SPECIFICATION

REFOND P/N

RF-A3E31-W60E-B1

- P$B
- Mass Production

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1.4Package Dimension

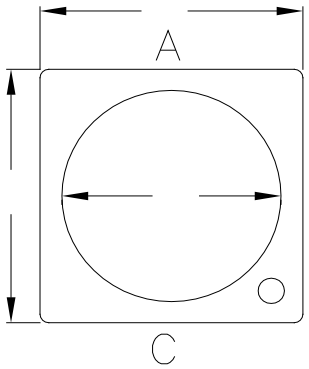

Fig.1-1 Top View

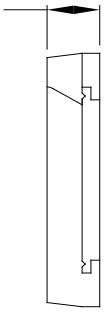

Fig.1-2 Side View

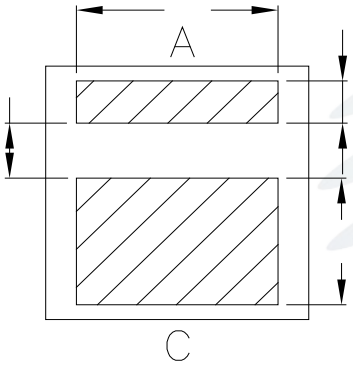

Fig.1-3 Bottom View

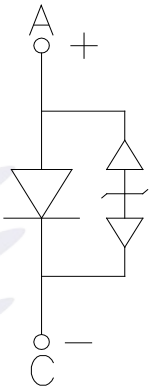

Fig.1-4 Polarity

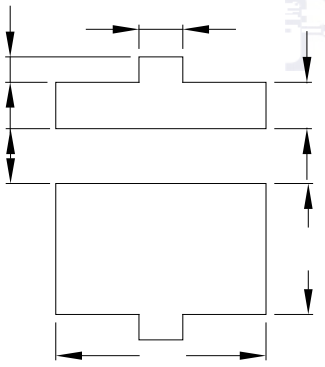

Fig.1-5 Soldering Patterns

Notes

/, All dimensions units are millimeters.

0, All dimensions tolerances are ±0.2mm unless otherwise noted. ® .,0

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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=150mA	2.8	---	3.4	V
Reverse Current	I_R	V_R=5V	---	---	10	uA
Luminous Flux	Φ	I_F=150m---				

