SPECIFICATION
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REFOND P/N 台

及

Mass Product

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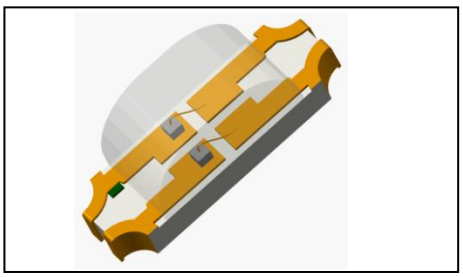
Contents

1. Description

1.1 General Description



The Colour LED which was fabricated using a yellow-green chip and red chip, Package Dimension : 3.2mmX1.0mmX1.48mm.

E % 3.2mmX1.0mmX1.48mm

1.2 Features

Extremely wide viewing angle.及

Suitable for all SMT assembly and solder process. L M

Moisture sensitivity level: Level 3. E o e

RoHS compliant. L

1.3 Application

Optical indicator.

Switch and symbol, display. 公

General use.

1.4 Package Dimension

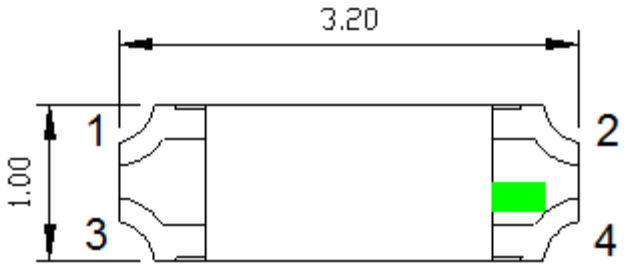


Fig.1-1 Top view

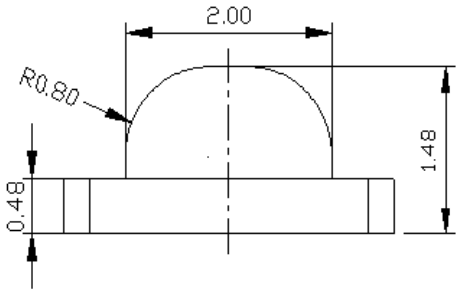


Fig.1-2 Side view

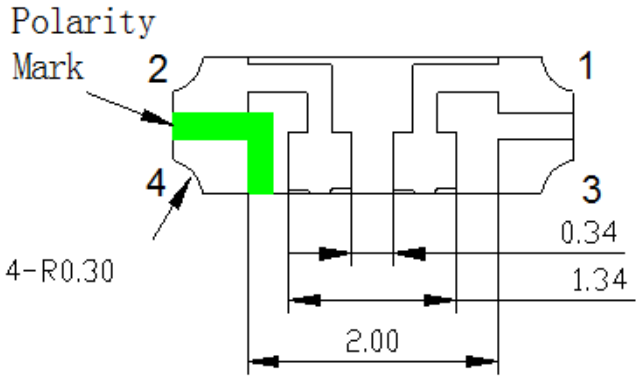


Fig.1-3 Bottom view

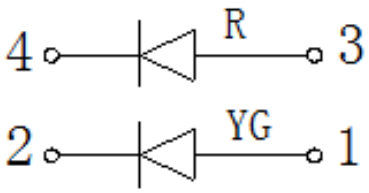


Fig.1-4 Polarity

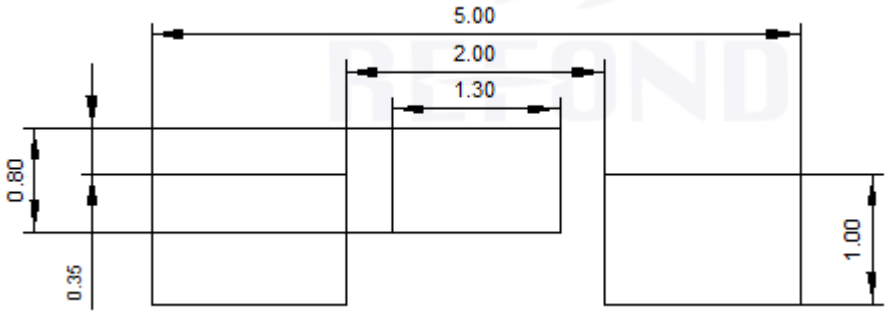


Fig.1-5 Soldering patterns

Notes

All dimensions units are millimeters.

All dimensions tolerances are 0.2mm unless otherwise noted.

