

SPECIFICATION

Θ

REFOND P/N
RF-W2S155TS-A12

☐ R&D
☒ Mass Product



Contents

1. Description	3
1.1 General Description	3
1.2 Features	3
1.3 Application	3
1.4 Package Dimension	4
1.5 Product Parameters	5
1.6 Typical Optical Characteristics Curves	8
2. Packaging	13
2.1 Packaging Specification	13
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	14
2.3 Cardboard Box	15
2.4 Reliability Test Items And Conditions	15
2.5 Criteria For Judging Damage	16
3. SMT Reflow Soldering Instructions	17
3.1 SMT Reflow Soldering Instructions	17
4. Handling Precautions	19
4.1 Handling Precautions	19



1. Description, ㄱ

1.1 General Description,



The Colour LED which was fabricated using blue green and orange chip Package
Dimension : 3.2mmX2.7mmX0.7mm.

LED 3.2mmX2.7mmX0.7mm

1.2 Features,

Extremely wide viewing angle. 1° 2°

Suitable for all SMT assembly and solder process. 1 SMT

Moisture sensitivity level: Level 3. Level 3

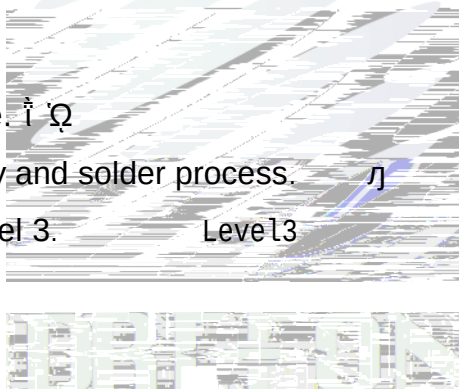
RoHS compliant. RoHS

1.3 Application,

Optical indicator. 2°

Switch and symbol, display. 1°

General use. 1° 2°



1.4 Package Dimension

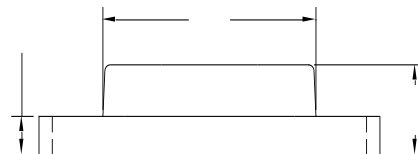


Fig.1-2 Side view

Fig.1-1 Top view

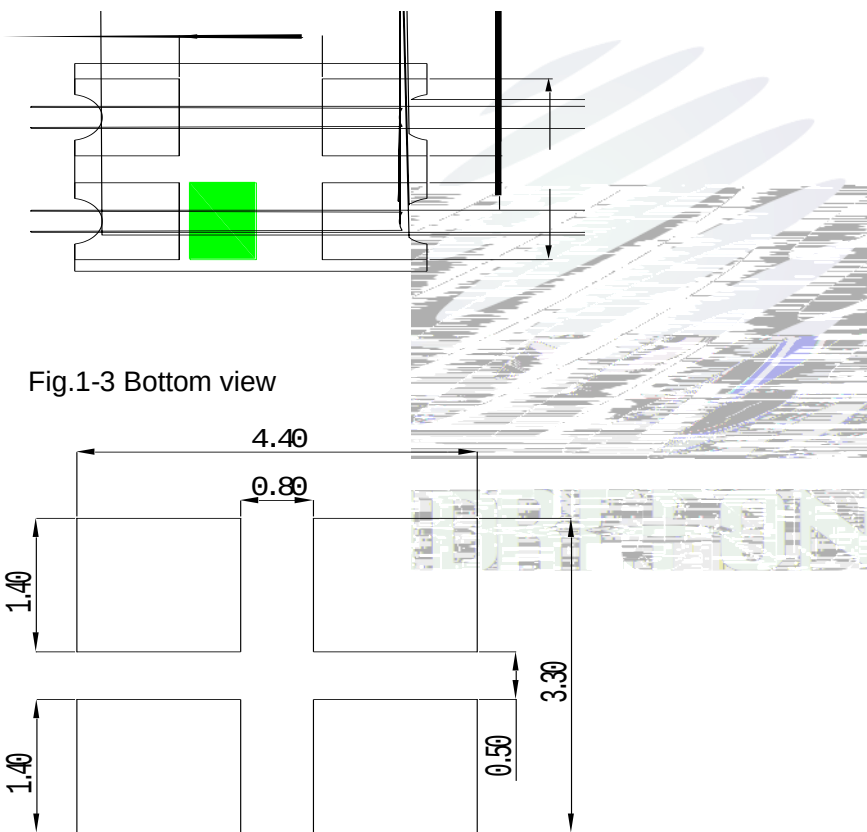


Fig.1-3 Bottom view

Fig.1-5 Soldering patterns

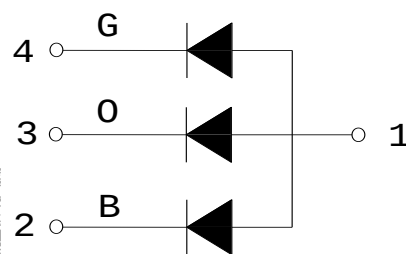


Fig.1-4 Polarity

Notes

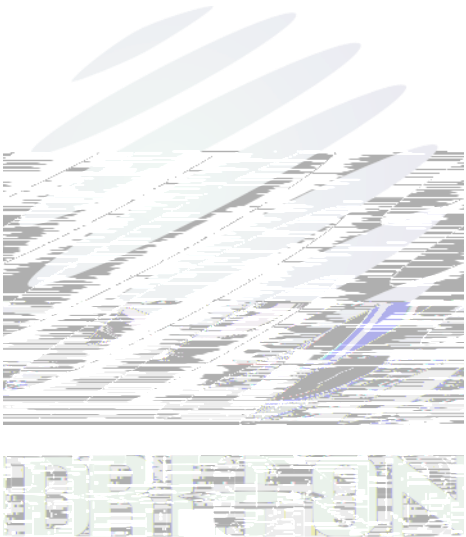
1. All dimensions units are millimeters.
2. All dimensions tolerances are $\pm 0.2\text{mm}$ unless otherwise noted.



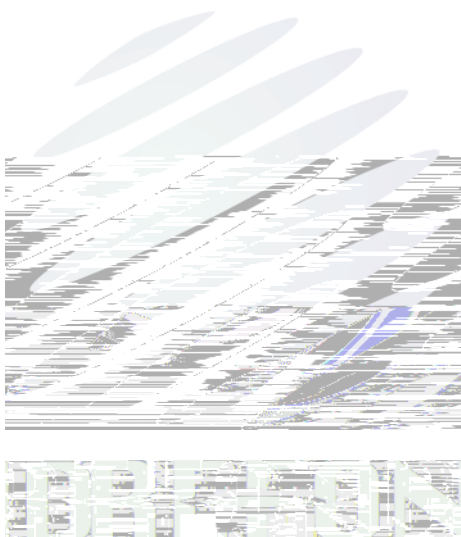
1.5 Product Parameters , ĩ

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

Item	Test Condition Ł	Symbol ,	Code ψ
------	------------------------	-------------	-----------

