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1.4 Package Dimension

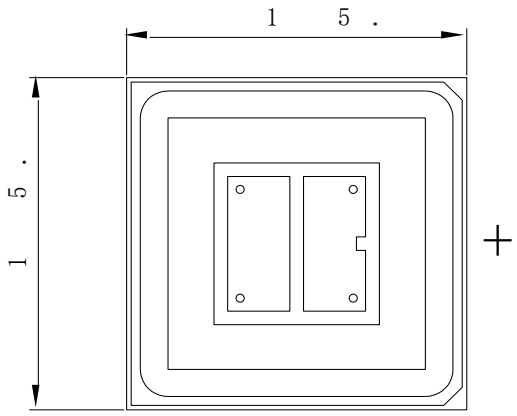

Fig.1-1 Top view

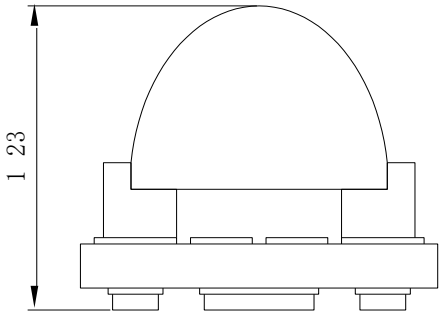

Fig.1-2 Side view

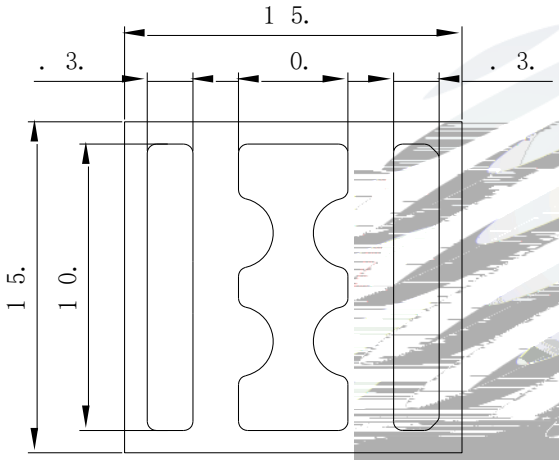

Fig.1-3 Bottom view

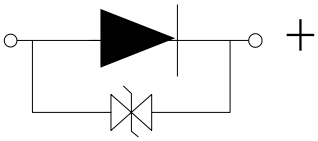

Fig.1-4 Polarity

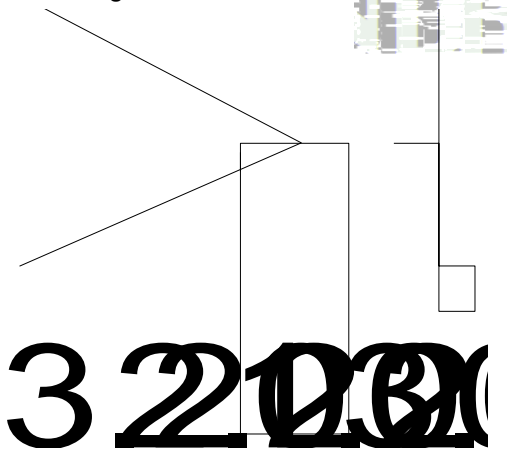

Fig.1-5 Soldering patterns

Notes

1. All dimensions units are millimeters.
2. All dimensions tolerances are 0.2mm unless otherwise noted. 0.2

1.5 Product Parameters

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

Item	Symbol	Test Condition	Code	Value			Unit
				Min.	Typ	Max.	
Forward Voltage	V_F	I_F=350mA	B19	4.6	---	4.8	V
			B20	4.8	---	5.0	
			B21	5.0	---	5.2	
			B22	5.2	---	5.4	
			B23	5.4	---	5.6	
			B24	5.6	---	5.8	
			B25	5.8	---	6.0	
			B26	6.0	---	6.2	
			B27	6.2	---	6.4	
			B28	6.4	---	6.6	
			B29	6.6	---	6.8	
			B30	6.8	---	7.0	
			B31	7.0	---	7.2	
			B32	7.2	---	7.4	
			B33	7.4	---	7.6	
Reverse Current	I_R	V_R=10V	---	---	---	5	uA
Total radiant flux ( )	- e	I_F=350mA	1J07	25	---	30	mW
			1J08	30	30	35	
			1J09	35	---	40	
Peak wavelength ( )	S	I_F=350mA	UA33	260	---		

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

Parameter	Symbol	Rating	Units
Maximum Power Dissipation	P_D	3.8	W
Peak Forward Current	I_{FP}	500	mA
Reverse Voltage	V_R	10	V
Electrostatic Discharge (HBM)	E_{SD}	1000	V
Operating Temperature	T_{OPR}	-40 ~ +45	
Storage Temperature	T_{OPR}	-20 ~ +65	
Junction Temperature	T_J	60	

Notes

1. 1/10 Duty cycle, 0.1ms pulse width. 0.1ms, 1/10.
2. The above forward voltage measurement allowance tolerance is ±0.1V.
3. The above wavelenth measurement allowance tolerance is ±2nm. ± 2nm.
4. The above radiation flux measurement allowance tolerance ±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. ESD yield is over 90% at 1000V ESD (HBM). ESD protection during products handing is needed. 90% LED ESD 1000V ,

