SPECIFICATION

REFOND P/N

RF-A2P08-Y915-Y0

□

■ Mass Production

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4.1 Handling Precautions

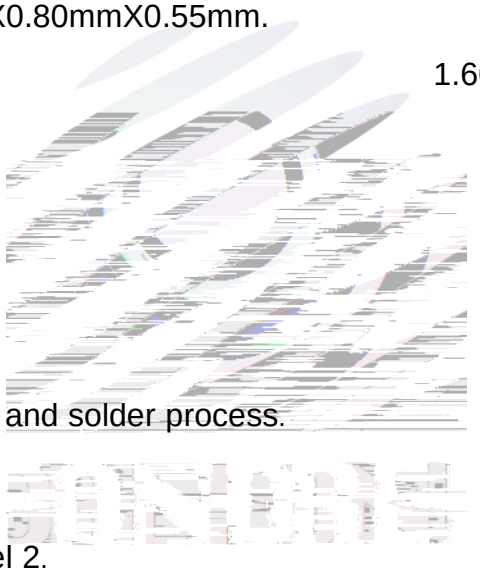
1. Description 产品介绍

1.1 产品描述

The Yellow source color devices are made with AlGaInp on Substrate Light Emitting Diode .

Product Package:1.60mmX0.80mmX0.55mm.

1.60mmX0.80mmX0.55mm.



1.2Features 产品特征

PLCC2 Package.

Extremely wide viewing angle.

Suitable for all SMT assembly and solder process.

Available on tape and reel.

Moisture sensitivity level: Level 2.

Qualifications: The product qualification test plan is based on the guidelines of AEC-Q101 Stress Test Qualification for Automotive Grade Discrete Semiconductors

1.3Application

1.4Package Dimension 封装尺寸

Fig.1-3BottomView

Fig.1-4Polarity

Fig.1-

1.5Product Parameters

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

Item	Symbol	Test Condition	Value			Unit
			Min.	Typ.	Max.	
Forward Voltage	V_F	I_F=20mA	1.8	2.0	2.4	V
Reverse Current	I_R	V_R=5V	---	---	10	uA
Luminous Intensity	IV	I_F=20mA	800	900	1200	mcd
Dominant wavelength	Wd	IF=20mA	584.5	590	594.5	nm
Viewing Angle		I_F=20mA	---	120	---	deg
Thermal Resistance.	R_{THJ-S}	I_F=20mA	---	300	---	/W

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

Notes

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

2. The above forward voltage measurement allowance tolerance is ±0.1V.

3. The above color coordinates measurement allowance tolerance is 0.005.

4. The above luminous intensity measurement allowance tolerance ±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 2000V ESD (HBM). ESD protection during products handing is needed.

1.6 Bin Range Of Forward Voltage and Luminous Intensity (IF=20mA)电压与发光强度分 BIN 范围(IF=20mA)

Table 1-3

V_F 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 mcd	L1	L2				
	800-1000	1000-1200				
WD(nm)	A2	B1	B2	C1		
	584.5-587	587-589.5	589.5-592	592-594.5		

