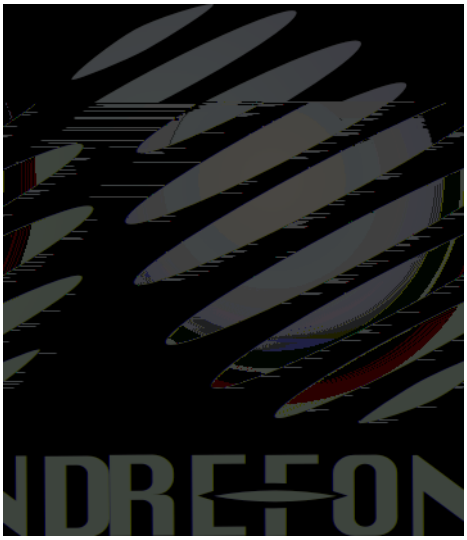
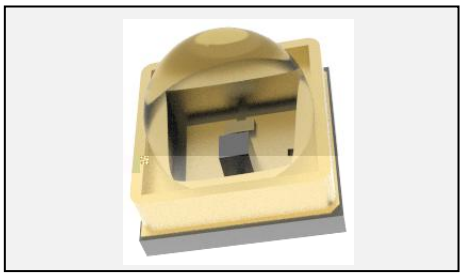
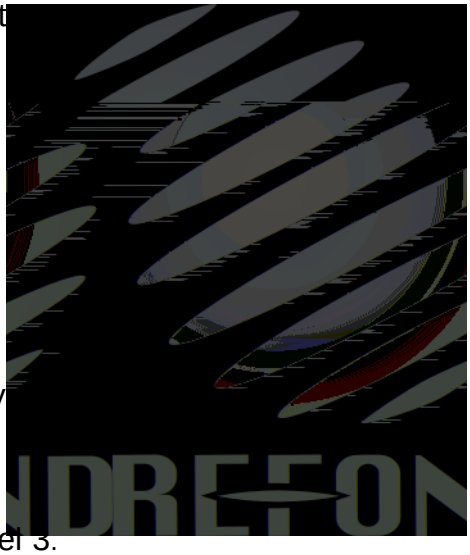


# 1. Description

## 1.1 General Description



This production has a hign reliability, good heat dissipation, are widely used in the disinfection, uv sterilization, Air purification, et



## 1.2 Features

Size(mm):3.7*3.7*3.45.

Viewing angle:60r .

Suitable for all SMT assembly

Available on tape and reel.

Moisture sensitivity level: Level 3.

RoHS compliant.

## 1.3 Application

Ultraviolet disinfection.

UV sterilization.

Air purification.

General use.