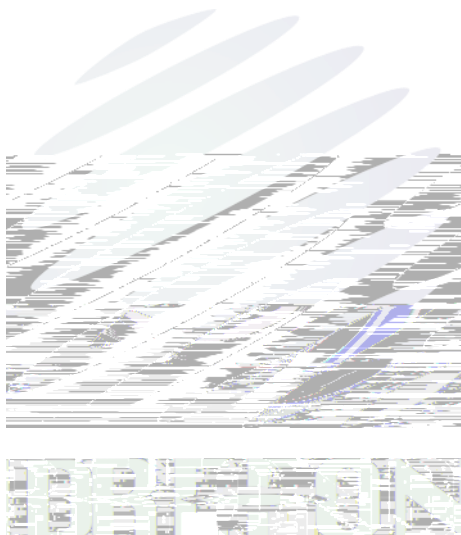


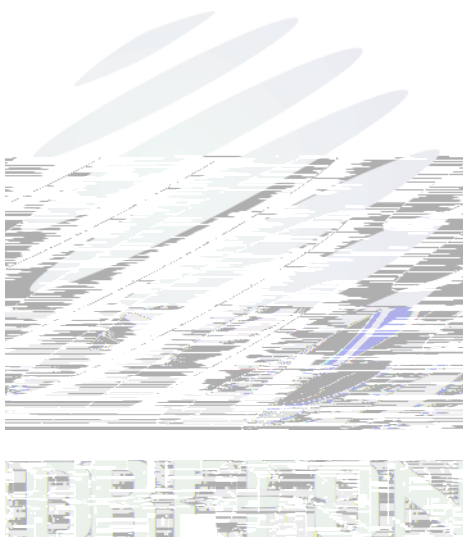
				1AV	330	--	430	
				1CG	430	--	560	



Notes : $V_R=5V$ For test conditions. $V_R=5V$ e

Table 1-2





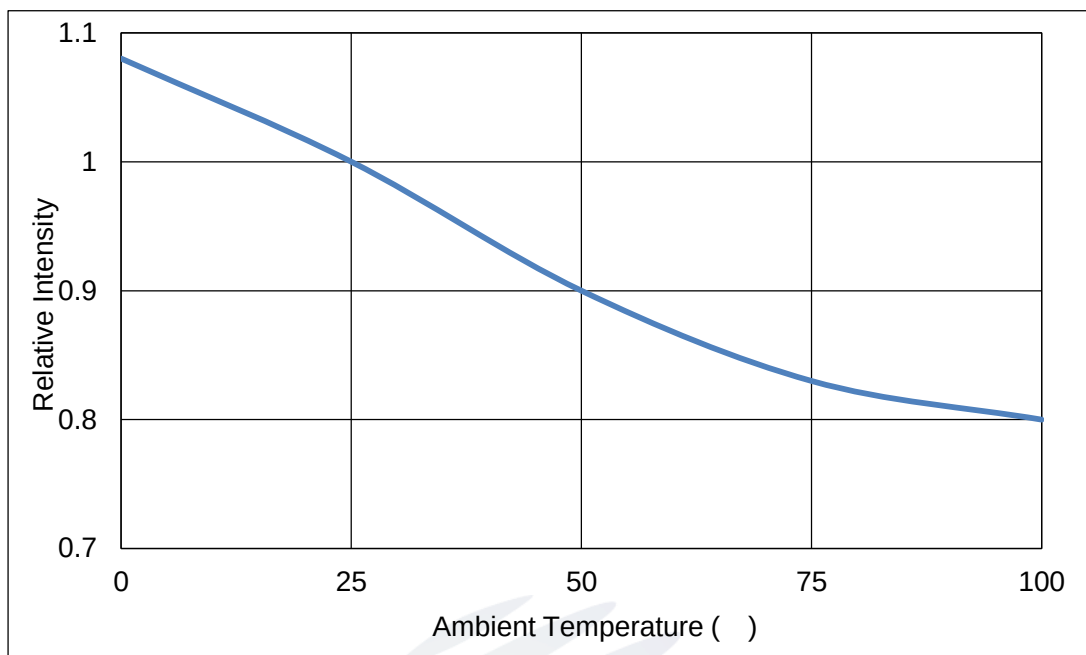


Fig.1-8 Pin Temperature Vs Relative Intensity

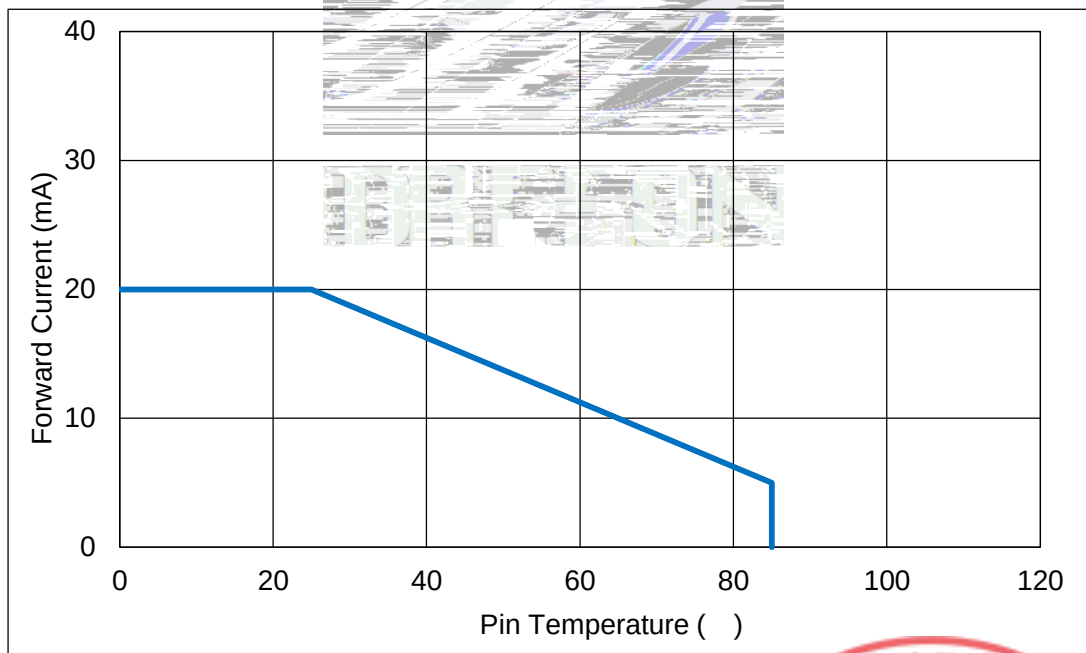