1.6 Typical optical characteristics curves

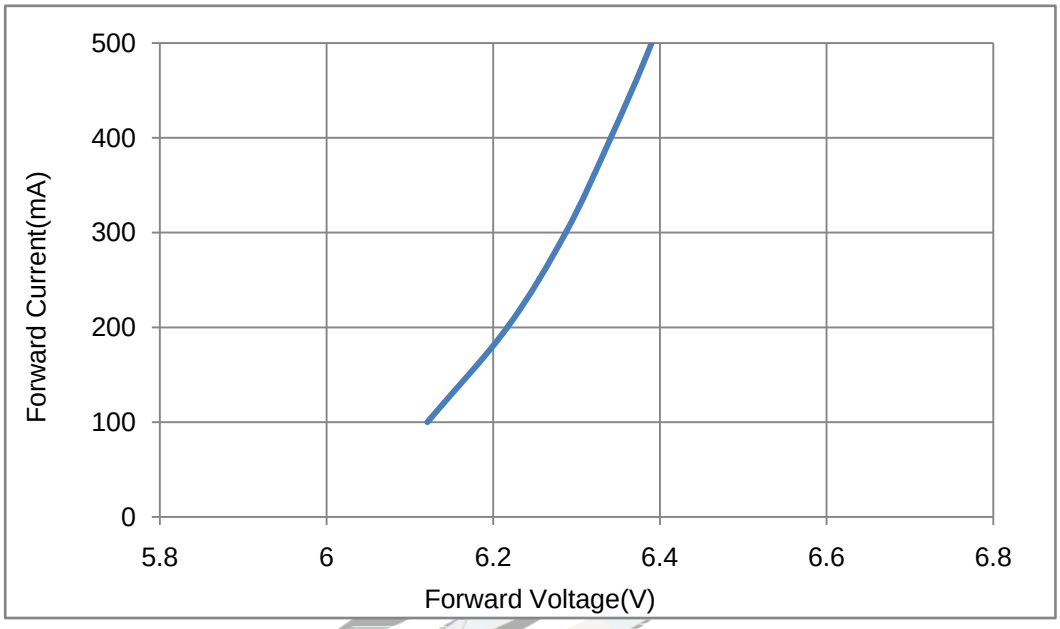

Fig.1- Forward Voltage Vs. Forward Current

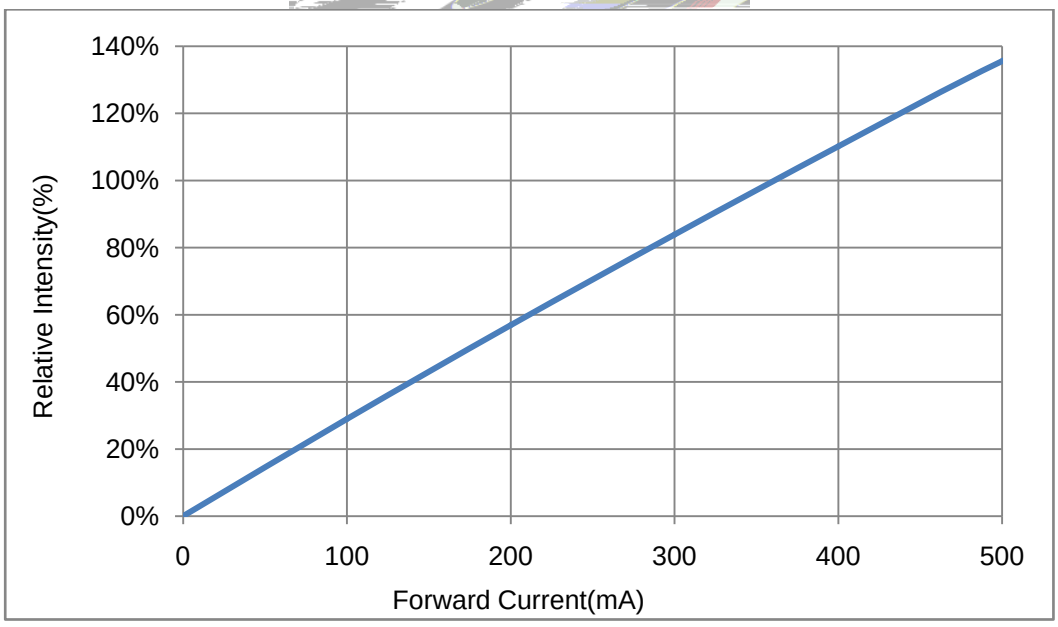

Fig.2- Forward Current Vs. Relative Power

