SPECIFICATION

REFOND P/N

RF-A3E27-W60H-B3

□R&D

■Mass Production

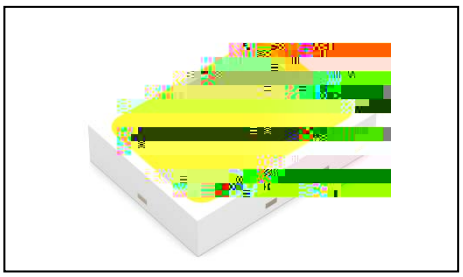
0755-2967-5000
0755-6683-9322
sales@refond.com

Contents

0755-2967-5000
0755-6683-9322
sales@refond.com

1. Description

1.1General Description



The White LED, which was fabricated by using a blue chip and the phosphor.

Product Package:2.7mmX2.0mmX0.6mm.

LED 2.7mmX2.0mmX0.6mm

1.2Features

EMC Package.EMC

Extremely wide viewing angle.

Suitable for all SMT assembly and solder process. SMT

Available on tape and reel.

Moisture sensitivity level: Level 2. Level2

RoHS compliant. RoHS

Qualifications: The product qualification test plan is based on the guidelines of AEC-Q102 Stress Test Qualification for Automotive Grade Discrete Semiconductors

AEC-Q102

1.3Application

Automotive Lighting Interior and Exterior.

0755-2967-5000
0755-6683-9322
sales@refond.com

1.4Package Dimension

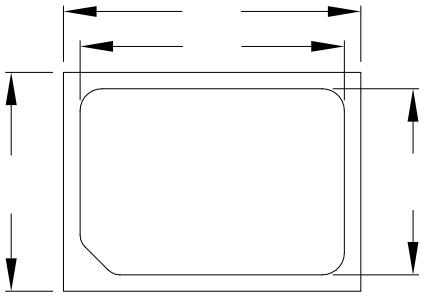


Fig.1-1 Top View

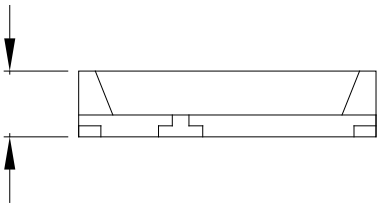


Fig.1-2 Side View

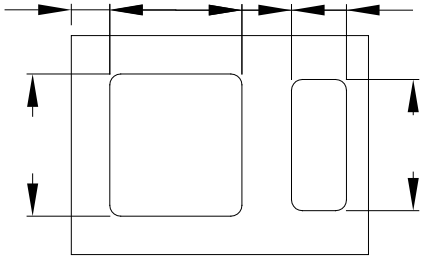


Fig.1-3 Bottom View

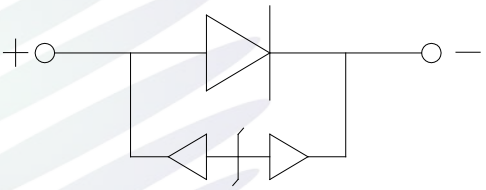


Fig.1-4 Polarity

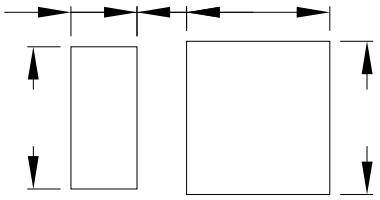


Fig.1-5 Soldering Patterns

Notes

1. All dimensions units are millimeters.

2. All dimensions tolerances are ±0.2mm unless otherwise noted. ± 0.2

0755-2967-5000
0755-6683-9322
sales@refond.com

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=350mA	2.8	---	3.4	V
Reverse Current	I_R	V_R=5V	---	---	10	uA
Luminous Flux		I_F=350mA	105	---	160	lm
Viewing Angle		I_F=350mA	---	120	---	deg
Thermal Resistance.	R_{THJ-S}	I_F=350mA	---	14	21	/W
	R_{THJ-S}	I_F=350mA	---	9	13	/W

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

Parameter	Symbol	Rating	Units
Power Dissipation	P_D	1428	mW
Forward Current	I_F	420	mA
Peak Forward Current	I_{FP}	700	mA
Reverse Voltage	V_R	5	V
Electrostatic Discharge (HBM)	E_{SD}	8000	V
Operating Temperature	T_{OPR}	-40 ~ +125	
Storage Temperature	T_{STG}	-40 ~ +125	
Junction Temperature	T_J	150	

0755-2967-5000
0755-6683-9322
sales@refond.com

Notes

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

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

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

4. The above luminous flux measurement allowance tolerance ±10%. ± 10%.

5.

