

SPECIFICATION

REFOND P/N

RF-A1F30-W57J-A8

R&D

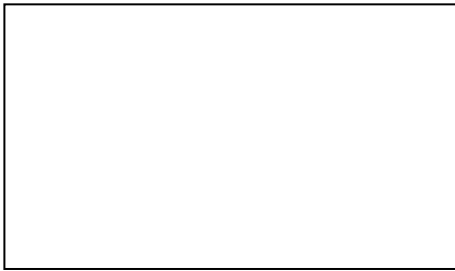
Mass Production

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=140mA)	BIN
(IF=140mA)	
1.7 Typical Optical Characteristics Curves	
2. Packaging	
2.1 Packaging Specification	
2.1.1 Carrier Tape Dimension	13
2.1.2 Reel Dimension	13
2.1.3 Label Form Specification	14
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 White LED, which was fabricated by using a blue chip and the phosphor.

Product Package: 3.00mmX1.40mmX0.52mm

LED

3.00mmX1.40mmX0.52mm

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.

1.4 Package Dimension

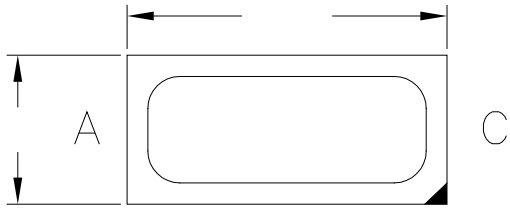


Fig.1-1 Top View

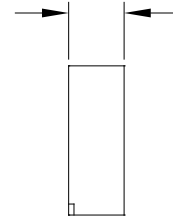


Fig.1-2 Side View

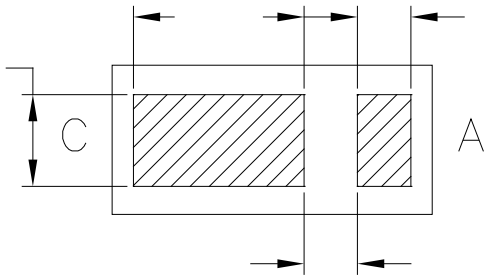


Fig.1-3 Bottom View

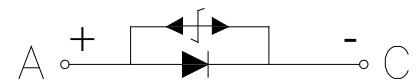


Fig.1-4 Polarity

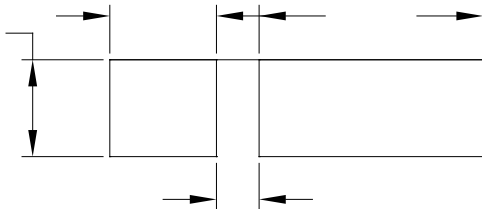


Fig.1-5 Soldering Patterns

Notes

1. All dimensions units are millimeters.
2. All dimensions tolerances are $\pm 0.2\text{mm}$ unless otherwise noted.

± 0.2

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_F	$I_F=140\text{mA}$	2.8	3.05	3.4	V

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

Notes

1. 1/10 Duty cycle, 10ms pulse width. 10ms, 1/10.
2. The above forward voltage measurement allowance tolerance is $\pm 0.1V$. $\pm 0.1V$.
3. The above color coordinates measurement allowance tolerance is ± 0.005 . ± 0.005 .
4. The above luminous flux measurement allowance tolerance $\pm 10\%$. $\pm 10\%$.
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. LED
8. At 25°C, pulse mode test, photoelectric conversion efficiency 41%. 25°C
41%
9. Thermal resistance values (Rth JS Electrical) measure current is 140mA, Temperature constant at 25°C. (Rth JS Electrical) 140mA 25°C

1.6 Bin Range Of Forward Voltage and Luminous Flux (IF=140mA)

BIN (IF=140mA)

