

# SPECIFICATION

REFOND P/N

RF-YMRA30TS-AF-Z

Mass Production

REFOND



# Contents

|  |               |
|--|---------------|
| 1. Description   |               |
| 1.1 General Description                                      |               |
| 1.2 Features   |               |
| 1.3 Application  |               |
| 1.4 Package Dimension  |               |
| 1.5 Product Parameters                                       |               |
| 1.6 Bin Range Of Forward Voltage and Luminous Flux (IF=20mA) | BIN (IF=20mA) |
| 1.7 Typical Optical Characteristics Curves                   |               |
| 2. Packaging   |               |
| 2.1 Packaging Specification                                  |               |
| 2.1.1 Carrier Tape Dimension                                 | 11            |
| 2.1.2 Reel Dimension   | 11            |
| 2.1.3 Label Form Specification                               | 12            |
| 2.2 Moisture Resistant Packing                               |               |
| 2.3 Cardboard Box  |               |
| 2.4 Reliability Test Items And Conditions                    |               |
| 2.5 Criteria For Judging Damage                              |               |
| 3. SMT Reflow Soldering Instructions SMT                     |               |
| 3.1 SMT Reflow Soldering Instructions SMT                    |               |
| 4. Handling Precautions                                      |               |
| 4.1 Handling Precautions                                     |               |



# 1. Description

## 1.1

The Yellow source color devices are made with AlGaInP on Substrate Light Emitting Diode .  
 Product Package:3.50mmX2.80mmX1.84mm.

AlGaInp

3.50mmX2.80mmX1.84mm

## 1.2Features

PLCC2 Package. PLCC2

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## 1.5 Product Parameters

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

| Item                | Symbol             | Test Condition       | Value |      |      | Unit |
|---------------------|--------------------|----------------------|-------|------|------|------|
|                     |                    |                      | Min.  | Typ. | Max. |      |
| Forward Voltage     | V <sub>F</sub>     | I <sub>F</sub> =20mA | 1.8   | 2.1  | 2.4  | V    |
| Reverse Current     | I <sub>R</sub>     | V <sub>R</sub> =5V   | ---   | ---  | 10   | uA   |
| Luminous Intensity  | I <sub>V</sub>     | I <sub>F</sub> =20mA | 650   | 850  | 1200 | mcd  |
| Dominant wavelength | W <sub>d</sub>     | I <sub>F</sub> =20mA | 585   | 589  | 595  | nm   |
| Viewing Angle       |                    | I <sub>F</sub> =20mA | ---   | 120  | ---  | deg  |
| Thermal Resistance. | R <sub>THJ-S</sub> | I <sub>F</sub> =20mA | ---   | ---  | 280  | °C/W |

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

| Parameter         | Symbol           | Rating | Units |
|-------------------|------------------|--------|-------|
| Power Dissipation | P <sub>368</sub> | 0.35W  |       |



Notes

1. 1/10 Duty cycle, 10ms pulse width. 10ms, 1/10.
2. The above forward voltage measurement allowance tolerance is  $\pm 0.1V$ .
3. The above color coordinates measurement allowance tolerance is 0.005. 0.005.
4. The above luminous intensity measurement allowance tolerance  $\pm 10\%$ .
5. Care is to be taken that power dissipation does not exceed the absolute 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 8000V ESD (HBM). ESD protection during products handling is needed.

8

## 1.6 Bin Range Of Forward Voltage and Luminous Flux (IF=20mA)

### BIN (IF=20mA)

Table 1-3

|                    |           |           |           |           |         |         |
|--------------------|-----------|-----------|-----------|-----------|---------|---------|
| V <sub>F</sub> (V) | B1        | B2        | C1        | C2        | D1      | D2      |
|                    | 1.8-1.9   | 1.9-2.0   | 2.0-2.1   | 2.1-2.2   | 2.2-2.3 | 2.3-2.4 |
| IV( )              | K2        | L1        | L2        |           |         |         |
|                    | 650-800   | 800-1000  | 1000-1200 |           |         |         |
| WD(nm)             | D1        | D2        | E1        | E2        |         |         |
|                    | 585-587.5 | 587.5-590 | 590-592.5 | 592.5-595 |         |         |