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

Notes

1. 1/10 Duty cycle, 10ms pulse width. / . k q* /-/ . ,

2. The above forward voltage measurement allowance tolerance is ±0.1V. ® . , / T,

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

4. T g0

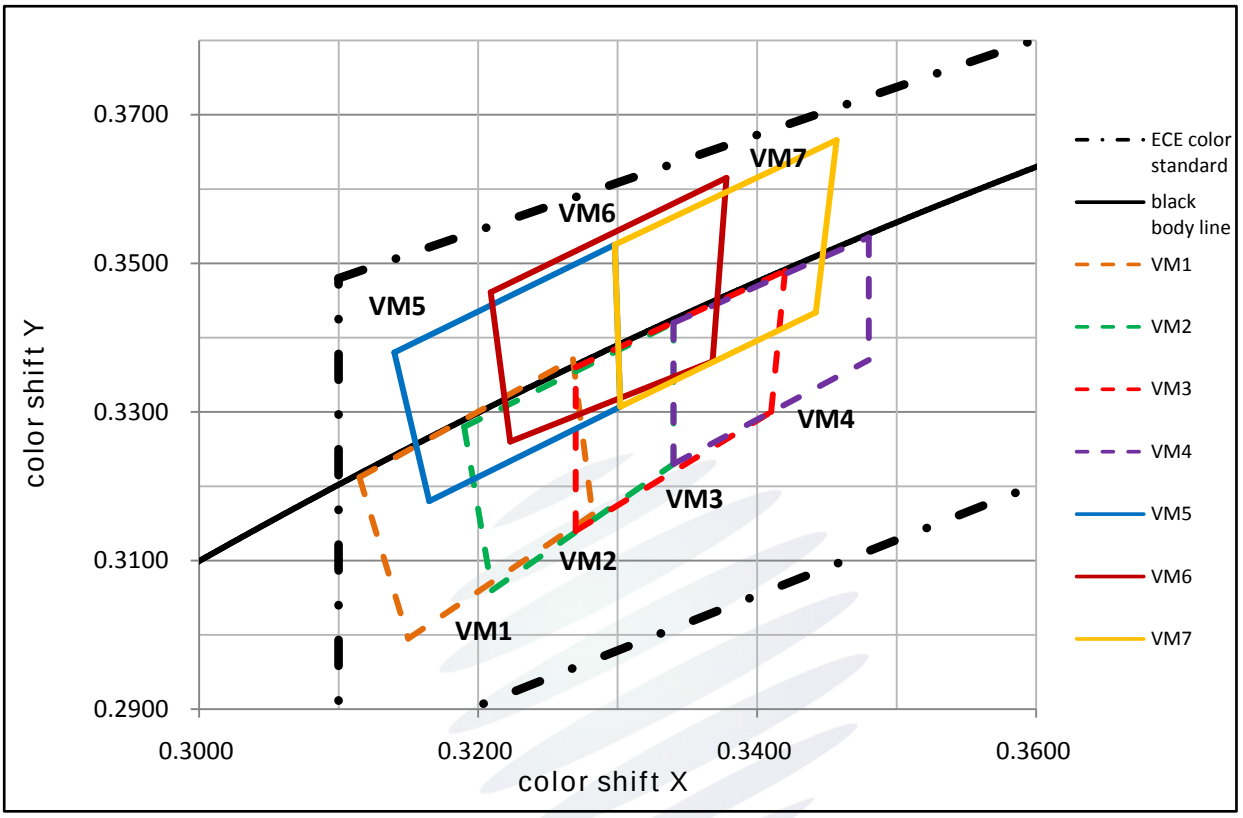

Fig. 1-6 The C.I.E Chromaticity Diagram CIE

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
VM7	0.3302	0.3307	0.3298	0.3525	0.3457	0.3666	0.3442	0.3434

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1.7 Typical Optical Characteristics Curves