1.5 Product Parameters

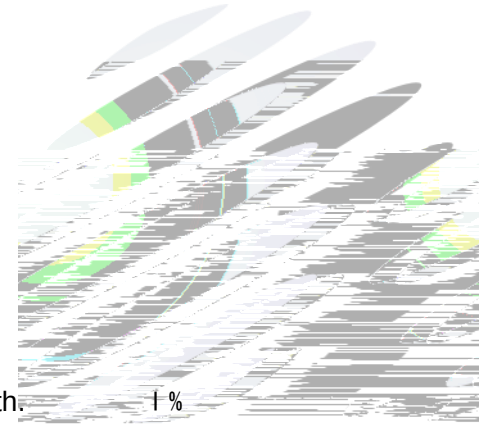
Table 1-1 Electrical / Optical Characteristics at Ts=25°C

Item	Test Condition	Symbol 台		Code	Value			Unit 华
					Min. ( )	Typ.	Max.	
Spectral Half Bandwidth	I_F=20mA	Δ	R	/	--	15	--	nm
			YG		--	15	--	
Forward Voltage	I_F=20mA	V_F	R	1L	1.8	--	2.4	V
			YG	1L	1.8	--	2.4	
Dominant wavelength	I_F=20mA	$_d$	R	F00	625.0	--	630.0	nm
				G00	630.0	--	635.0	
				H00				

Notes : V_R=5V For test conditions. V_R=5V 6 3 0 .

