

# SPECIFICATION

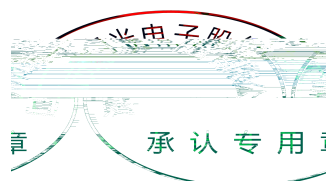
# 产品规格书

REFOND P/N 产品型号

RF-H1S196TS-B09

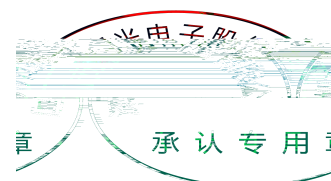
R&D 研发

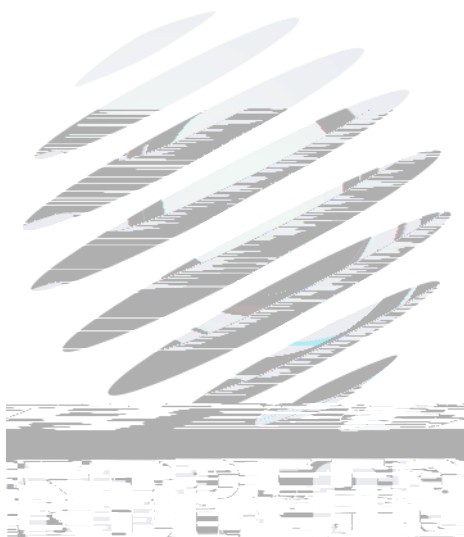
Mass Product 量产供货



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### 1.4 Package Dimension 封装尺寸

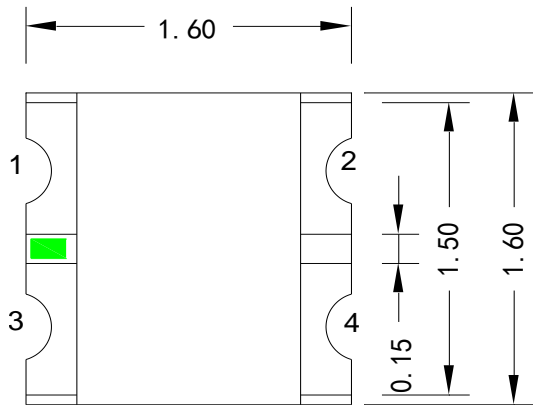


Fig.1-1 Top view 正面视图

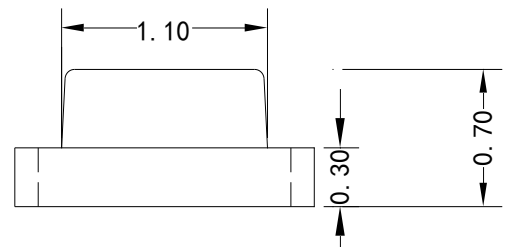


Fig.1-2 Side view 侧面视图

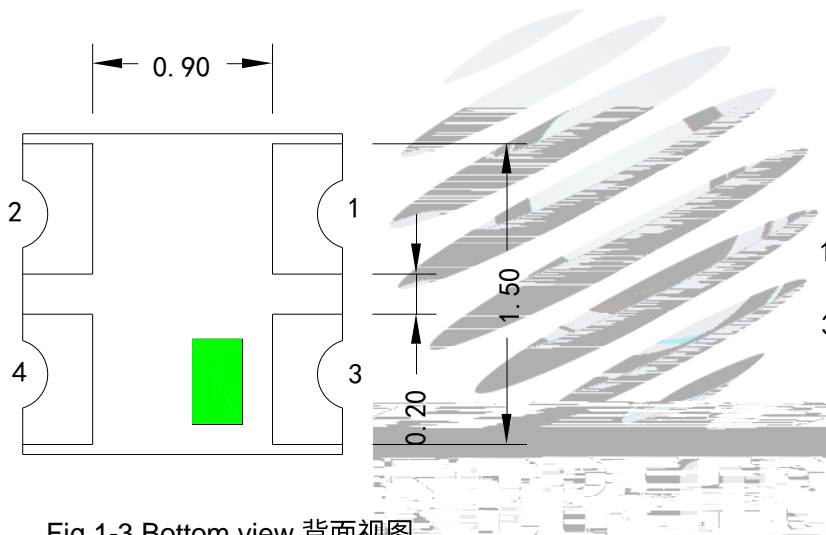


Fig.1-3 Bottom view 背面视图

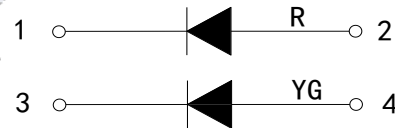


Fig.1-4 Polarity 极性

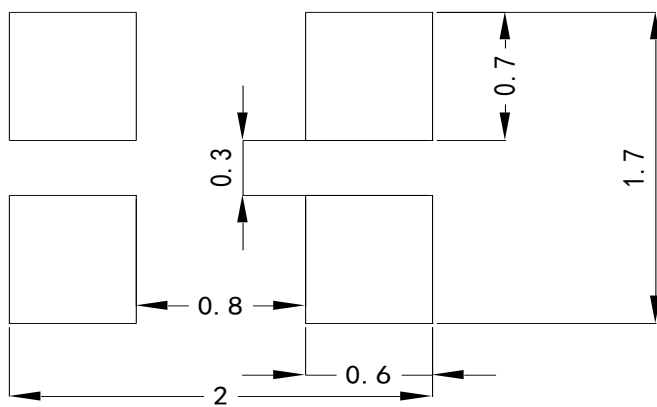
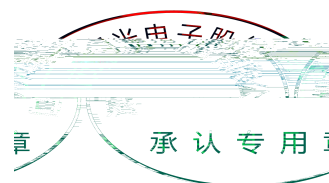