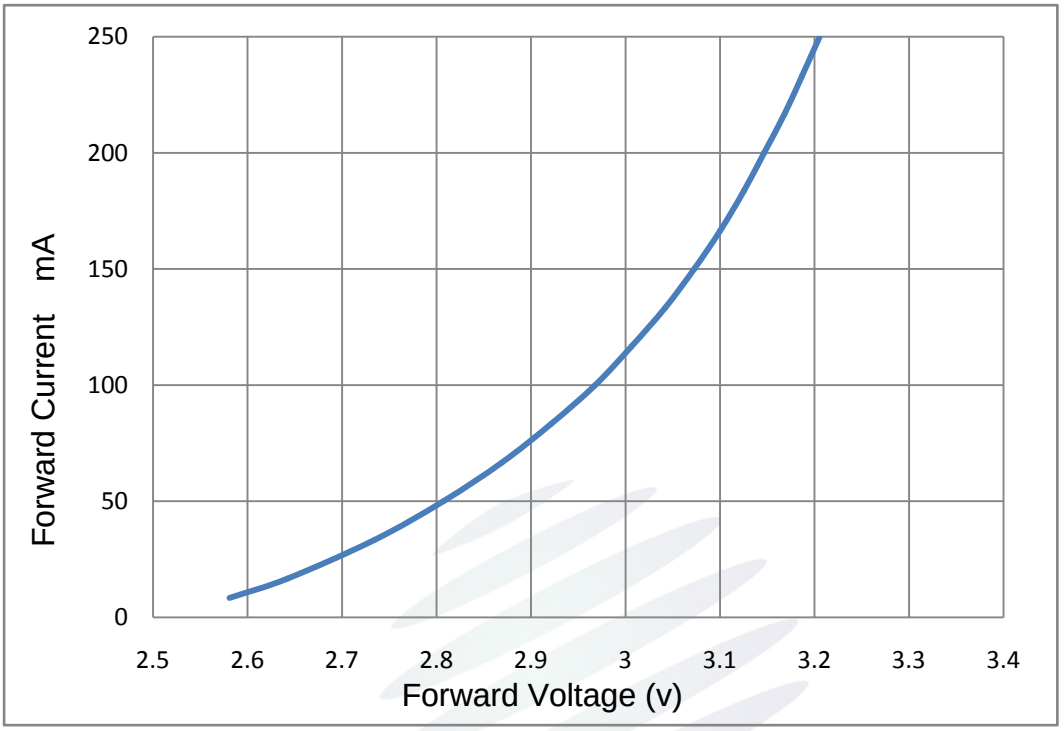

Fig. 1-7 Forward Voltage Vs Forward Current

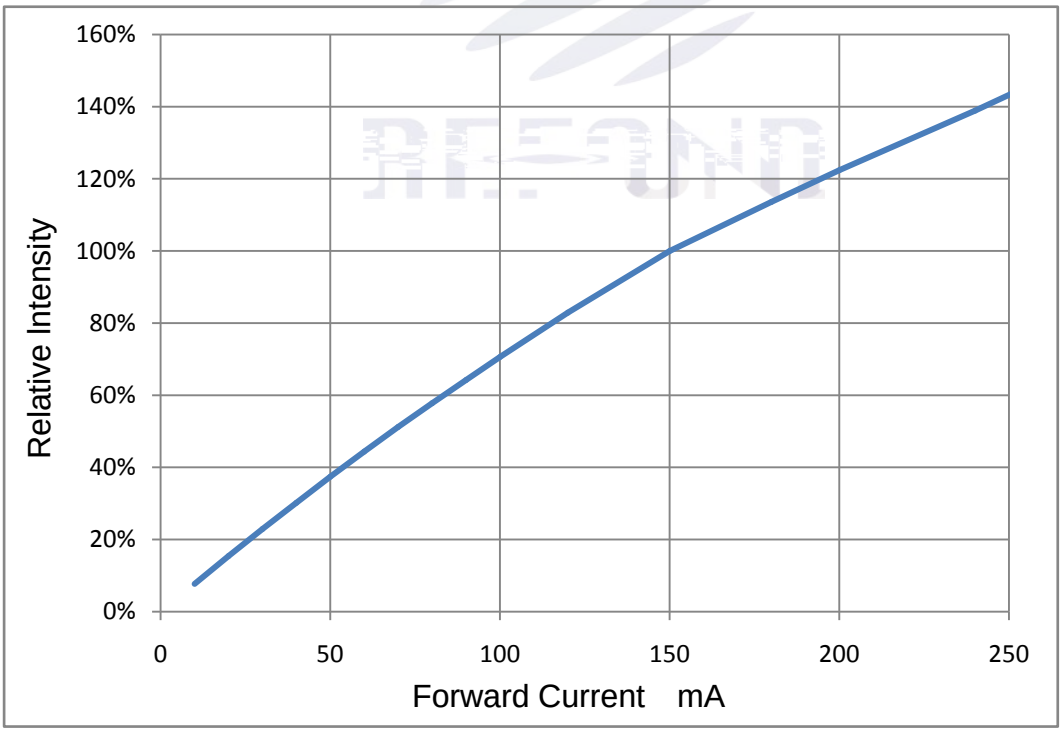