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

Parameter	Symbol	Rating 台



Notes

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

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

3. The above dominant wavelength measurement allowance tolerance is±2nm.

4. The above luminous intensity measurement allowance tolerance ±10%. 及 入

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 Ｅ

1.6 Typical Optical Characteristics Curves

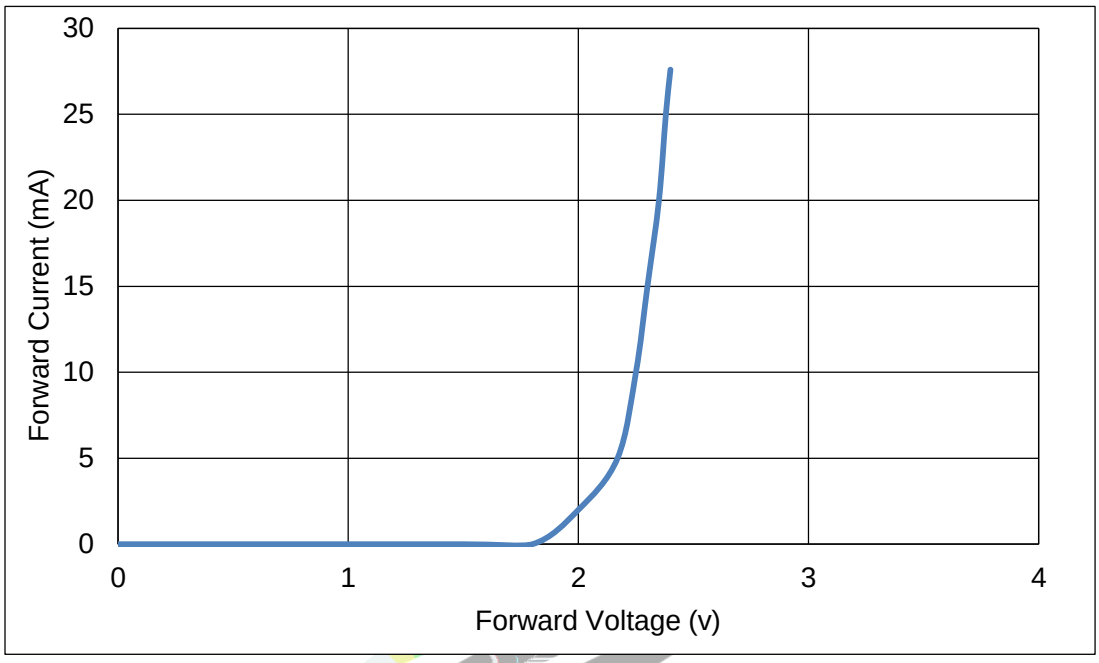


Fig.1-6 Forward Voltage Vs Forward Current

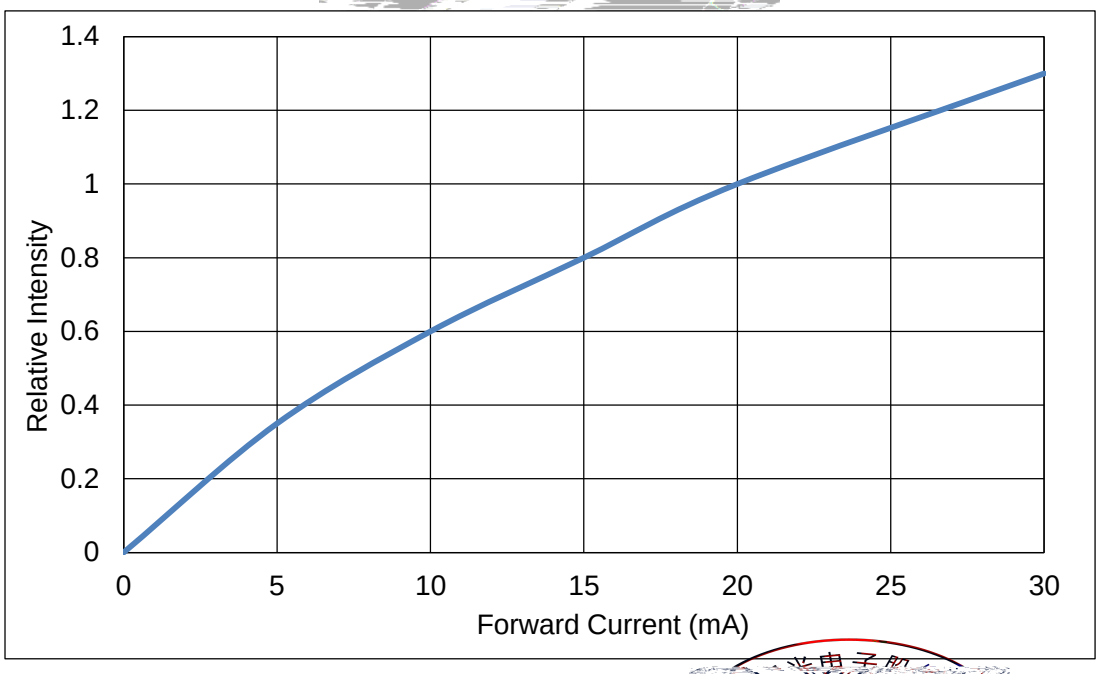


Fig.1-7 Forward Current Vs Relative Intensity

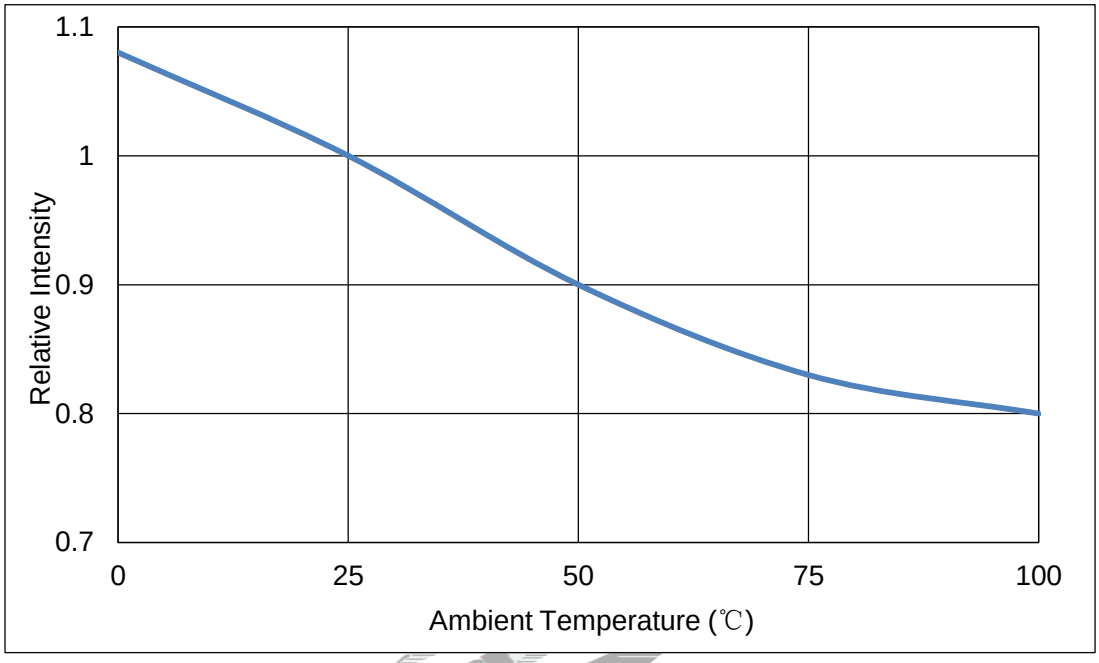


Fig.1-8 Pin Temperature Vs Relative Intensity