## 1.4 Package Dimension

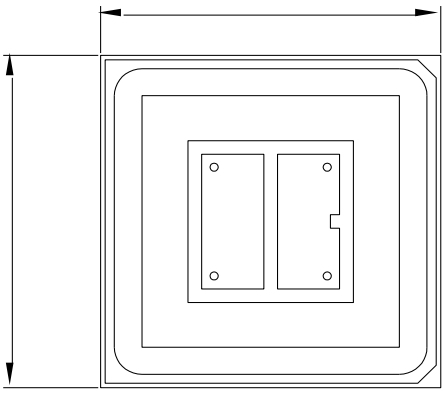


Fig.1-1 Top view

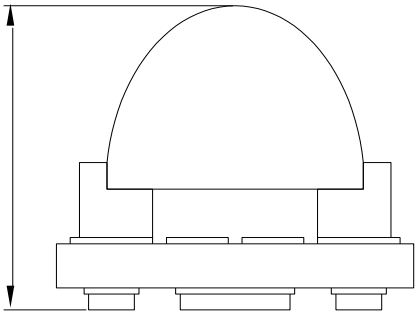


Fig.1-2 Side view

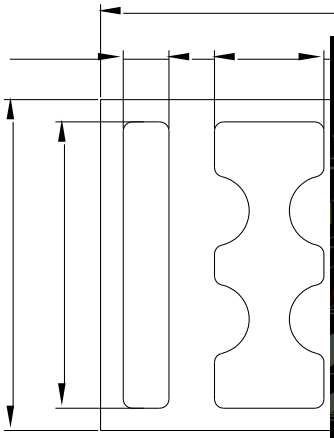


Fig.1-3 Bottom view

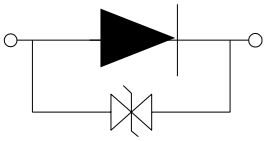


Fig.1-4 Polarity

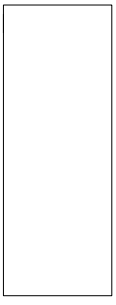


Fig.1-5 Soldering patterns

Notes

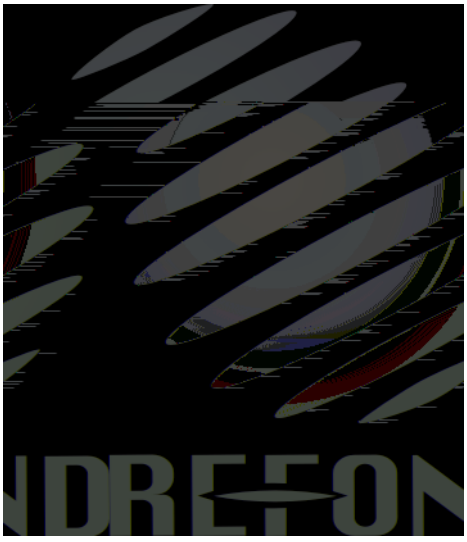
All dimensions units are millimeters.

All dimensions tolerances are ±0.2mm unless otherwise noted.

## 1.5 Product Parameters

Table 1-1 Electrical / Optical Characteristics at Ts=25°C

| Item | Symbol | Test Tm |
|---|---|---|



T1 6tifa 15>6 59.22 reW* n /P /MCI68.46Lang (en-US)>BDC q20

Table 1-2 Absolute Maximum Ratings at Ts=25°C

| Parameter | Symbol | Rating | Units |
|---|---|---|---|
| Maximum Power Dissipation | $P_D$ | 1.2 | W |
| Peak Forward Current | $I_{FP}$ | 150 | mA |
| Reverse Voltage | $V_R$ | 10 | V |
| Electrostatic Discharge (HBM) | $E_{SD}$ | 1000 | V |
| Operating Temperature | $T_{OPR}$ | -40 ~ +45 | |
| Storage Temperature | $T_{OPR}$ | -20 ~ +65 | |
| Junction Temperature | T | 60 | |

Notes

1. 1/10 Duty cycle, 0.1ms pulse width

2. The above forward voltage measur [illegible] Wa [illegible] olerance is ±0

3. The above wavelenth measuremen [illegible] is ±2 ±

4. The above radiation flux measurem [illegible]

5. Care is to be taken that power diss [illegible] maximum rating of the product.

6. All measurements were made under the standardized environment of Refond.

7.When the LEDs are in operation the maximum current should be decided after measuring the package temperature, junction temperature should not exceed the maximum rate