## 1.7 Typical Optical Characteristics Curves

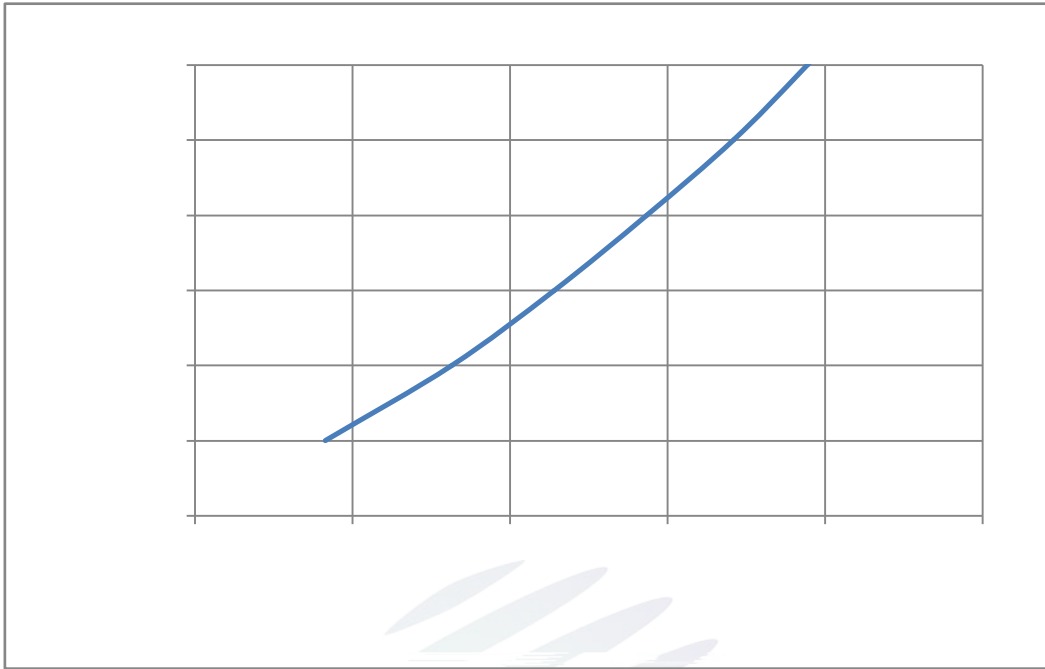


Fig. 1-7 Forward Voltage Vs Forward Current

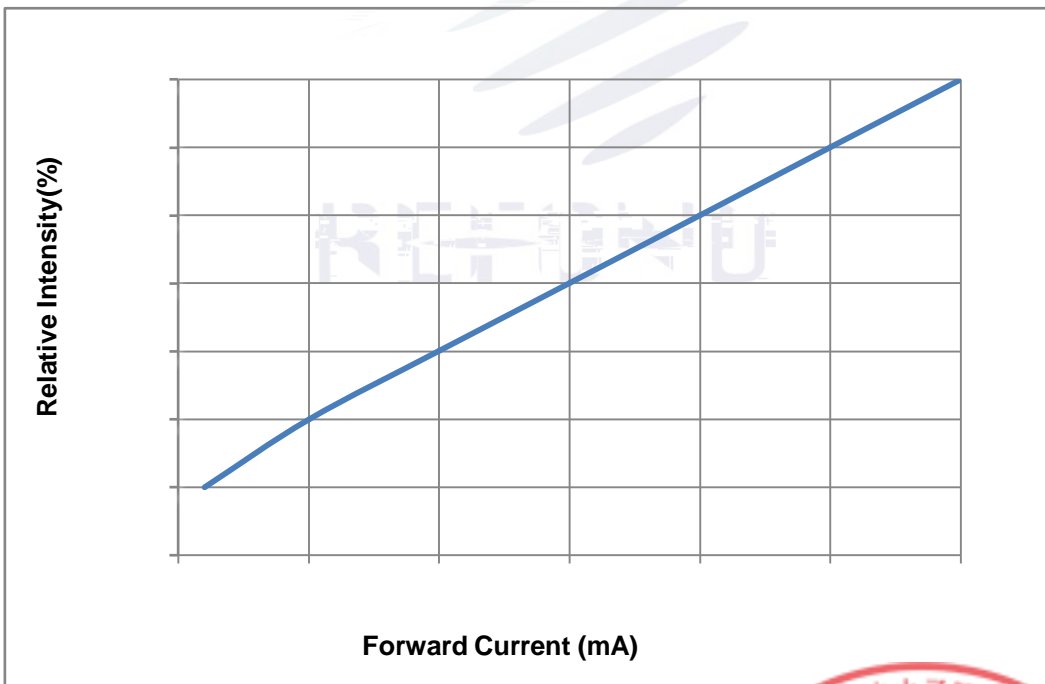