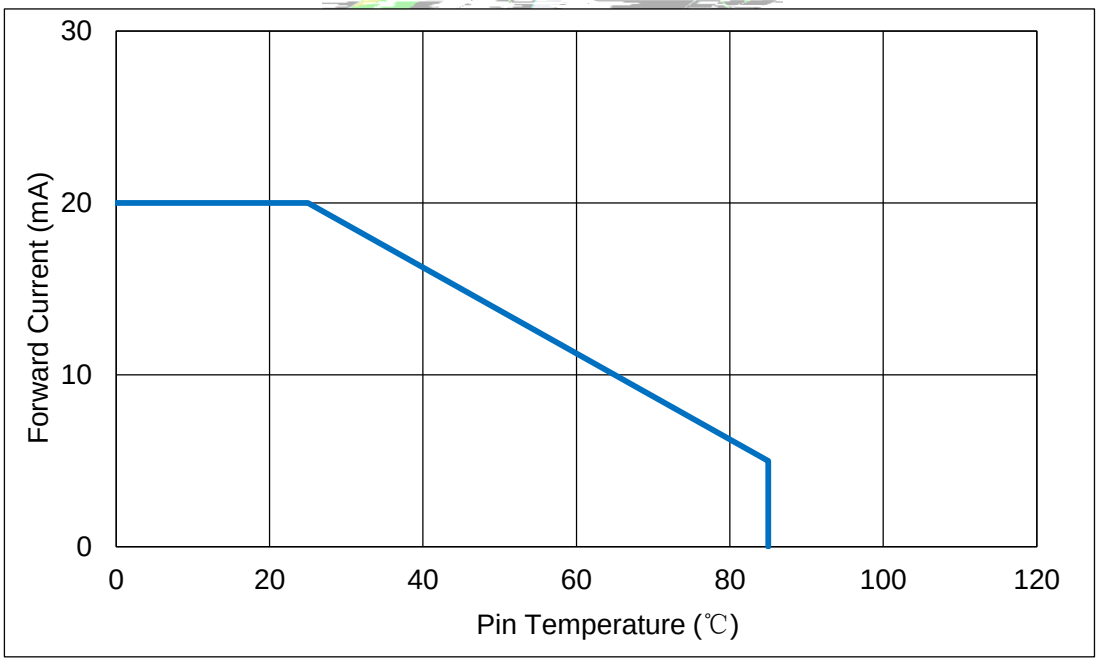


Fig.1-9 Pin Temperature Vs Forward Current

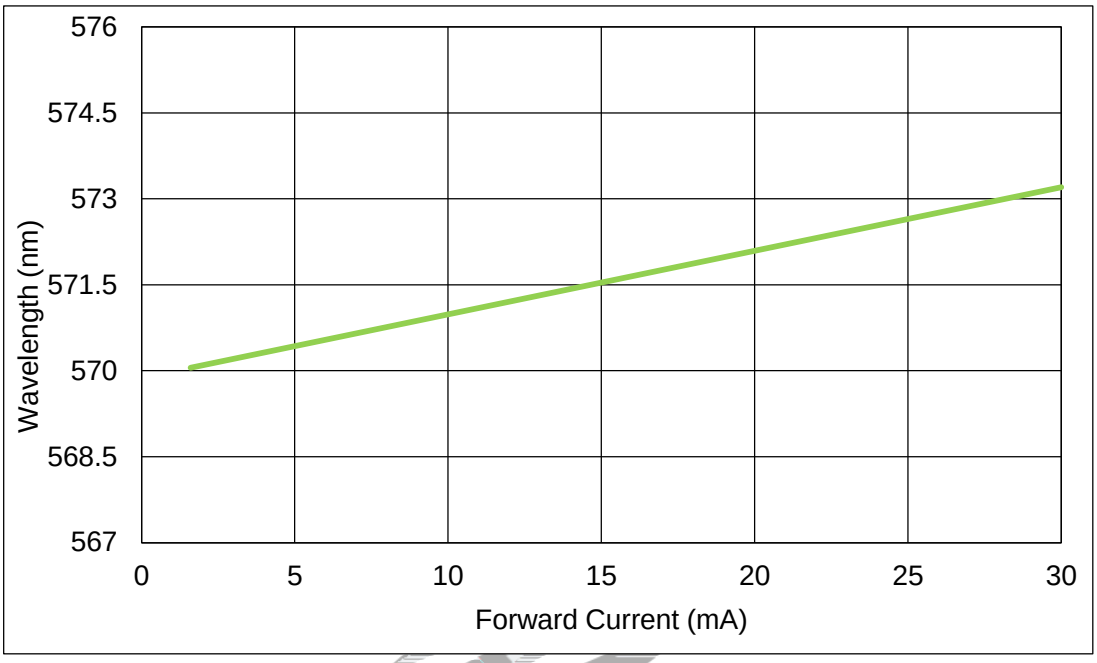


Fig.1-10 Forward Current Vs Dominate Wavelength (Ta=25) 公

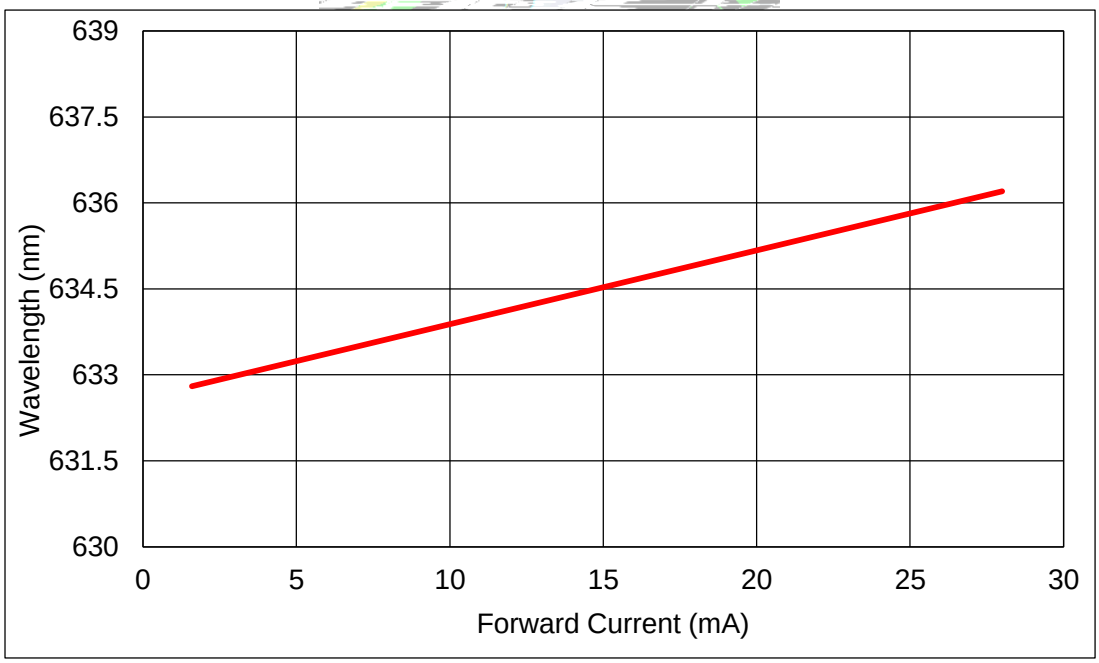


Fig.1-11 Forward Current Vs Dominate Wavelength (Ta=25℃) 公

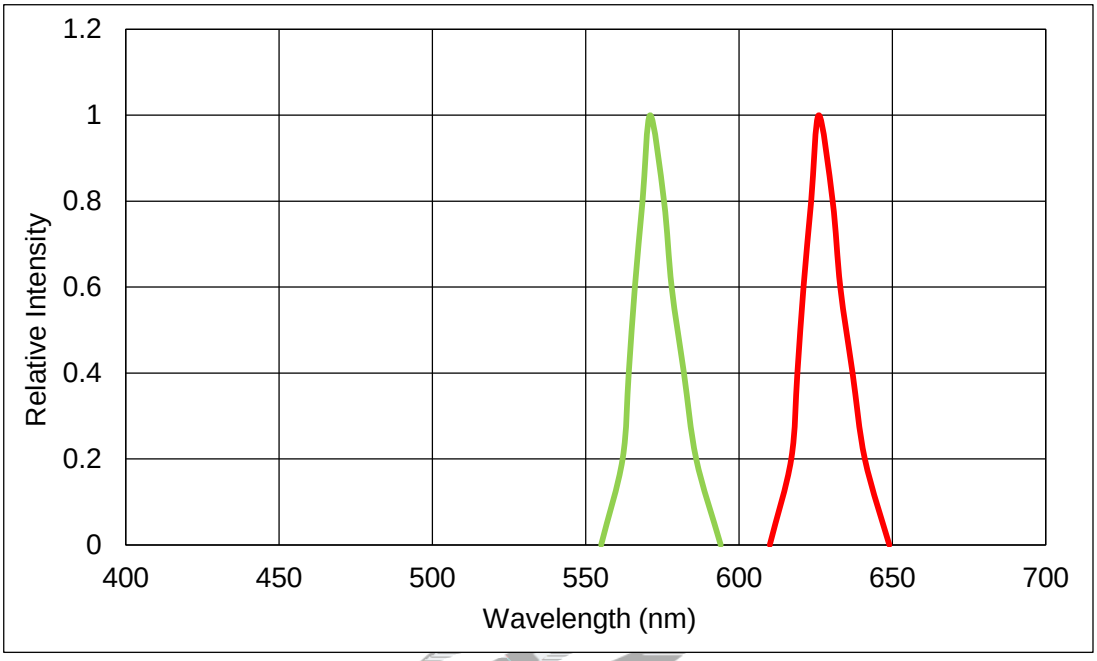


Fig.1-12 Relative Intensity Vs Wavelength (Ta=25℃)