0755-2967-5000
0755-6683-9322
sales@refond.com

Fig. 1-6 The C.I.E Chromaticity Diagram CIE

Table 1-4

BIN CODE	CIE-X1	CIE-Y1	CIE-X2	CIE-Y2	CIE-X3	CIE-Y3	CIE-X4	CIE-Y4
VM1	0.3150	0.2995	0.3115	0.3212	0.3268	0.3371	0.3282	0.3162
VM2	0.3210	0.3060	0.3190	0.3280	0.3340	0.3420	0.3340	0.3230
VM3	0.3270	0.3140	0.3270	0.3360	0.3420	0.3490	0.3410	0.3300
VM4	0.3340	0.3230	0.3340	0.3420	0.3480	0.3535	0.3480	0.3370
VM5	0.3165	0.3180	0.3140	0.3380	0.3298	0.3525	0.3302	0.3307
VM6	0.3223	0.3260	0.3209	0.3461	0.3378	0.3615	0.3368	0.3368 0.3461

0755-2967-5000
0755-6683-9322
sales@refond.com

1.7 Typical Optical Characteristics Curves

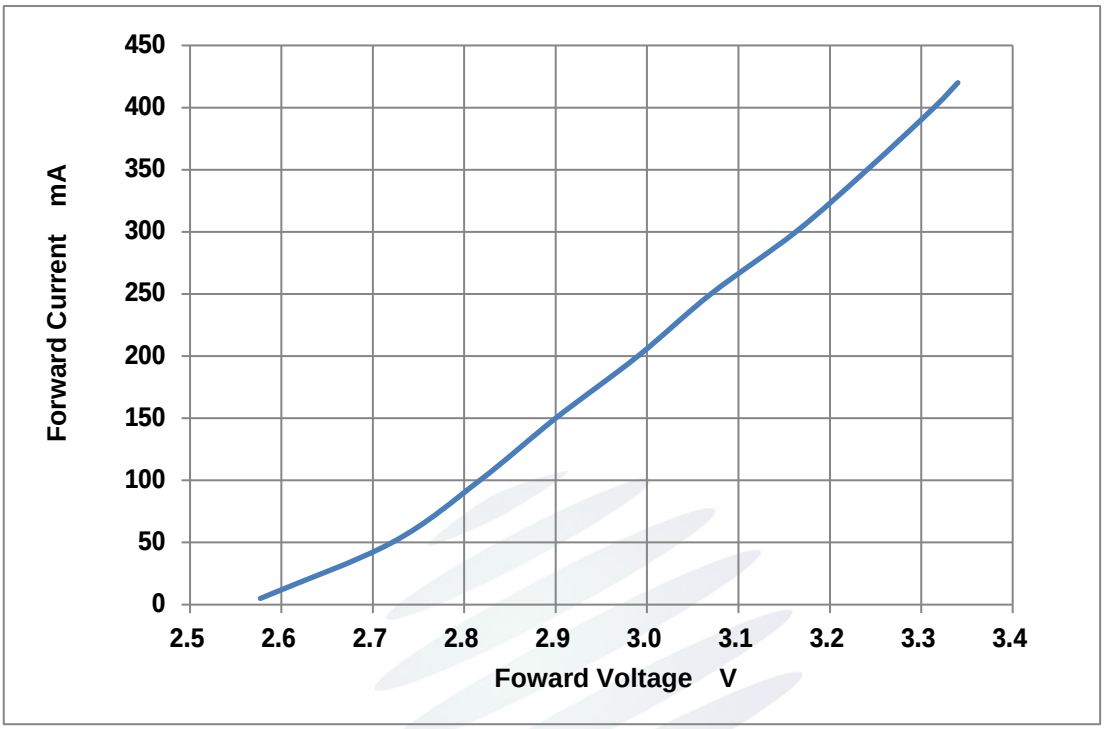


Fig. 1-7 Forward Voltage Vs Forward Current

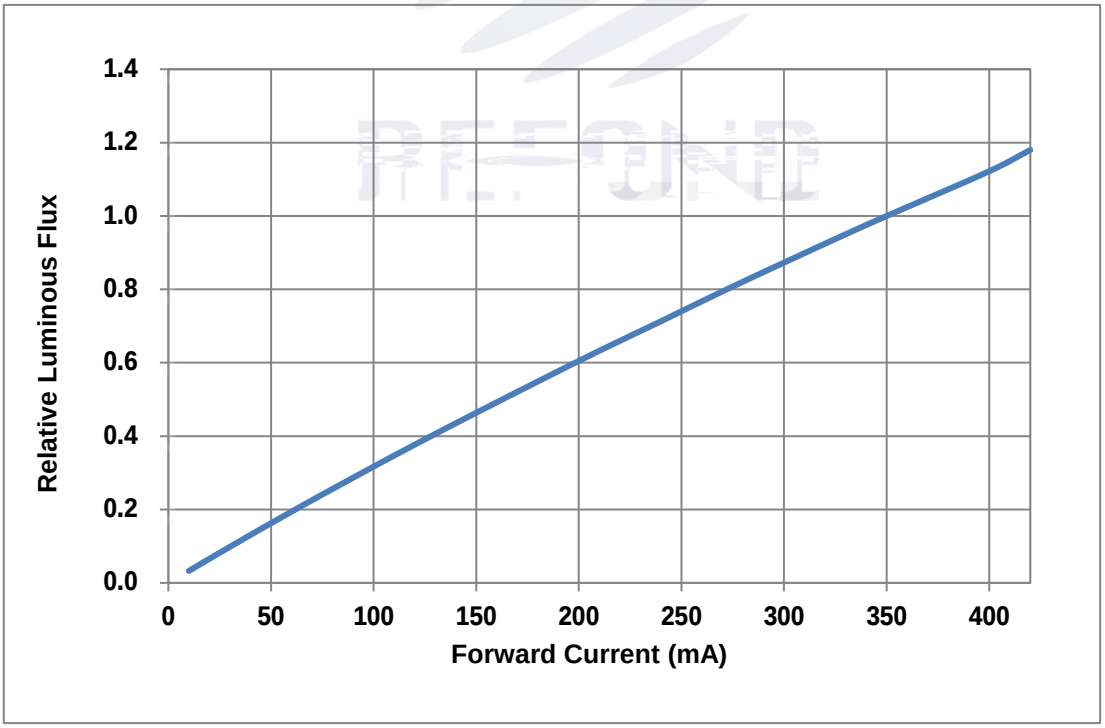


Fig. 1-8 Forward Current Vs Relative Luminous Flux

0755-2967-5000
0755-6683-9322
sales@refond.com

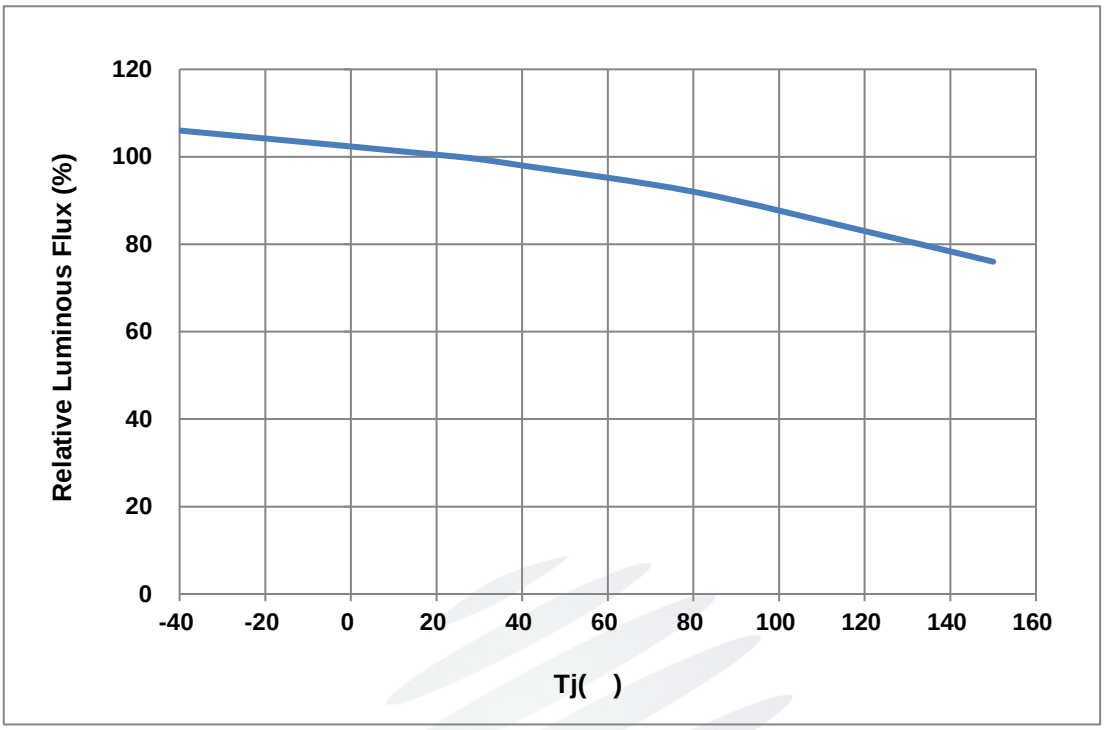


Fig. 1-9 Junction Temperature Vs Relative Luminous Flux

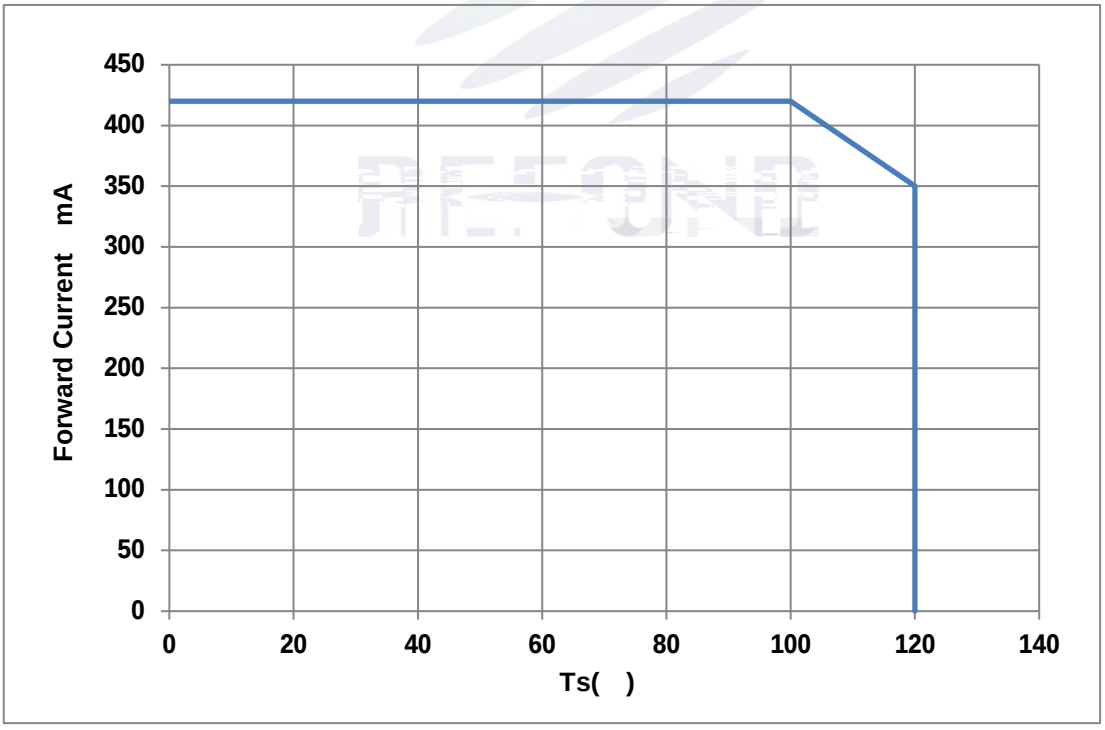


Fig. 1-10 Solder Temperature Vs Forward Current

0755-2967-5000
0755-6683-9322
sales@refond.com

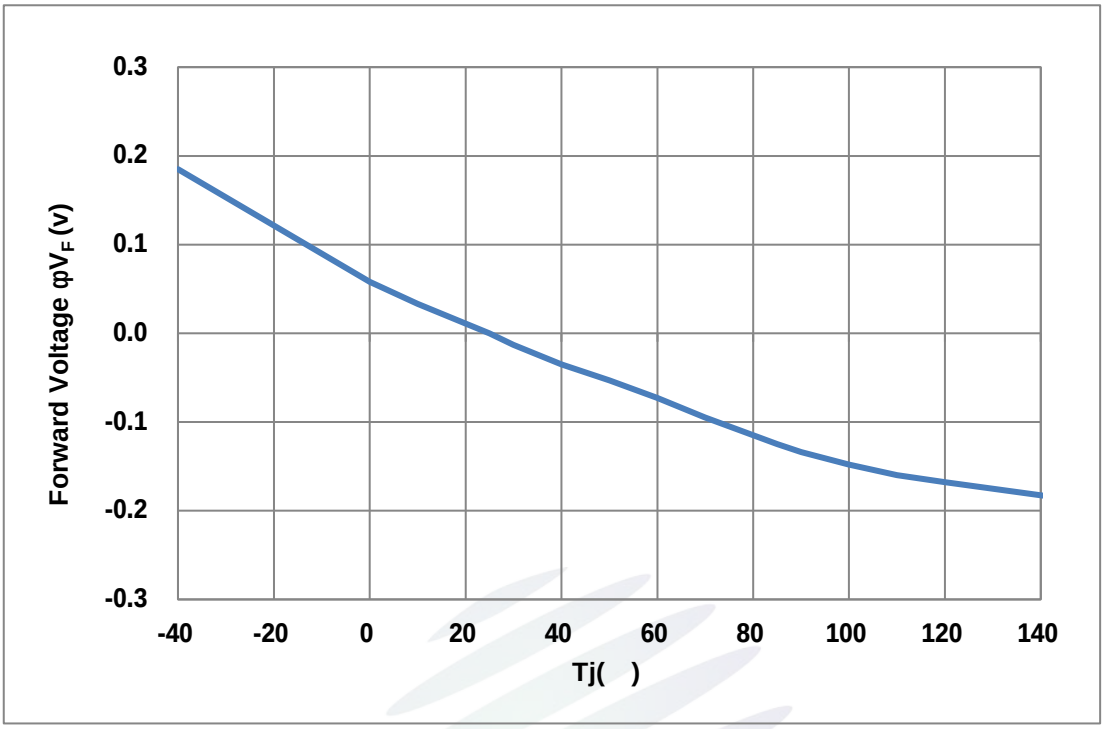


Fig. 1-11 Voltage Shift Vs Junction Temperature

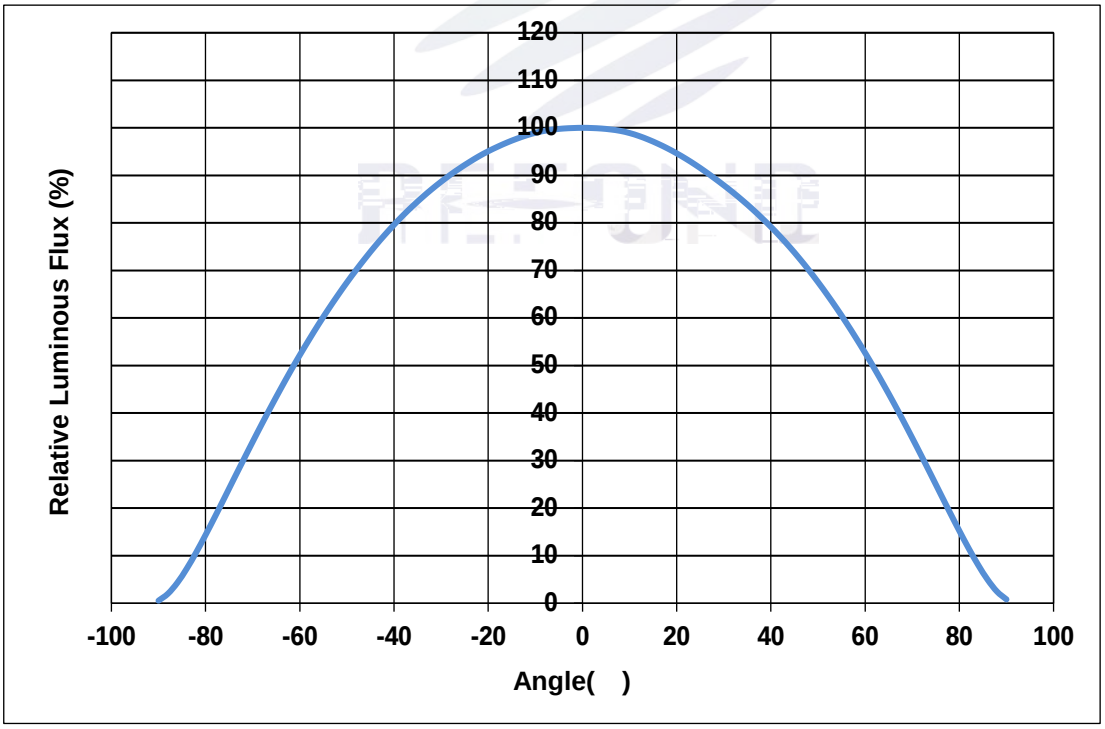


Fig. 1-12 Radiation Diagram

