SPECIFICATION
产品规格书

REFOND P/N 产品型号

RF-Q30SARB-FD-U

□R&D 研发

■ Mass Product 量产供货

Contents 目录

1.5Product Parameters 产品参数

Table 1-1 Electrical / Optical Characteristics at Ts=25°C 电性与光学特性

Product 产品型号	Symbol 符号	test condition 测试条件	Value			unit 单位
			Min.	Typ.	Max.	
Forward Voltage R	Vf	I_F =300mA	2.0	---	2.6	V
Forward Voltage B	Vf	I_F =300mA	3.2	---	3.8	V
luminous flux R		I_F =300mA	15.0	---	18.0	lm
luminous flux B		I_F =300mA	10.0	---	13.0	lm
Peak Wavelength R	D	I_F =300mA	640	---	670	nm
Peak Wavelength B	D	I_F =300mA	440	---	460	nm
Reverse Current	Vr=5	IR	---			

Table 1-2 Absolute Maximum Ratings at Ts=25°C 绝对最大值

Notes 备注：

1. 1/10 Duty cycle, 0.1ms pulse width. 脉宽0.1ms,占空比1/10.

1.6Bin Range Of Forward Voltage and Luminous Flux(IF=300mA)电压与光通量分 BIN 范围(IF=300mA)

Table 1-3

R	VF(V)	C0	D0	E0
		2.0-2.2	2.2-2.4	2.4-2.6
		RB2		
		15-18		
	WLD(nm)	RC4	RC5	RC6
		640-650	650-660	660-670
B	VF(V)	I0	J0	K0
		3.2-3.4	3.4-3.6	3.6-3.8
		RA2		
		10-13		
	WLD(nm)	BC4	BC5	
		440-450	450-460	

