SPECIFICATION

REFOND P/N

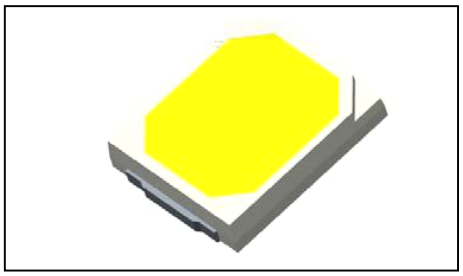
RF-W*HP32DS-AF-I3

Mass Product

Contents

1. Description

1.1General Description



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

LED 2.8mmX3.5mmX0.7mm

1.2Features

►PLCC-2 Package.

►Extremely wide viewing angle.

►Suitable for all SMT assembly and solder process. SMT

►Available on tape and reel.

►Moisture sensitivity level: Level 3. Level 3

►RoHS compliant. RoHS

1.3Application

►Indoor lighting.

►Bulb lighting.

► General indoor applications.

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All di tolerances are 0.05mm unless otherwise noted.

1.6Product Parameters

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

Item	Code	Symbol	test condition	Value			unit
				Min.	Max.	Typ.	
Forward Voltage	Rank Y0	V_F	IF=100mA	8.6	9.0		V
	Rank Z0			9.0	9.4	9.0	V
	Rank A3			9.4	9.8		V

RF-W2HP32DS-AF-I3

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

Notes:

1. 1/10 Duty cycle, 0.1ms 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 is ±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

1.7 Bin Range Of Forward Voltage and Luminous Flux (IF=100mA)

BIN (IF=100mA)

Table 1-3

VF V	Y0	Z0	A3
	8.6-9.0	9.0-9.4	9.4-9.8
φ lm RF-W2HP32DS-AF-I3	UHA	FC2	FC3
	95-100	100-110	110-120
φ lm RF-W3HP32DS-AF-I3	FC2	FC3	FC4
	100-110	110-120	120-130
φ lm RF-W35HP32DS-AF-I3	FC3	FC4	
	110-120	120-130	
φ lm RF-W4HP32DS-AF-I3	FC3	FC4	FC5
	110-120	120-130	130-140
φ lm RF-W5HP32DS-AF-I3	FC3	FC4	FC5
	110-120	120-130	130-140
φ lm RF-W57HP32DS-AF-I3	FC3	FC4	FC5
	110-120	120-130	130-140
φ lm RF-W61HP32DS-AF-I3	FC3	FC4	
	110-120	120-130	
φ lm RF-W6HP32DS-AF-I3	FC3	FC4	
	110-120	120-130	

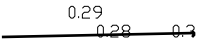

Fig 1-6 The C.I.E Chromaticity Diagram CIE

Table 1-4

ERP 7-step								
BIN CODE	**X1**	**Y1**	**X2**	**Y2**	**X3**	**Y3**	**X4**	**Y4**
27M	0.4528	0.4098	0.4731	0.4144	0.4916	0.4455	0.4682	0.4400
30M	0.4668	0.4281	0.4420	0.4197	0.4288	0.3911	0.4506	0.3984
35M	0.4017	0.4041	0.4294	0.4160	0.4140	0.3829	0.3917	0.3732
40M	0.3704	0.3868	0.3976	0.4022	0.3876	0.3721	0.3648	0.3591
50M	0.3356	0.3618	0.3584	0.3801	0.3542	0.3535	0.3354	0.3397
57M	0.3198	0.3438	0.3374	0.3578	0.3388	0.3408	0.3213	0.3268
65N	0.3121	0.3307	0.3277	0.3472	0.3279	0.3645	0.3089	0.3460
65M	0.3131	0.3332	0.3291	0.3486	0.3291	0.3666	0.3108	0.3490