0755-2967-5000
0755-6683-9322
sales@refond.com

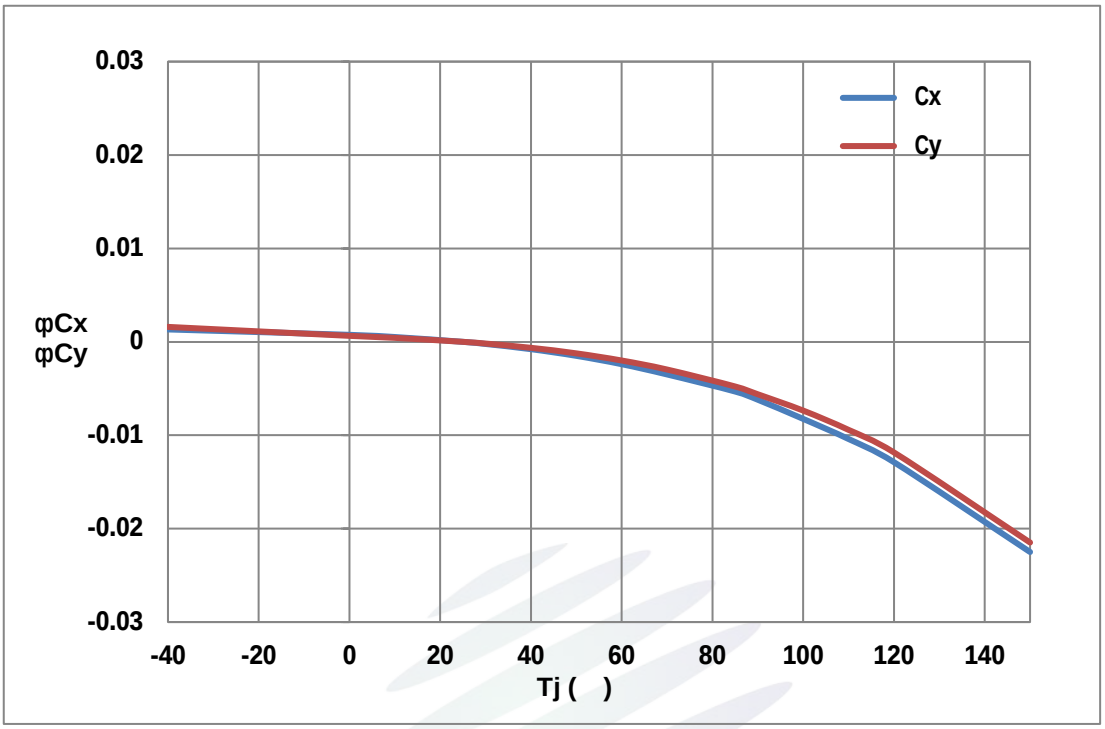


Fig. 1-13 Chromaticity Coordinate Shift Vs Junction Temperature

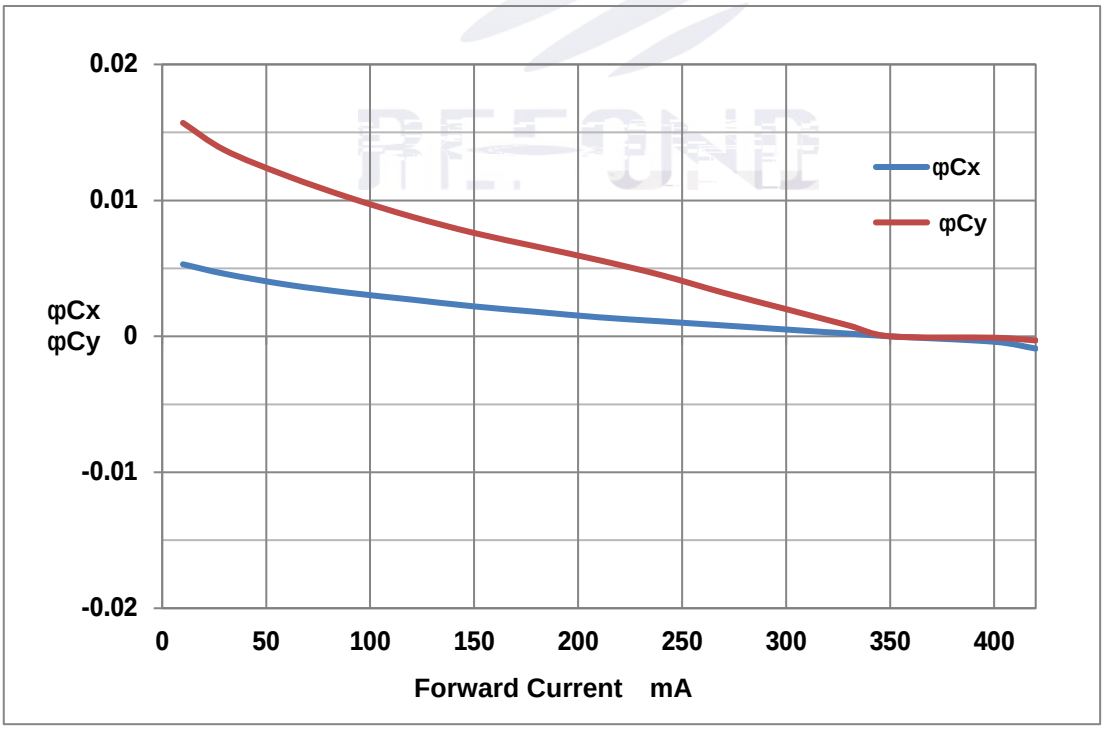


Fig. 1-14 Chromaticity Coordinate Shift Vs Forward Current

0755-2967-5000
0755-6683-9322
sales@refond.com

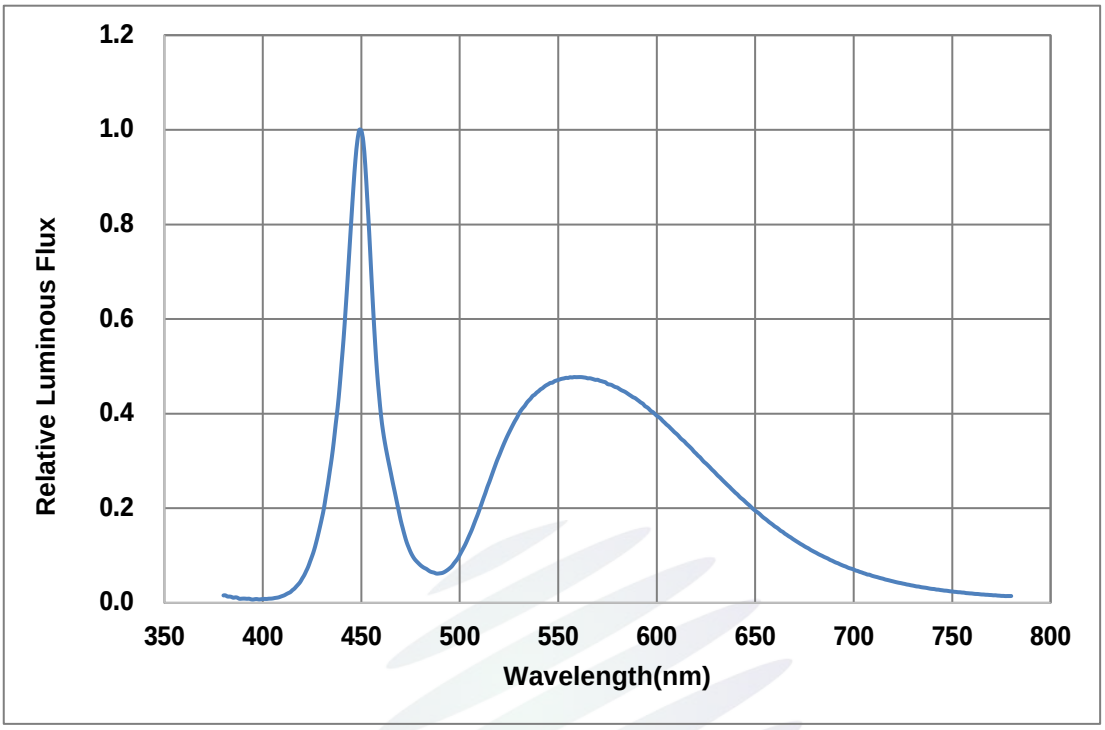


Fig. 1-15 Spectrum Distribution

0755-2967-5000
0755-6683-9322
sales@refond.com

0755-2967-5000
0755-6683-9322
sales@refond.com

2.1.3Label Form Specification

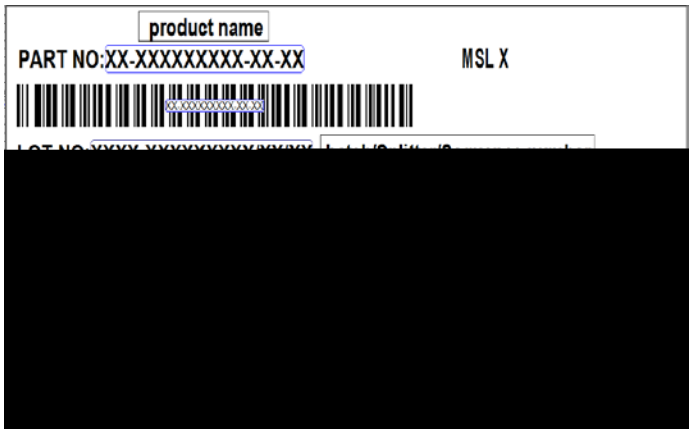


Fig. 2-3 Label Form Specification