1.7 Typical optical characteristics curves 典型光学特性曲线

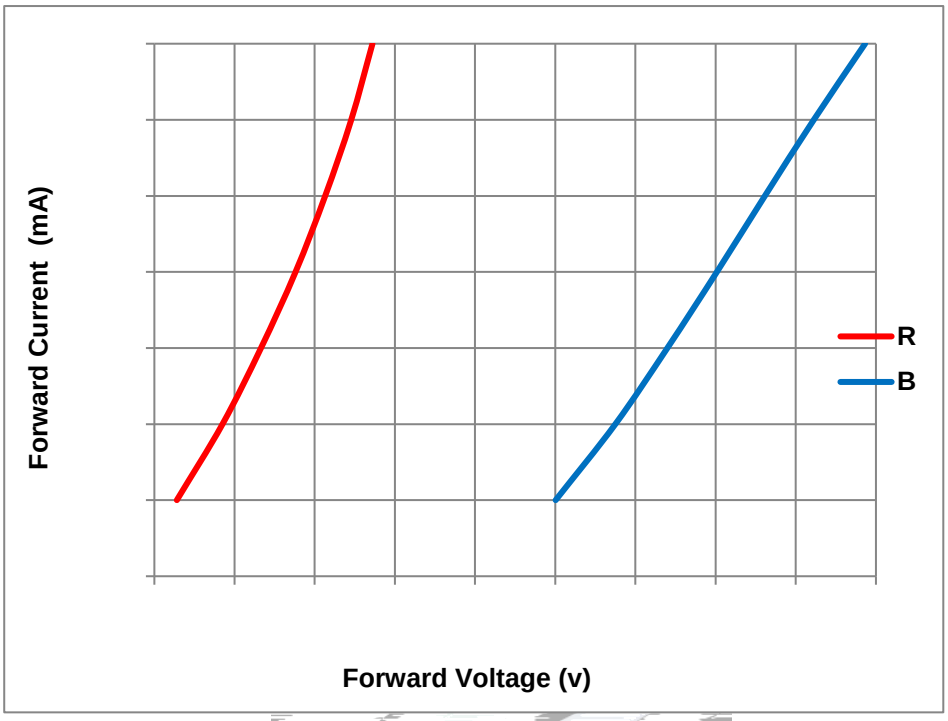


Fig 1-6 Forward Voltage Vs. Forward Current伏安特性曲线

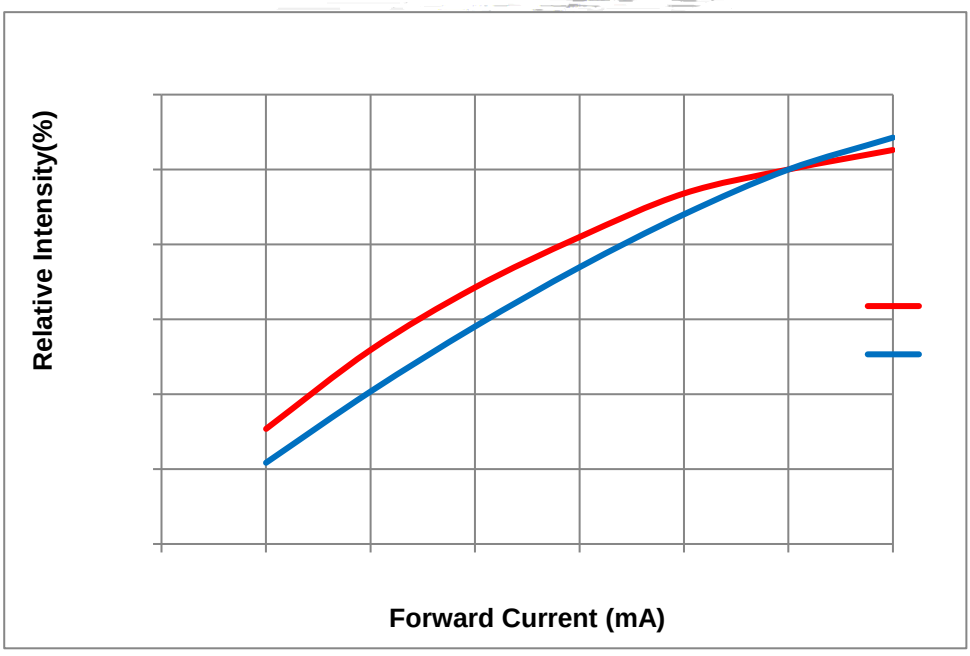