1.7 Typical Optical Characteristics Curves 典型光学特性曲线

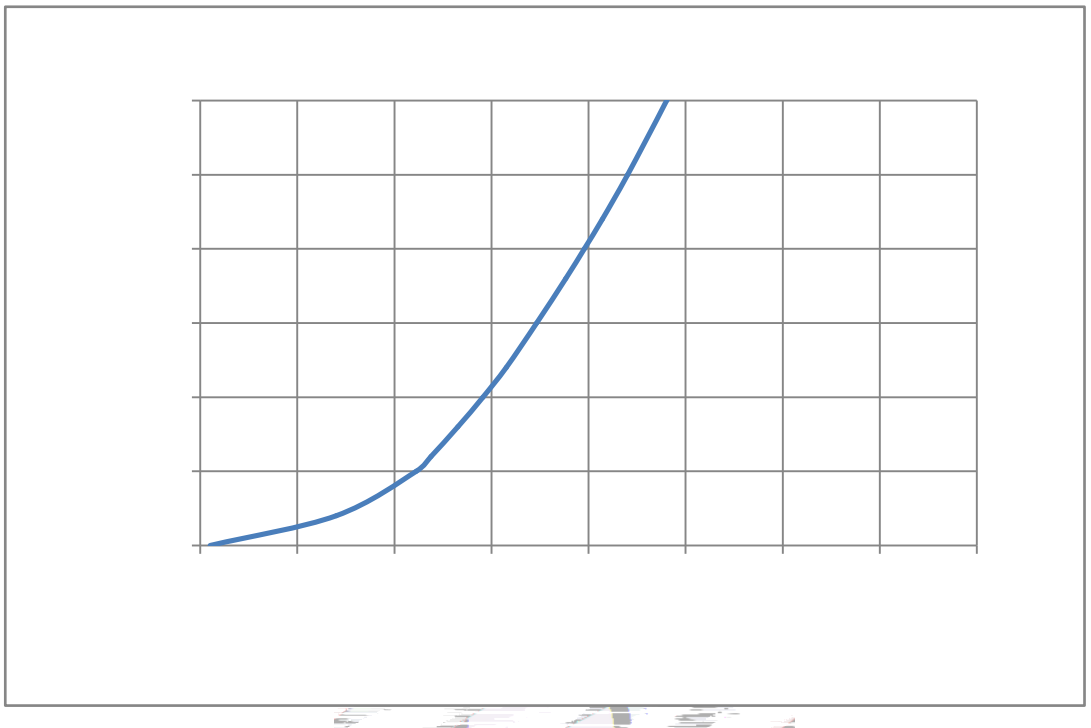


Fig. 1-7 Forward Voltage Vs Forward Current