1.8 Typical optical characteristics curves

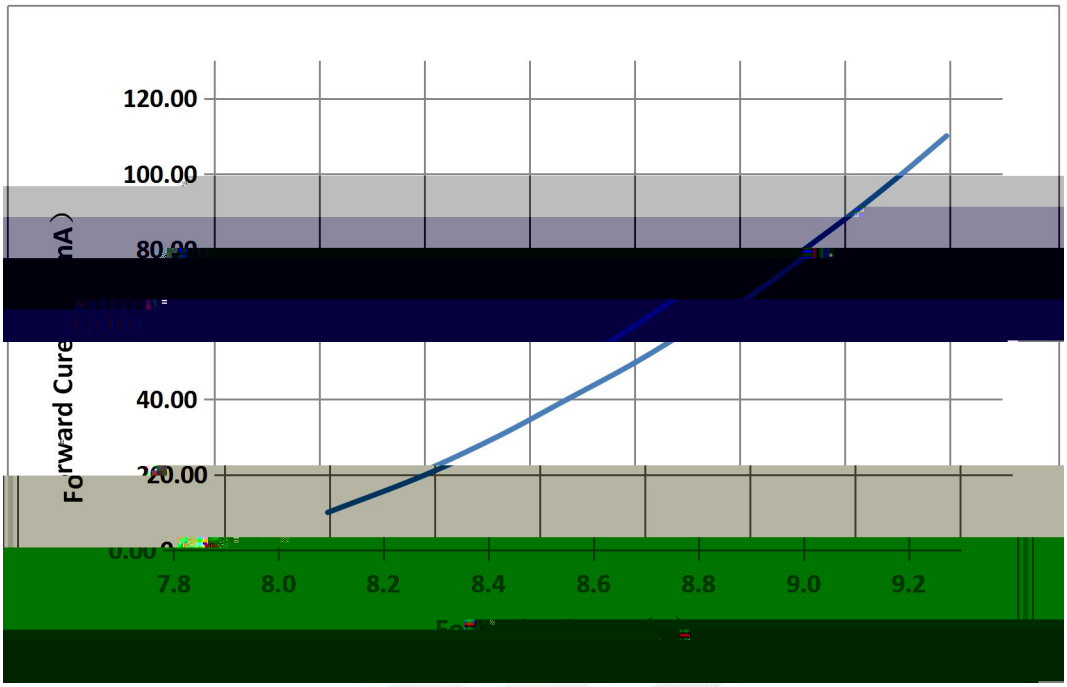

Fig 1-7 Forward Voltage Vs. Forward Current

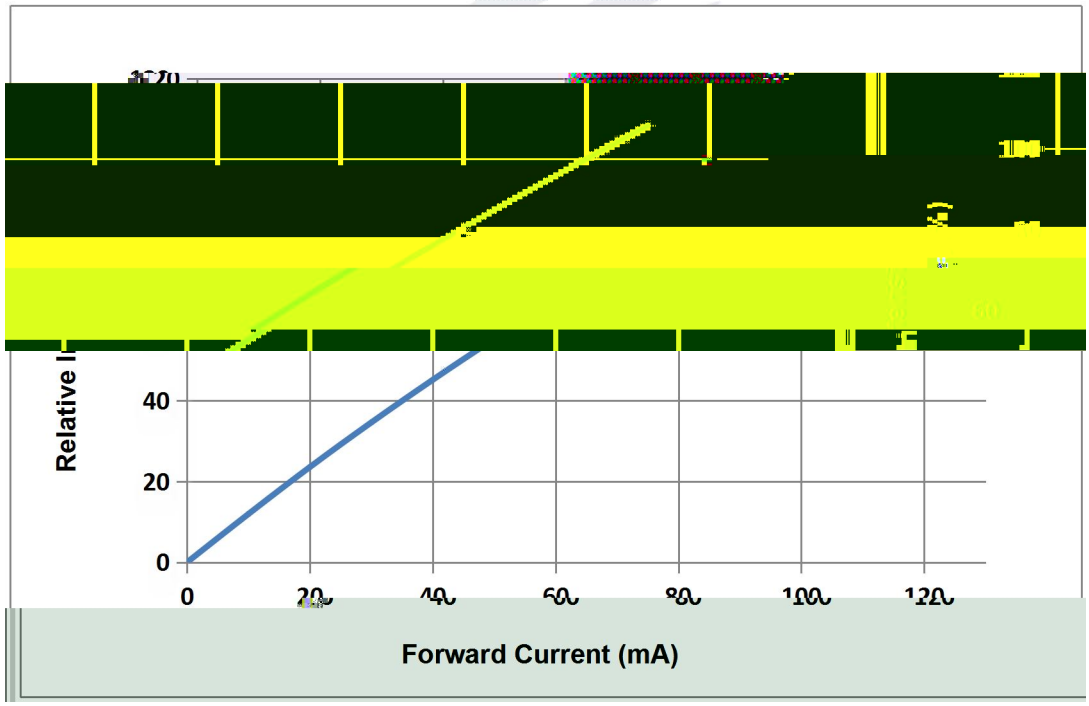

Fig 1-8 Forward Current Vs. Relative Intensity

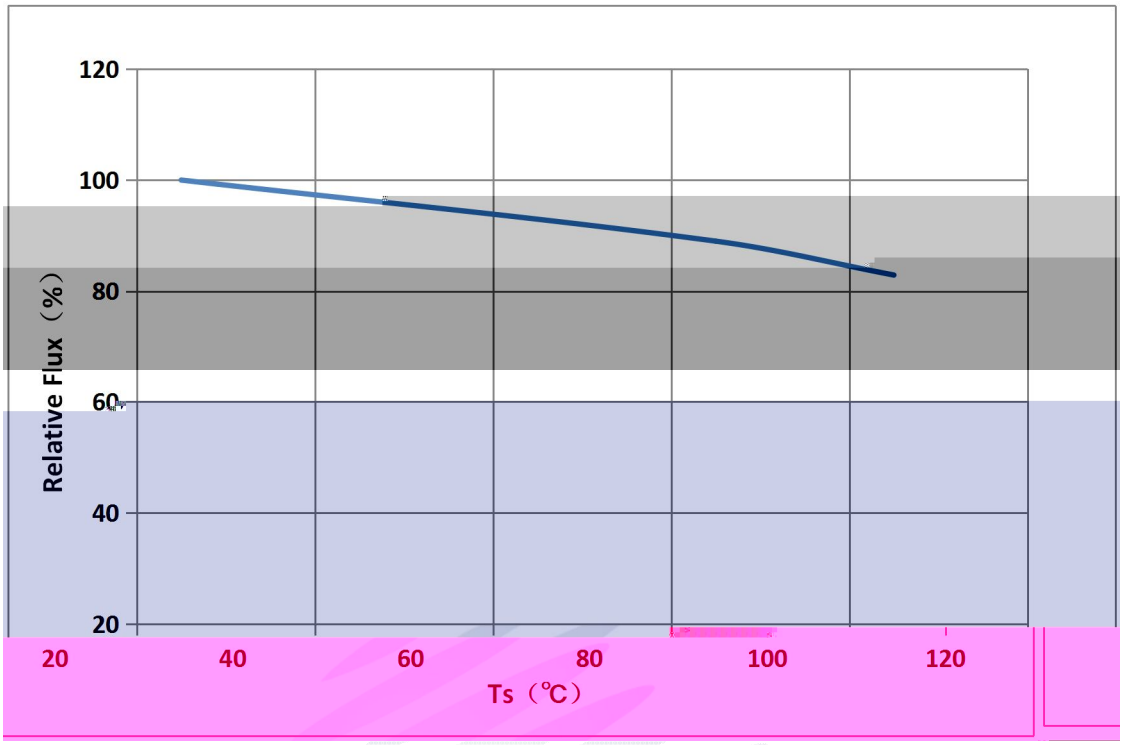

Fig 1-9 Solder Temperature Vs Relative Intensity