able 2-2 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

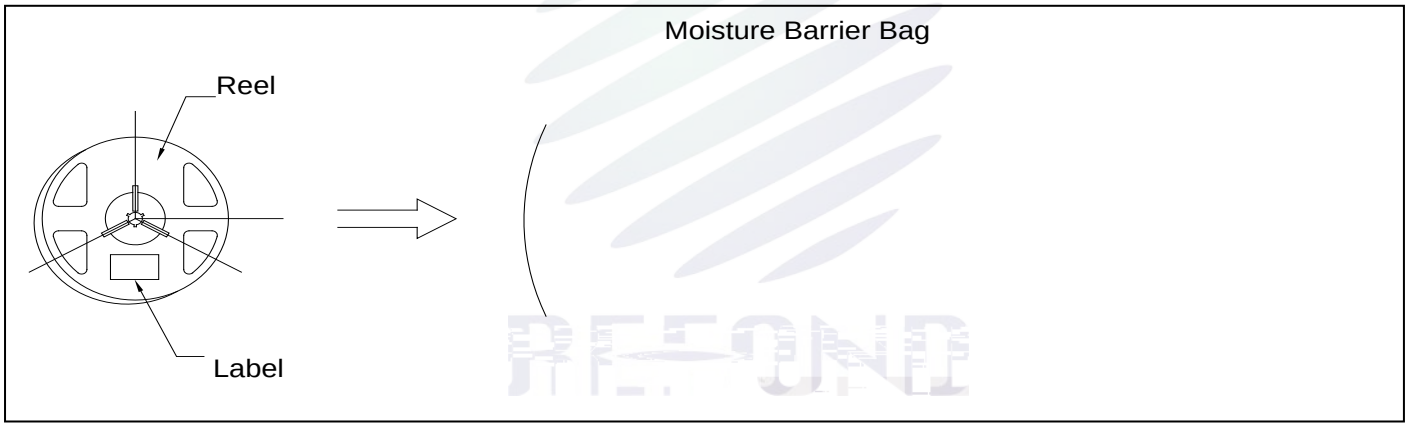


Fig.2-4Moisture Resistant Packing

2.3Cardboard Box

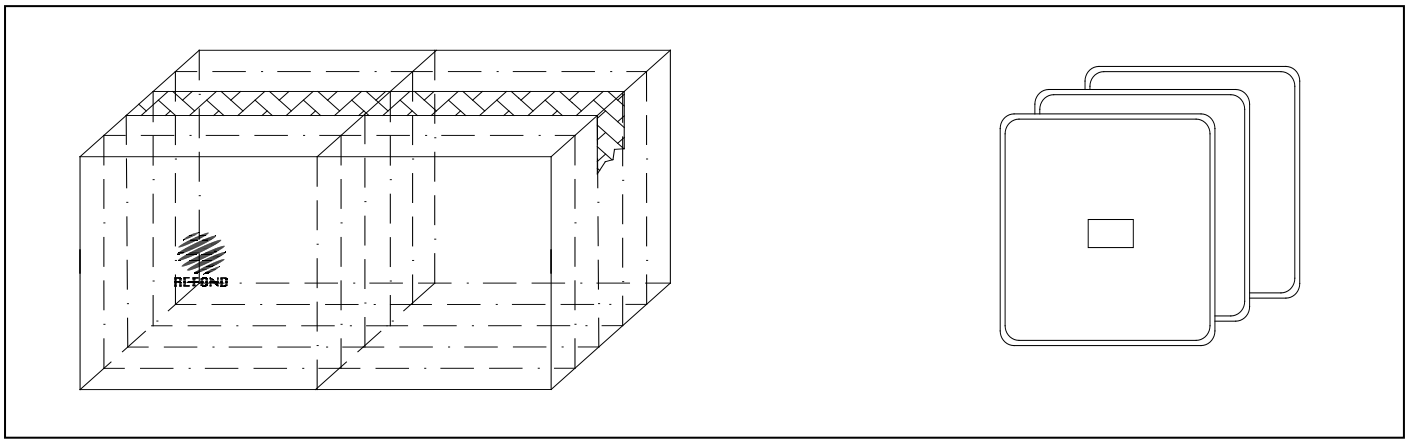


Fig.2-5Cardboard Box

0755-2967-5000
0755-6683-9322
sales@refond.com

2.4Reliability Test Items And Conditions

Table 2-3 Reliability Test Items And Conditions

Test Items	Ref.Standard	Test Condition	Time	Quantity	Ac/Re
					/
Reflow	JESD22-B106	Temp:260 max T=10 sec	2times	20pcs.	0/1
MSL2 2	JESD22-A113	85 / 60%R_H	168 hrs.	20pcs.	0/1
Thermal Shock	JEITAED-4701 300307	-40 15min 10s 125 15min	1000 cycle	20pcs.	0/1
