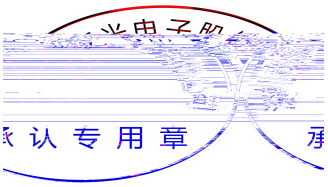
REFOND P/N

RF-W2S155TS-A41

Mass Product

Contents



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

3.2mmX2.7mmX0.7mm

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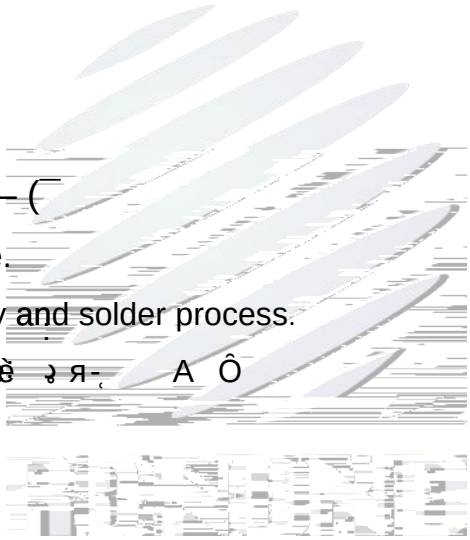
- ► Extremely wide viewing angle.
- ► Suitable for all SMT assembly and solder process.
- ► Moisture sensitivity level: ssè ₹ я- A Ô



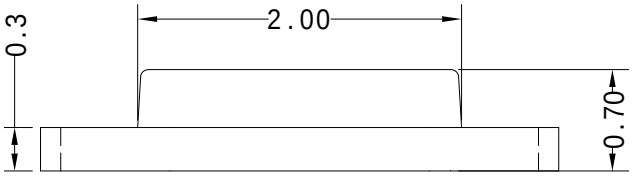


Fig.1-1 Top view

Fig.1-2 Side view

Fig.1-3 Bottom view

Fig.1-4 Polarity

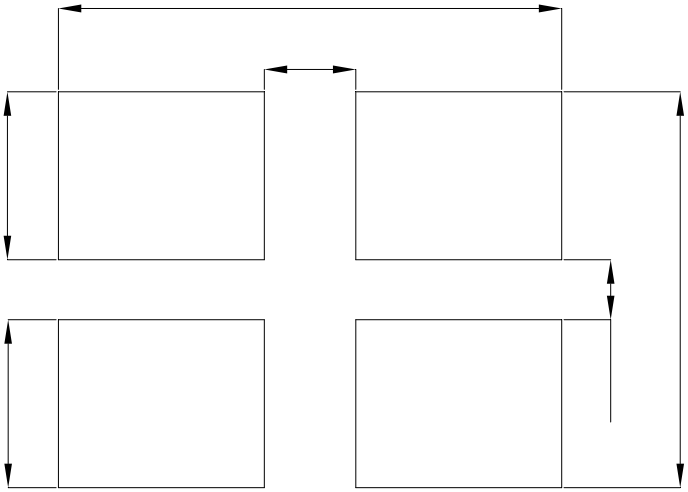


Fig.1-5 Soldering patterns

Notes

All dimensions units are millimeters.

All dimensions tolerances are ±0.2mm unless otherwise noted.

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

Item	Test Condition	Symbol		Code	Value			Unit
					Min. ( )	Typ.	Max.	
Spectral Half Bandwidth	I_F=20mA	λ	R	/	--	15	--	nm
			G		--	30	--	
			B		--	30	--	
Forward Voltage	I_F=20mA	V_F	R	1L	1.8	--	2.4	V
			G	3F	2.8	--	3.4	
			B	3F	2.8	--	3.4	
Dominant wavelength	I_F=20mA	λ_d	R	G00	630	--	635	nm
				H00	635	--	640	
			G	D10	515	--	517.5	
				D20	517.5	--	520	
				E10	520	--	522.5	
				E20	522.5	--	525	
			B	D10	465	--	467.5	
				D20	467.5	--	470	
				E10	470	--	472.5	
				E20	472.5	--	475	