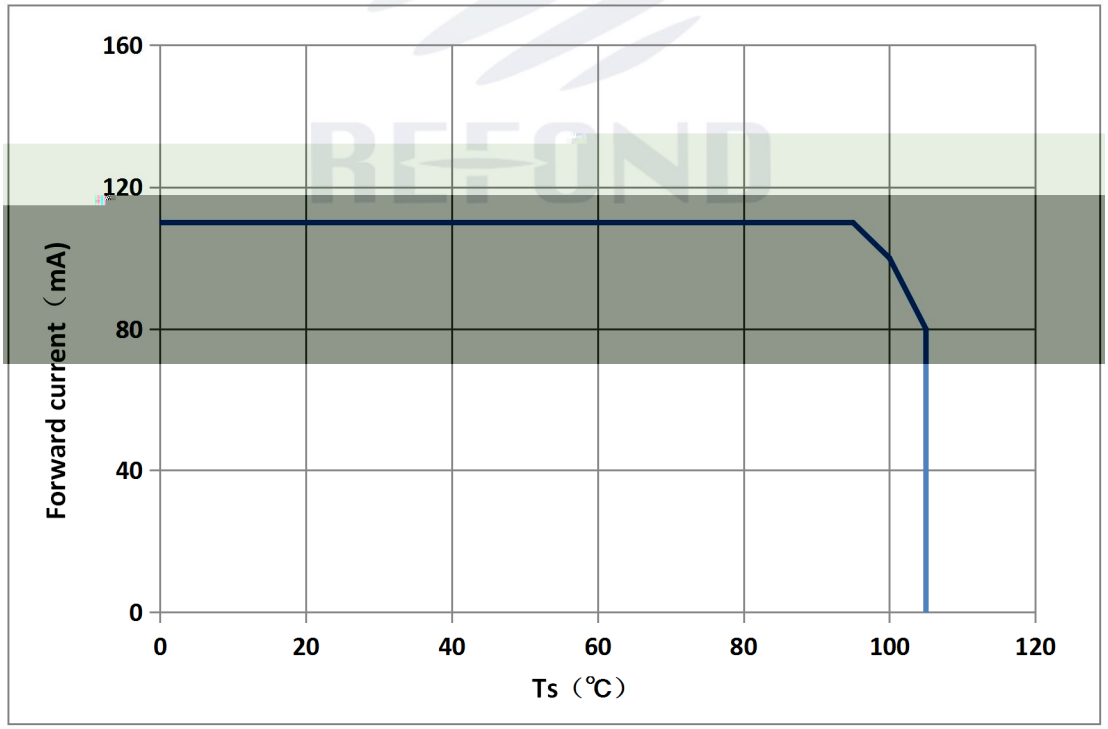

Fig 1-10 Solder Temperature Vs.Forward Current

Tj 125

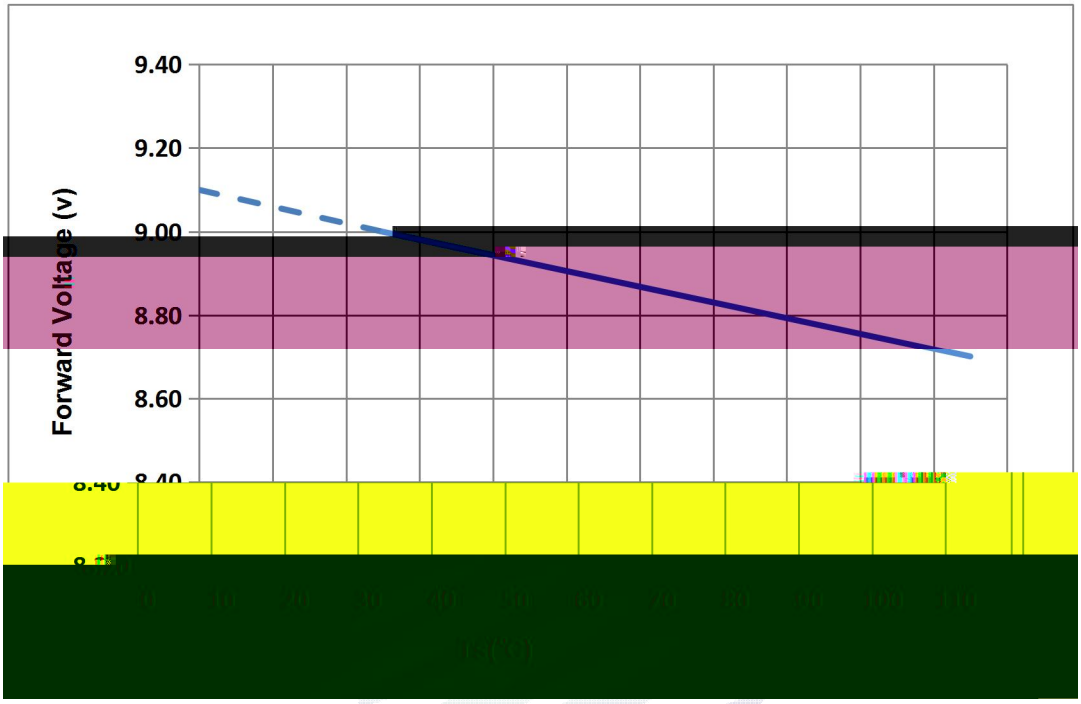

Fig 1-11 Forward Voltage Vs Solder Temperature

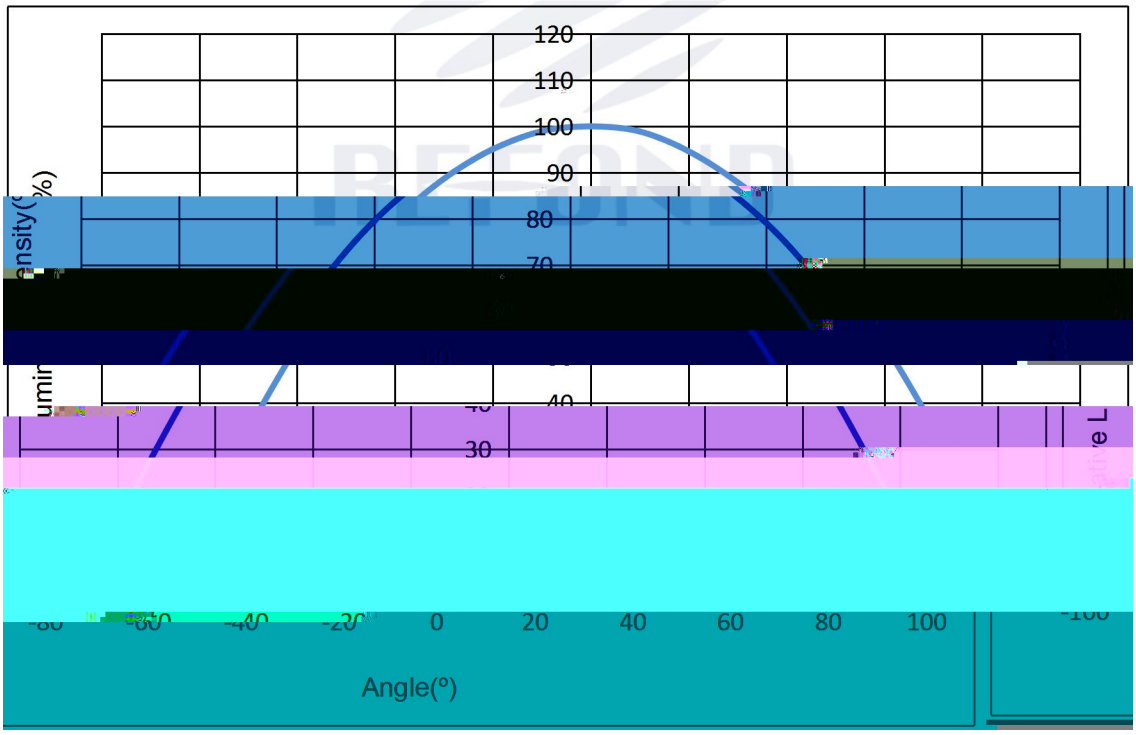

Fig 1-12 Radiation diagram

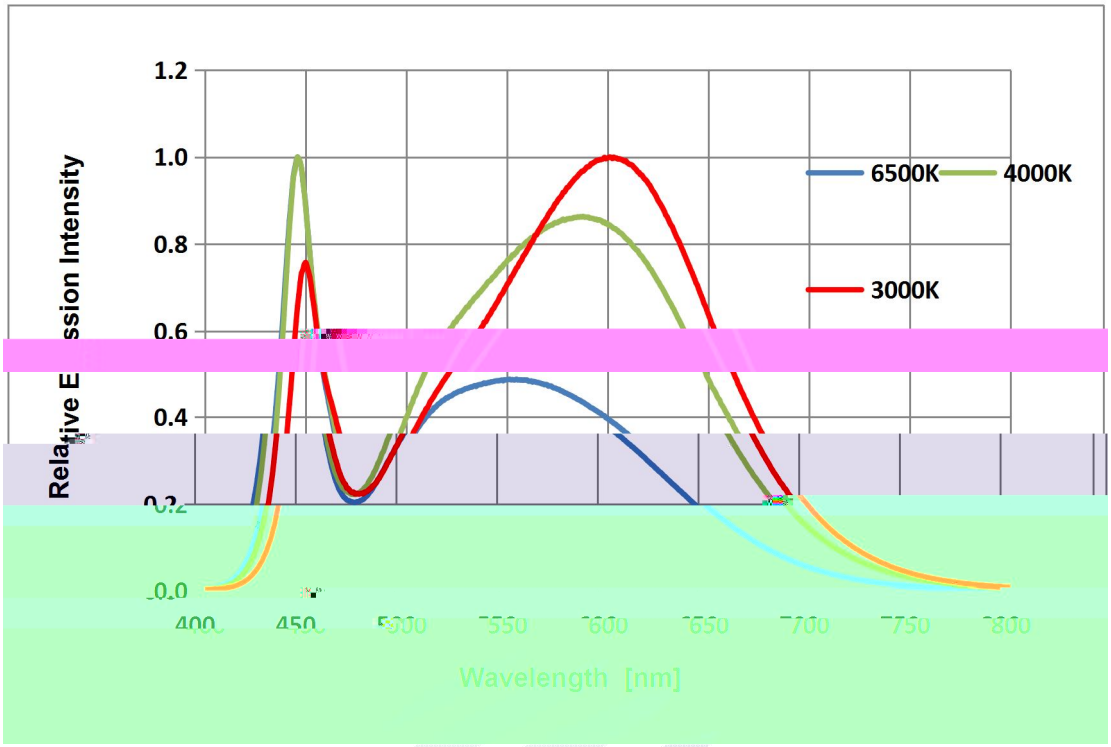