Table 1-3

V _F V	G1	G2	H1	H2	I1
	2.8-2.9	2.9-3.0	3.0-3.1	3.1-3.2	3.2-3.3
Im	OB	PA	PB		
	50-55.3	55.3-61.2	61.2-67.8		

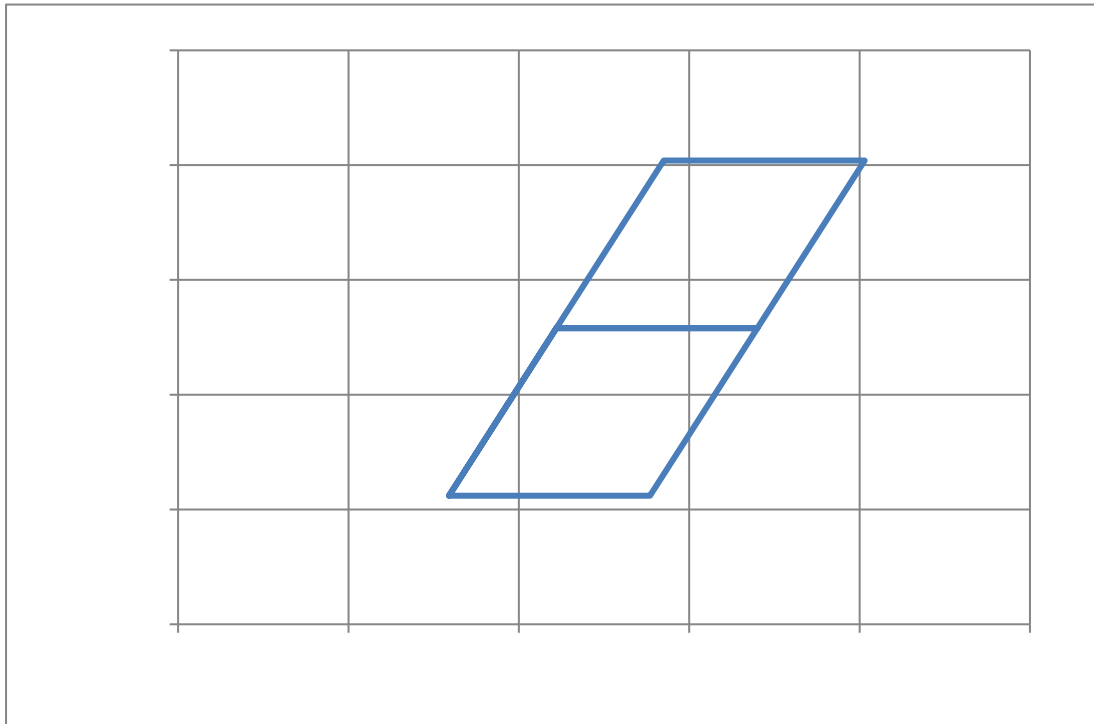


Fig. 1-6 The C.I.E Chromaticity Diagram CIE

Table 1-4

BIN CODE	CIE-X1	CIE-Y1	CIE-X2	CIE-Y2	CIE-X3	CIE-Y3	CIE-X4	CIE-Y4
ZG0	0.3059	0.3112	0.3122	0.3258	0.324	0.3258	0.3177	0.3112
ZG1	0.3122	0.3258	0.3185	0.3404	0.3303	0.3404	0.3240	0.3258

