产品　　书

REFOND P/N 产品　号

RF-RUB190TS-CA

☐R&D　发

■Mass Product　产供

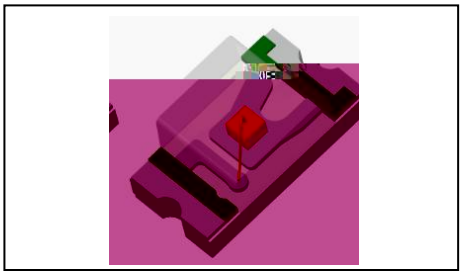
承 认 专 用 章

Contents

承 认 专 用 章

产品介

产品



The Colour LED which was fabricated using a red chip，Package Dimension : 1.6mmX0.8mmX0.7mm.

产品为 光 LED， 光 ，产品 ：1.6mmX0.8mmX0.7mm。

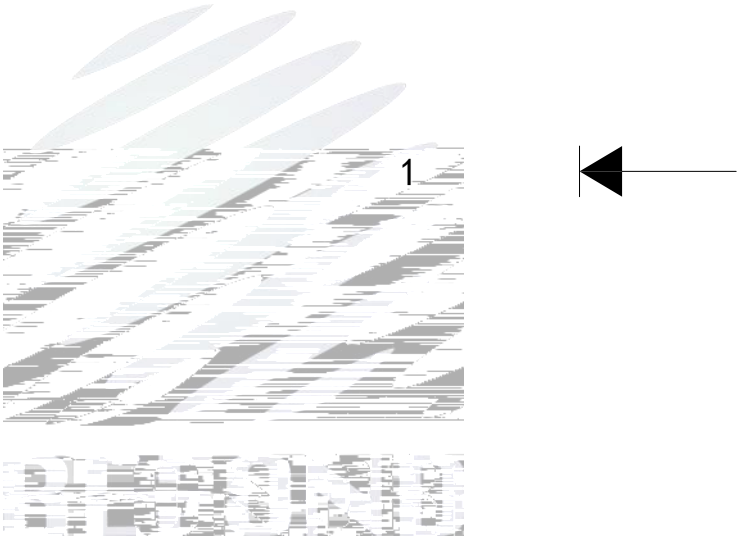
产品

- ► Extremely wide viewing angle.发光
- ► Suitable for all SMT assembly and solder process. 于 SMT 和
- ► Moisture sensitivity level: Level 3. Level3
- ► RoHS compliant. RoHS

产品

- ► Optical indicator.光
- ► Switch and symbol, display. 关和 ， 器
- ► General use.其他

承 认 专 用 章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产品参

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

Item	Test Condition 件	Symbol 号		Value Min. (值)	Value Typ. （典 值）	Value Max. （ 值）	Unit 单位
Spectral Half Bandwidth 半	I_F=20mA	λ		--	15	--	nm
Forward Voltage 向 压	I_F=20mA	V_F	B1	1.8	--	1.9	V
			B2	1.9	--	2.0	V
			C1	2.0	--	2.1	V
			C2	2.1	--	2.2	V
			D1	2.2	--	2.3	V
			D2	2.3	--	2.4	V
Dominant Wavelength 主	I_F=20mA	λ_D	F10	625.0	--	627.5	nm
			F20	627.5	--	630.0	nm
			G10	630.0		632.5	nm
			G20	632.5	--	635.0	nm
			H10	635.0	--	637.5	nm
			H20	637.5	--	640.0	nm
Luminous Intensity 发光	I_F=20mA	I_V	1E0	30	--	50	mcd
			1EP	50	--	90	mcd
Viewing Angle 发光	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	˚C/W

Notes　　: V_R=5V　For test conditions. V_R=5V 为　　分　　件。

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

Parameter（参 ）	Symbol（ 号）	Rating（值）	Units（单位）
Power Dissipation （功 ）	P_d	72	mW
Forward Current （ 向 ）	I_F	30	mA
Peak Forward Current Of Pulse （ 冲 值 ）	I_{FP}	60	mA
Electrostatic Discharge (HBM)（ ）	E_{SD}	2000	V
Operating Temperature （ 作 ）	T_{opr}	-40 ~ +85	
Storage Temperature （储 ）	T_{stg}	-40 ~ +85	
Junction Temperature （ ）	T_j	95	