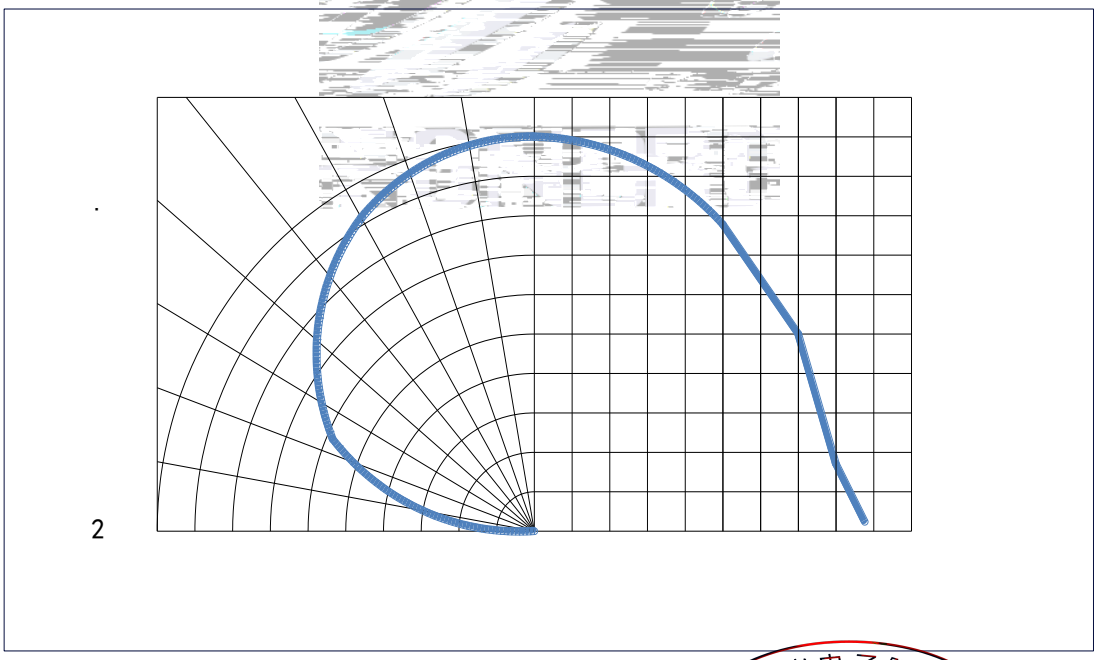
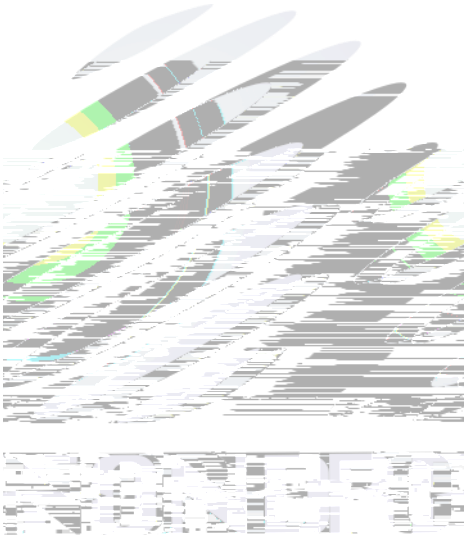