1.7 Typical Optical Characteristics Curves

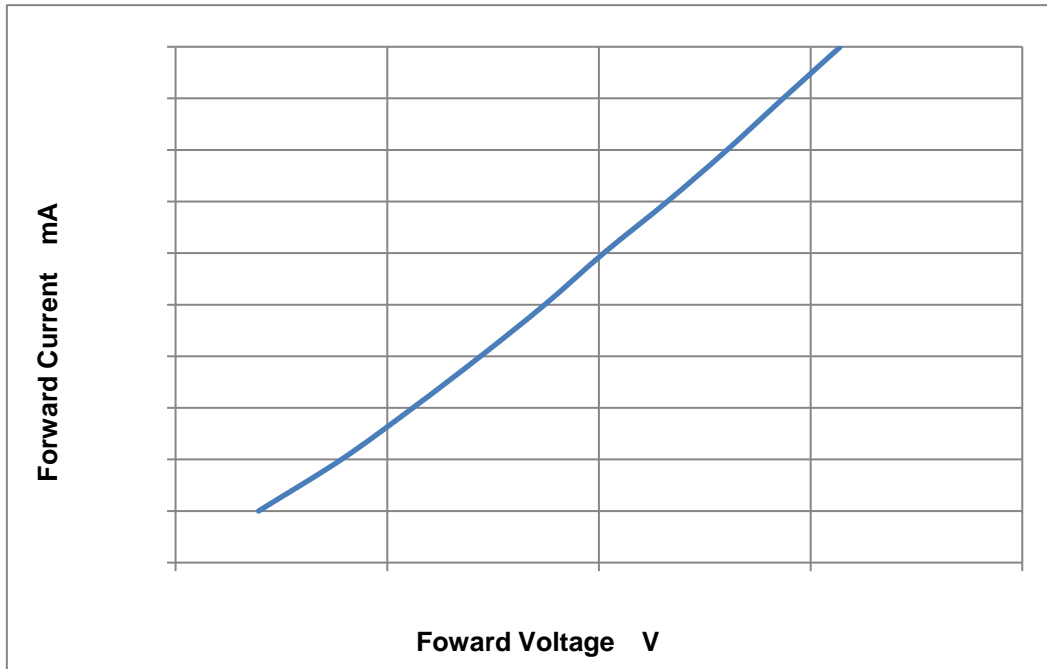


Fig. 1-7 Forward Voltage Vs Forward Current

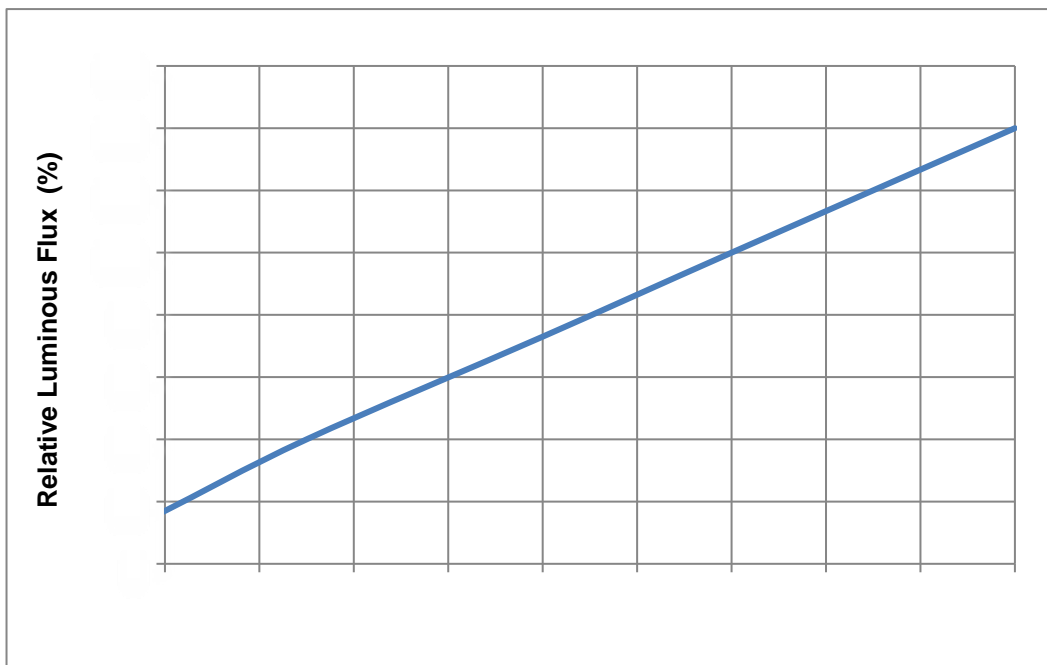


Fig. 1-8 Forward Current Vs Relative Intensity

