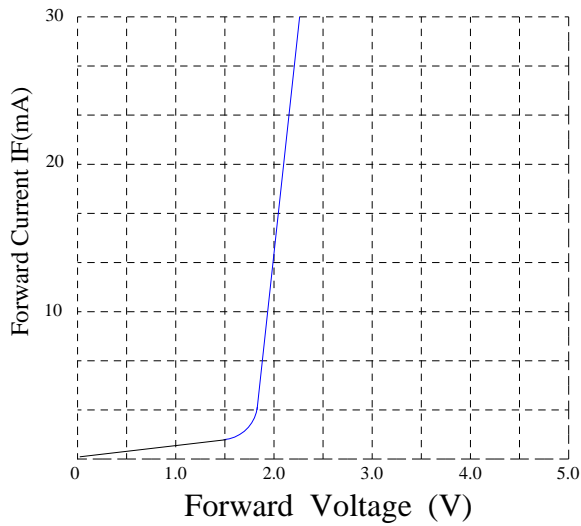
Notes:

1. Forward voltage: $\pm 0.1V$
2. Dominant Wavelength: $\pm 1nm$
3. Luminous intensity: $\pm 10\%$

Typical Electro-Optical Characteristics Curves

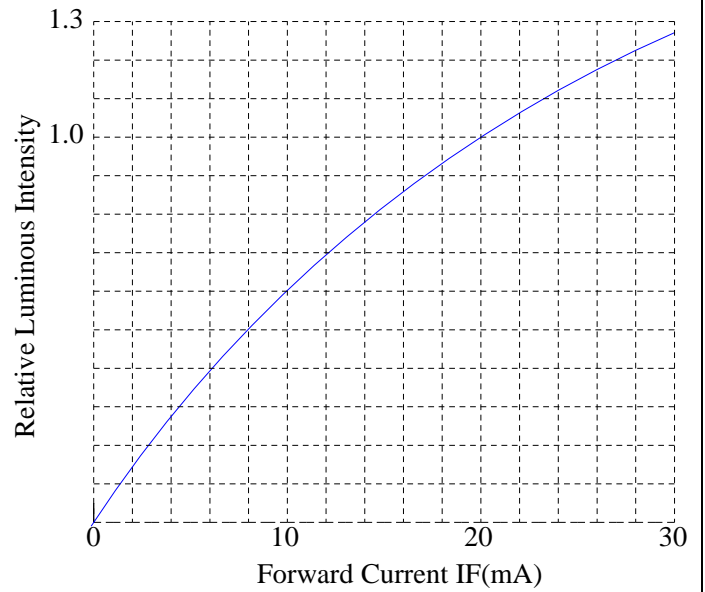
FORWARD CURRENT VS. FORWARD VOLTAGE

电流与电压的关系图

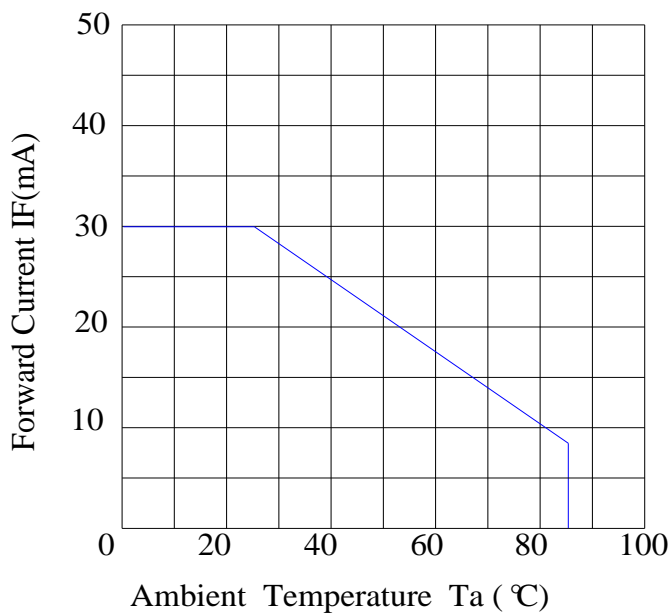


FORWARD CURRENT VS. LUMINOUS INTENSITY

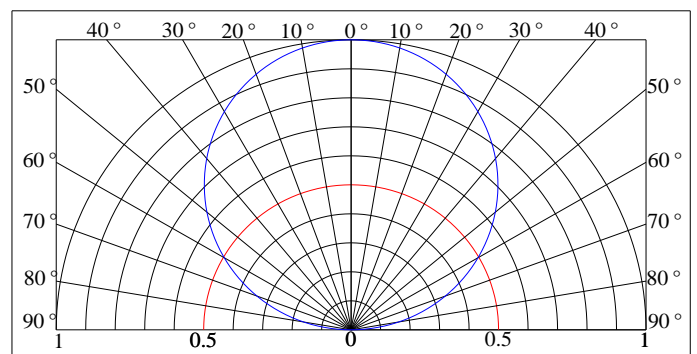
电流与光强的关系图



AMBIENT TEMPERATURE VS. FORWARD CURRENT
电流与温度的关系图



RADIATION DIAGRAM
视角图



Bin Range of Technical Data Sheet

| Voltage code (电压等级) (IF=20mA, Ta=25°C) | | | Luminous code(光强等级) (IF=20mA, Ta=25°C) | | |
|--|---------------------|-----|--|--------------------------|-----|
| Bin Code | Forward voltage (V) | | Bin Code | Luminous Intensity (mcd) | |
| | min | max | | min | max |
| 11 | 1.8 | 2 | K | 80 | 100 |
| 12 | 2 | 2.2 | L | 100 | 125 |
| 13 | 2.2 | 2.4 | M | 125 | 160 |
| | | | N | 160 | 200 |

Color Bin Limits

| Color code (颜色等级) (IF=20mA, Ta=25°C) | | |
|--------------------------------------|--------------------------|-----|
| Bin Code | Dominant wavelength (nm) | |
| | min | max |
| R3 | 624 | 626 |
| R4 | 626 | 628 |
| R5 | 628 | 630 |
| R6 | 630 | 632 |
| R7 | 632 | 634 |