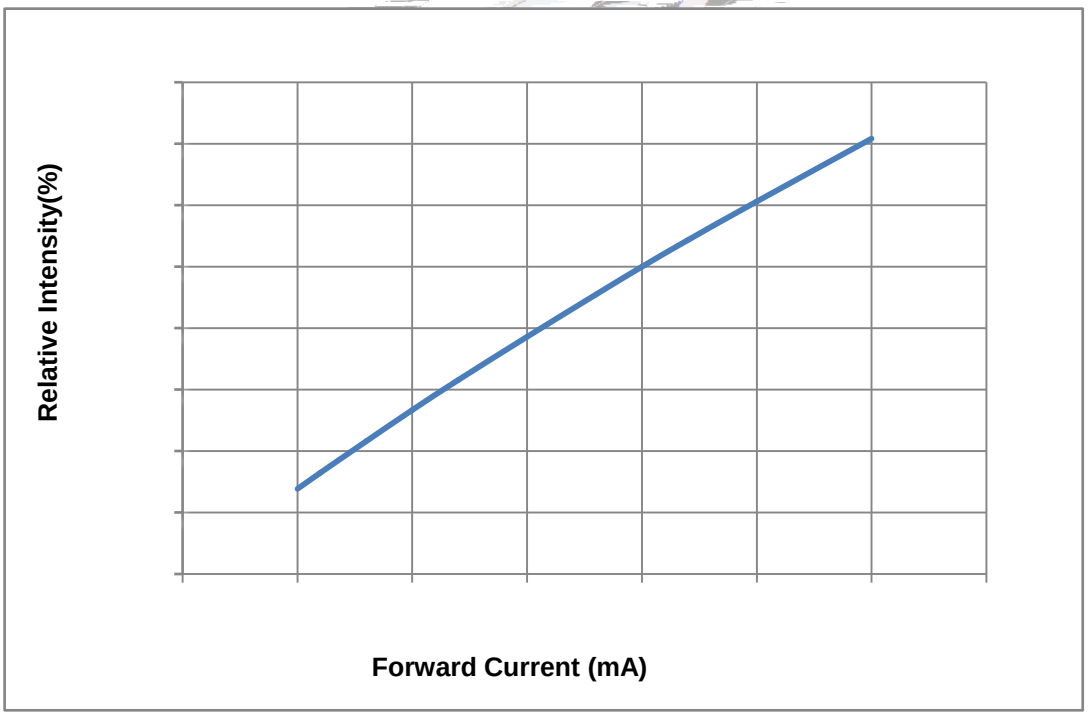


Fig. 1-8 Forward Current Vs Relative Intensity

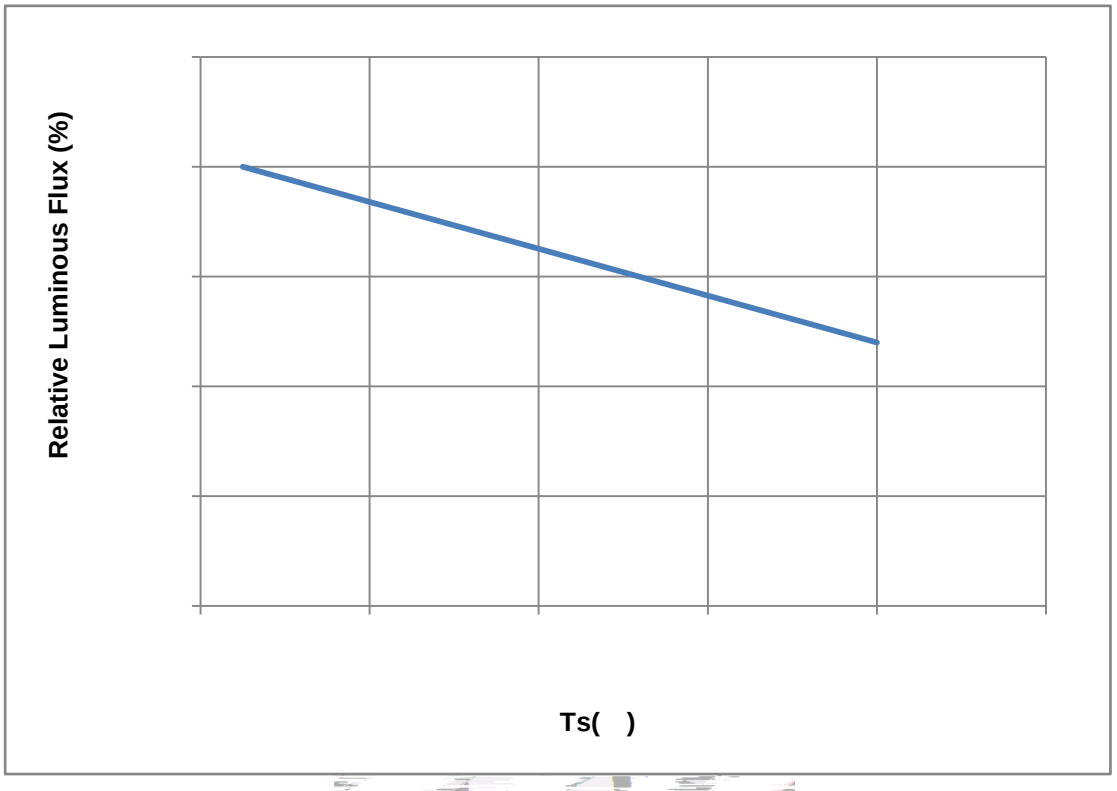


Fig. 1-9 Solder Temperature Vs Relative Intensity