Luminous Intensity	I_F=20mA	I_V	R	1BS	40	--	90	mcd
			G	1AU	260	--	330	
				1AV	330	--	430	
				1CG	430	--	560	
				1CL	560	--	700	
				1CM	700	--	900	
			B	1DM	60	--	90	
				1AP	90	--	120	
				G20	120	--	150	
				1AW	150	--	200	
				1GK	200	--	260	
Viewing Angle	I_F=20mA	2θ1/2			--	140	--	deg
Reverse Current	V_R=5V	I_R			--	--	10	μA
Thermal Resistance.	I_F=20mA	R_{THJ-S}			--	--	450	/W

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

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

Parameter	Symbol	Rating			Units
		R	G	B	
Power Dissipation	P_d	48	68	68	mW
Forward Current	I_F	20			mA
Peak Forward Current Of Pulse	I_{FP}	60			mA
Electrostatic Discharge (HBM)	E_{SD}	1000			V
Operating Temperature	T_{opr}	-40 ~ +85			
Storage Temperature	T_{stg}	-40 ~ +85			
Junction Temperature	T_j	95			

Notes

1. 1/10 Duty cycle, 0.1ms pulse width.

2. The above forward voltage measurement allowance tolerance is ±0.1V.

3. The above dominant wavelength measurement allowance tolerance is±2nm.

4. The above luminous intensity 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

Fig.1-6

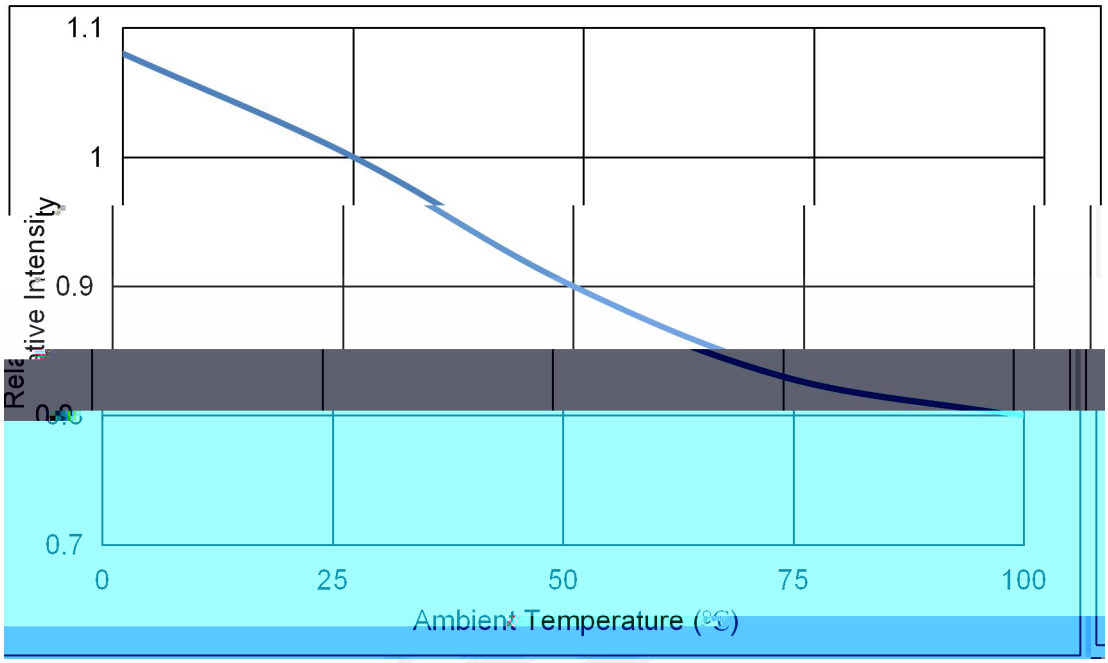


Fig.1-8 Pin Temperature Vs Relative Intensity

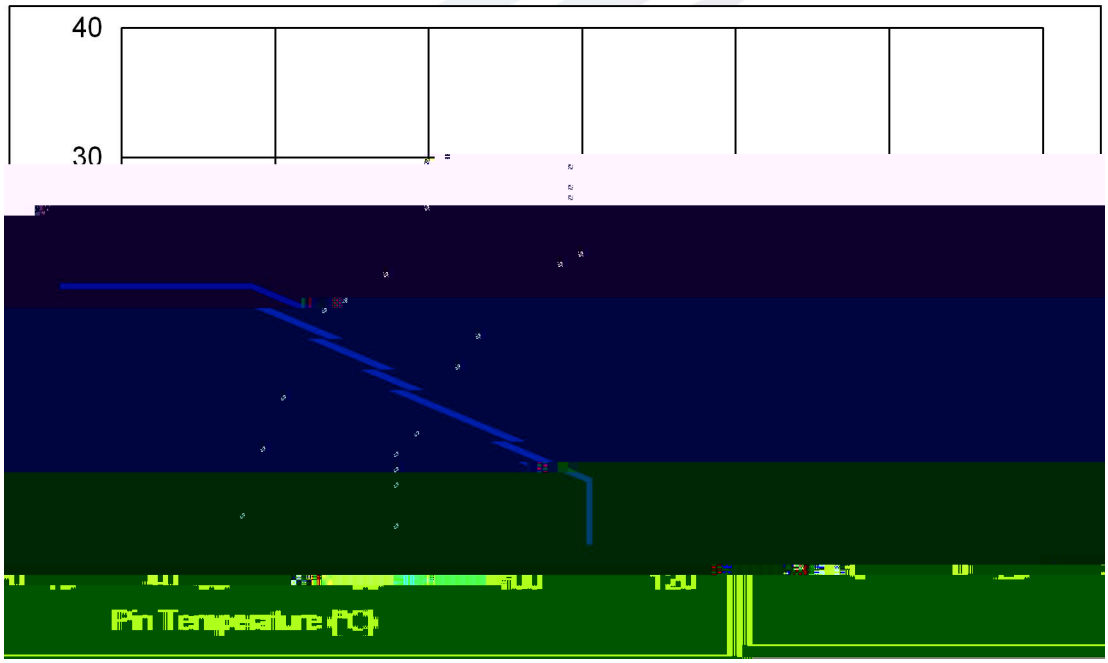


Fig.1-9 Pin Temperature Vs Forward Current

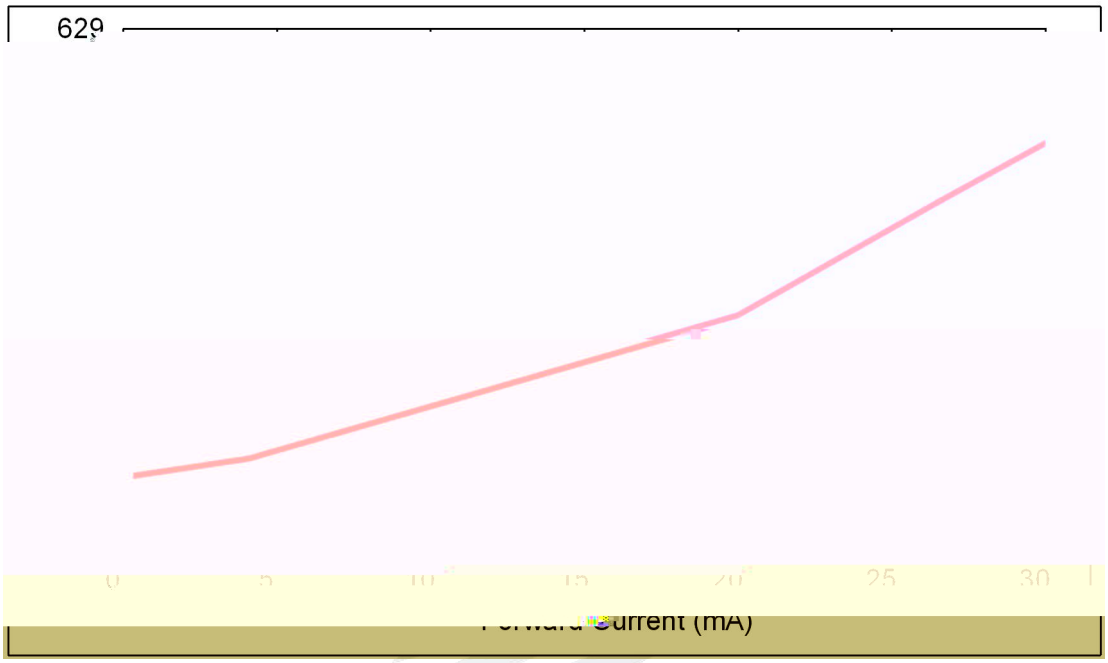


Fig.1-10 Forward Current Vs Dominate Wavelength (Ta=25)