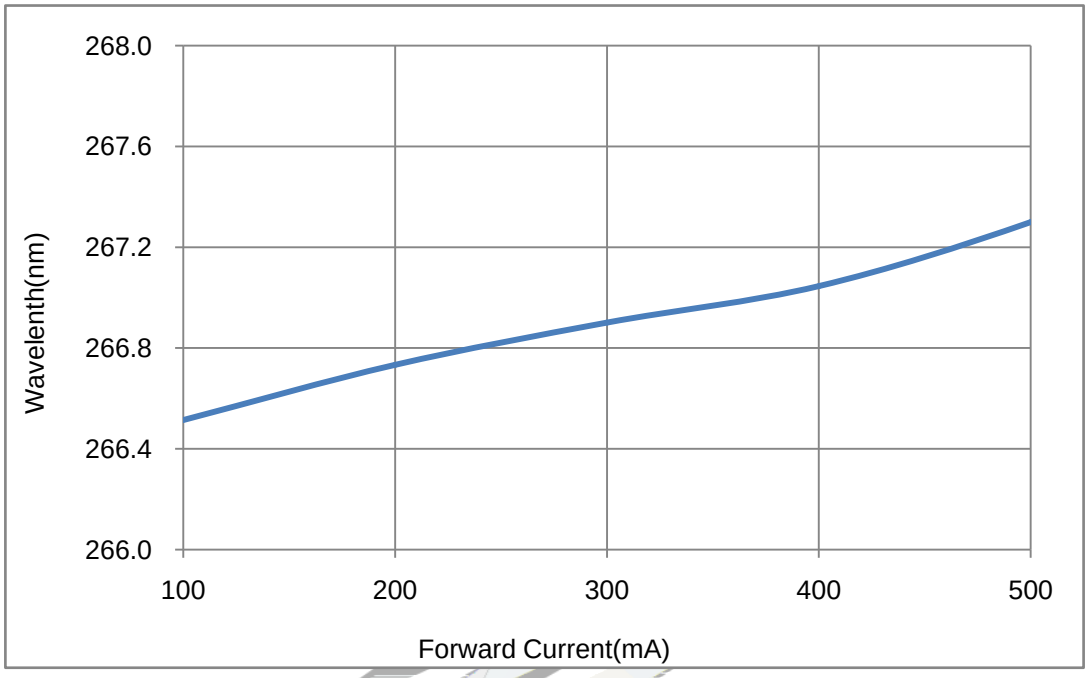

Fig.3- Peak Wavelength Vs. Forward Current

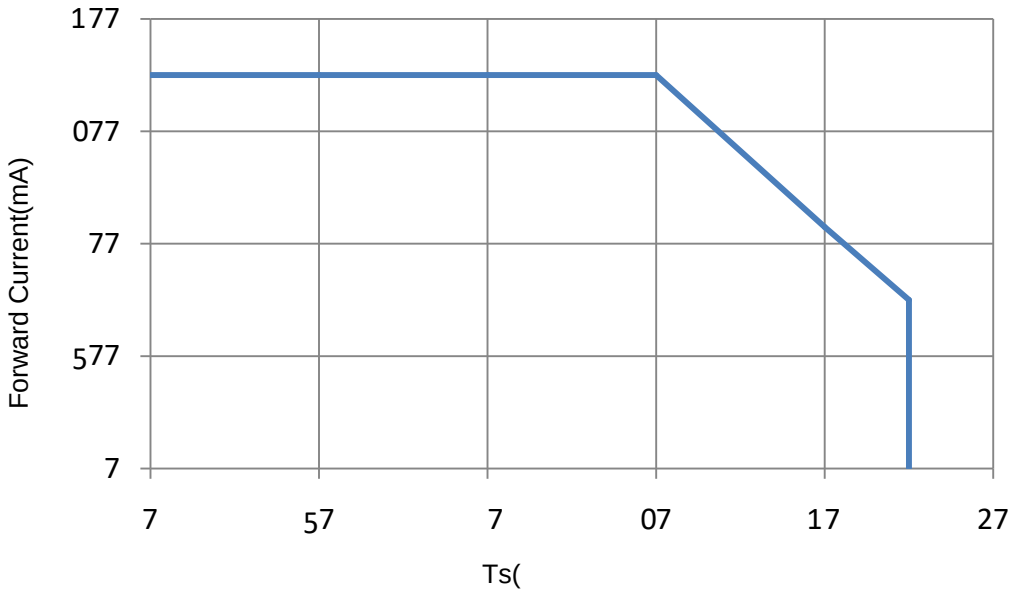

Fig.4-Ts Temperature VS. Forward Current