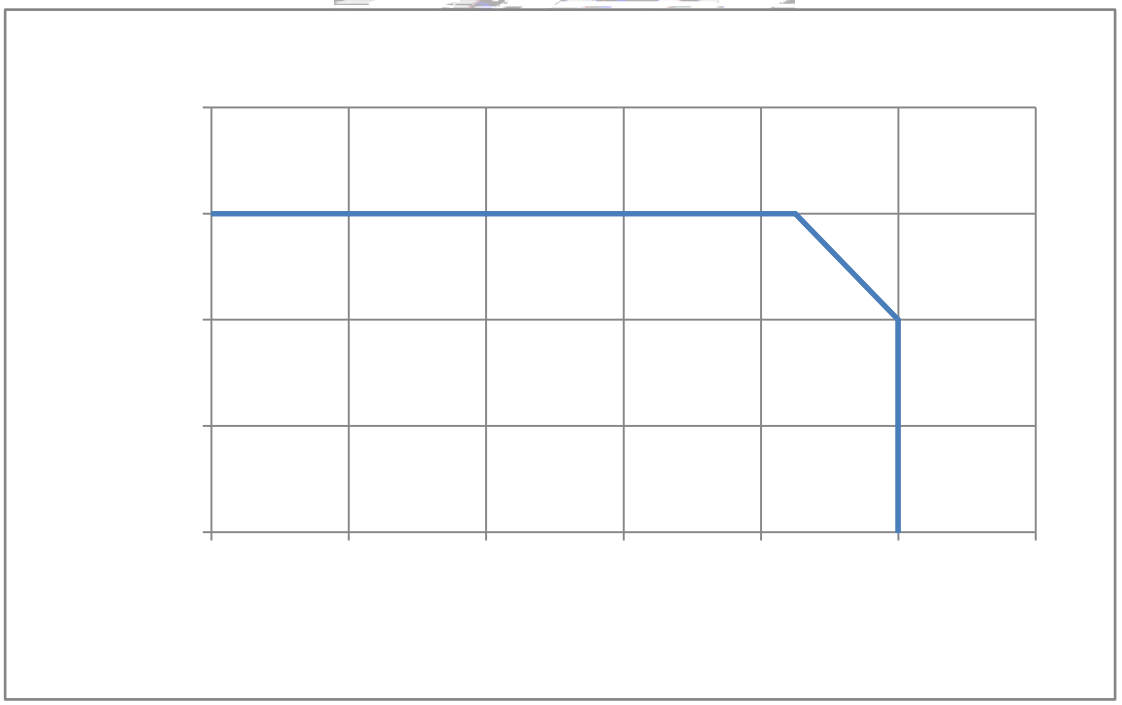


Fig. 1-10 Solder Temperature VsForward Current

Tj 120

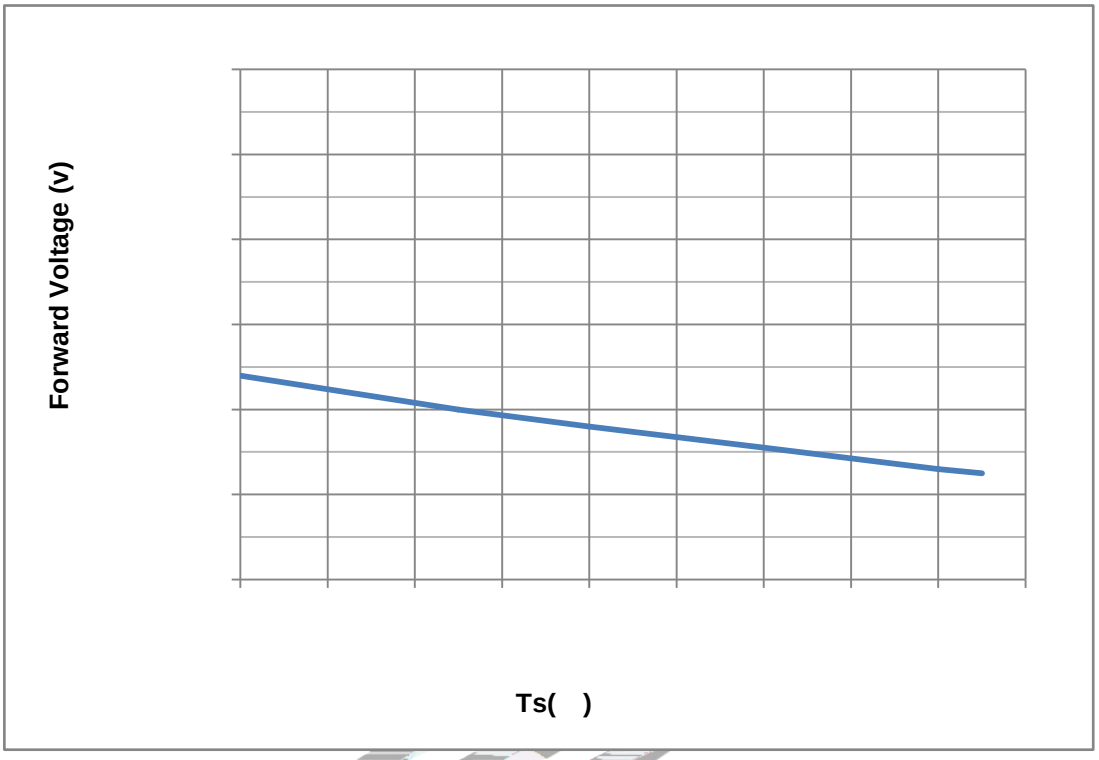