Fig 1-7 Forward Current Vs. Relative Intensity正向电流与相对光强特性曲线

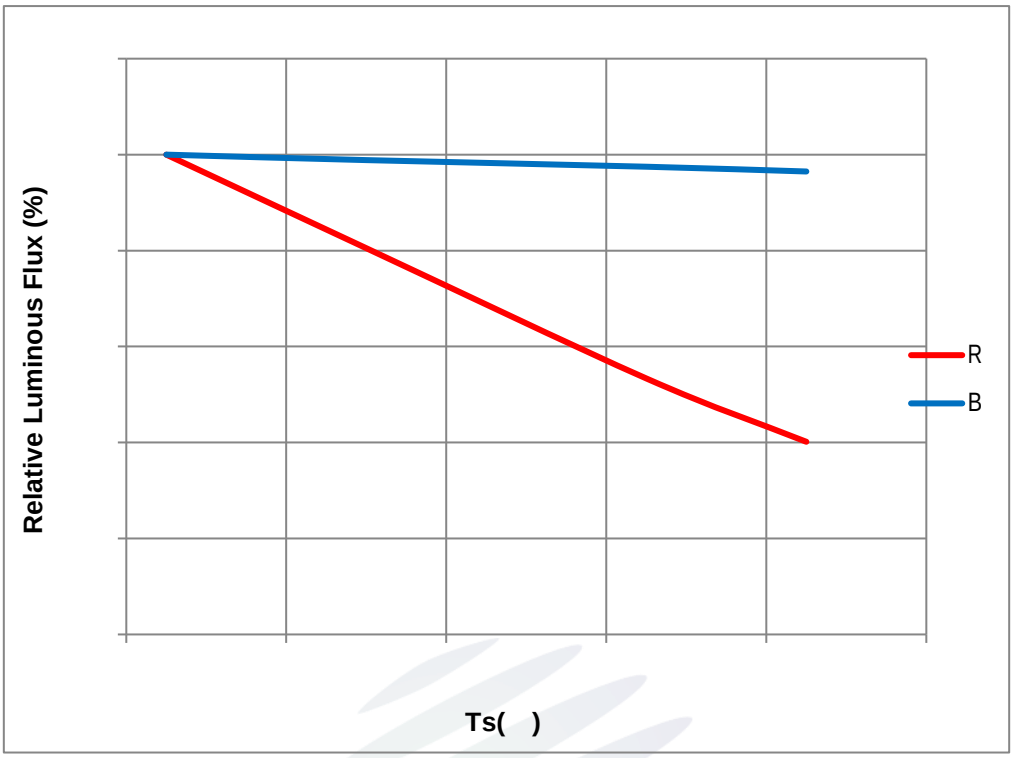


Fig 1-8 Solder Temperature Vs Relative Intensity管脚温度与相对光强特性曲线

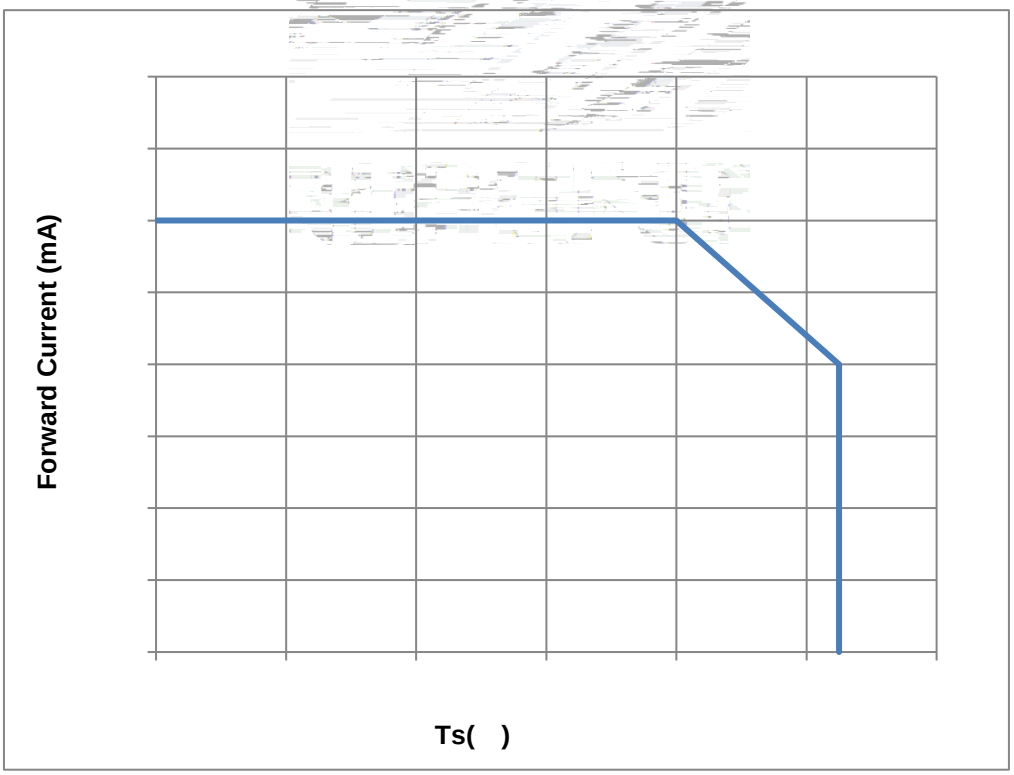