8. ESD yield is over 90% at 1000V ESD (HBM). ESD protection during products handing is needed.

## 1.6 Typical optical characteristics curves

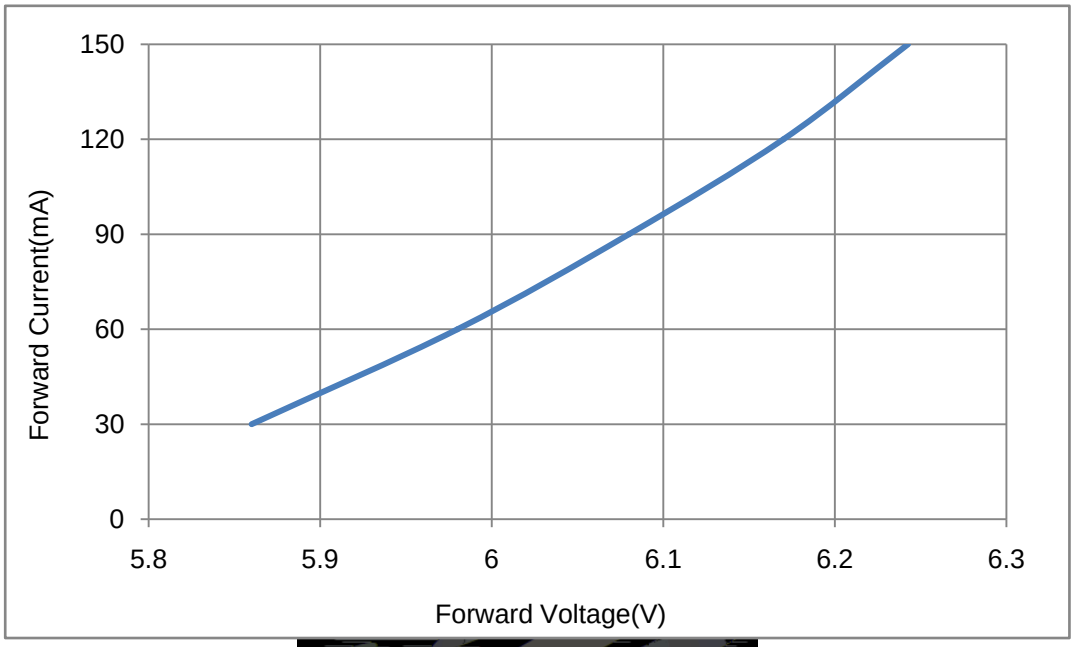



Fig.1- Forw[redacted]ward C[redacted]

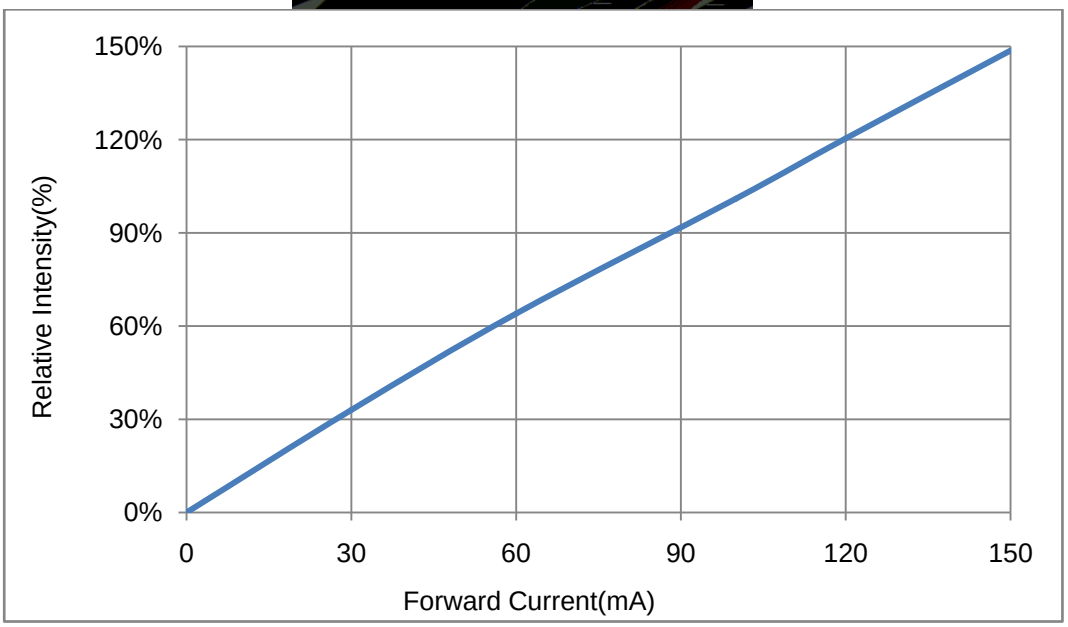
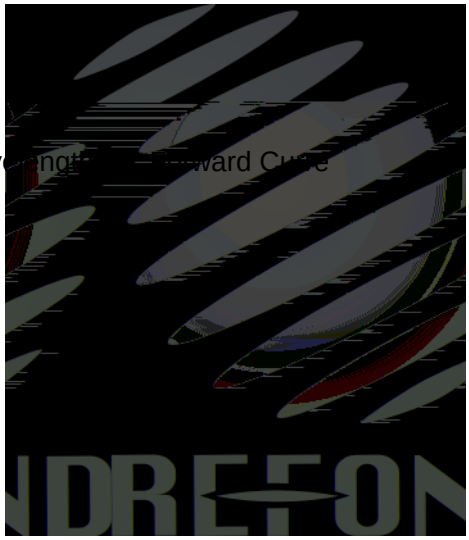