Fig. 1-11 Forward Voltage Vs Solder Temperature

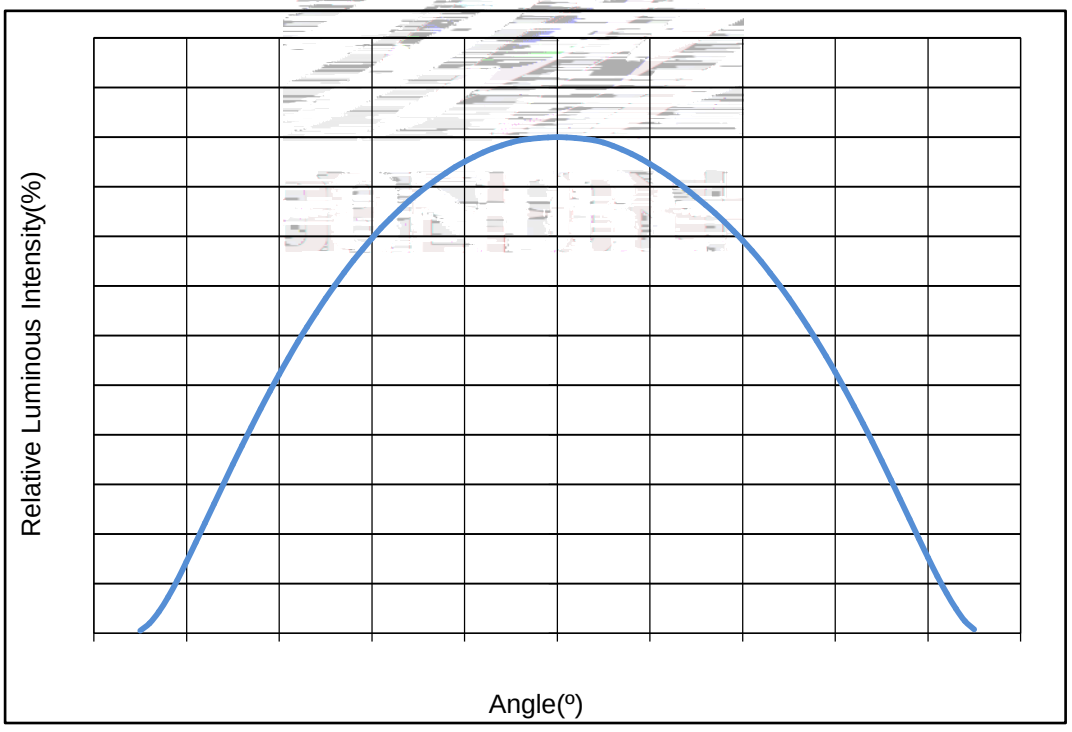


Fig. 1-12 Radiation diagram

Fig. 1-13 v ((Ts=25°C)