Notes ：

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

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

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

4. The above luminous intensity measurement allowance tolerance ±10%. 上 发光 允 公 为±10%.

5. Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product. 使 功 不 值。

6. All measurements were made under the standardized environment of Refond. 于 丰 准 台。

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 使 件 ， 不 值。

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典 光

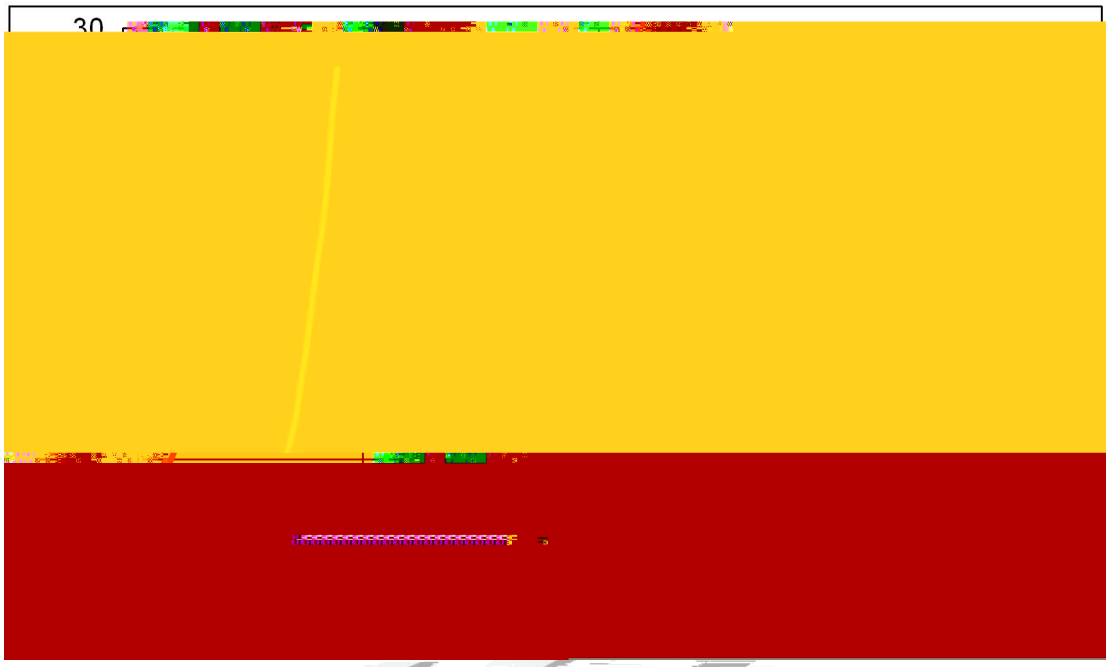

Fig 1-6 Forward Voltage Vs Forward Current 伏