Fig.2- Forward Current Vs. Relative Power

Fig.3- Peak Wavelength vs. Forward Current

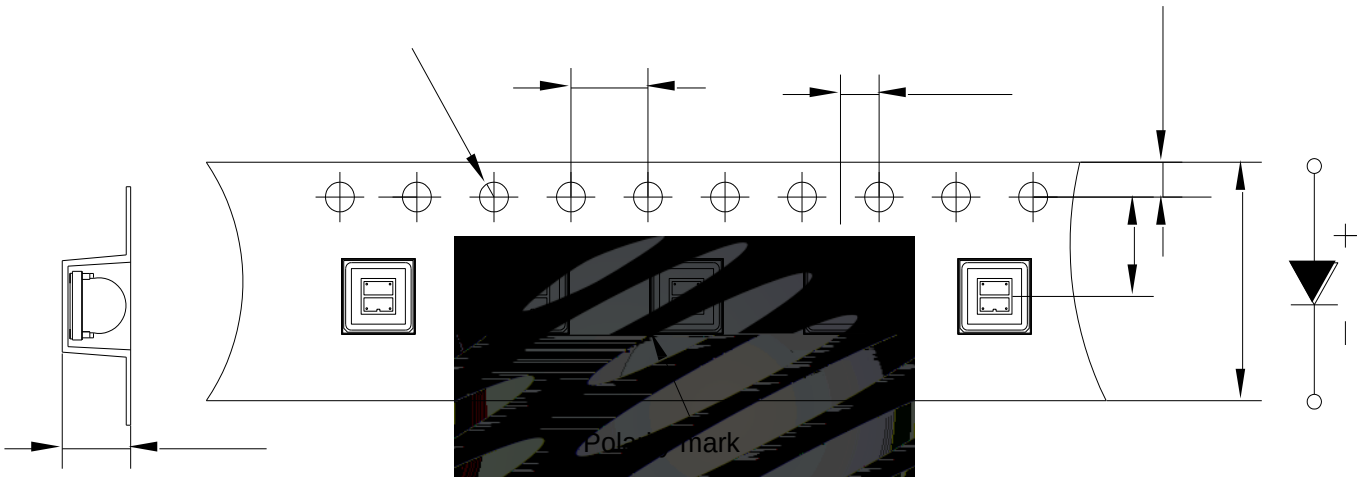


# 2. Packaging

## 2.1 Packaging Specification

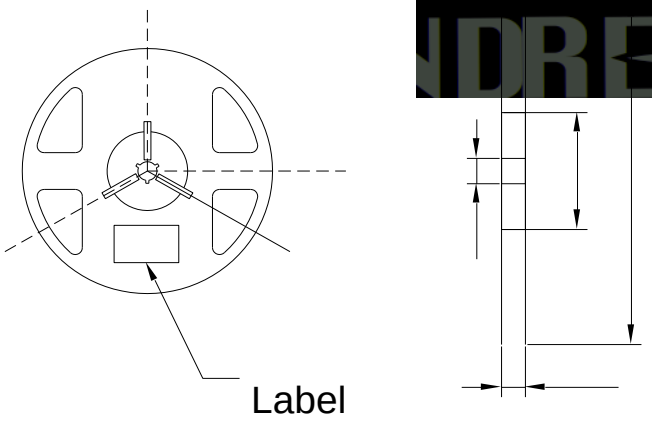
Package:500pcs/reel. 500pcs

### 2.1.1 Carrier Tape Dimension



Fi Dimensi

### 2.1.2 Reel Dimension




Reel Dimension

| | |
|---|---|
| A | 12 0.1mm |
| B | 178 1mm |
| C | 60 1mm |
| D | 13.0 0.5mm |