Fig. 1-9 Junction Temperature Vs Relative Intensity

Fig. 1-10 Solder Temperature Vs Forward Current

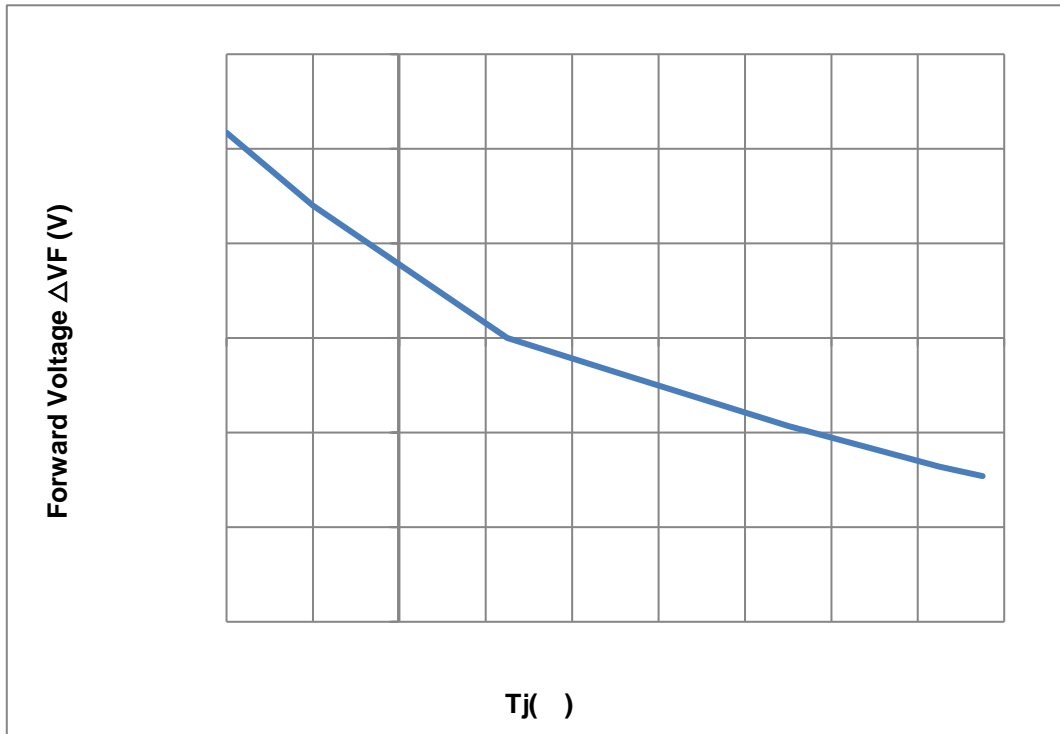


Fig. 1-11 Voltage shift Vs Junction Temperature