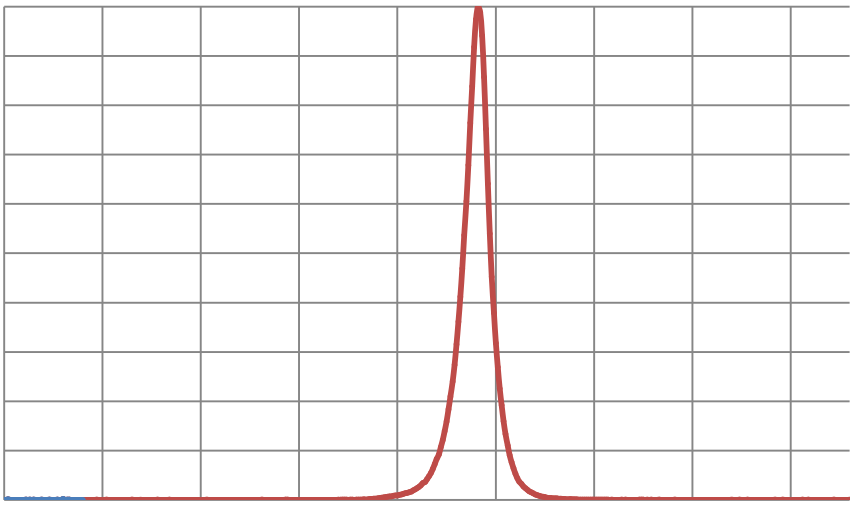


Fig. 1-14 Spectrum Distribution

2. Packaging 产品包装

2.1 Packaging Specification 包装规格

Package:4000pcs/reel.

2.1.1Carrier Tape Dimension

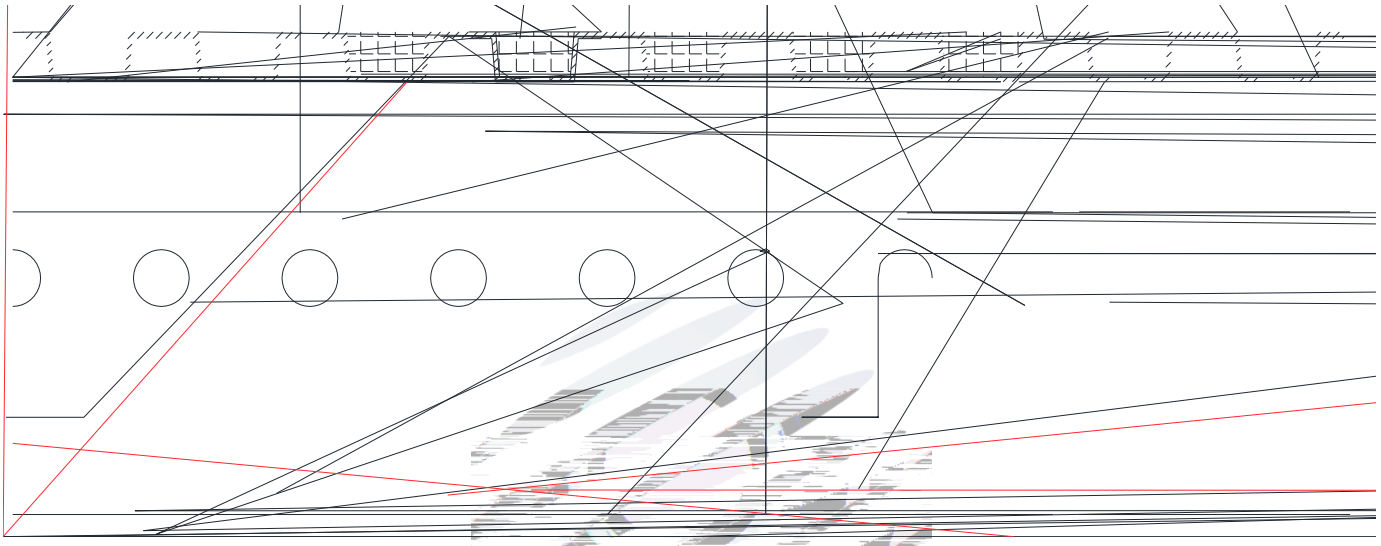


Fig.2-1 Carrier Tape Dimension

2.1.2Reel Dimension

Reel Dimension

Fig.2-2Reel Dimension

Notes

The tolerances unless mentioned ±0.1mm. Unit : mm

2.1.3Label Form Specification

Fig. 2-3Label Form Specification

	Specification
PART NO.	Part Number
SPEC NO.	Spec Number
LOT NO.	Lot Number
BIN CODE	Bin Code
	Luminous flux
XY	Chromaticity Bin
V_F	Forward Voltage
WLD	Wavelength
QTY	Packing Quantity
DATE	Made Date