Fig.2-2 Reel Dimension

Notes

The tolerances unless mentioned ±0.1mm. Unit : mm

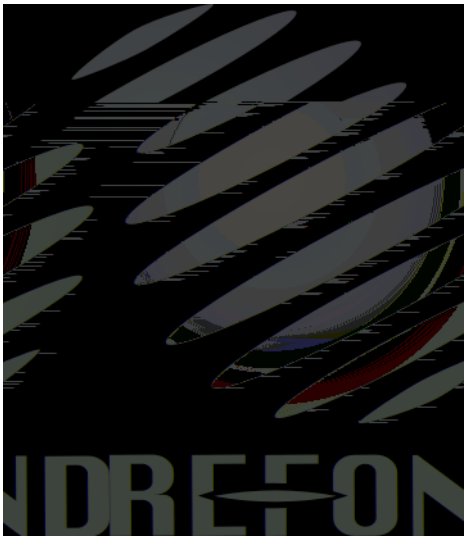
## 2.3 Cardboard Box

Fig.2-5 Cardboard Box

## 2.4 Reliability Test Items A[illegible]

Table 2-3 Reliab[illegible] And C[illegible]ditions

| Test Items | Ref[illegible] | Test C[illegible]dition | Time | Quantity | Ac/Re |
|---|---|---|---|---|---|



# 3. SMT Reflow Soldering Instructions SMT 回流焊说明

## 3.1 SMT Reflow Soldering Instructions SMT

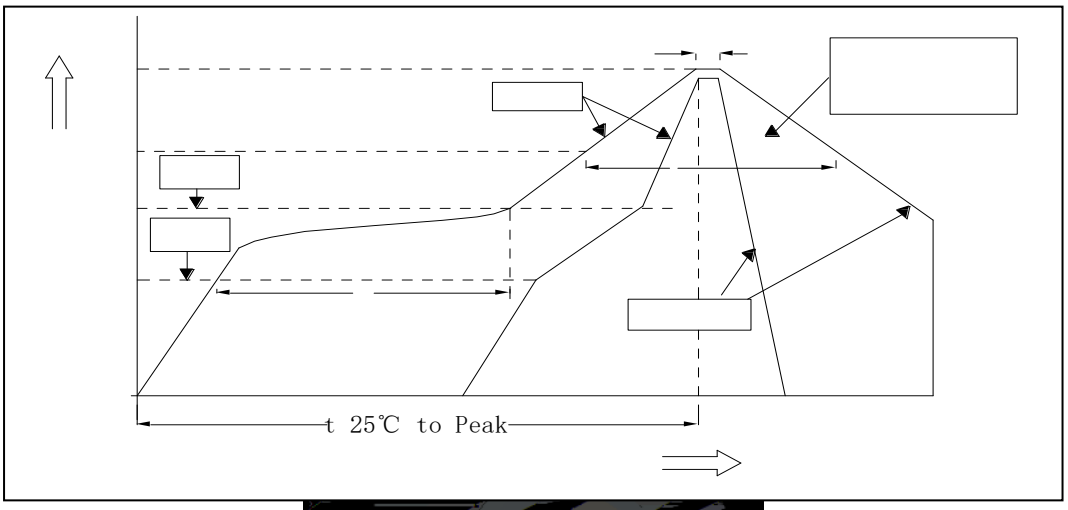



Fig.3-1 SMT Reflow Soldering Instructions

Table 3-1 SMT Reflow Soldering Instructions

| | |
|---|---|
| Average temperature rise speed: max | Max 3 °C/ s 3 °C/ |
| Preheating: minimum temperature | 150 °C |
| Preheating: Max temperature | 200 °C |
| Preheating: Time Tsmin Tsmax | 60s-120s 60 - 120 |
| Time limited to maintain high temperature: the temperature ($T_L$) | 217 °C |
| Time limited to maintain high temperature: The Time ($t_L$) | Max 60s 60 |
| Peak /Classification of temperature: / ($T_P$) | 260 °C |
| Time limit classification of peak temperature time $t_p$ | Max 10s 10 |
| Hold time within 5 C with the actual peak temperature (TP) ($T_P$) 5 °C | Max 30s 30 |
| Cooling speed | Max 6 °C/ s 6 °C/ |
| Needed time from 25 °C to Tp 25 °C | Max 8 minutes 8 |

Notes

(1)Reflow soldering should not be done more than twice. If more than 24 hours between the two solderings , LED will be damaged.

(2)When soldering , do not put stress on the LEDs during heating.