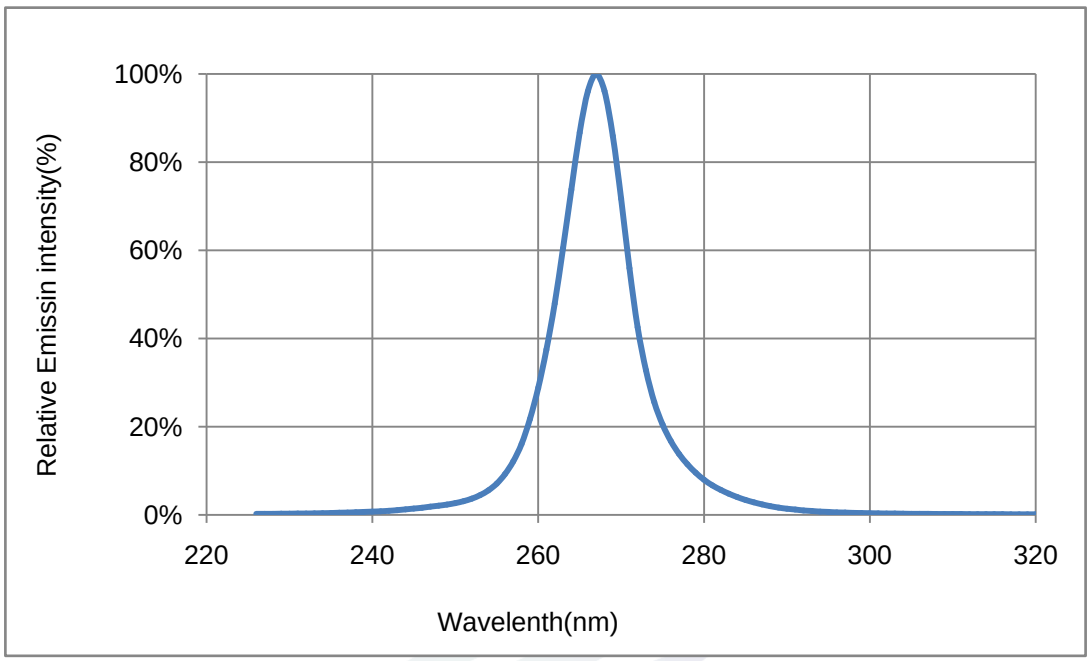

Fig.5-Spectrum Distribution

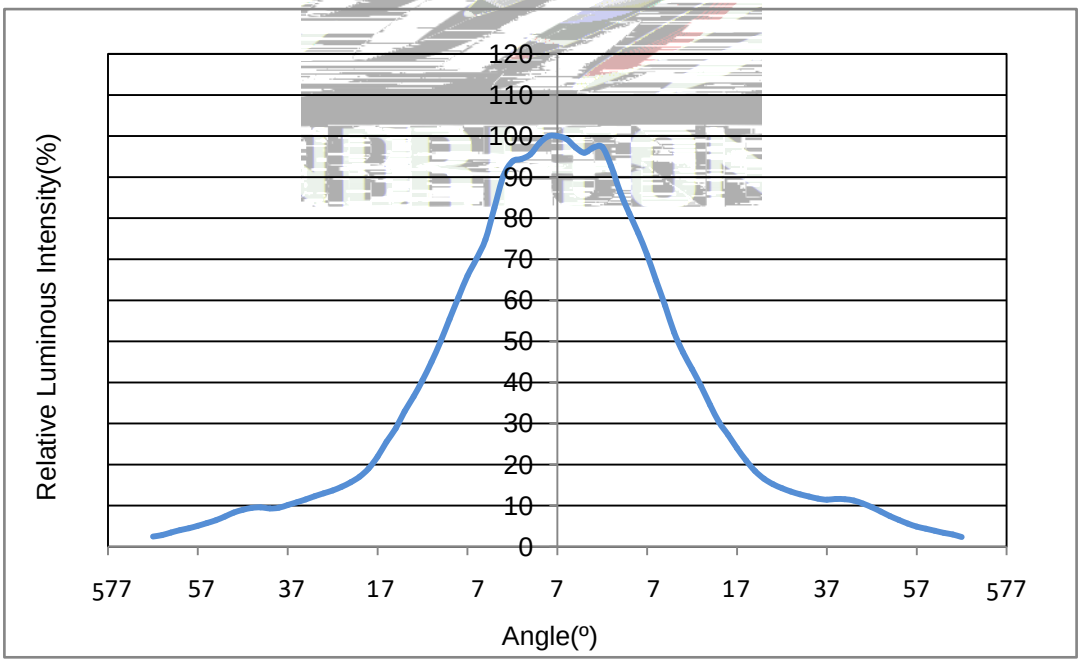

Fig.6- Radiation Diagram

2. Packaging

2.1 Packaging Specification

Package:500pcs/reel. 277

2.1.1 Carrier Tape Dimension