Fig 1-9 Solder Temperature Vs.Forward Current管脚温度与正向电流特性曲线

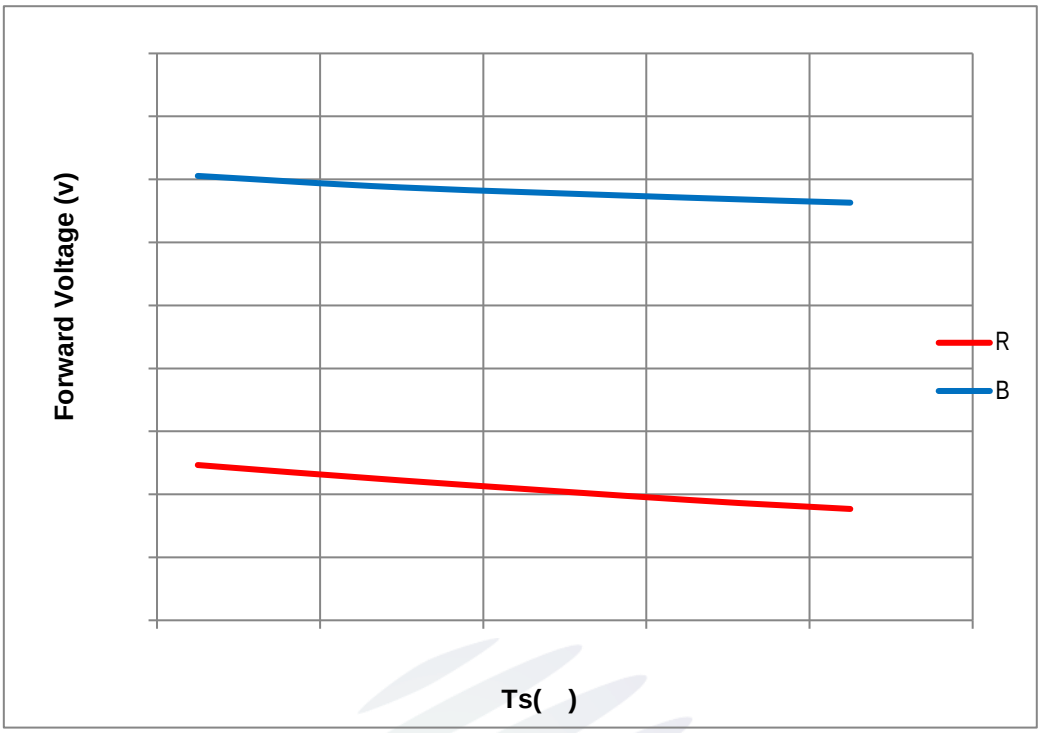


Fig 1-10 Forward Voltage Vs Solder Temperature电压与管脚温度特性曲线