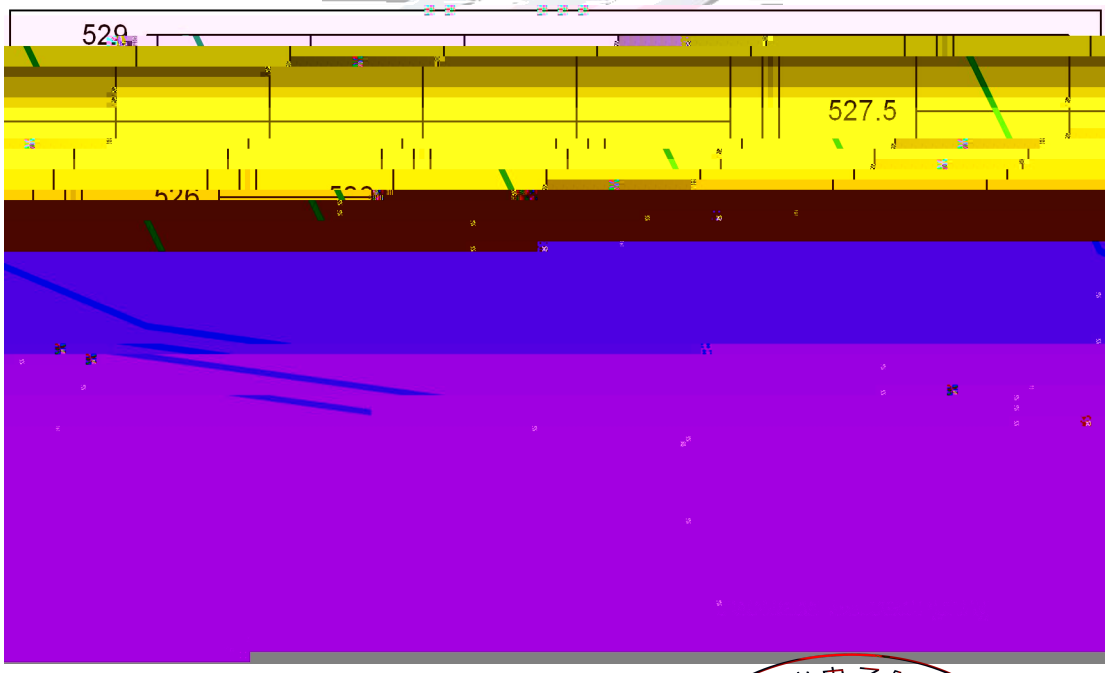


Fig.1-11 Forward Current Vs Dominate Wavelength (Ta=25)