### 3.1.1 Soldering Iron

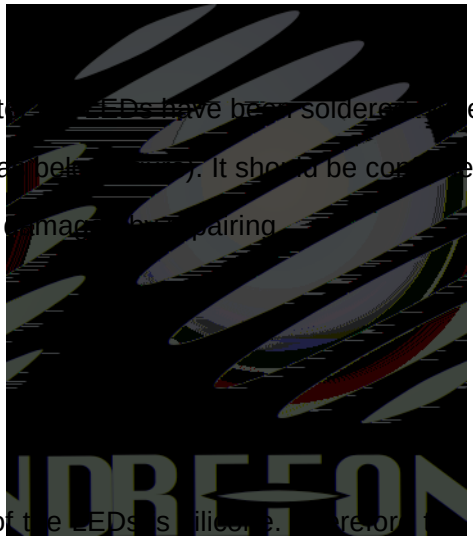
(1) When do soldering by hand, keep the temperature of iron below less 300 less than 3 seconds

(2) Soldering by hand should be done only one time.

### 3.1.2 Repairing

Repairing should not be done aft LEDs have be soldere en repairing is unavoidable,a double-head soldering iron should be used (a be ). It sho d be co ed in advance whether the characteristics of LEDs will or not be damag by pairing

LED



### 3.1.3 Cautions

(1) The encapsulated material of the LEDs is silicone. Therefor LEDs have a soft surface on the top of package. The pressure to the top surface will be impacted on the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when usethe picking up nozzle, the pressure on the silicone resin should be proper. LED

(2) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board.LED

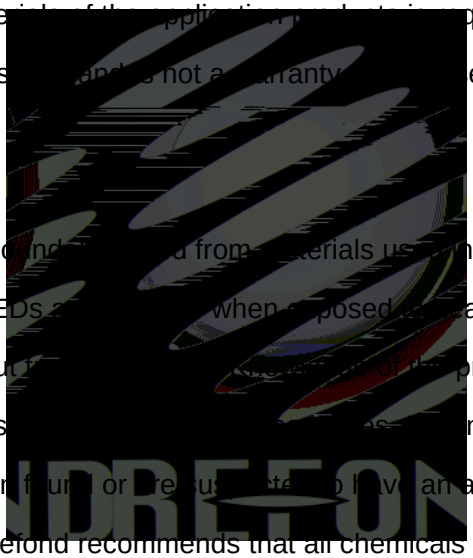
(3) Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering. Do not rapidly cool device after soldering.

# 4. Handling Precautions

## 4.1 Handling Precautions

(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LEDmating usage material. This is provided for informational purposes only and is not a warranty or endorsement.LED

(2) In order to prevent ex-ternal material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine elementis required to be less than 900PPM, the total content of Bromine element and Chlorine element in the external mate[illegible]quired to be less than 1500PPM. This is provided for informational purposes [illegible]ement.



(3) VOCs (Volatile organic compo[illegible] from [illegible]terials us[illegible]n the construction of fixtures can penetrate silicone encapsulants of LE[illegible]s [illegible] when [illegible]posed [illegible]at and photonic energy. The result can be a significant loss of light output [illegible] [illegible]roperties of the materials selected to be used in the construction of fixtures [illegible]nd advises against theuse of any chemicals or materials that have been f[illegible]nd or [illegible]te[illegible] have an adverse affect on device performance or reliability. To verifycompatibility, Refond recommends that all chemicals and materials be tested in the specific application and environment for which they are intended tobe used. Attaching LEDs, do not use adhesives that outgas organic vapor.

(4) Handle the component along the side surface by using forceps or appropriate tools; Do not directlytouch or Handle the silicone lens surface, it may damage the internal circuitry.