Fig. 1-8 Forward Current Vs Relative Intensity





Fig. 1-9 Solder Temperature Vs Relative Intensity

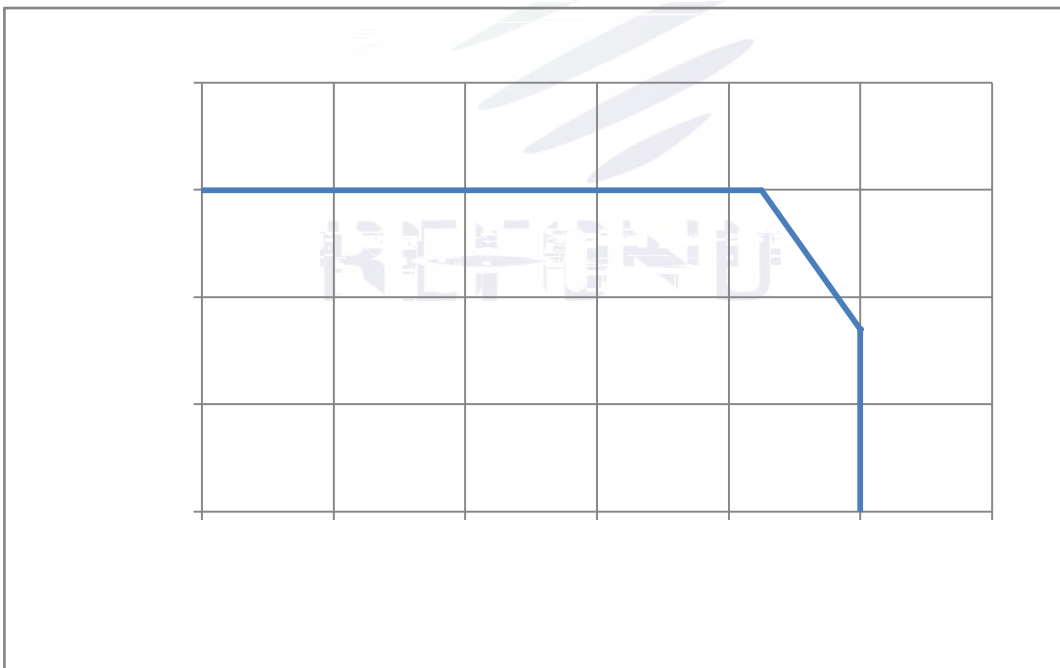


Fig. 1-10 Solder Temperature Vs Forward Current