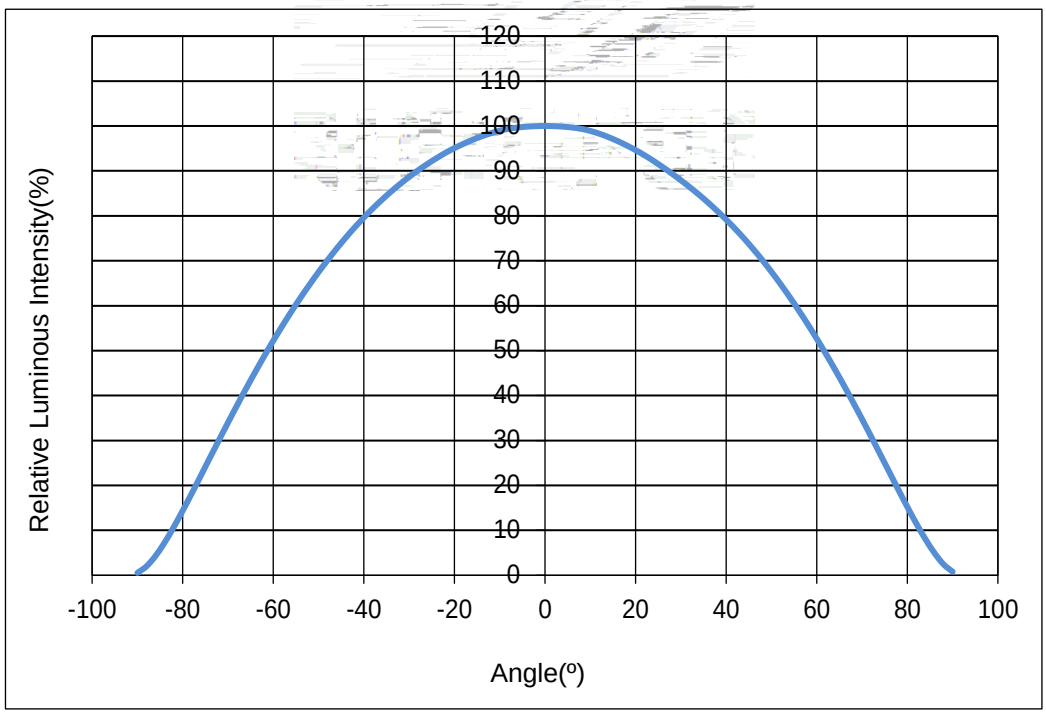


Fig 1-11 Radiation diagram辐射特性曲线

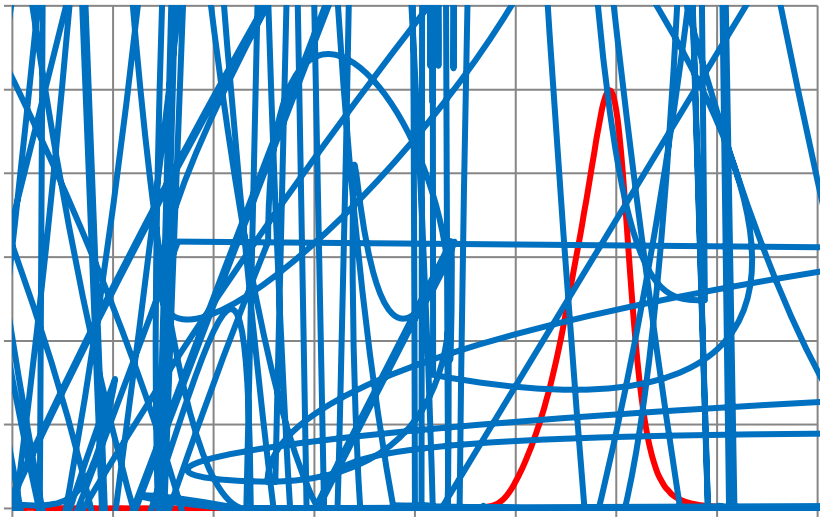
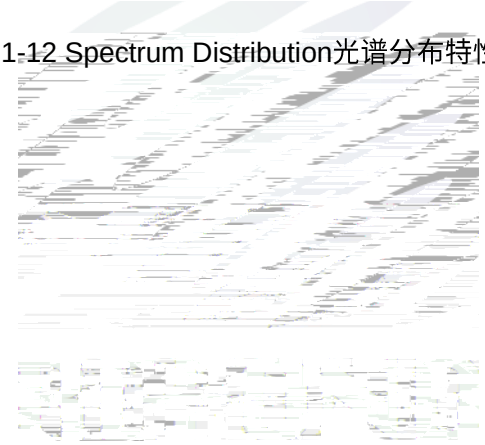
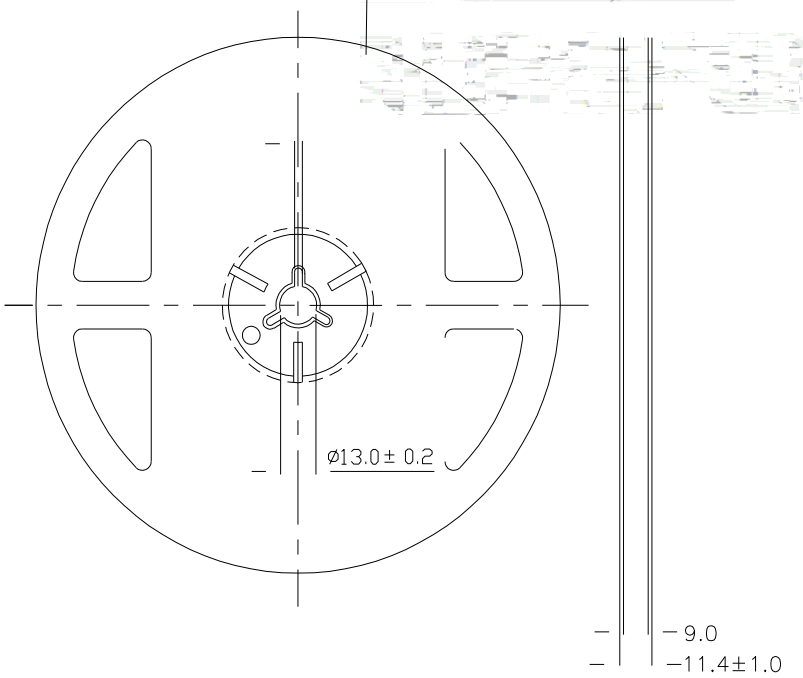