Fig. 1-8 Forward Current Vs Relative Intensity

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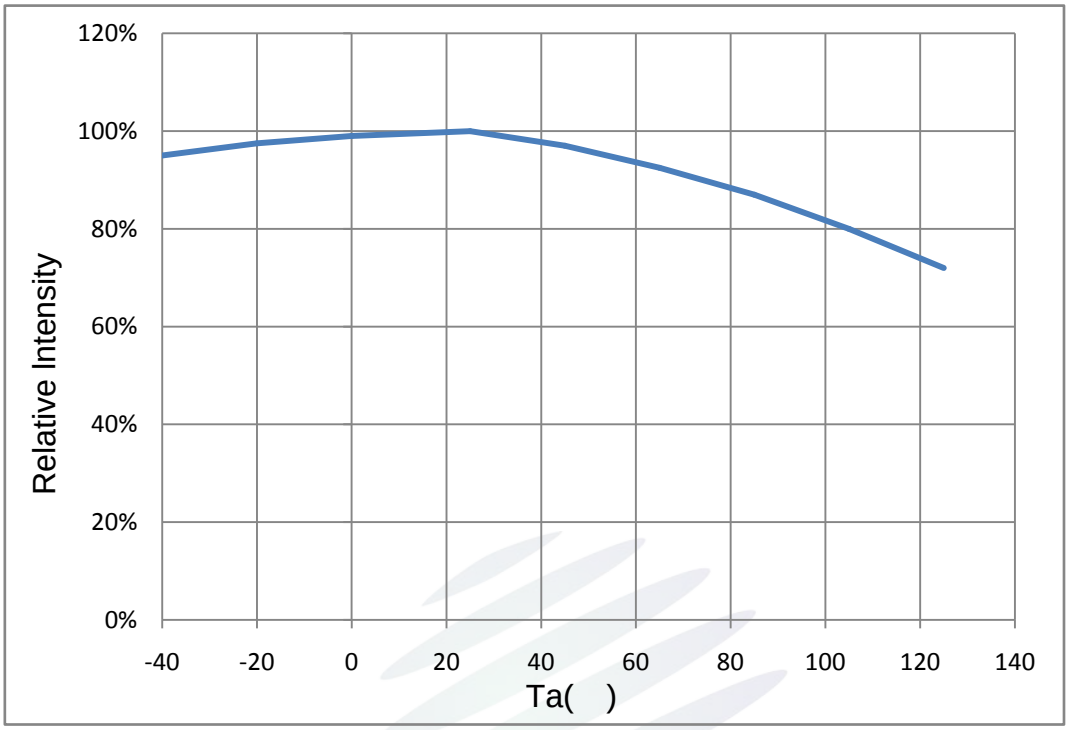