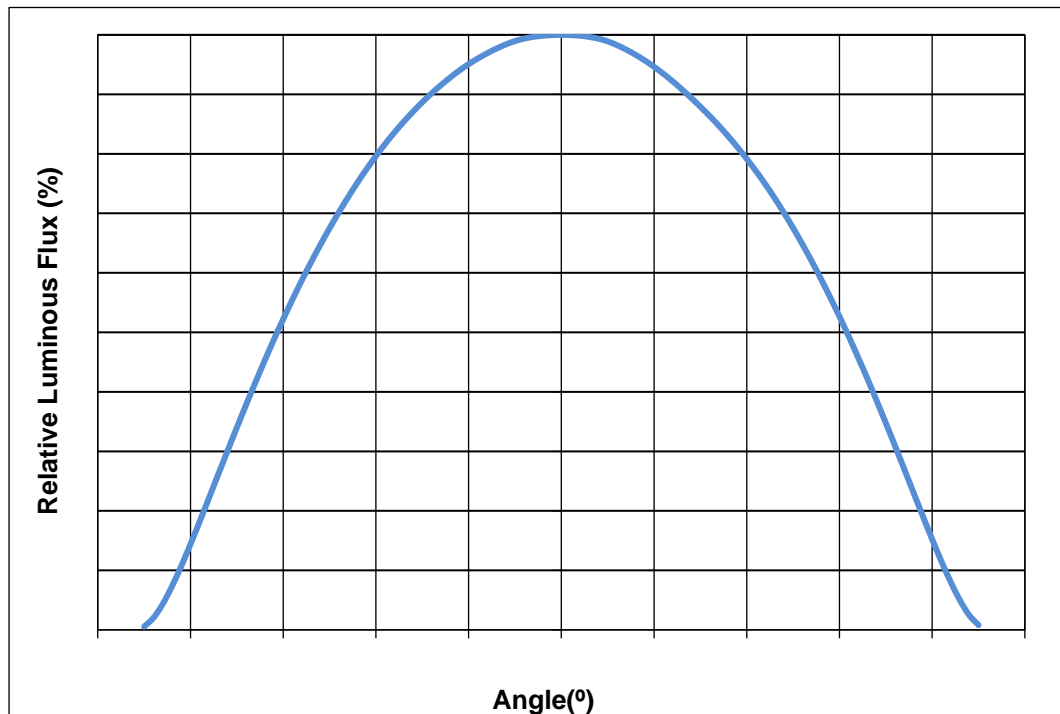


Fig. 1-12 Radiation diagram

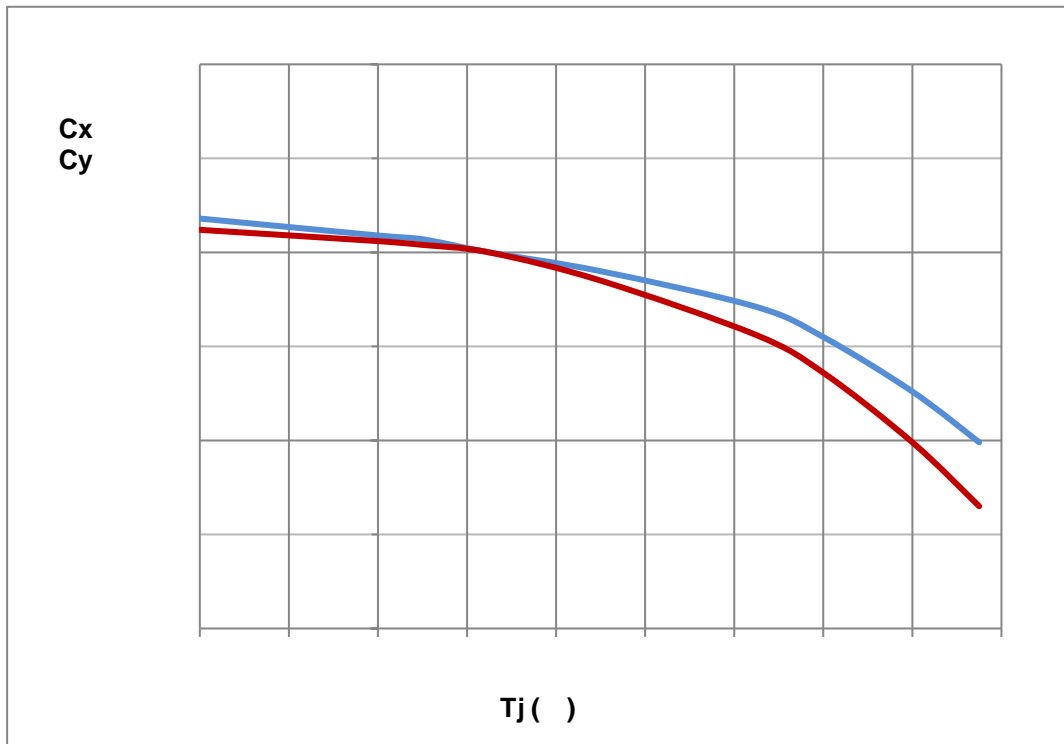


Fig. 1-13 Color coordinate shift Vs Junction Temperature

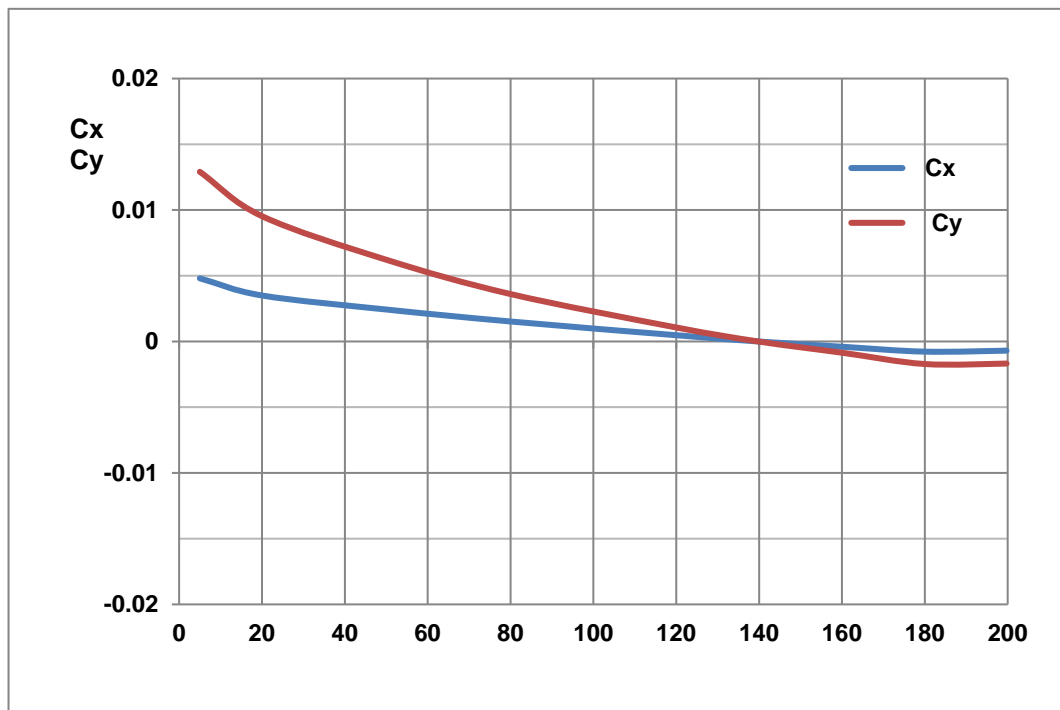