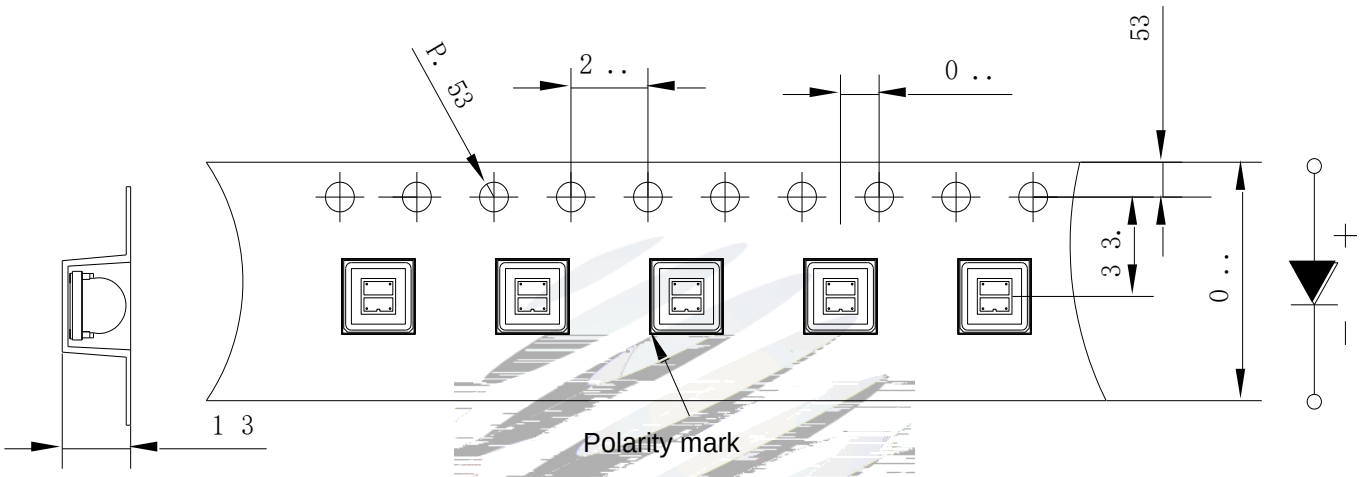

Fig.2-1 Carrier Tape Dimension

2.1.2 Reel Dimension

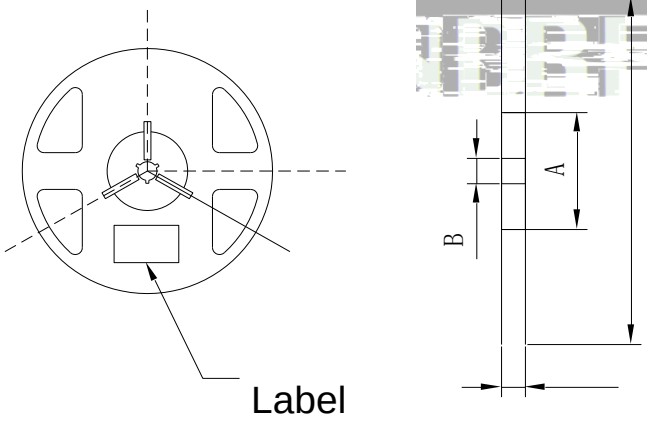

Fig.2-2 Reel Dimension

Table 2-1 Reel Dimension

A	12 0.1mm
B	178 1mm
C	60 1mm
D	13.0 0.5mm

Notes

The tolerances unless mentioned ±0.1mm. Unit : mm 1

2.1.3 Label Form Specification

Table 2-2 Label Form Specification

PART NO.	Part Number
SPEC NO.	