Fig 1-12 Spectrum Distribution光谱分布特性曲线




Ø13.0± 0.2
9.0
11.4±1.0

2.1.3Label Form Specification 标签规格

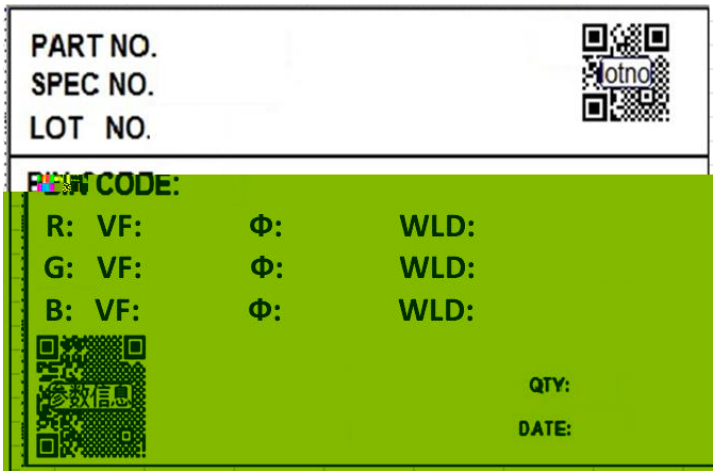


Fig 2-3 Title

Table 2-2 Title

PART NO.	Part Number 品名
SPEC NO.	Spec Number 规格
LOT NO.	Lot Number 批次号
BIN CODE	Bin Code 参数代码
	Luminous flux 光通量
V_F	Forward Voltage 正向电压
WLD	Dominant Wavelength 波长
QTY	Packing Quantity 数量
DATE	Made Date 生产日期