Fig.1-13 Diagram characteristics of radiation



2.1.3 Label Form Specification

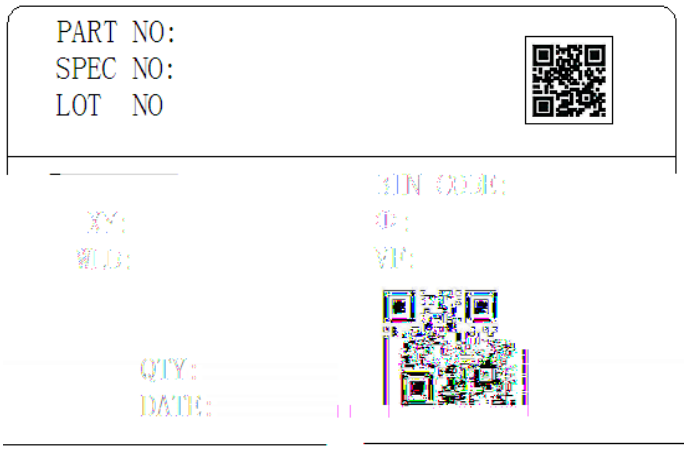


Fig. 2-3 Label Form Specification

Table 2-2 Parameter

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

2.2 Moisture Resistant Packing

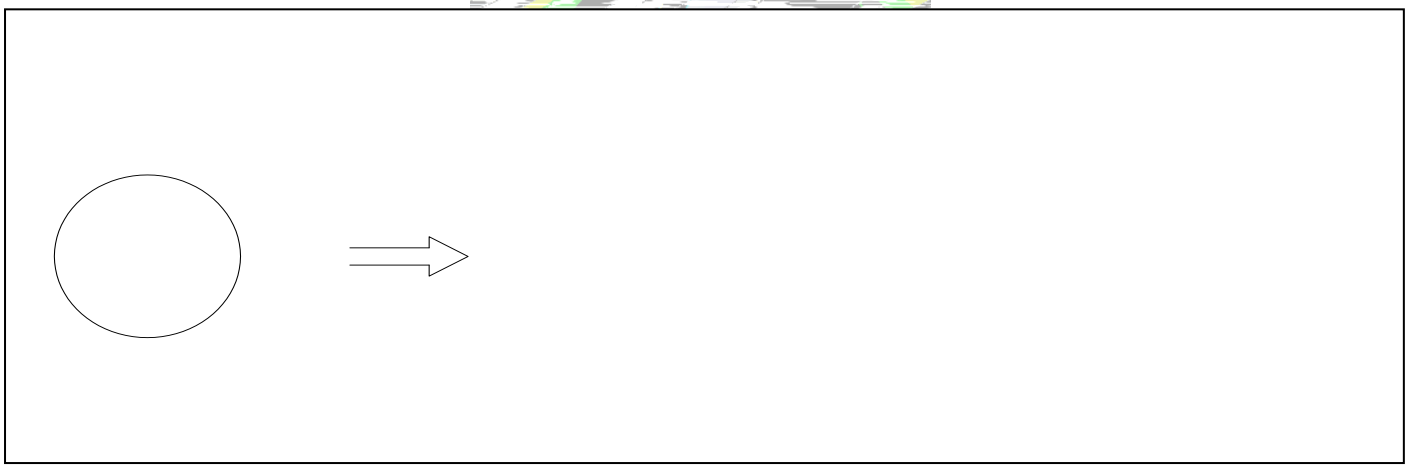


Fig.2-4 Moisture Resistant Packing

2.3 Cardboard Box

Fig.2-5 Cardboard Box

2.4 Reliability Test Items And Conditions

Table 2-3 Reliability Test Items And Conditions

Test Items	Ref.Standard

2.5 Criteria For Judging Damage

Table 2-4 Criteria For Judging Damage

Test Items	Symbol 台	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 th e LED to the series and pa(a)l1 (f)-5(i)s)14(t)5(a)5(con)sid(er)5(d))9(1.8)7)p5(fe)1(5)9 14C86]T JET EMC /P 4MCID21811(i)05

t2(ce1 0p75.67od* ncETs.W* nBT1 009. TJdos(notT TJJETBs TJET TJuBTe1 0EThTB TJ2.02 4BTanTBT1 n/F6 1o[ )]TJ TJETr