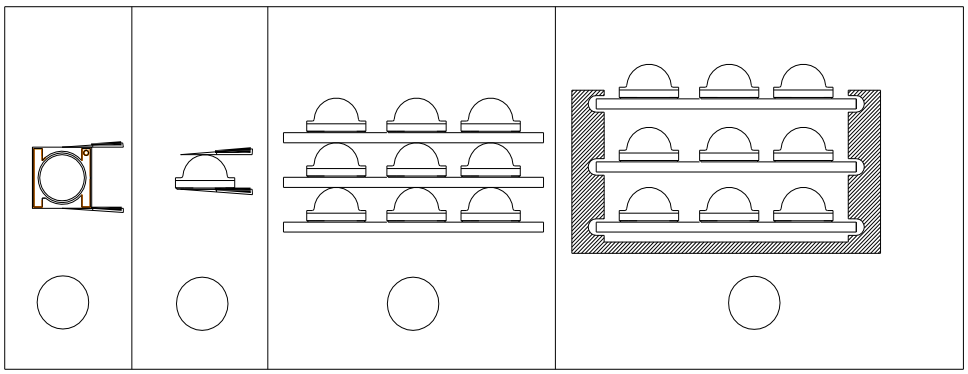


Fig 4-1 Operate Method

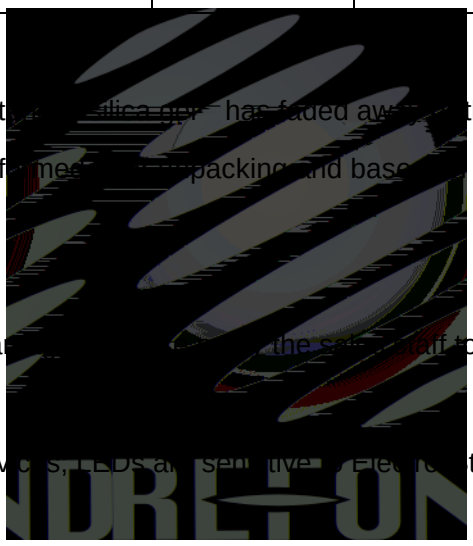
(5) In designing a circuit, the current through each LED can not exceed the absolute maximum rating specified for each LED. In the meanw[illegible]tors f[illegible]prote[illegible]g[illegible]e applied, otherwise slight voltage shift will cause big current change,bu[illegible]ay hap[illegible]en. The [illegible]ving [illegible]t must be designed to allow forward voltage only when it is ON or OFF.If t[illegible]rev[illegible]voltage is applied to L[illegible] migration can be generated resulting in LED damage.

(6) Thermal Design is paramount[illegible]al op[illegible]ration may result in the Characteristics decline,such as brightness decreased[illegible]ease consider the heat generation of the LEDs when making the system des[illegible]n. LED

(7) Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust, requiring special care during processing. In cases where a minimal level of dirt and dust particles cannot be guaranteed, a suitable cleaning solution must be applied to the surface after the soldering of components. Refond suggests using isopropyl alcohol for cleaning. In case other solvents are used, it must be assured that these solvents do not dissolve the package or resin. Ultrasonic cleaning is not recommended. Ultrasonic cleaning may cause damage to the LED.

Table 4-1Storage

| Conditions | | Temperature | Humidity | Time |
|---|---|---|---|---|
| Storage | Before Opening Aluminum Bag | 30 | 75% | Within 1 Year From Date |
| | After Opening Aluminum Bag | 30 | 60% | 24hours<br>24 |
| Baking | | 60 5 | - | 24hours<br>24 |



(8) If the moisture absorbent mat[illegible] has faded aw[illegible] the LEDs have exceeded the storage time, baking treatment should be perf[illegible] packing and base[illegible] the following condition 65 5 for above 24 hours.

If the package is flatulence or da[illegible] the sa[illegible]taff to assist.

(9)Similar to most Solid state dev[illegible], LEDs a[illegible] sen[illegible]tive [illegible] Electr[illegible]tatic Discharge (ESD) and Electrical Over Stress (EOS).

(10) When using this product, you need to take good care to prevent it from causing harm to eyes and human body.

(11) Other points for attention, please refer to our relevant information.

Version History/

| Date | Revisor | Version | Verifier | Remarks |
|---|---|---|---|---|
| 2020-09-20 | | E0 | | |
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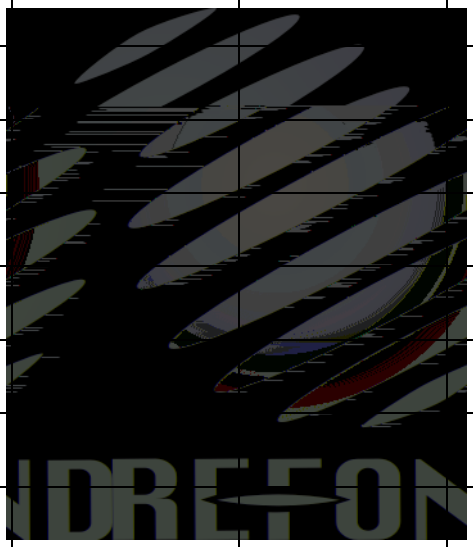

Declare

This specification is written both in English and in Chinese and the latter is formal.