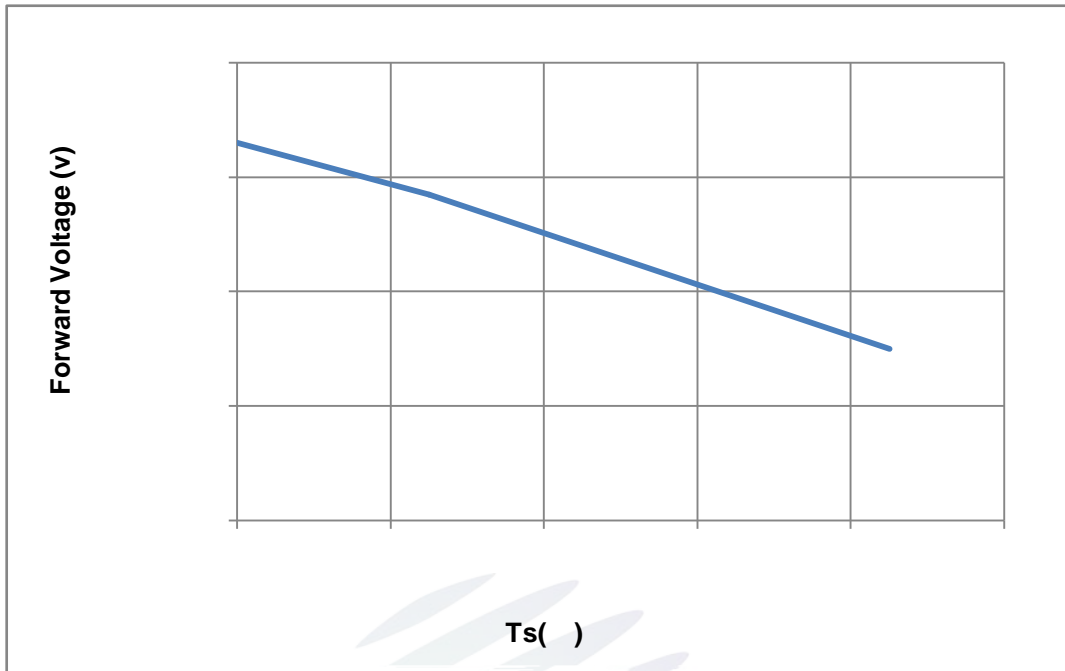


Fig. 1-11 Forward Voltage Vs Solder Temperature

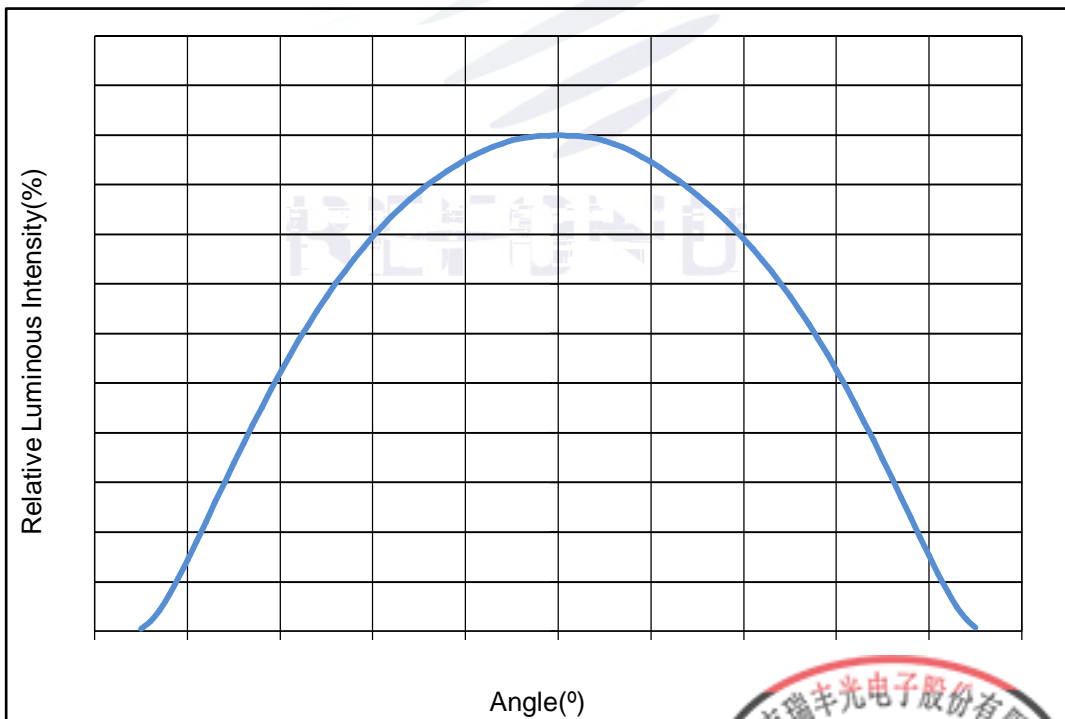
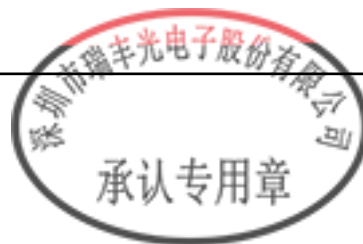