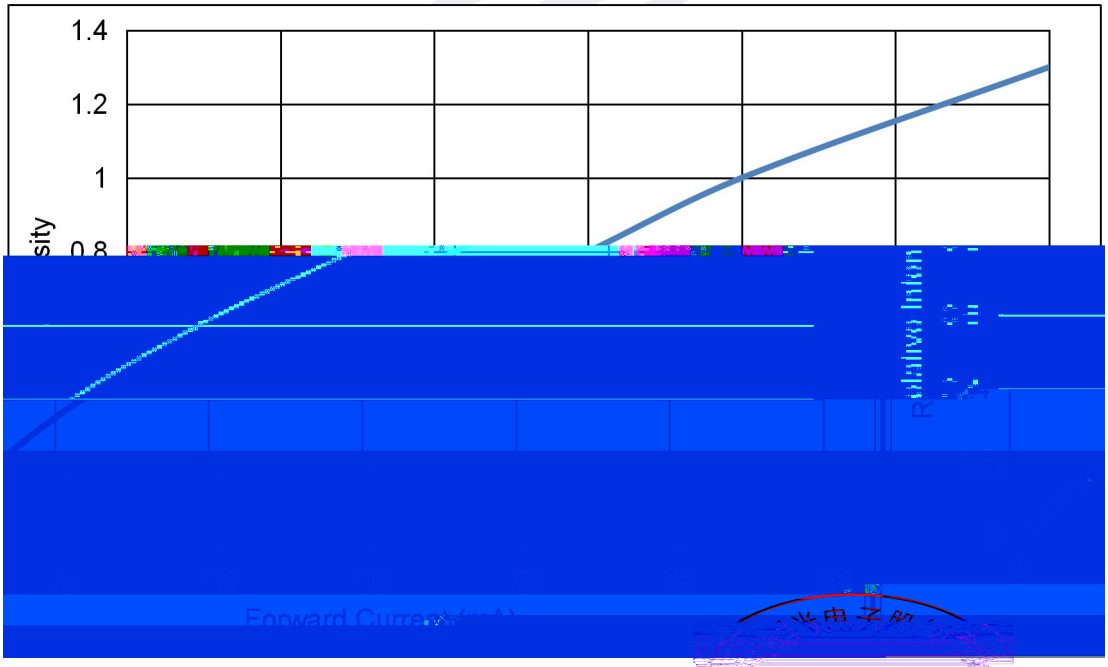

Fig 1-7 Forward Current Vs Relative Intensity 向 与 光

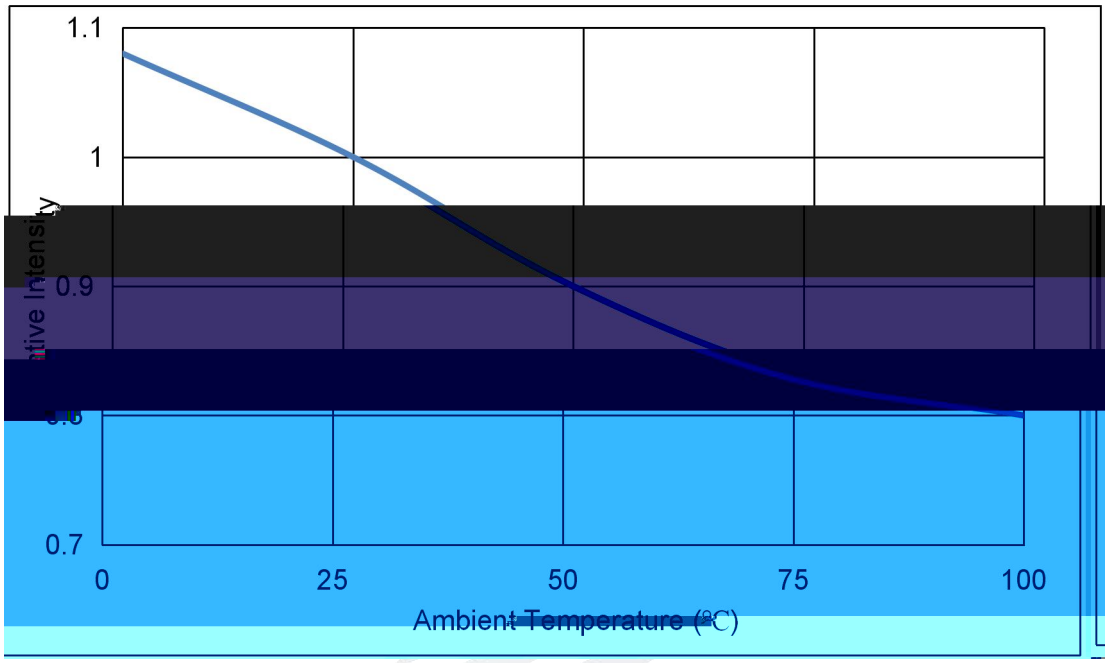

Fig 1-8 Pin Temperature Vs Relative Intensity 与 光

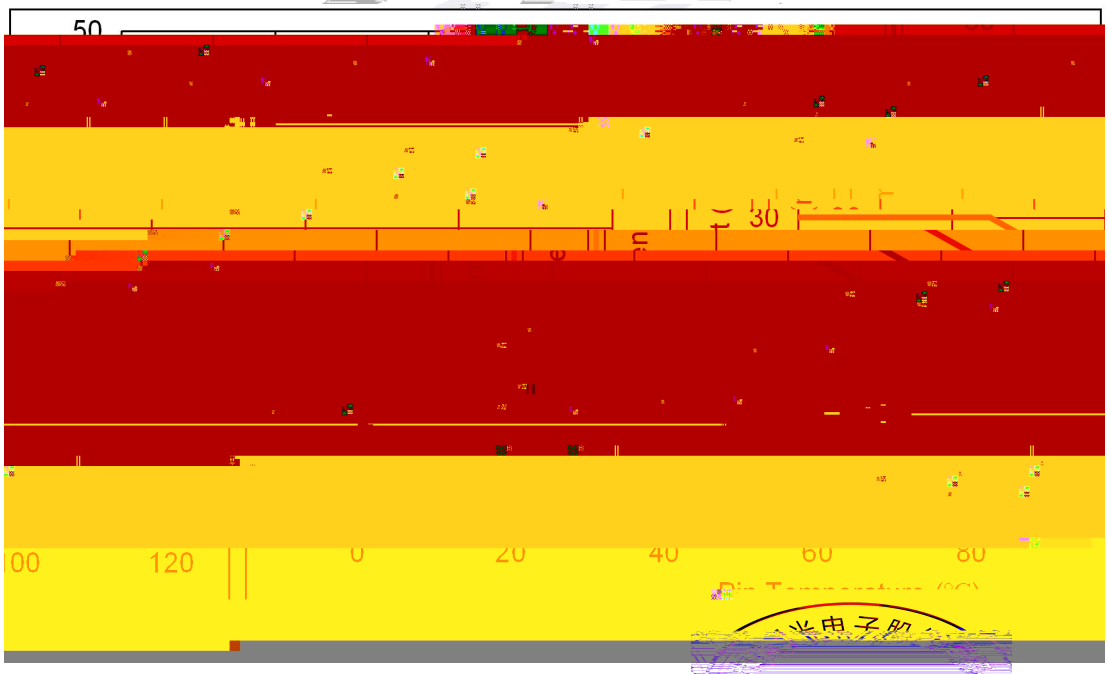

Fig 1-9 Pin Temperature Vs Forward Current 与 向

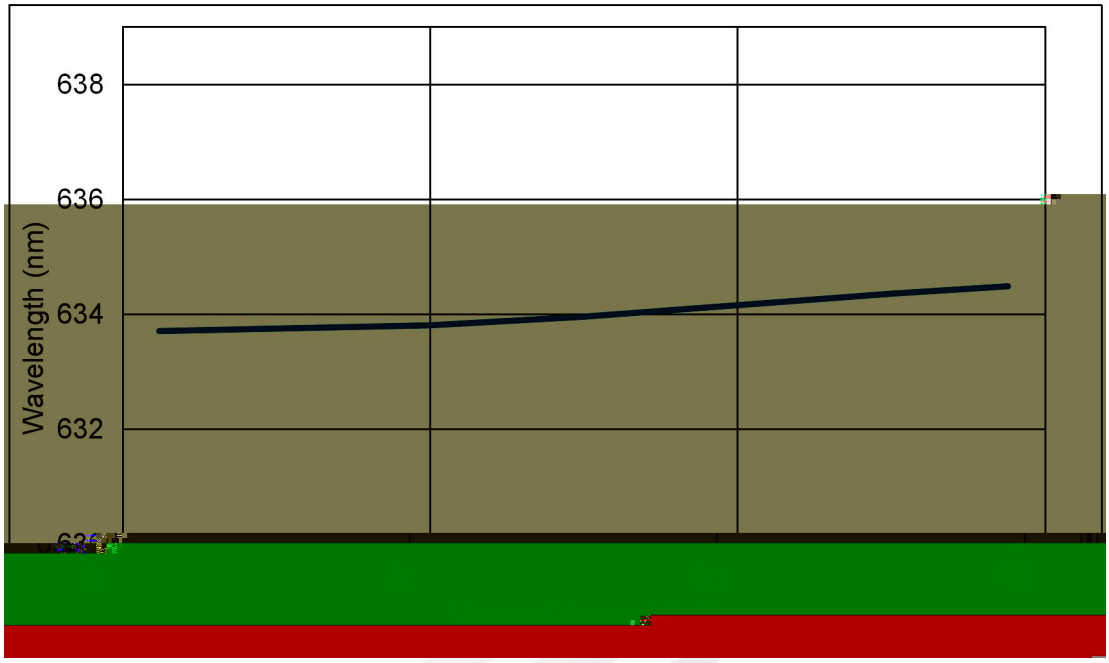