Fig 1-13 Spectrum Distribution

2. P

2.1 Packaging Specification

Package:12000pcs/reel. 1

2.1.1Carrier Tape Dimension

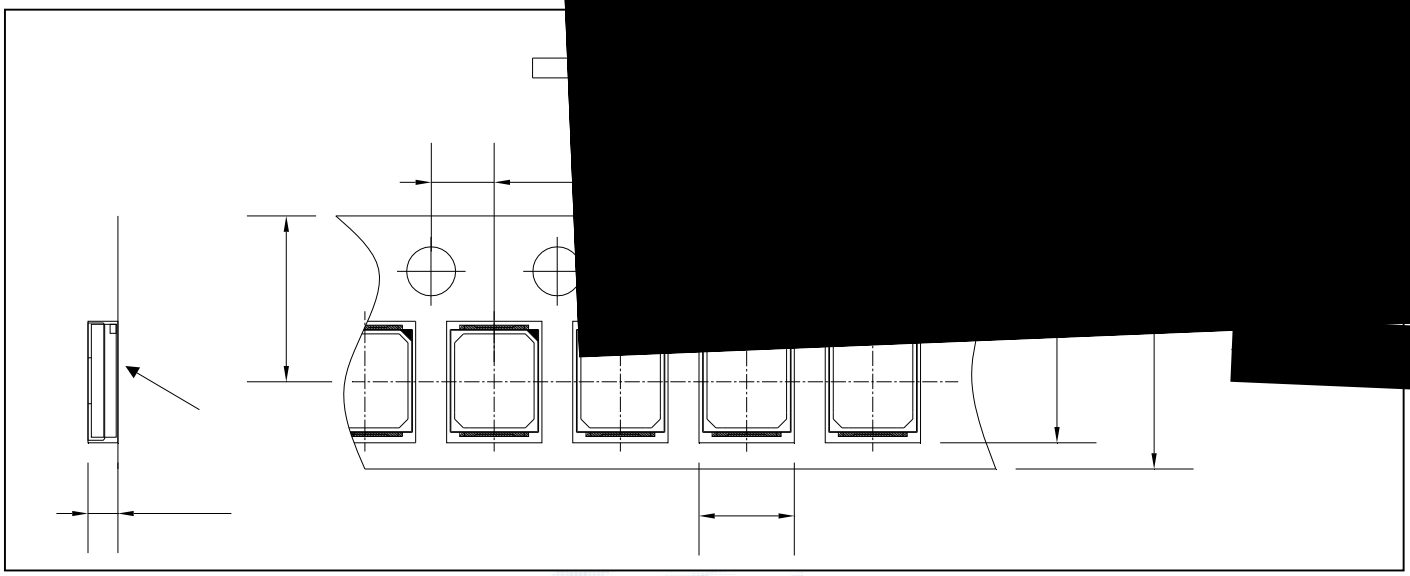

Fig.2-1 Carrier Tape Dimension

2.1.2Reel Dimension

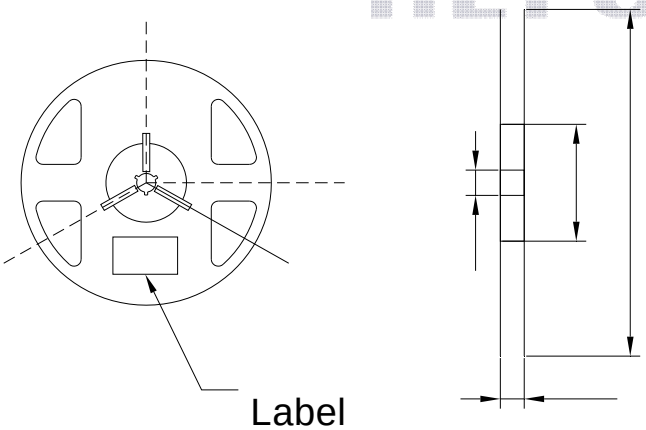

Fig.2-2Title

A	12.2 0.3mm
B	290 2mm
C	79.6 0.2mm
D	14.2 0.2mm