Fig.1-9 Pin Temperature Vs Forward Current



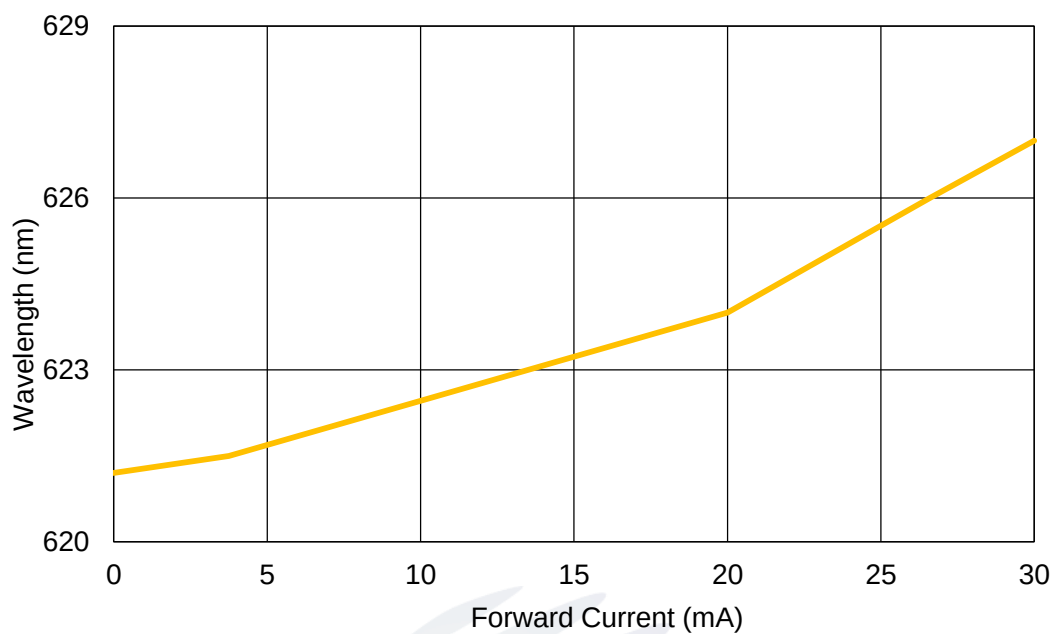


Fig.1-10 Forward Current Vs Dominate Wavelength (Ta=25)

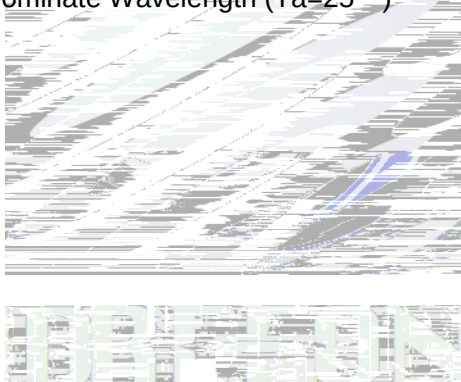


Fig.1-11 Forward Current Vs Dominate Wavelength (Ta=25)

Fig.1-12 Forward Current Vs Dominate Wavelength (Ta=25)