Fig 1-10 Forward Current Vs Dominate Wavelength (Ta=25) 向 与主 关

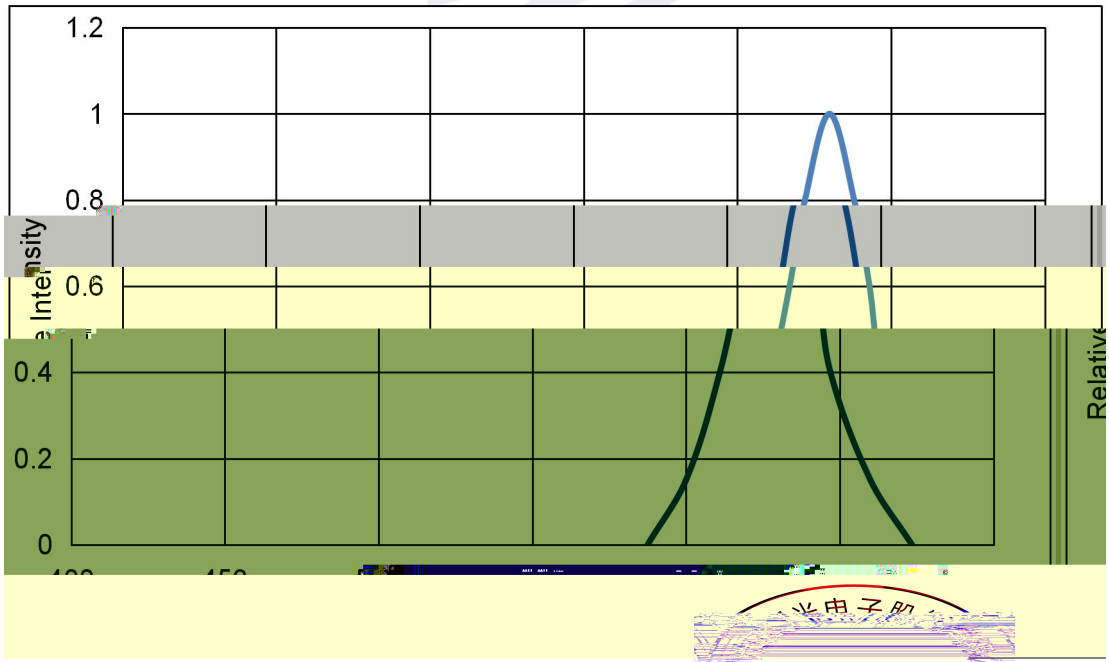

Fig 1-11 Relative Intensity Vs Wavelength (Ta=25) 光与 关

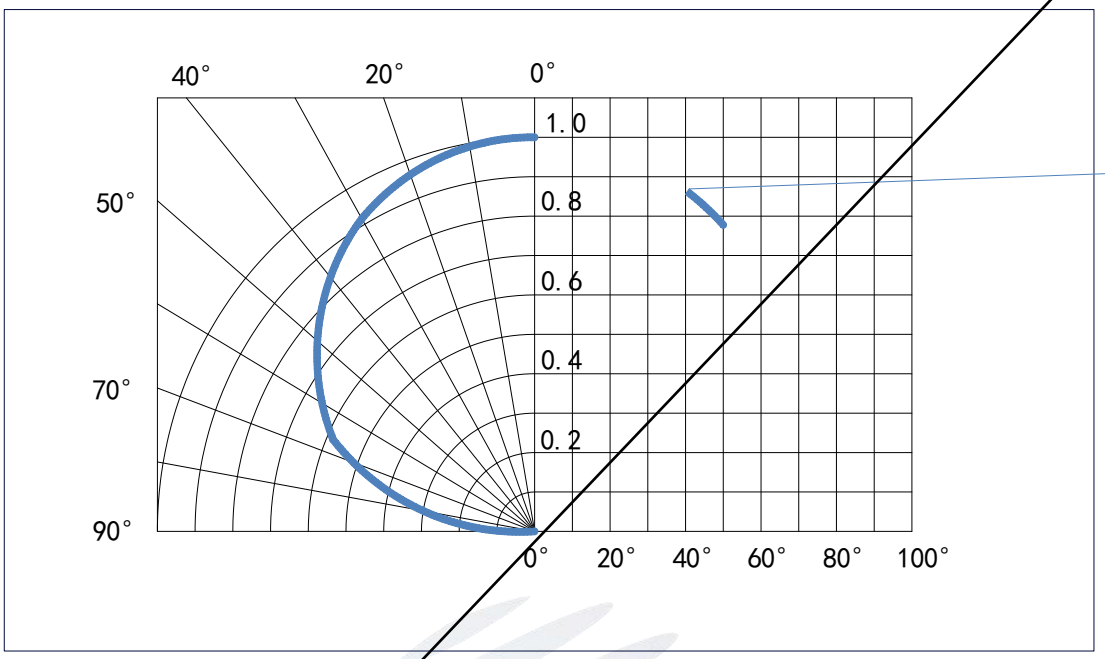

Fig 1-12 Diagram characteristics of radiation

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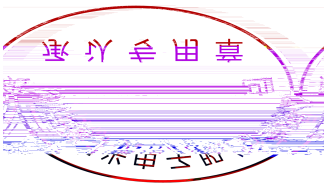