Notes:

- 1、Tolerance of forward voltage for each Bin limit is $\pm 0.1\text{v}$.
- 2、Tolerance of luminous intensity for each Bin limit is $\pm 10\%$.
- 3、Tolerance of wavelength for each Bin limit is $\pm 1\text{nm}$.

Reliability Test Items and Conditions(可靠性试验及条件)

1、Test items and result(测试项目及结果)

| Test Item 测试项目 | Ref. Standard 参考标准 | Test Condition 测试条件 | Note 记录 | Number of Damaged 受损数量 |
|--|-----------------------|---|------------|---------------------------|
| Resistance to Soldering Heat (耐热测试) | JESD22-B106 | Tsld=260°C,10sec | 2 times | 0/100 |
| Temperature Cycle (冷热循环) | JESD22-A104 | -40°C 30min ↓↑ 5min 100°C 30min | 10 cycle | 0/100 |
| Thermal Shock (冷热冲击) | JESD22-A106 | -40°C 15min ↑↓ 100°C 15min | 10 cycle | 0/100 |
| Power temperature Cycling (高低温点亮循环测试) | JESD22-A105 | On 5min -40°C>15min ↑↓↑↓<15min Off 5min 100°C>15min | 10 cycle | 0/100 |
| High temperature Storage (高温储存) | JESD22-A103 | Ta=100°C | 1000 hrs | 0/100 |
| Low temperature Storage (低温储存) | JESD22-A119 | Ta=-40°C | 1000 hrs | 0/100 |
| Lift Test (寿命测试) | JESD22-A108 | Ta=25°C IF=20mA | 1000 hrs | 0/20 |
| High Humidity Heat Lift Test (高温高湿老化) | JESD22-A101 | 60°C RH=90 % IF=20mA | 1000 hrs | 0/20 |