I_F ~ λ

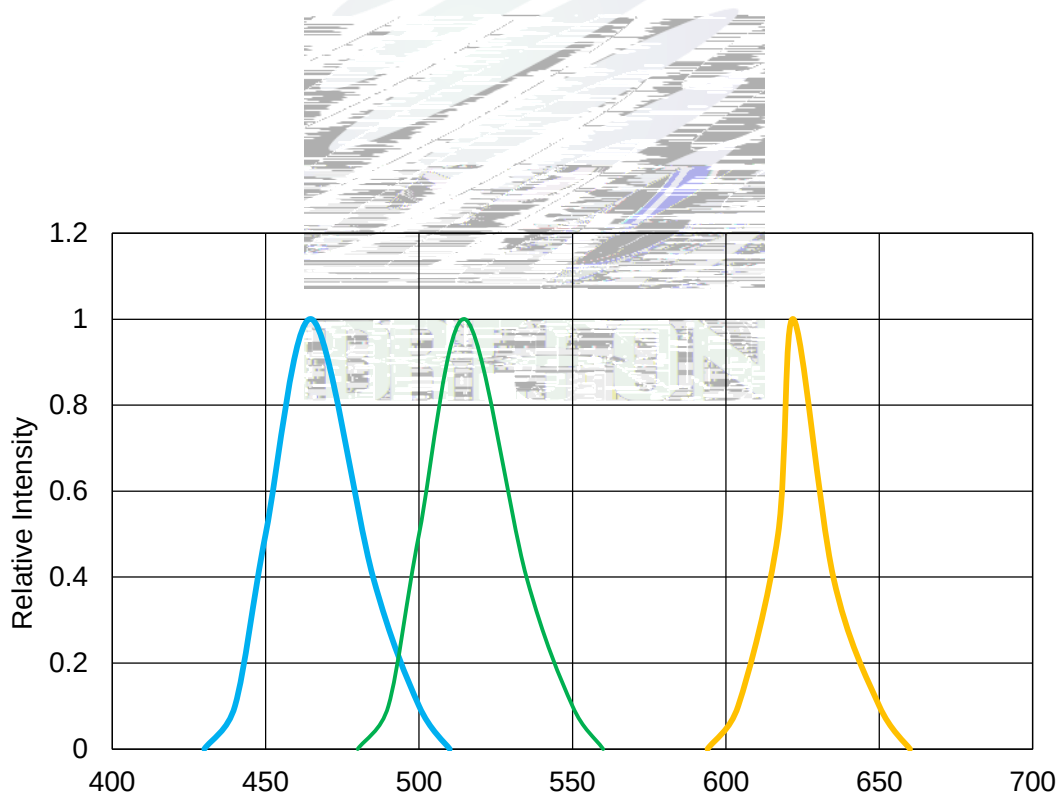


Fig.1-13 Relative Intensity Vs Wavelength (Ta=25)

~ λ

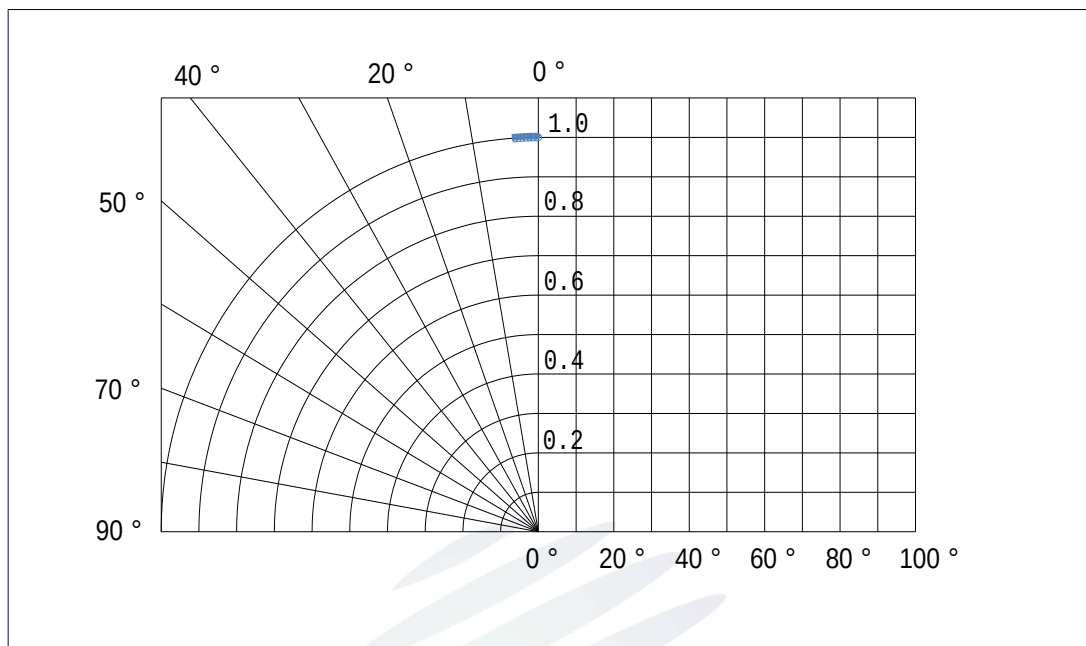
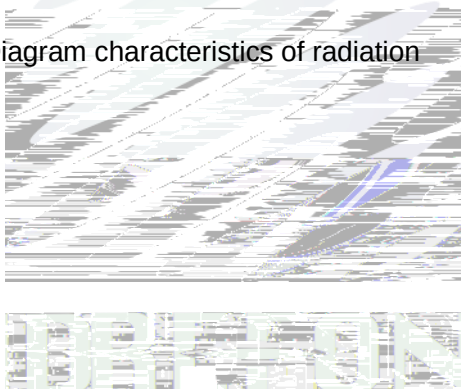