Fig. 2-3 Label Form Specification

2.2 Moisture Resistant Packing

Fig.2-4 Moisture Resistant Packing Process

3. SMT Reflow Soldering Instructions SMT 回流焊说明

3.1 SMT Reflow Soldering Instructions SMT

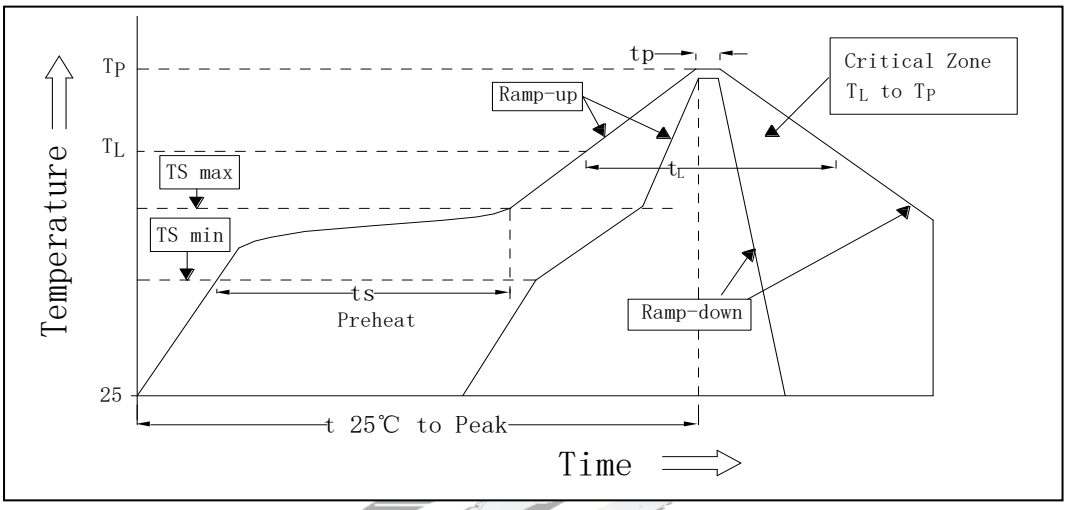

Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 SMT Reflow Soldering Instructions SMT

Average temperature rise speed Tsmax T_P	Max 3 °C/ s 3 °C/
Preheating: minimum temperature (Tsmin)	150 °C
Preheating: Max temperature (Tsmax)	200 °C
Preheating: Time Tsmin Tsmax	60s-120s 60 - 120
Time limited to maintain high temperature: the temperature (T_L)	217 °C
Time limited to maintain high temperature: The Time (t_L)	Max 60s 60
Peak /Classification of temperature: / (T_P)	260 °C
Time limit classification of peak temperature time t_p	Max 10s 10
Hold time within 5 C with the actual peak temperature (TP) (T_P) 5 °C	Max 30s 30
Cooling speed	Max 6 °C/ s 6 °C/
Needed time from 25 °C to Tp 25 °C	Max 8 minutes 8

Notes

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

(2)When soldering , 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 , 300 3

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

LED 100PPM.

(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. LED

LED 900PPM

900PPM 1500PPM.

(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 help prevent these issues. Refond advises against theuse of any chemicals or materials that have been found or are suspected to have an adverse affect on device performance or reliability. To verifycompatibility, Refond recommends that all chemicals and materials be tested in the specific application and environment for which they are intended tobe used. Attaching LEDs, do not use adhesives that outgas organic vapor. LED

LED LED

LED

(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 Operate Method

(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. LED

LED

(6) Thermal Design is paramount importance because heat generation may result in the Characteristics decline,such as brightness decreased,lifetime, Color change and so on.Please consider the heat generation of the LEDs when making the system design.LED

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 65 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) When using this product, you need to take good care to prevent it from causing harm to eyes and human body.

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

Version History/

Date	Revisor	Version	Verifier	Remarks
2020-08-10		E0		
2020-09-20		E1		1. 0.5V 0.2V