2、Criteria for judging damage (受损失效判定标准)

| Item 项目 | Symbol 符号 | Test Conditions 测试条件 | Criteria for Judgment 判断标准 | |
|----------------------------|--------------|-------------------------|-------------------------------|-------------|
| | | | Min 最小 | Max 最大 |
| Forward voltage 正向电压 | VF | IF=20mA | -- | U.S.L*)×1.1 |
| Reverse current 反向电流 | IR | VR=5V | -- | U.S.L*)×2.0 |
| Luminous intensity 光照强度 | IV | IF=20mA | L.S.L**)×0.7 | -- |

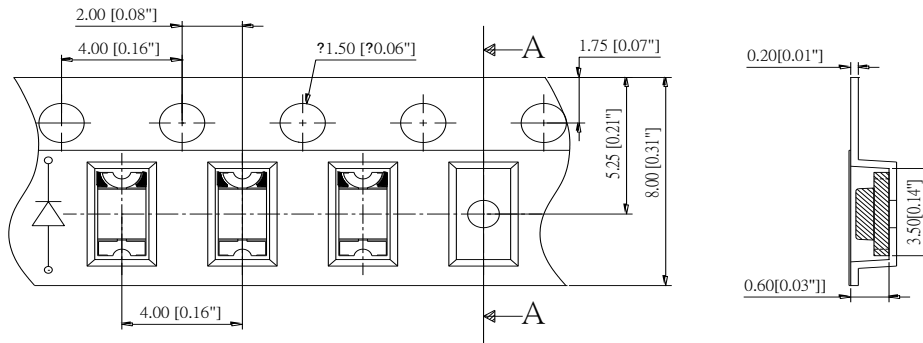
Notes:

U.S.L.: Upper Standard Level

L.S.L.: Lower Standard Level

Packaging Dimensions Specification(包装规格)

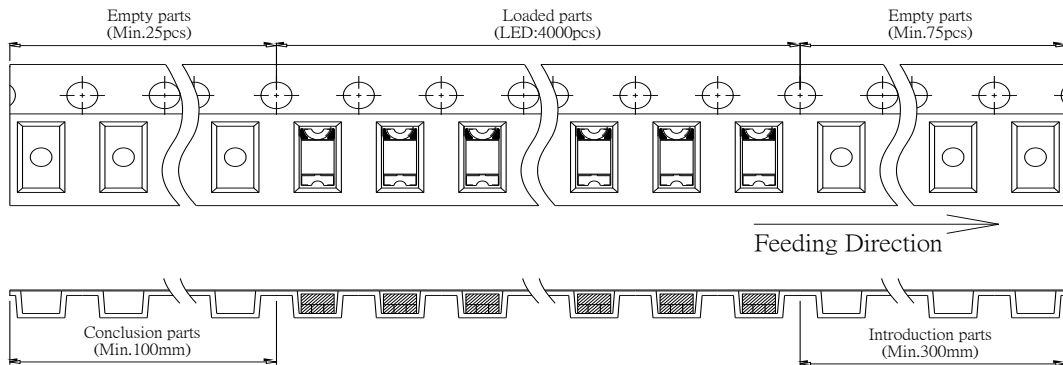
1、Carrier tape dimensions(载带包装)



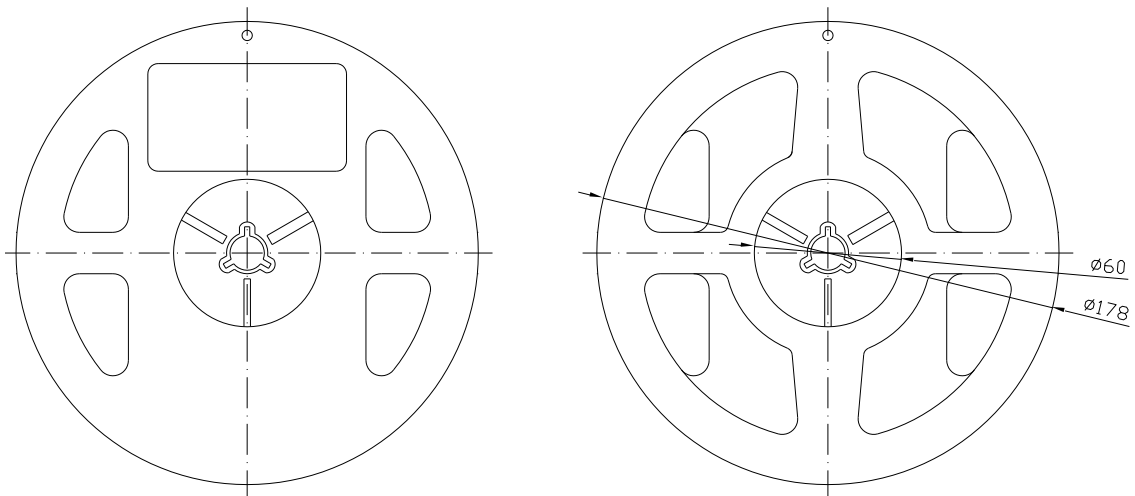
Notes:

- 1) All dimensions are in millimeters
- 2) Tolerance is ± 0.15 unless otherwise noted
- 3) 3,000 pcs/Reel.

2、Details of carrier tape(编带细节)

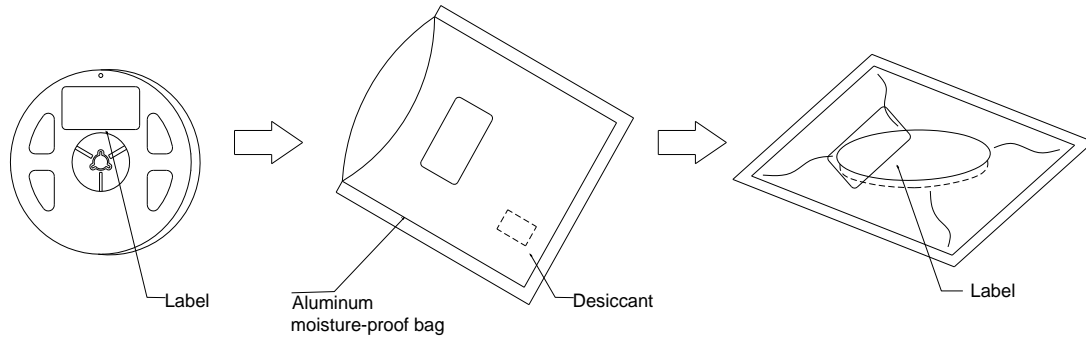


3、Reel dimensions(带盘尺寸)



Packaging Dimensions Specification

4、Moisture-Proof and anti-static electricity



5、Label

| | | |
|---------------|------------|---------------|
| BEEL-D | | RoHS |
| Part No. : | 1206EJ-001 | |
| VF (v) : | ***** | |
| IV (mcd) : | ***** | |
| WLD (nm) : | ***** | |
| Q' TY (pcs) : | ***** | |
| Lot No. : | ***** | Made In China |

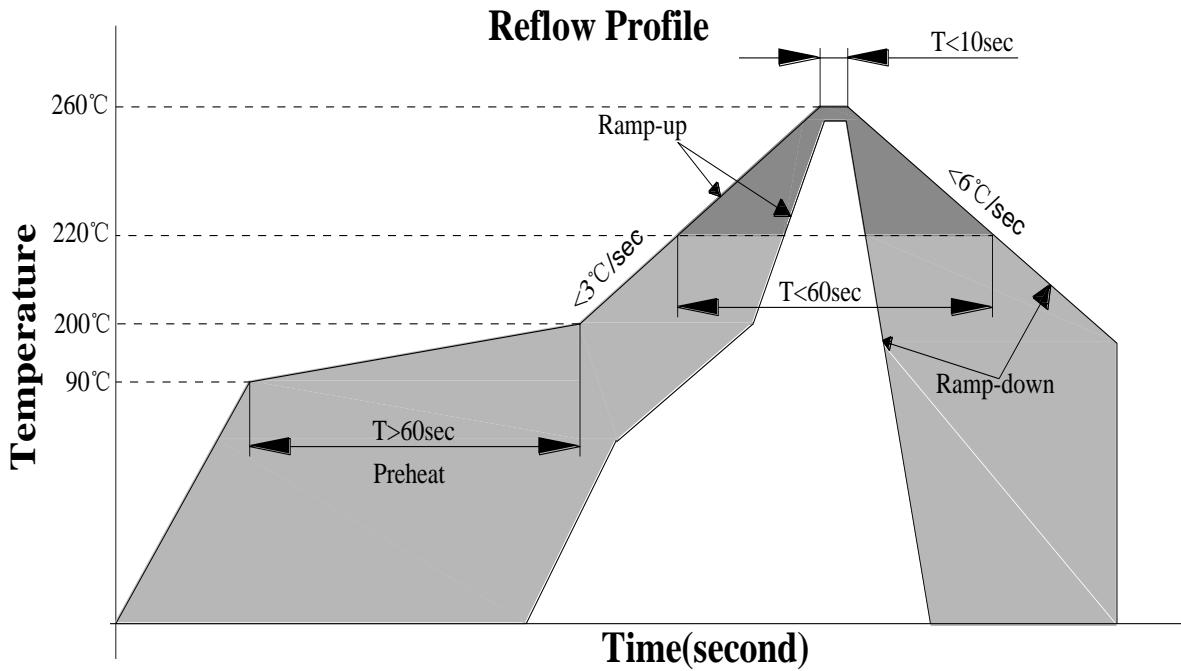
Label Explanation:

| | |
|--|-----------------------|
| VF | : Forward voltage |
| IV | : Luminous intensity |
| WLD | : Dominant wavelength |
| VF\IV\WLD used to represent the corresponding Bin code | |

Precautions

1、 Requirements for application and reflow soldering 应用及回流焊要求:

Use the recommended curve in the under figure of Pb-free reflow soldering.



☆**Notes for reflow soldering:**

- 1) No more than twice for reflow soldering.
- 2) To ensure the quality of our LEDs, please do not put pressure on the lens of LEDs.
- 3) Please choose the right nozzle to avoid the damage to products due to the pressure.
- 4) Please put on the antistatic hand loop during the use. The worktable should be with antistatic finish. The equipments must be contacted with ground

☆**Handwork soldering:**

- 1) During the soldering, the electronic soldering iron must be kept under the temperature of 350°C and the soldering time must not be beyond 3 seconds. No touch between the electronic soldering iron and colloid.
- 2) Handwork soldering is only allowed once. We won't take responsibility for more than that.
- 3) Avoid using sharp objects to compress products Colloidal Part directly.
- 4) Please put on the antistatic hand loop during the use. The worktable should be with antistatic finish. The equipments must be contacted with ground.

2、Storage

- ☆Moisture proof and anti-electrostatic package with moisture absorbent material is used to keep moisture to a minimum. Before opening the package, the product should be kept at 30°C or less and humidity less than 60%RH ,and be used in six months.
- ☆After opening the package, the product should be stored at 30°C or less and humidity less than 10%RH, and be soldered within 24 hours. It is recommended that the product be operated at the workshop condition of 30°C or less and humidity less than 60%RH.
- ☆If the moisture absorbent material has fade away or the LEDs have exceeded the storage time, baking treatment should be performed based on the following condition(75±5) °C for 24 hour.

3、Static electricity

- ☆Static electricity or surge voltage damages the LEDs .Damaged LEDs will show some unusual characteristic such as the forward voltage comes lower, or the LEDs do not light at the low current .even not light. All devices, equipment and machinery must be properly grounded. At the same time ,it is recommended that wrist bands or anti-electrostatic gloves, anti-electrostatic containers be used when dealing with the LEDs .

4、Vulcanization

- ☆LED curing is due to sulfur being in bracket and the +1 price of silver in the chemical reaction generated Ag₂S in the process. It will lead to the capacity of reflecting of silver layer reducing, light color

Such as to avoid using sulphur volatile substances and keeping away from high sulphur temperature and humidity. Seriously affecting the performance of the product. So we should take corresponding measures to avoiding vulcanization,

5、Safety advice for human eyes

- ☆Viewing direct to the light emitting center of the LEDs, especially those of great luminous Intensity will cause great hazard to human eyes .Please be careful.

6、Design consideration

- ☆In designing a circuit about LED, the current through each LED must not exceed the absolute maximum rating specified for each LED. In the meanwhile, resistors for protection should be applied, otherwise slight voltage shift will cause big current change, burn out may happen.