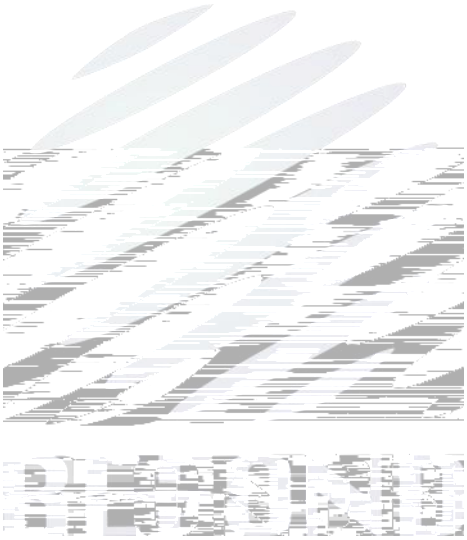

2.1.3 Label Form Specification

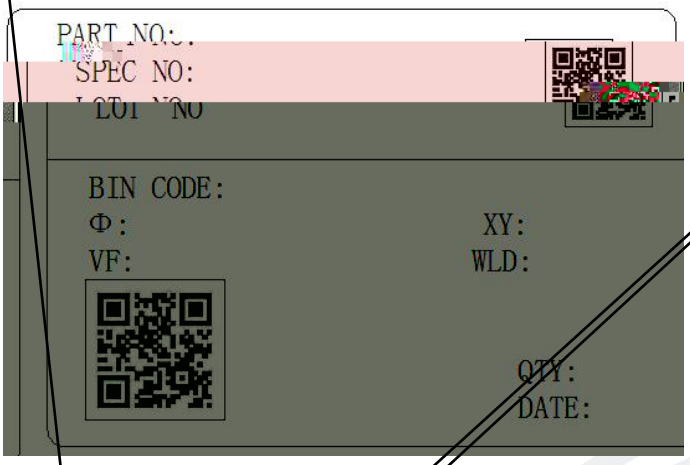

Fig. 2-3 Label Form Specification

Table 2-2 Parameter 参

PART NO.	Part Number 品名
SPEC NO.	Spec Number
LOT NO.	Lot Number 号
BIN CODE	Bin Code 参 代
Φ	Luminous flux 光
XY	Chromaticity Bin 区
V_F	Forward Voltage 向 压
WLD	Wavelength 代
QTY	Packing Quantity
DATE	Made Date 产