3. SMT Reflow Soldering Instructions SMT

3.1 SMT Reflow Soldering Instructions SMT

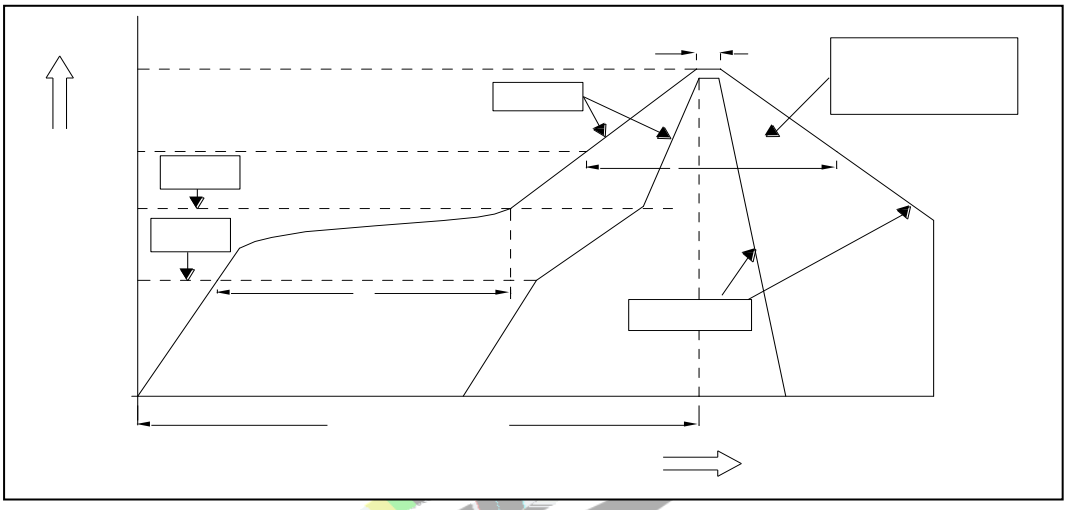


Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Parameters

Average temperature rise speed Tsmax T_P	3 °C/ Max 3 °C/ s
Preheating: minimum temperature (Tsmin)	150 °C
Preheating: Max temperature (Tsmax)	200 °C
Preheating: Time Tsmin Tsmax	60 - 120 60s-120s
Time limited to maintain high temperature: the temperature (T_L)	217 °C
Time limited to maintain high temperature: The Time (t_L)	60 Max 60s
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. E

(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.

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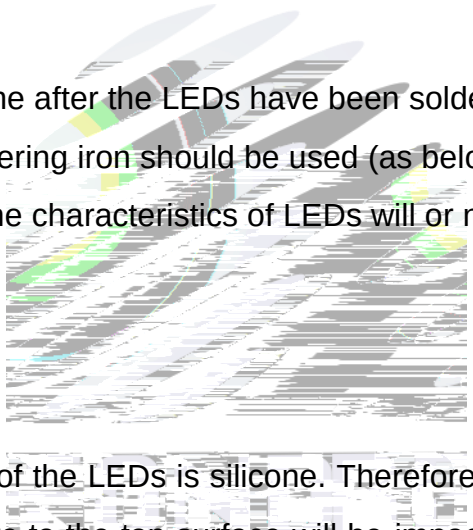
3.1.3 Cautions



(1) The encapsulated material of the LEDs is silicone. Therefore the 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

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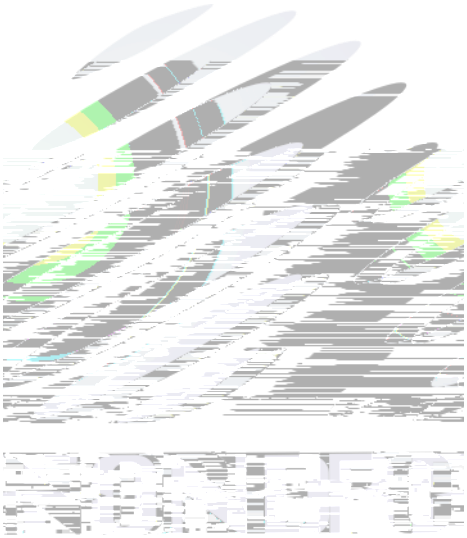
(2) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board.LED

(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 何 E



(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.

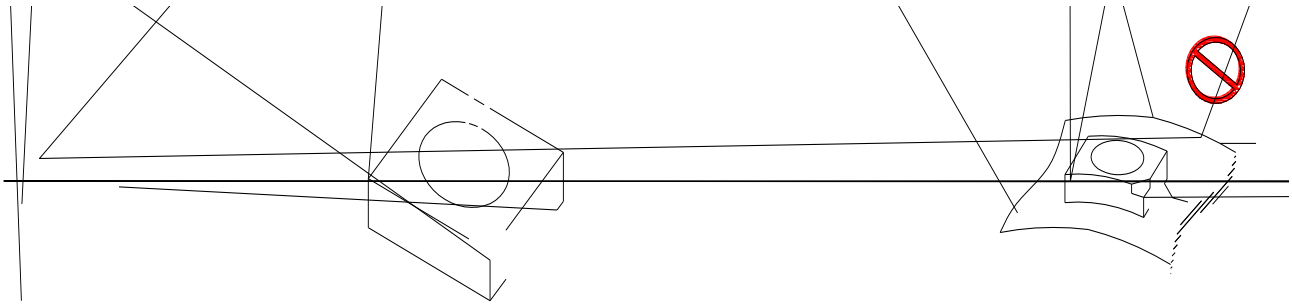


Fig 4-1 产品使用注意事项

(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. E

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(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 及

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(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. 判

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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 24
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.

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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).

Version History/

Date	Revisor	Version	Verifier	Remarks
2018.04.17	升	E/1		
2021.06.30		E/2		也

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