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

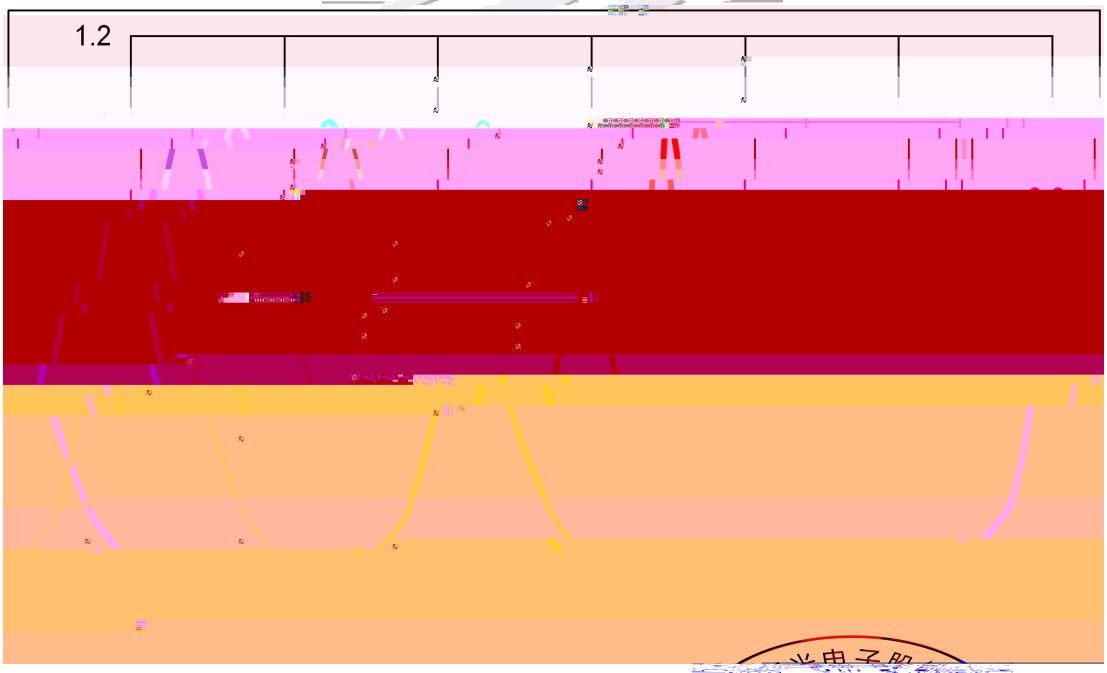
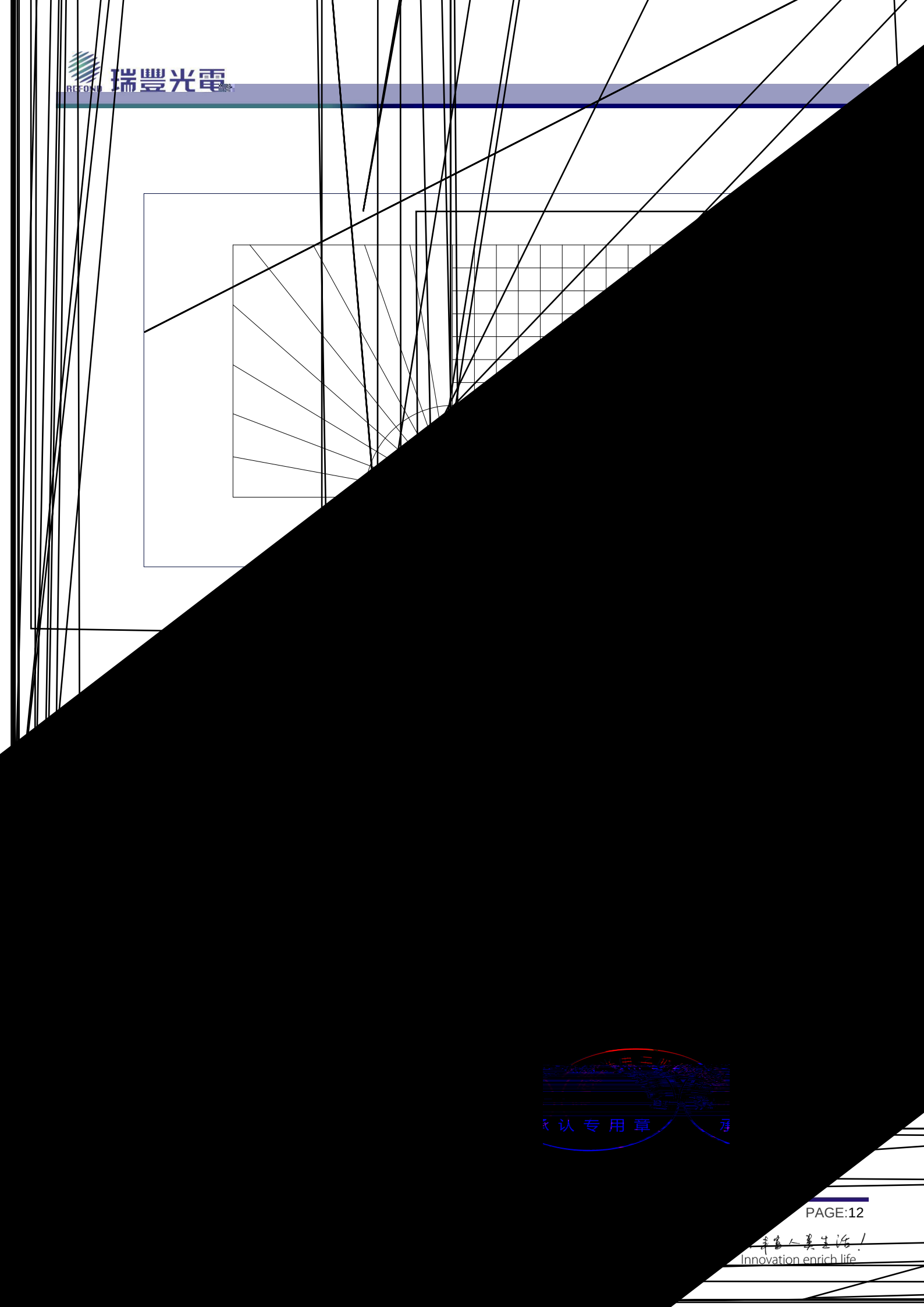