Fig. 1-9 Solder Temperature Vs Relative Intensity

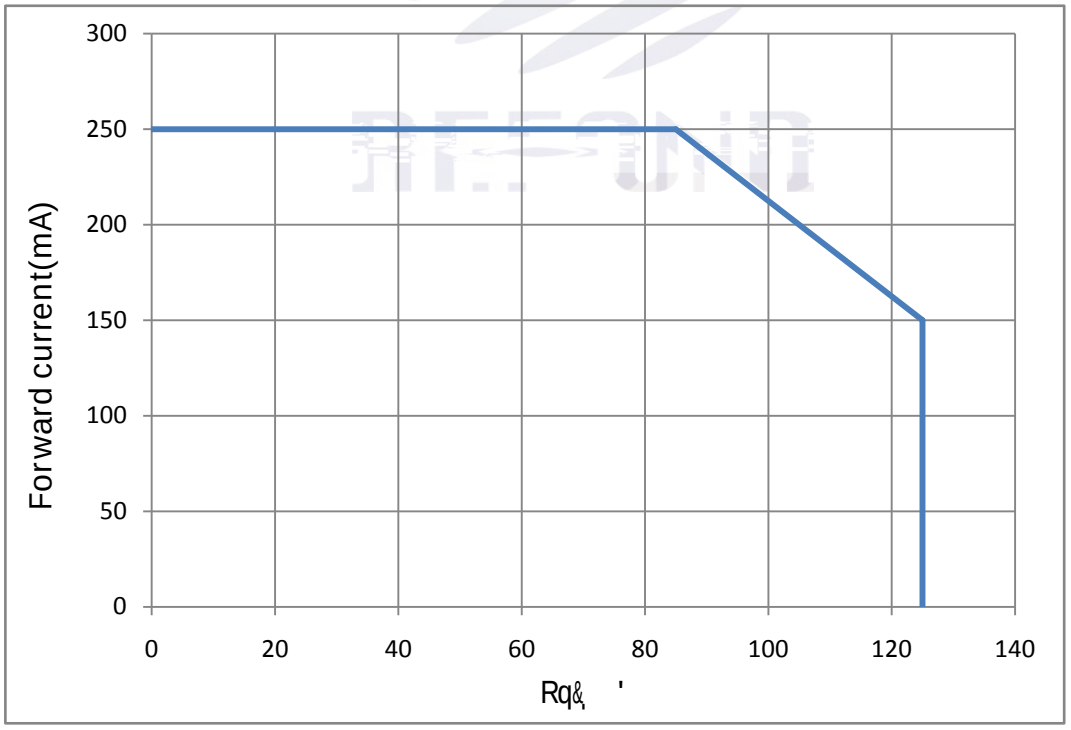

Fig. 1-10 Solder Temperature Vs Forward Current

Tj 150¸

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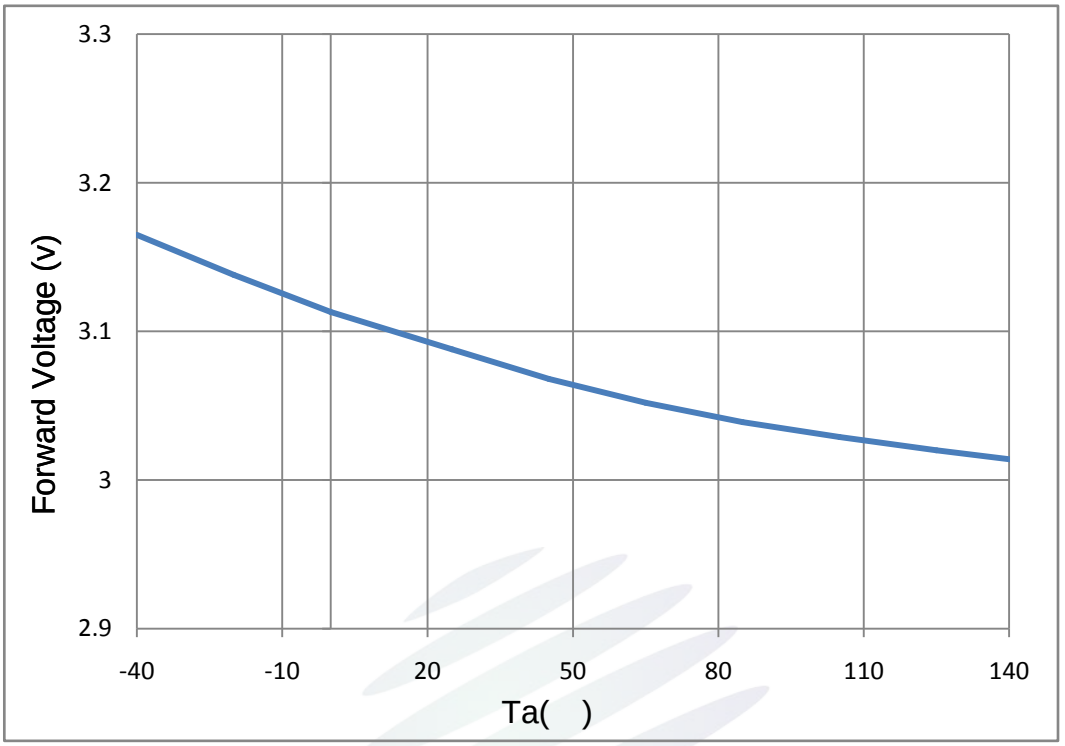