包

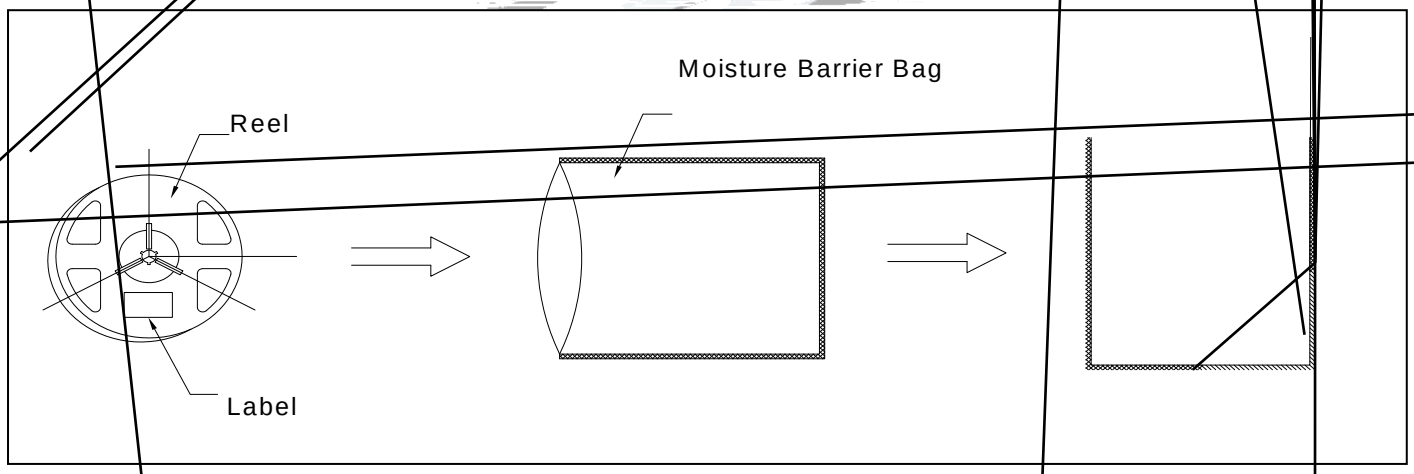

Fig.2-4 Moisture Resistant Packing 包

包

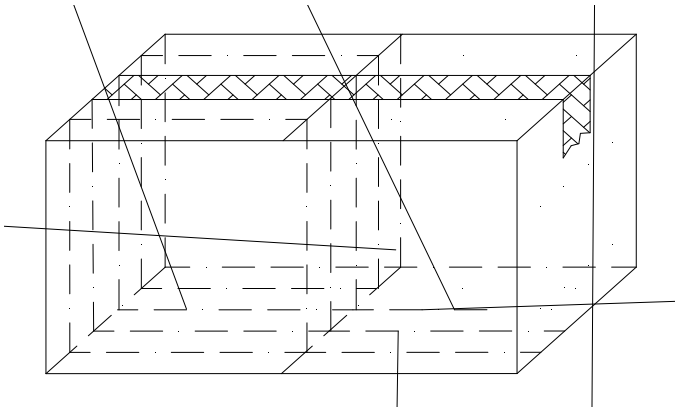

Fig.2-5 Cardboard Box 包

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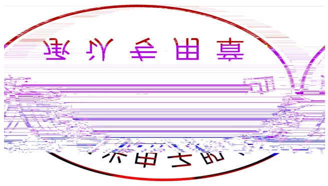
Table 2-3 Reliability Test Items And Conditions 信 及 件

Test Items	Ref.Standard 参 准	Test Condition 件	Time	Quantity	Ac/Re /
Reflow 回	JESD22-B106	T_{emp}:260˚Cmax T=10 sec	2 times	22Pcs.	0/1
Temperature Cycle	JESD22-A104	100˚C 30 min ↑↓5 min -40˚C 30 min	100 cycles	22Pcs.	0/1
Thermal Shock 冷 冲击	JESD22-A106	-40˚C 15min ↑↓ 100˚C 15min	300 cycles	22Pcs.	0/1
High Temperature Storage 保	JESD22-A103	T_{emp}:100˚C	1000 hrs.	22Pcs.	0/1
Low Temperature Storage 低 保	JESD22-A119	T_{emp}:-40˚C	1000 hrs.	22Pcs.	0/1
Life Test	JESD22-A108	T_a=25˚C I_F=20mA	1000 hrs.	22Pcs.	0/1