Fig.1-14 Diagram characteristics of radiation



2. Packaging , ~

2.1 Packaging Specification ~

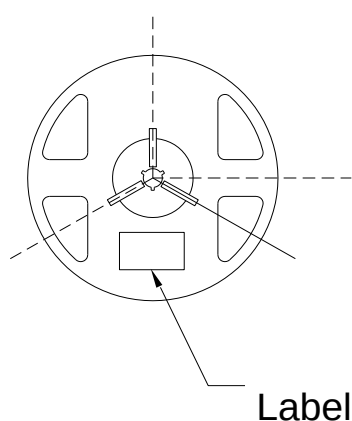
Package:3000pcs/reel.~ ↓ 3000pcs

2.1.1 Carrier Tape Dimension



Fig.2-1 Carrier Tape Dimension

2.1.2 Reel Dimension ↓



Label

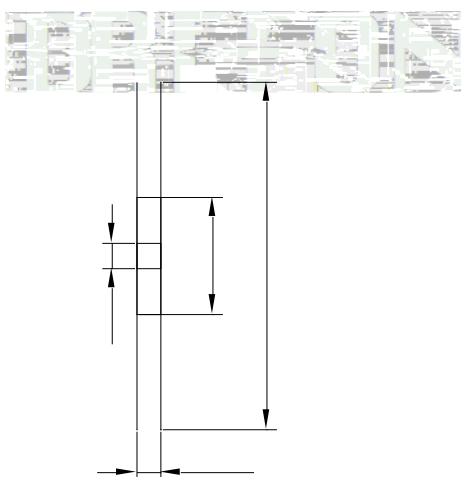


Table 2-1 Dimension

A	$8.0 \pm 0.1\text{mm}$
B	$178 \pm 1\text{mm}$
C	$60 \pm 1\text{mm}$
D	$13.0 \pm 0.5\text{mm}$