Fig. 1-11 Forward Voltage Vs Solder Temperature

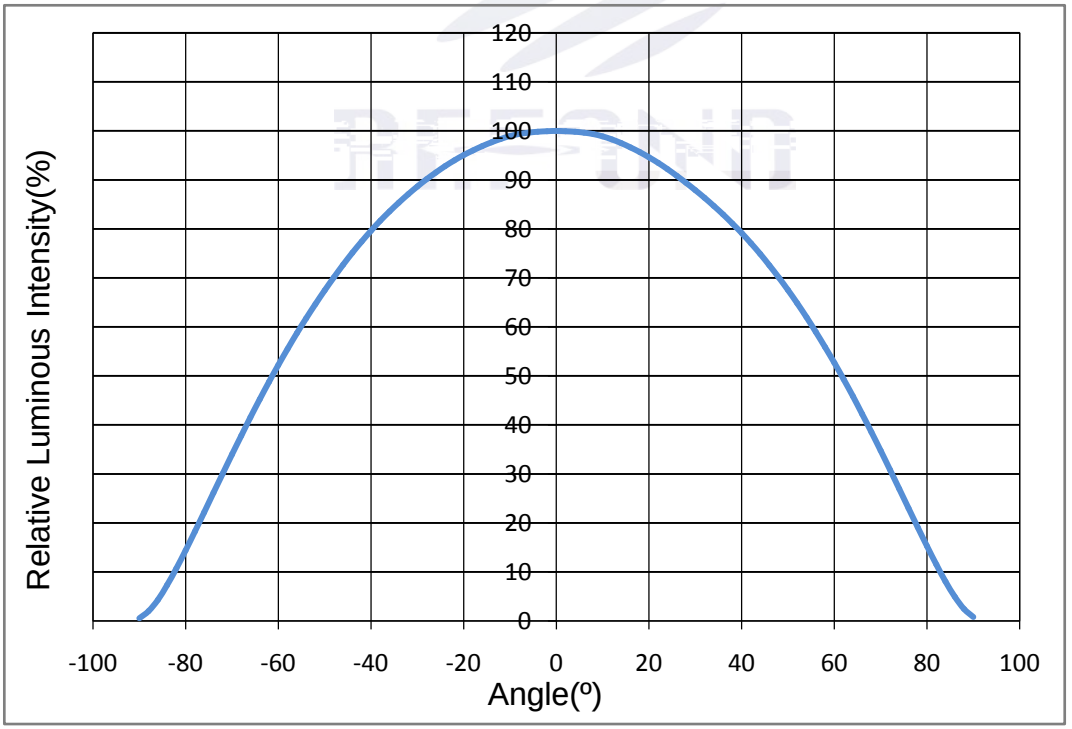

Fig. 1-12 Radiation diagram

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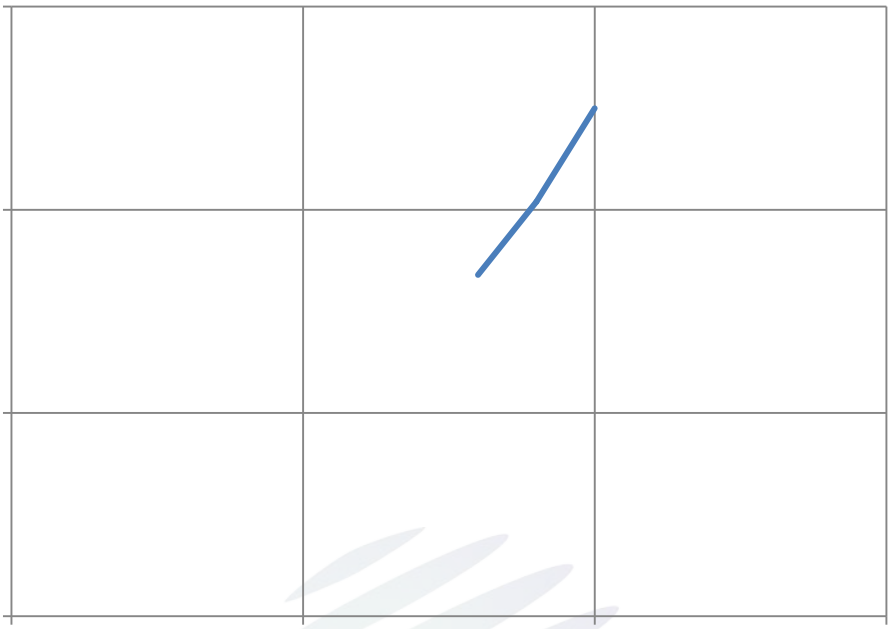