回

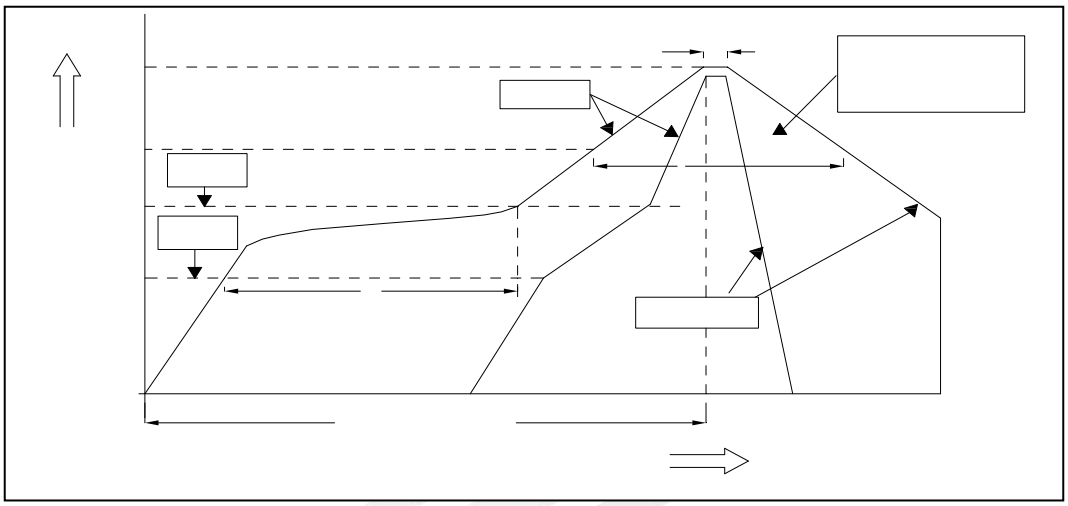


Fig.3-1 SMT Reflow Soldering Instructions SMT 回

Table 3-1 Parameter 参

Average temperature rise speed 均升 （Tsmax TP）	3 °C/ Max 3 °C/ s
Preheating: minimum temperature ： 低 (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: 值 / 分 (T_P)	260 °C
Time limit classification of peak temperature time 值分 ： （t_p）	10 Max 10s
Hold time within 5 ° C with the actual peak temperature (TP) 与 值 (T_P) 5 °C 以内 保	30 Max 30s
Cooling speed	6 °C/ Max 6 °C/ s
Needed time from 25 °C to Tp 25 °C 升 值	8分 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. 回 不可以 两 ，两 回 24 ，LED可 于吸 。

(2)When soldering , do not put stress on the LEDs during heating. ，不 在 受 力压 体 。

3.1.1 Soldering Iron

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

(2) Soldering by hand should be done only one time. 只可 一 。

3.1.2 Repairing 修

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回 后不 修 ， 修 ， 使 双 ， 且事先 会不会 LED 。

3.1.3 Cautions 事

(1) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board.LED 不 在 PCB 上， 之后，也不 。

(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.回 之后冷却 中，不 加 力，也不 动，回 后，不 剧冷却 。

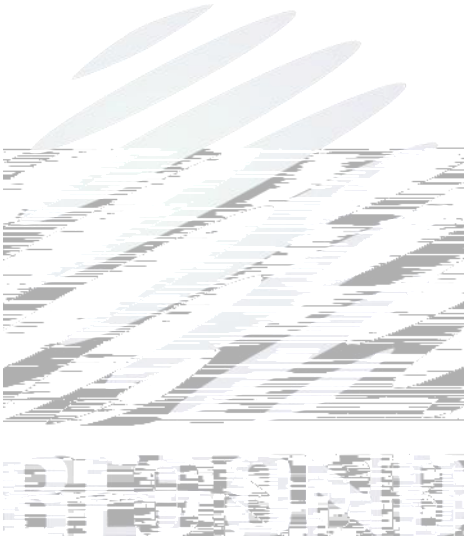
承 认 专 用 章

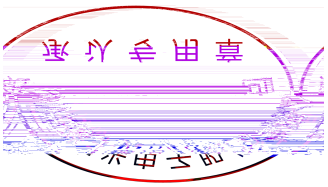
(1) LED operating environment and sulfur element composition cannot be over 100PPM in the LEDmating usage material. This is provided for informational purposes only and is not a warranty or endorsement.LED 作 及与 LED 单 元 及化合 份不可 100PPM. 只 一个 ，不作任何品 保。

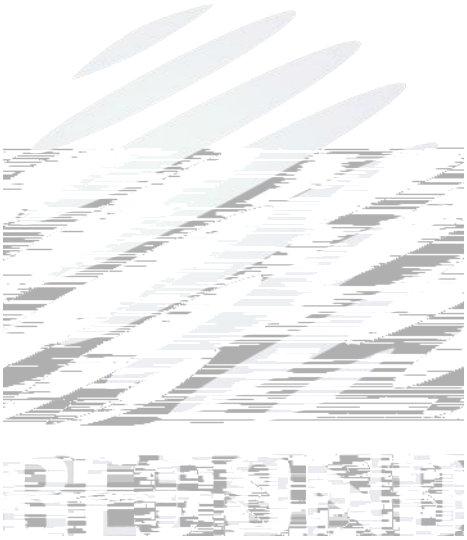
(2) In order to prevent ex-ternal material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine elementis required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external materials of the packaging or products is required to be less than 1500PPM. This is provided for informational purposes only and is not a warranty or endorsement.为了 入 LED 内 以 LED 外 ，单一 元 含 于 900PPM，单一 元 含 于 900PPM， 元 与 元 含 于 1500PPM. 只 一个 ，不作任何品 保。

(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 preven f

(4) 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] e







Version History/修　历史

Date	Revisor修	Version	Verifier	Remarks
2019.07.11		E2		制

Declare
This specification is written both in English and in Chinese and the latter is formal.
产品　　书以中　　书写，　　冲　以中　　为准。