Fig. 1-12 Radiation diagram



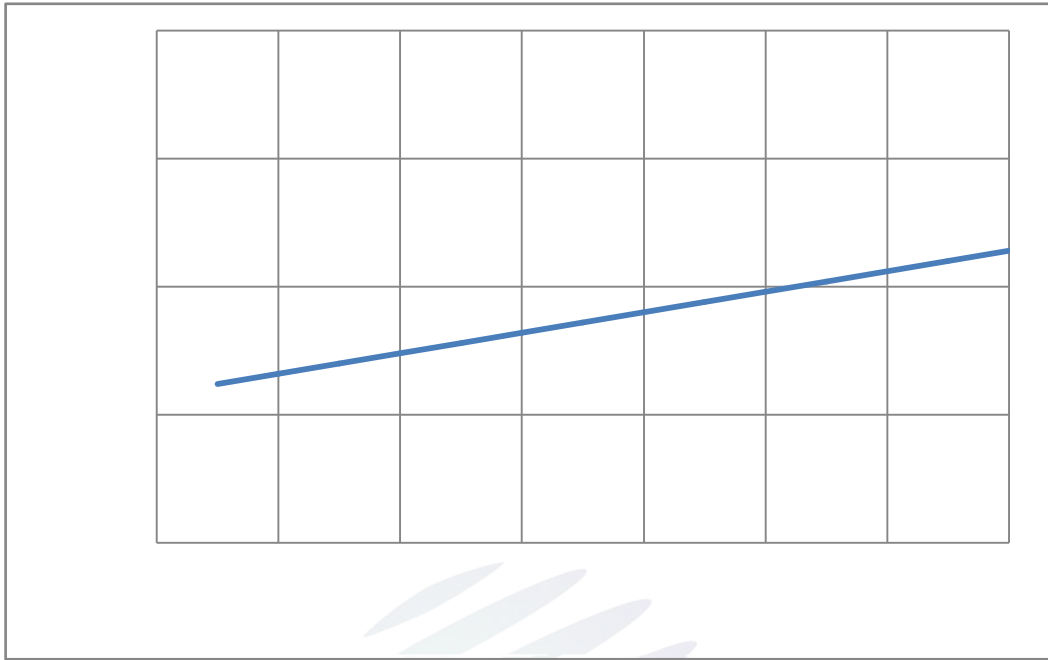


Fig. 1-13 Forward current vs.Dominate wavelength (Ts=25°C)