2.2Moisture Resistant Packing 防潮包装

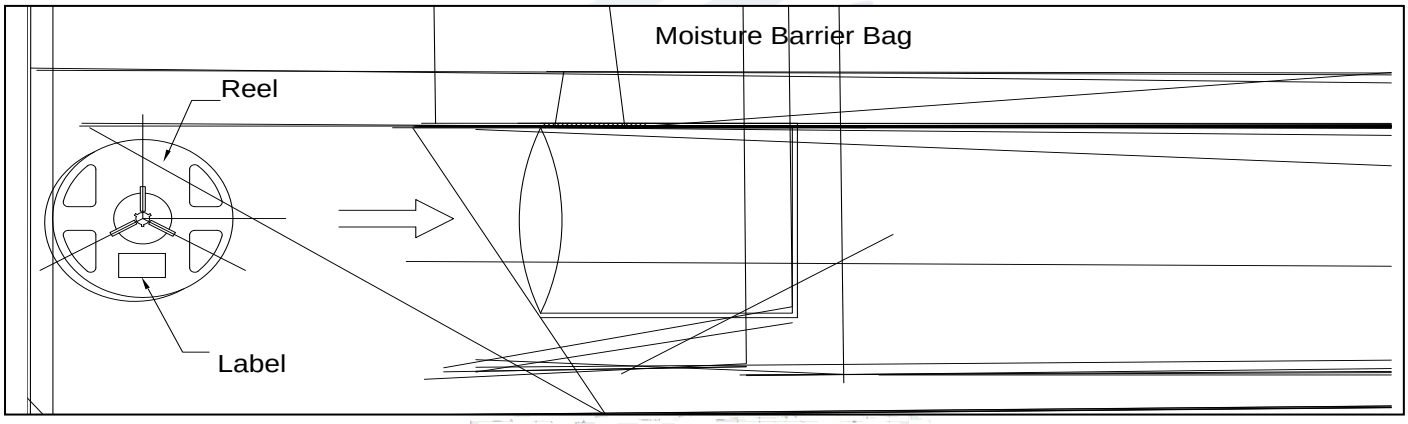


Fig.2-4Title

2.3Cardboard Box 包装纸箱

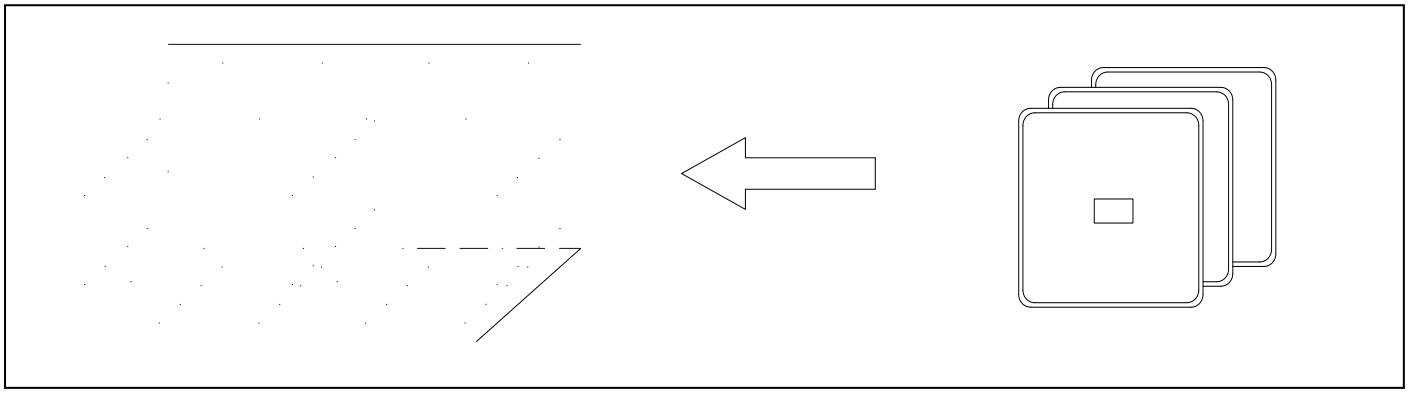


Fig.2-5Title

2.4 Reliability Test Items And Conditions 信赖性测试项目及条件

Table 2-3 Title

Test Items 项目	Ref.Standard 参考标准	Test Condition 测试条件	Time 时间	Quantity 数量	Ac/Re 接收/拒收
Reflow 回流焊	JESD22-B106	Temp:260 max T=10 sec	2times.	10Pcs.	0/1
Temperature Cycle 温度循环	JESD22-A104	100 30 min. -40 30 min.	300Cycles	10Pcs.	0/1
Thermal Shock 冷热冲击	JESD22-A106	-40 15min 10sec 100 15min	300Cycles	10Pcs.	0/1
High Temperature Storage 高温保存	JESD22-A103	Temp.:105	1000Hrs.	10Pcs.	0/1
Low Temperature Storage 低温保存	JESD22-A119	Temp.:-40	1000Hrs.	10Pcs.	0/1
Life Test 常温老化	JESD22-A108	Ta=25 I_F =300mA	1000Hrs.	10Pcs.	0/1
High Temperature High Humidity Life Test 高温高湿老化	JESD22-A101	60 / 90%RH I_F=300mA	1000Hrs.	10Pcs.	0/1