Fig. 1-13 Chromaticity Coordinate Vs Solder Temperature

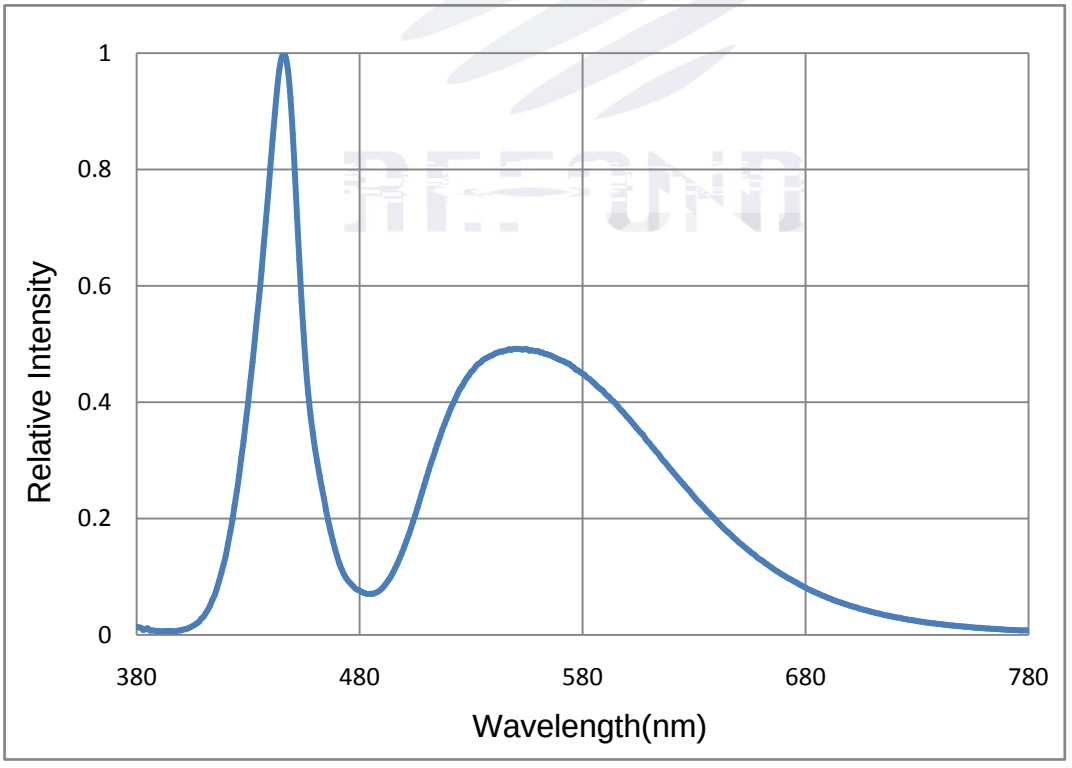

Fig. 1-14 Spectrum Distribution

2. Packaging

2.1 Packaging Specification

Package:4000pcs/reel. 4000pcs k

2.1.1Carrier Tape Dimension

Fig.2-1 Carrier Tape Dimension

2.1.2Reel Dimension

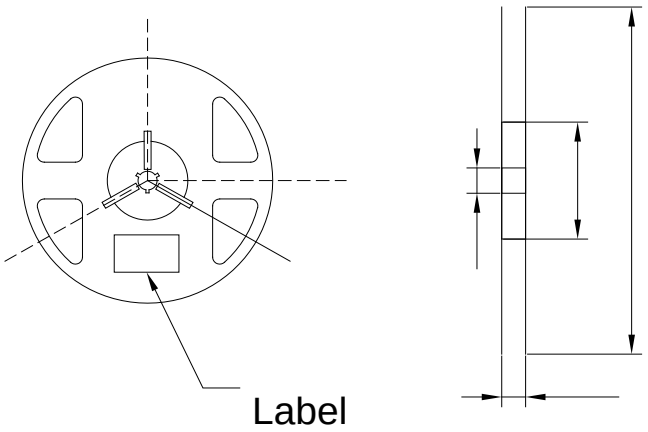

Fig.2-2Reel Dimension

R_`jc 0+/Reel Dimension

A	12®0.1mm
B	180®1mm
C	60®1mm
D	13.0®0.5mm

Notes

The tolerances unless mentioned ±0.1mm. Unit : mm ® . , / k

2.1.3Label Form Specification

_`jc 0+0 Specification

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

Fig. 2-3 Label Form Specification

2.2Moisture Resistant Packing

Fig.2-4Moisture Resistant Packing

2.3Cardboard Box

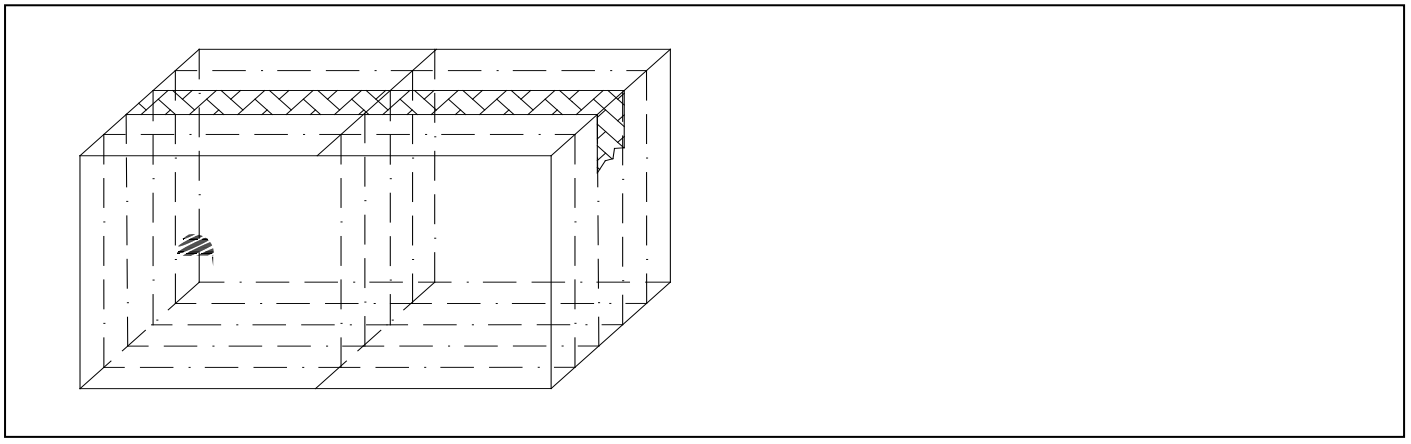

Fig.2-5Cardboard Box

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	[redacted]	Temp:260, max T=10 sec	[redacted]	20pcs.	0/1
MSL2 2	JESD22-A113	85, / 60%R_H	168 hrs.	20pcs.	0/1
Thermal Shock	JEITAED-4701 300307	-40, 15min 168			

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[redacted]

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	I_F=150mA	-	U.S.L*)x1.1
Reverse Current	I_R	V_R = 5V	-	U.S.L*)x2.0
Luminous Flux	Φ	I_F=150mA	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. - JCB

k JCB ! ! ! k

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. k

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1, SMT Reflow Soldering Instructions SMT