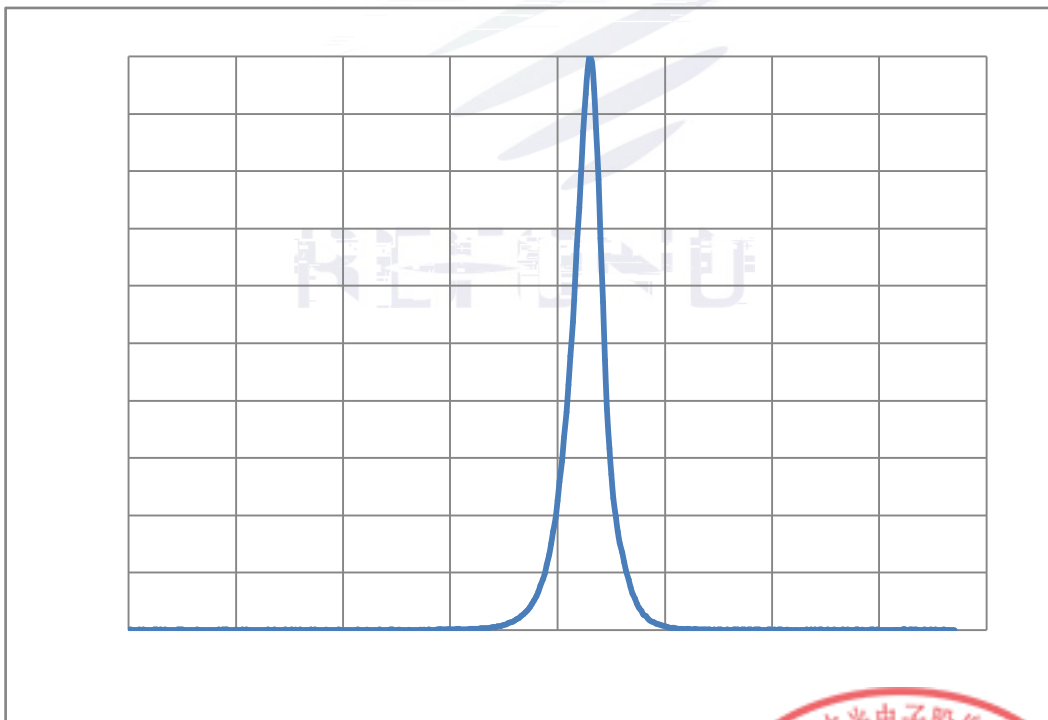


Fig. 1-14 Spectrum Distribution

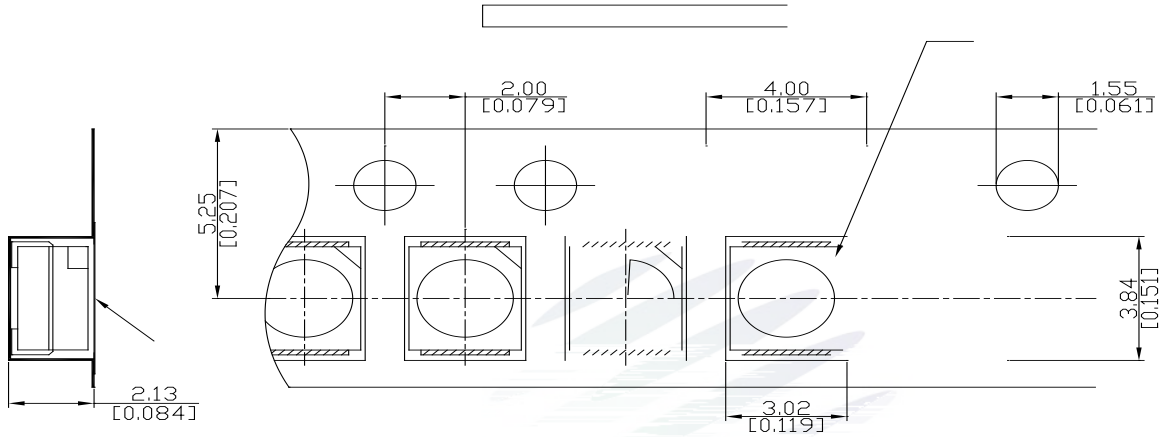


## 2. Packaging

### 2.1 Packaging Specification

Package:2000pcs/reel.

#### 2.1.1 Carrier Tape Dimension mm mm



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## 2.4 Reliability Test Items And Conditions

Table 2-3 Reliability Test Items And Conditions

| Test Items                                  | Ref.Standard           | Test Condition                | Time       | Quantity | Ac/Re<br>/ |
|---|------------------------|-------------------------------|------------|----------|------------|
| Reflow                                      | JESD22-B106            | Temp:260 max<br>T=10 sec      | 2times     | 20pcs.   | 0/1        |
| MSL2<br>2                                   | JESD22-A113            | 85 / 60%RH                    | 168 hrs.   | 20pcs.   | 0/1        |
| Thermal Shock                               | JEITAED-4701<br>300307 | -40 15min<br>10s<br>125 15min | 1000 cycle | 20pcs.   | 0/1        |
| Life Test                                   | JESD22-A108            | Ta=100<br>If=20mA             | 1000hrs.   | 20pcs.   | 0/1        |
| High Temperature<br>High Humidity Life Test | JESD22-A101            | 85 / 85%RH<br>If=20mA         | 1000hrs.   | 20pcs.   | 0/1        |