Fig. 1-14 Color coordinate shift Vs Forward Current

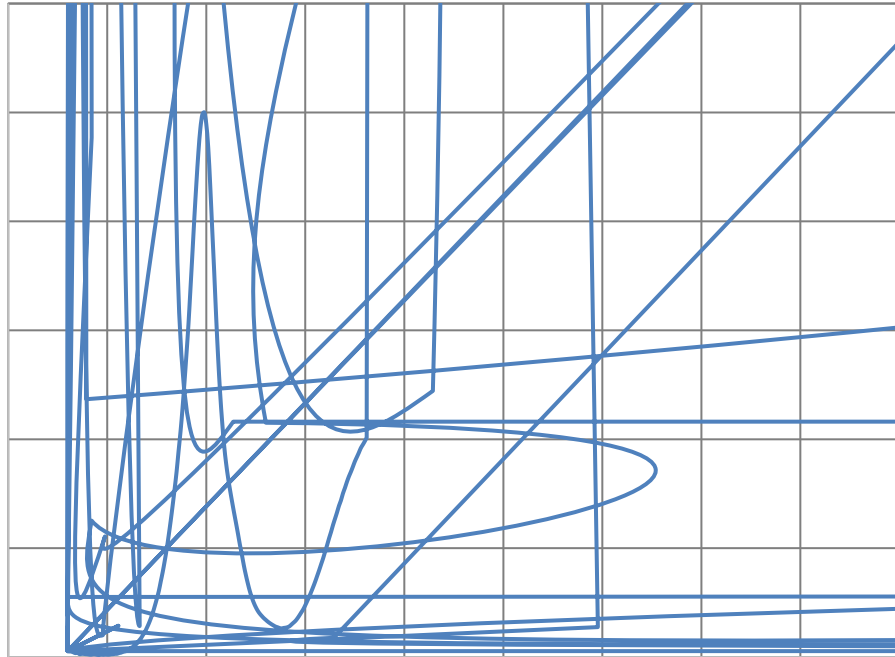


Fig. 1-15 Spectrum Distribution

2. Packaging

2.1 Packaging Specification

Package:2000pcs/reel.