3.1SMT Reflow Soldering Instructions SMT

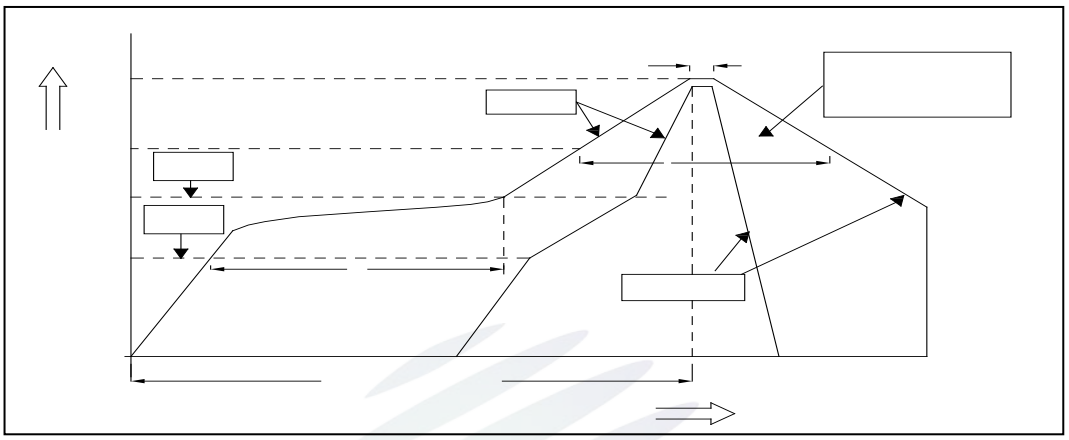

Fig.3-1SMT Reflow Soldering Instructions SMT

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

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Notes

(1)Reflow soldering should not be done more than twice. If more than 24 hours between the two solderings ,LED will be damaged. 02 JCB

k

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

3.1.1 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 JCB

k

3.1.2 Cautions

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 use the picking up nozzle, the pressure on the silicone resin should be proper. LED JCB

k

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

(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.

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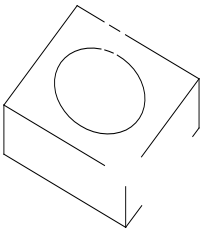

Fig 4-1Cautions

(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. JCB

k

JCB k

(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 JCB

k

(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.

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Date	Revisor	Version	Verifier	Remarks
2023/10/25	Xian Zhou	E0	Zhu Yiming	New issue

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Declare

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

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