Fig.2-2 Reel Dimension ↓

Notes

The tolerances unless mentioned $\pm 0.1\text{mm}$. Unit : mm

" $\phi \pm 0.1$



2.1.3 Label Form Specification

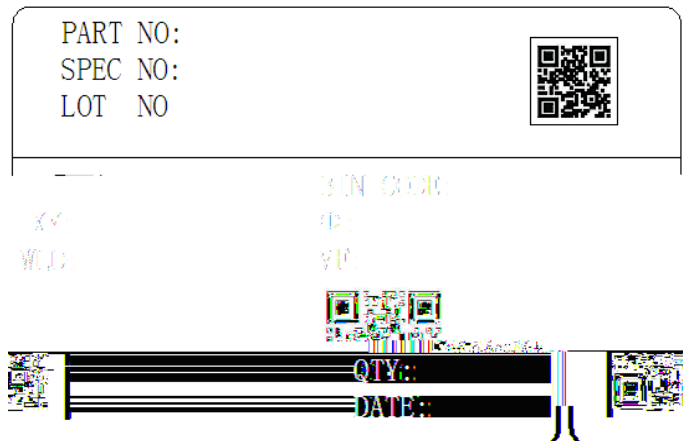


Table 2-2 Parameter

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

Fig. 2-3 Label Form Specification

2.2 Moisture Resistant Packing

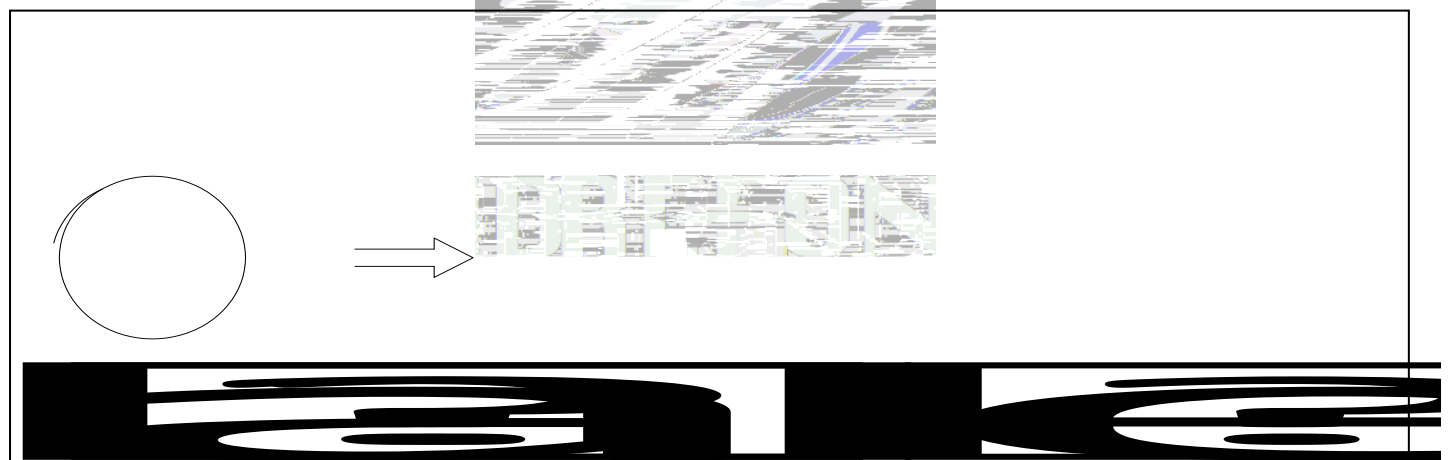


Fig.2-4 Moisture Resistant Packing



2.3 Cardboard Box ~

Fig.2-5 Cardboard Box ~

2.4 Reliability Test Items And Conditions H 0 t

Table 2-3 Reliability Test Items And Conditions H 0 t

Test Items	Ref.Standard !!	Test Condition t	Time	Quantity	Ac/Re /
Reflow	JESD22-B106	Temp:260 max T=10 sec	2 times	22Pcs.	0/1
Temperature Cycle	JESD22-A104	100 30 min 5 min -40 30 min	100 cycles	22Pcs.	0/1
Thermal Shock ‡ “ ¢	JESD22-A106	-40 15min 100 15min	300 cycles	22Pcs.	

2.5 Criteria For Judging Damage ≡ !!

Table 2-4 Criteria For Judging Damage ≡ !!