2.2Moisture Resistant Packing 防潮包装

Fig.2-4Moisture Resistant Packing

2.3Cardboard Box 包装纸箱

Fig.2- Cardboard Box

2.4Reliability Test Items And Conditions 信赖性测试项目及条件

Table 2-3 Reliability Test Items And Conditions

TestItems	Ref.Standard	Test Condition	Time	Quantity	Ac/Re
					/

High Temperature High Humidity Life Test	JESD22-A101	85 / 85%R_H I_F=20mA	1000hrs.	20pcs.	0/1
Temperature Humidity Storage	JEITA ED-4701 100 103	T_A=85 R_H=85%	1000hrs.	20pcs.	0/1

2.5 Criteria For Judging Damage 失效判定标准

Table 2-4Criteria For Judging Damage

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

Peak /Classification of temperature: / (T_P)	260 °C
Time limit classification of peak temperature time t_p	10 Max 10s
(T_P) 5 °C Hold time within 5 C with the actual peak temperature (TP)	30 Max 30s
Cooling speed	6 °C/ Max 6 °C/ s
25 °C Needed time from 25 °C to Tp	8 Max 8 minutes

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)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

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

3.1.2 Repairing

Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable,a double-head soldering iron should be used (as below figure). It should be confirmed in advance whether the characteristics of LEDs will or not be damaged by repairing.

LED

(3) VOCs (Volatile organic compounds) emitted from materials used in the construction of fixtures can penetrate silicone encapsulants of LEDs and discolor when exposed to heat and photonic energy. The result can be a significant loss of light output from the fixture. Knowledge of the properties of the materials selected to be used in the construction of fixtures can help prevent these issues. Refond advises against theuse of any chemicals or materials that have been found or are suspected to 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.

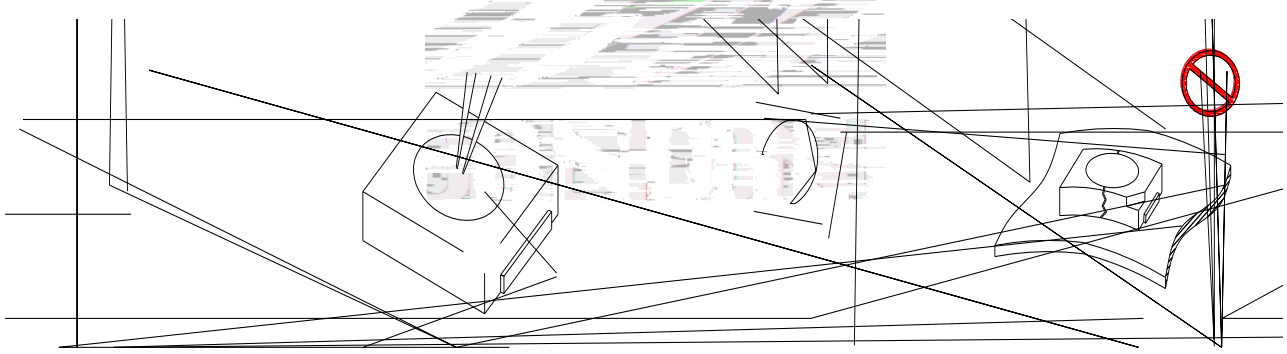


Fig 4-1Handling Precautions

(5) In designing a circuit,the current through each LED can 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. The driving circuit must be designed to allow forward voltage only when it is ON or OFF.If the reverse voltage is applied to LED, migration can be generated resulting in LED damage.

(6) Thermal 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 LEDs when making the system design.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%	Recommended for use within 24 hours 24H
Baking		60 5	-	24hours 24

(8) If the moisture absorbent material silica gel has faded away or the LEDs have exceeded the storage time,baking treatment should be performed after unpacking and based on the following condition 65 5 for above 24 hours.

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

(9)Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS).

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

Version History/

Date	Revisor	Version	Verifier	Remarks
		E0		New issue

Declare

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