## 2.5 Criteria For Judging Damage

Table 2-4 Criteria For Judging Damage

| Test Items      | Symbol | Test Condition    | Criteria For Judgement |             |
|-----------------|--------|-------------------|------------------------|-------------|
|                 |        |                   | Min.                   | Max.        |
| Forward Voltage | $V_F$  | $I_F=20\text{mA}$ | -                      | U.S.L*)x1.1 |
| Reverse Current | $I_R$  | $V_R = 5\text{V}$ | -                      | U.S.L*)x2.0 |
| Luminous Flux   |        | $I_F=20\text{mA}$ | L.S.L*)x0.7            | -           |

### Notes

- 1.U.S.L: Upper standard level                      L.S.L: Lower standard level
- 2.The above reliability tests is based on the verification of a single/strip LED of Refond's existing experimental platform,the reliability experiment was taken under good heat dissipation conditions. when customers applies the LED to the series and parallel circuit, should take consideration of all the factors such as the current, voltage distribution, heat dissipation and others. /
- 3.The technical information shown in the data sheets is limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.





Notes

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

(2)Whensoldering , 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.

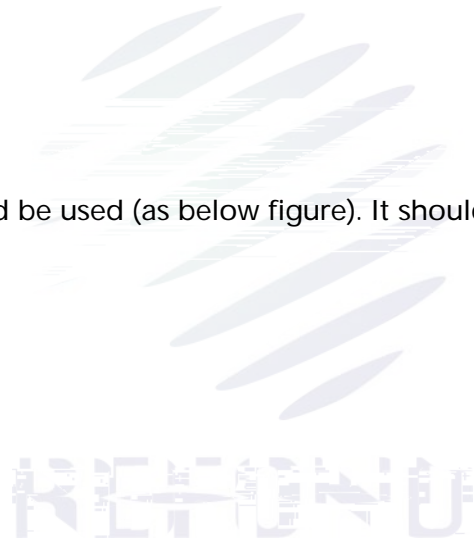
300 3

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

3.1.2 Repairing

ing

double-head soldering iron should be used (as below figure). It should be confirmed in advance whether the chara,





## 4. Handling Precautions

### 4.1 Handling Precautions

handling usage material. This is provided for informational purposes only and is not a warranty or endorsement. 100PPM.

(2) In operation - internal

domine

materials

than 1500PPM. This is provided for informational purposes only and is not a warranty or endorsement.

900PPM

900PPM

1500PPM.

nic energy. The

advises against the use of any chemicals or materials that have been found or are suspected to have an adverse affect on device performance or reliability. To verify compatibility, we recommends that all chemicals and materials be tested in the specific application and environment for which they are intended to

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



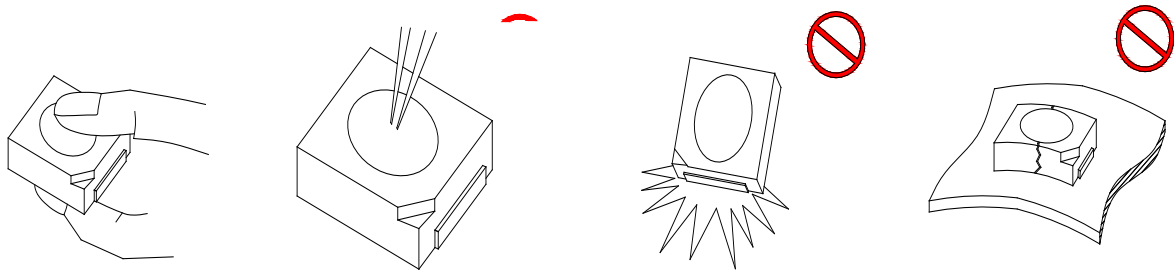


Fig 4-1 Handling Precautions

(5) In designing a circuit, the  can not  while, resistors for protection should be applied, otherwise slight voltage shift will cause big current change, burn out may happen. The driving circuit must be designed to allow forward

(6)  design is paramount importance because heat generation may result in the Characteristics decline, such as brightness decreased, Color change and so on. Please consider the heat generation of the

(7) Compared to standard encapsulants, silicone is generally softer, and the surface is more likely to attract dust, ing 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.  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



Table 4-1 Storage

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

(8) If the moisture absorbent material silica gel storage time, baking treatment should be performed after unpacking and based on the following condition 60 5 for above 24 hours.

60 5 24

If the package is flatulence or damaged, please notify the sales staff to assist.







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Declare

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