Test Items	Symbol	Test Condition	Criteria For Judgement ≡ !!	
			Min.	Max.
Forward Voltage V _F	V _F	I _F =20mA	-	U.S.L*)x1.1
Reverse Current	I _R	V _R = 5V	-	U.S.L*)x2.0
Luminous Flux Φ		I _F =20mA	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. ≡ !!

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. ≡ !!



3. SMT Reflow Soldering Instructions SMT 回流焊说明

3.1 SMT Reflow Soldering Instructions SMT

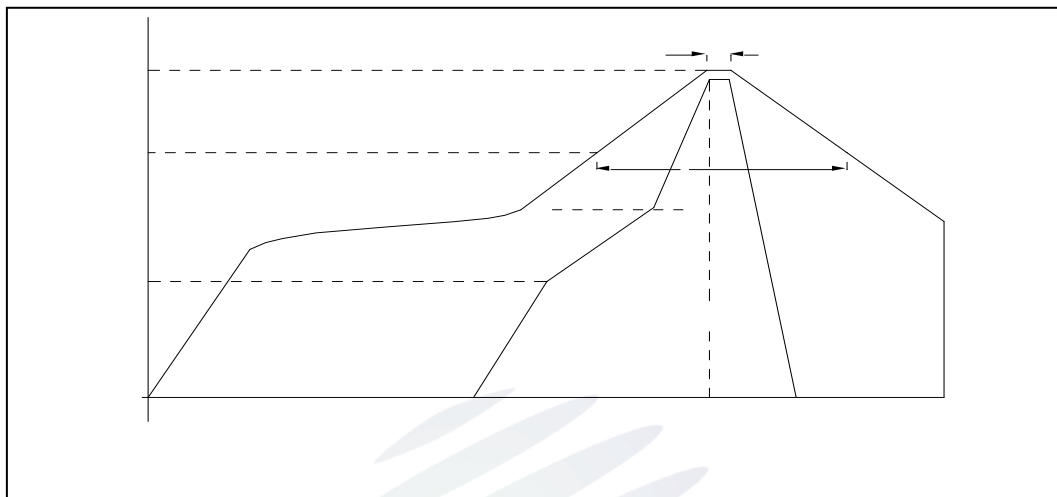


Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Parameter

Average temperature rise speed	$\frac{T_{smax} - T_p}{t_p}$	3 °C/ s Max 3 °C/ s
Preheating: minimum temperature	T_{smin}	150 °C
Preheating: Max temperature	T_{smax}	200 °C
Preheating: Time	$T_{smin} \quad T_{smax}$	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 - 150 60s-150s
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/ s Max 6 °C/ s
Needed time from 25 °C to Tp	$25 °C \rightarrow T_p$	8 min Max 8 minutes