Life Test	JESD22-A108	Ta=105 IF=350mA	1000hrs.	20pcs.	0/1
High Temperature High Humidity Life Test	JESD22-A101	85 / 85%R_H IF=350mA	1000hrs.	20pcs.	0/1

0755-2967-5000
0755-6683-9322
sales@refond.com

2.5 Criteria For Judging Damage

Table 2-4Criteria For Judging Damage

Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min.	Max.
Forward Voltage	V_F	IF=350mA	-	U.S.L*)x1.1
Reverse Current	I_R	V_R = 5V	-	U.S.L*)x2.0
Luminous Flux		IF=350mA	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. / LED

LED

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.

0755-2967-5000
0755-6683-9322
sales@refond.com

3 SMT Reflow Soldering Instructions SMT

3.1SMT Reflow Soldering Instructions SMT

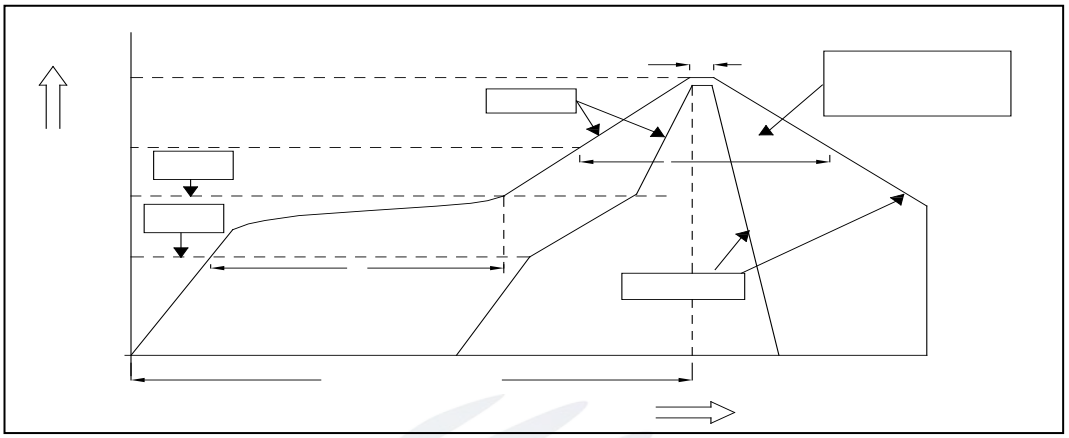


Fig.3-1SMT Reflow Soldering Instructions SMT

Table 3-1Reflow 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

0755-2967-5000
0755-6683-9322
sales@refond.com

4. Handling Precautions

0755-2967-5000
0755-6683-9322
sales@refond.com

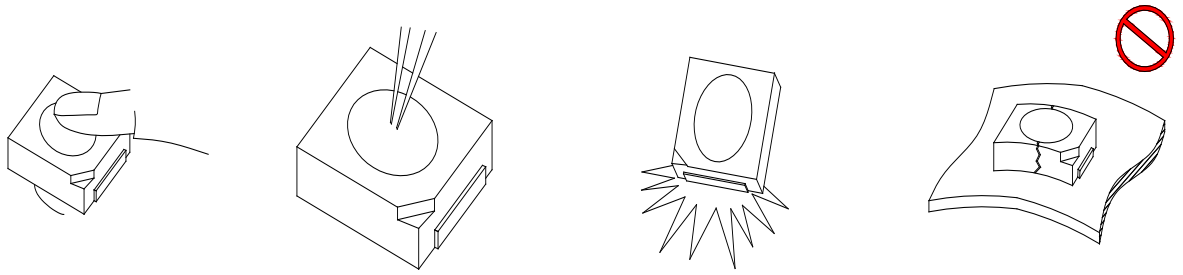


Fig 4-1Cautions

(5) In designing a circuit,the current through each LED can not exceed the absolute maximum rating specified for each LED.In the mean while,resistors for protection should be applied,other wise 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. LED

LED

(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 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.

LED

0755-2967-5000
0755-6683-9322
sales@refond.com

0755-2967-5000
0755-6683-9322
sales@refond.com

Version History/

Date	Revisor	Version	Verifier	Remarks
2022/3/18	Chen Jing	E0	Zhu yiming	New issue
2023/1/18	Chen Jing	E1	Zhu yiming	Revise
2023/4/26	Chen Jing	E2	Zhu yiming	Template update
2023/7/26	Chen Jing	E3	Zhu yiming	Revise

0755-2967-5000
0755-6683-9322
sales@refond.com

Declare

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

0755-2967-5000
0755-6683-9322
sales@refond.com