Notes

The tolerances unless mentioned ±0.1mm. Unit : mm ±0.1

2.4 Reliability Test Items And Conditions

Table 2-3 Title

TestItems	Ref.Standard	Test Condition	Time	Quantity	Ac/Re /
Reflow	JESD22-B106	Temp:260 max T=10 sec	2times	10pcs	0/1
Thermal Shock	JEITAED-4701 300307	-40 15min ↑↓10s 100 15min	200cycles	10pcs	0/1
High Temperature Storage	JEITAED-4701 200 201	Temp:100	1000hrs	10pcs	0/1
Low Temperature Storage	JEITA ED-4701 200 202	Temp:-40	1000hrs	10pcs	0/1
Life Test	JESD22-A108	Ta=25 I_F=100mA	1000hrs	10pcs	0/1
High Temperature High Humidity Life Test	JESD22-A101	60 / 90%R_H I_F=100mA	1000hrs	10pcs	0/1
Temperature Humidity Storage	JEITA ED-4701 100 103	T_A=85 R_H=85%	1000hrs	10pcs	0/1
Sulfur test	/	80 4H 0.6	4hrs	10pcs	0/1

2.5 Criteria For Judging Damage

Table 2-4 Title

Test Items	Symbol	Test Condition	Criteria For Judgement	
			Min.	Max.
Forward Voltage	V_F	I_F=100mA	-	(U.S.L*)x1.1
Reverse Current	I_R	V_R = 15V	-	(