2.1.1 Carrier Tape Dimension

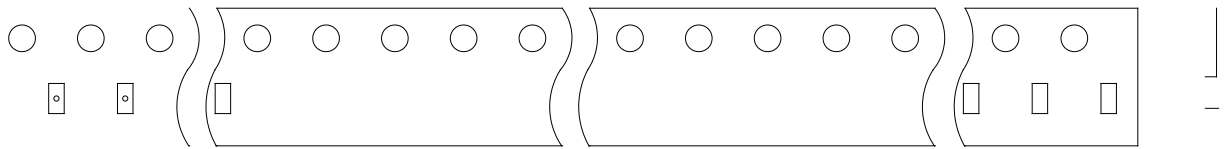


Fig.2-1 Carrier Tape Dimension

2.1.2 Reel Dimension

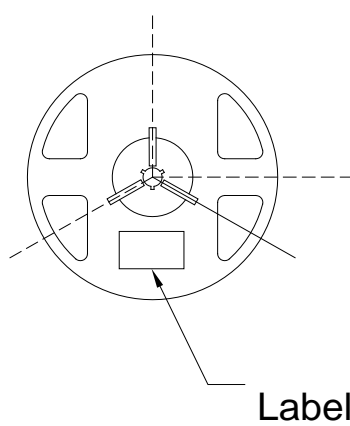


Fig.2-2 Reel Dimension

Table 2-1 Reel Dimension

A	8.0± 0.1mm
B	178± 1mm
C	60± 1mm
D	13.0± 0.5mm

Notes

The tolerances unless mentioned ± 0.1 mm. Unit : mm

± 0.1

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 /
Reflow	JESD22-B106	Temp:260 max T=10 sec	2times	20pcs.	0/1
MSL2 2	JESD22-A113	85 / 60%RH	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=140mA	1000hrs.	20pcs.	0/1
High Temperature High Humidity Life Test	JESD22-A101	85 / 85%RH IF=140mA	1000hrs.	20pcs.	0/1

3. SMT Reflow Soldering Instructions SMT

3.1 SMT Reflow Soldering Instructions SMT

Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Reflow parameters

Average temperature rise speed	T_{smax} T_P	3 °C/ Max 3 °C/ s
Preheating: minimum temperature	(T_{smin})	150 °C
Preheating: Max temperature	(T_{smax})	200 °C
Preheating: Time	T_{smin} T_{smax}	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



Notes

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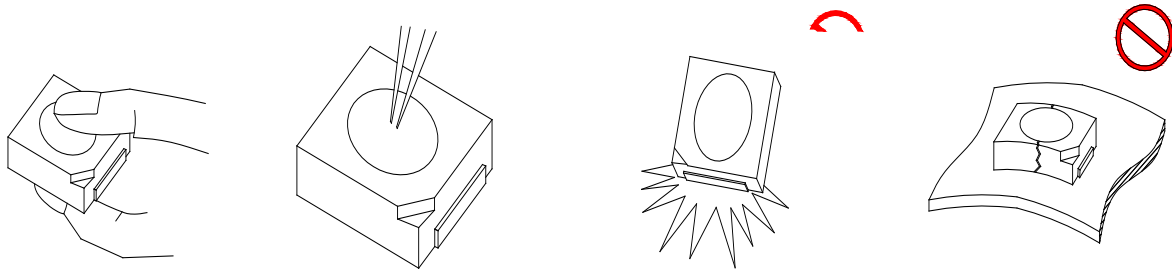


Fig 4-1Cautions

(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.

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

(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

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 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 60± 5 for above 24 hours.

60± 5 24

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). LED

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

Version History/

Date	Revisor	Version	Verifier	Remarks
2023/01/21	Li xianhui	E0	Zhu yiming	New issue
2024/08/19	Li xianhui	E1	Zhu yiming	Tj Update Tj



Declare

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