2.5 Criteria For Judging Damage 失效判定标准

Table 3-1Title

Average temperature rise speed平均升温速度（T_{smax} 至T_P）	最高3 °C/秒 Max 3 °C/ s
Preheating: minimum temperature预热：最低温度（Tsmin)	150 °C
Preheating: Max temperature预热：最高温度（Tsmax)	200 °C
Preheating: Time预热：时间（Tsmin 至Tsmax）	60 - 120秒 60s-120s
Time limited to maintain high temperature: the temperature限时维持高温：温度（T_L)	217 °C
Time limited to maintain high temperature: The Time 限时维持高温：时间（t_L)	最多60秒 Max 60s
Peak /Classification of temperature:峰值 / 分类温度（T_P)	260 °C
Time limit classification of peak temperature time限时峰值分类温度：时间（t_p）	最多10秒 Max 10s
Hold time within 5 °C with the actual peak temperature (TP) 与实际峰值温度（T_P)相差5 °C 以内的保持时间	最多30秒 Max 30s
Cooling speed 降温速度	最高6 °C/秒 Max 6 °C/ s
Needed time from 25 °C to Tp 25 °C 升至峰值温度所需时间	最多8分钟 Max 8 minutes

Notes 备注：

(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. 回流焊次数不可以超过两次，两次回流焊的时间间隔如果超过24小时，LED可能由于吸湿而损坏。

(2)When soldering , do not put stress on the LEDs during heating.当焊接时，不要在材料受热时用力压胶体表面。

3.1.1 Soldering Iron 烙铁焊接

(1) When hand soldering, keep the temperature of iron below less 300 less than 3 seconds
当手工焊接时，烙铁的温度必须小于300℃，时间不可超过3秒。

(2) The hand solder should be done only one time.手工焊接只可焊接一次。

3.1.2 Repairing 修补

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回流焊后不应该修复，当必须修复时，必须使用双头烙铁，而且事先应确认此种方式会不会损坏LED本身的特性。

3.1.3 Cautions 注意事项

(1) 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封装胶为硅胶，表面较软，用力按压胶体表面会影响LED可靠性，因此应有预防措施避免在按压器件，当使用吸嘴时，胶体表面的压力应是恰当的。

(2) Components should not be mounted on warped (non coplanar) portion of PCB. After soldering, do not warp the circuit board.LED 灯珠不要焊接在弯曲的 PCB 板上，焊接之后，也不要弯折线路板。

(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.回流焊之后冷却过程中，不要对材料实加外力，也不要有震动，回流焊后，不要采用激剧冷却的方式。

4. Handling Precautions 产品使用注意事项

4.1 Handling Precautions 产品使用注意事项

(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 工作环境及与 LED 适配的材料中硫元素及化合物成份不可超过 100PPM.这只是一个建议，不作任何品质担保。

(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

(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. 设计电路时，通过 LED 的电流不能超过规定的最大值，同时，还需使用保护电阻，否则，微小的电压变化将会引起较大电流变化，可能导致产品损毁。电路设计必须保证只有在开启或者关闭的时候出现正向电压的变化，不要施加反压，否则会损坏 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 容易因为自身的发热和环境的温度改变而改变，温度升高会降低 LED 发光效率，影响发光颜色，所以在设计时应充分考虑散热问题。

(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. 与其他封装胶相比，硅胶通常较软，表面易吸附脏物，应用时应特别注意，当对产品洁净度要求较高时，回流焊以后需要采用恰当的清洗方式，我们推荐用异丙醇作清洗剂，如需要用到其他清洗剂，必须保证不会破坏封装体，超声清洗可能会对 LED 带来损害，不推荐这种清洗方式。

Table 4-1Storage 储存

Conditions 种类		Temperature 温度	Humidity 湿度	Time 时间
Storage	Before Opening Aluminum Bag 拆包前	≤ 30℃	≤ 75%	Within 1 Year From Date 一年内

	After Opening Aluminum Bag 拆包后	≤30℃	≤60%	24hours 24小时
Baking 烘烤		60±5℃	-	≥24hours 大于24小时

(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.如果干燥剂或包装失效，或者产品不符合以上有效储存条件，需拆包后进行烘烤，烘烤条件：60±5℃，大于 24 小时。

If the package is flatulence or damaged, please notify the sales staff to assist.如果包装胀气或者破损，请通知销售人员协助处理。

(9)Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). 像其他的半导体器件一样，LED 对静电过流击穿非常敏感，需要做好防护。

(10) Other points for attention, please refer to our relevant information.其它注意事项请参照瑞丰相关资料。

Version History/修订历史

Date日期	Revisor修订者	Version版本	Verifier审核	Remarks备注
2021-08-05		E/0