3. SMT Reflow Soldering Instructions SMT

3.1SMT Reflow Soldering Instructions SMT

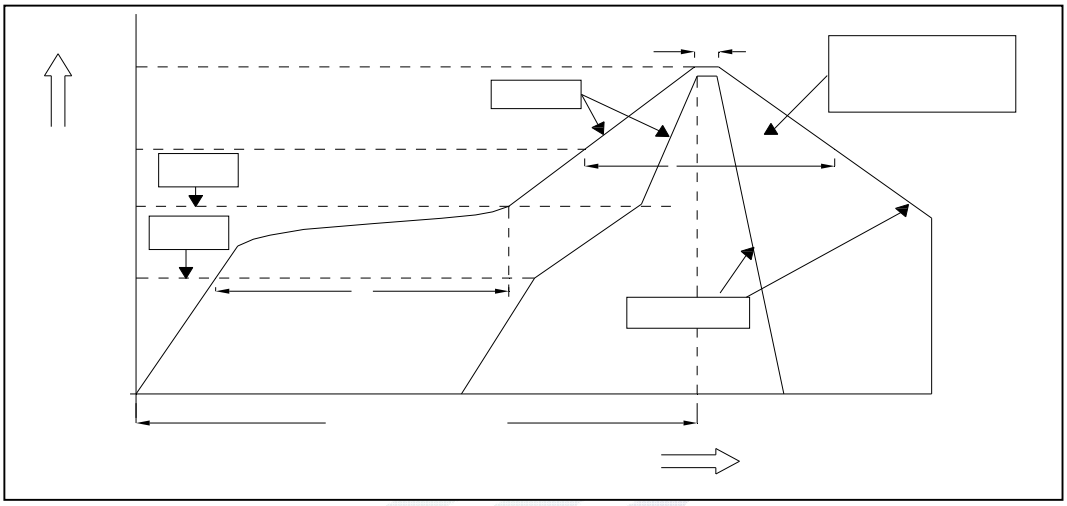

Fig.3-1Title

Table 3-1Title

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
Hold time within 5 C with the actual peak temperature (TP) (T_P)	30 Max 30s
Cooling speed	6 °C/ Max 6 °C/ s
Needed time from 25 °C to Tp 25 °C	8 Max 8 minutes

Notes

(1)Reflow soldering should not be done more than two times. In the case of more than 24 hours passed soldering after first, LEDs will be damaged.

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

3.1.1 Soldering Iron

(1) When hand soldering, keep the temperature of iron below less 300 less than 3 seconds

(2) The hand solder should be done only one time.

3.1.2 Repairing

Repair 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 will not be damaged by repairing.

LED

3.1.3 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 influence to 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

(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 LED mating usage material. This is provided for informational purposes only and is not a warranty or endorsement.LED

(2) In order to prevent ex-ternal material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine elementis required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external materials of the application products is required to be less than 1500PPM. This is provided for informational purposes only and is not a warranty or endorsement.

(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

tMXI K7Kñ ð € W terials

(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.

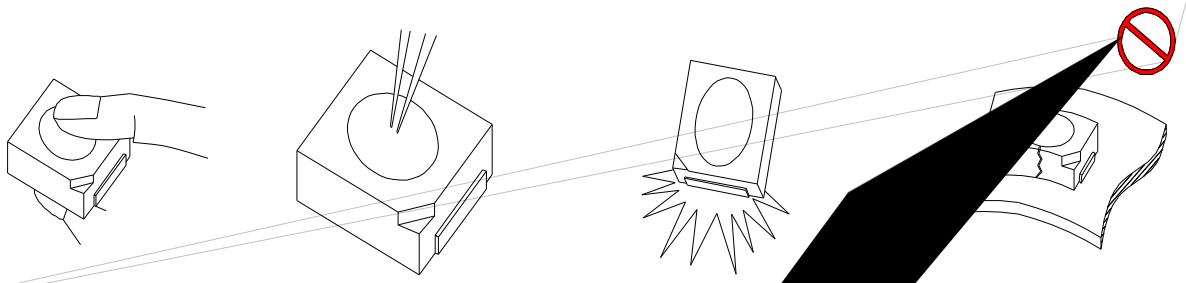

Fig 4-1 Title

(5) In designing a circuit, the current through each LED must not exceed the absolute maximum rating specified for each LED. In the mean while, resistor or 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%	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 60 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.


REFOND