Notes

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

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

3.1.1 Soldering Iron

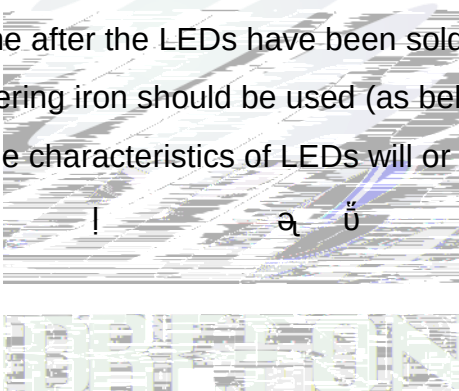
(1) When do soldering by hand, keep the temperature of iron below less 300 seconds , less than 3 seconds , 300 3

(2) Soldering by hand should be done only one time.

3.1.2 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 ! ! a ũ ε Ŵ D D LED



3.1.3 Cautions ε

(1) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board.LED PCB Ǻ Ÿ

(2) Do not apply mechanical force or excess vibration during the cooling process to normal temperature after soldering. Do not rapidly cool device after soldering. Ǻ ‡ √ X √ † Ÿ ∞ ‡ √



4. Handling Precautions

4.1 Handling Precautions, a, E

(1) LED operating environment and sulfur element composition can not be over 100PPM in the LEDmating usage material. This is provided for informational purposes only and is not a warranty or endorsement.

γ ρ o u e Ḧ

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

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99
 : :
 LED S a i o f




(4) Handle the component along the side surface by using forceps or appropriate tools; Do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

1 n z ũ ~ 1 φ ~ D Y

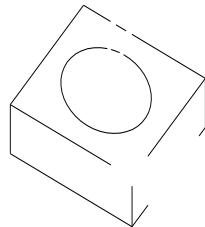
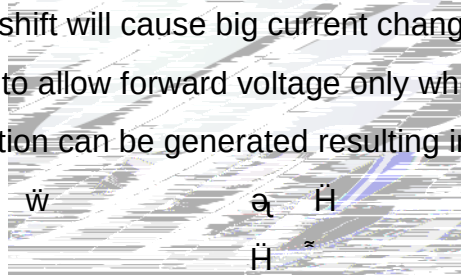


Fig 4-1 Handling Precautions

(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, 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.

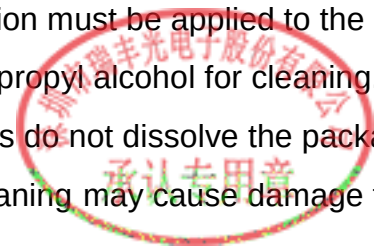


LED ũ ~ , ũ ~ ũ 1 Σ D LED

(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 φ ï

ũ ũ 1 D u LED ï 'Ω ï 'Ω II ũ ƒ

(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. 15 J , %
 II æ r f L 15
 D φ ~ D LED

Table 4-1Storage Y

Conditions		Temperature	Humidity	Time
Storage Y	Before Opening Aluminum Bag ~ 15	≤ 30	≤ 75%	Within 1 Year From Date Y
	After Opening Aluminum Bag ~	≤ 30	≤ 60%	168hours 168
Baking		60 ± 5	-	≥ 24hours 124

(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) °C for above 24 hours. J ~ II

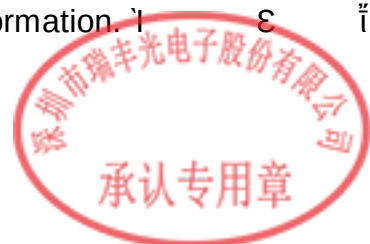
Y t ~ t 60 ± 5 124

If the package is flatulence or damaged,please notify the sales staff to assist. ~

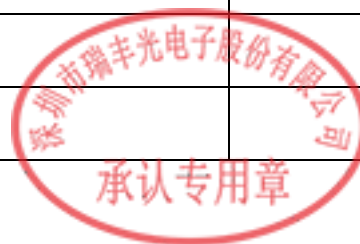
~ 15

(9)Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). 15 1 φ t LED C
 Å

(10) Other points for attention, please refer to our relevant information. 15 ε ĩ 15
 ĩ



Version History/ ! $\hat{d}$

[illegible]



Declare

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

此規格書係以英文及中文撰寫，其中文為正式版本。