Fig.1-13 Relative Intensity Vs Wavelength (Ta=25)



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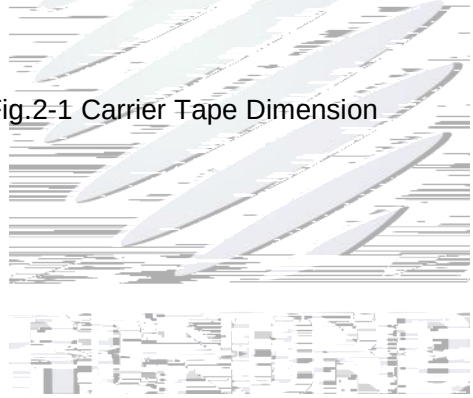

Fig.2-1 Carrier Tape Dimension

2.1.2 Reel Dimension

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2.1.3 Label Form Specification

Table 2-2 Parameter

Fig. 2-3 Label Form Specification

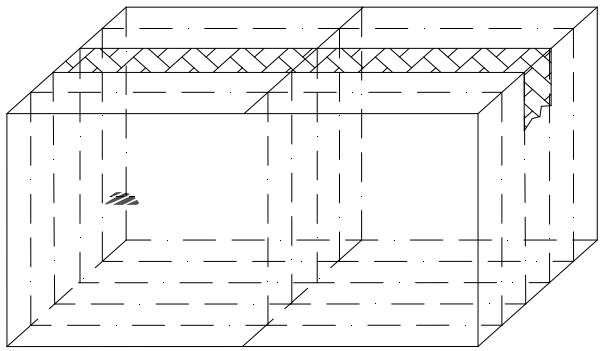

Fig.2-5 Cardboard Box

Table 2-3 Reliability Test Items And Conditions

Test Items	Ref.Standard	Test Condition	Time	Quantity	Ac/Re /
Reflow	JESD22-B106	T_{emp}: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.	0/1
High Temperature Storage	JESD22-A103	T_{emp}:100	1000 hrs.	22Pcs.	0/1
Low Temperature Storage	JESD22-A119	T_{emp}:-40	1000 hrs.	22Pcs.	0/1
Life Test	JESD22-A108	T_a=25 I_F=20mA	1000 hrs.	22Pcs.	0/1

Table 2-4 Criteria For Judging Damage

Fig.3-1 SMT Reflow Soldering Instructions SMT

Table 3-1 Parameter

Average temperature rise speed	Tsmax TP	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	(TL)	217 °C	
Time limited to maintain high temperature: The Time	(tL)	60 - 150	60s-150s
Peak /Classification of temperature: /	(TP)	260 °C	
Time limit classification of peak temperature time	tp	10	Max 10s
Hold time within 5 C with the actual peak temperature (TP)	(TP)		

Notes

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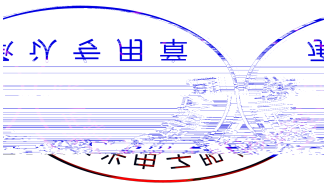

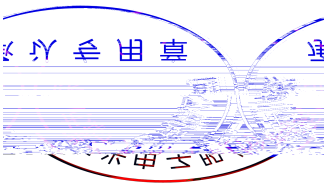

(4) In designing a circuit,the current thro each LED can n xceed the absolute maximum rating specified for each LED.In the m while, tors for rection should be applied, otherwise slight voltage big current change,burn out may happen. The driving circuit must be designed to allow forward voltage only when it is ON or OFF. If the reverse voltage is applied to LED, migration can be generated resulting in LED damage.

(5) 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

(6) Storage

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%	168hours 168
Baking		60 5	-	24hours 24

(7) 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

(8) Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS).

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

Version History/

Date	Revisor	Version	Verifier	Remarks
2019.08.11		E2		

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