Fig.1-5 Soldering patterns 推荐焊盘



Notes 备注:

1. All dimensions units are millimeters. 所有尺寸标注单位为毫米
2. All dimensions tolerances are  $\pm 0.2\text{mm}$  unless otherwise noted. 除特别标注外, 所有尺寸公差为 $\pm 0.2$  毫米

## 1.5 Product Parameters 产品参数

Table 1-1 Electrical / Optical Characteristics at  $T_s=25^\circ\text{C}$  电性与光学特性

Item 项目	Test Condition 测试条件	Symbol 符号		Code 代码	Value			Unit 单位
					Min. (最小值)	Typ. (典型值)	Max. (最大值)	
Spectral Half Bandwidth 半波宽	$I_F=20\text{mA}$	$\Delta$	R	/	--	15	--	nm
			YG	/	--	15	--	
Forward Voltage 正向电压	$I_F=20\text{mA}$	$V_F$	R	1L	1.8	--	2.4	V
			YG	1L	1.8	--	2.4	
Dominant wavelength 主波长	$I_F=20\text{mA}$	$\lambda_d$	R	E00	620.0	--	625.0	nm
				F00	625.0	--	630.0	
			YG	B10	565	--	567.5	
				B20	567.5	--	570.0	
				C10	570	--	572.5	
				C20	572.5	--	575	

Notes 备注:  $V_R=5\text{V}$  For test conditions.  $V_R=5\text{V}$  为测试允许条件

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

Parameter (参数)	Symbol (符号)	Rating (值)		Units (单位)
		R	YG	
Power Dissipation (功耗)	$P_d$	72	72	mW
Forward Current (正向电流)	$I_F$	30		mA

PeaGf\*562.08 648.94 0.47991577.9

## Notes 备注:

- 1/10 Duty cycle, 0.1ms pulse width. 脉宽0.1ms,占空比1/10.
- The above forward voltage measurement allowance tolerance is  $\pm 0.1V$ . 以上所示电压测量误差 $\pm 0.1V$ .
- The above dominant wavelength measurement allowance tolerance is  $\pm 2nm$ . 以主波长测量误差 $\pm 2nm$ .
- The above luminous intensity measurement allowance tolerance  $\pm 10\%$ . 上述发光强度的测试允许公差 $\pm 10\%$ .
- Care is to be taken that power dissipation does not exceed the absolute maximum rating of the product. 使用功率不能超过规定的最大值。
- All measurements were made under the standardized environment of Refond. 所有测试都是基于瑞丰现有的标准测试平台。
- 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使用的最大电流需要根据散热条件确定, 结温不能超过最大值。

## 1.6 Typical Optical Characteristics Curves

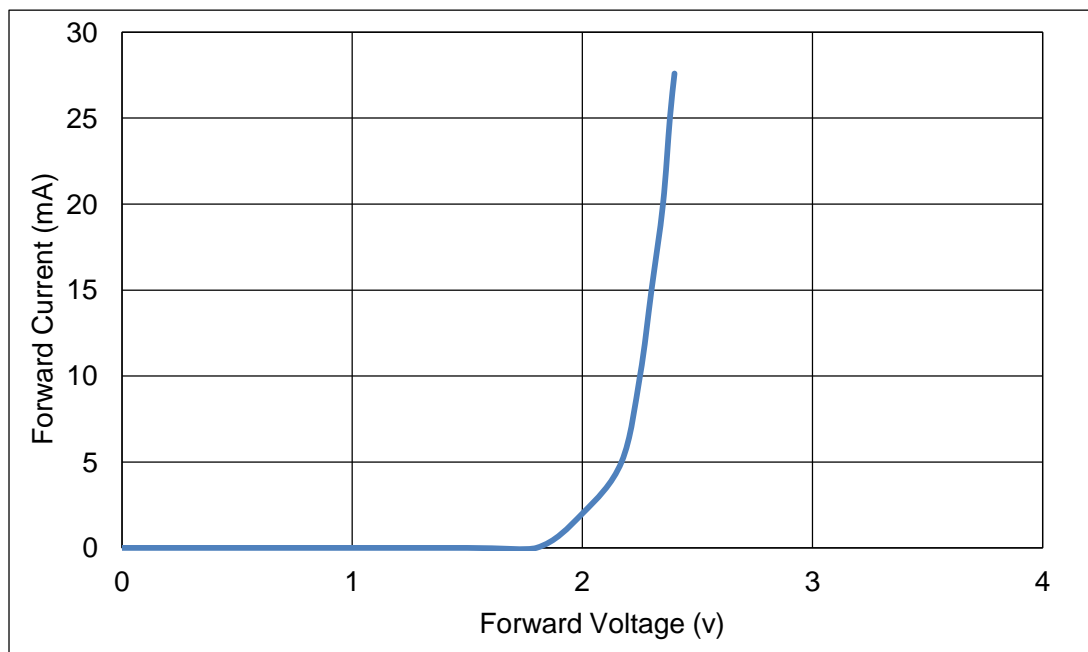


Fig.1-6 Forward Voltage Vs Forward Current 伏安特性曲线

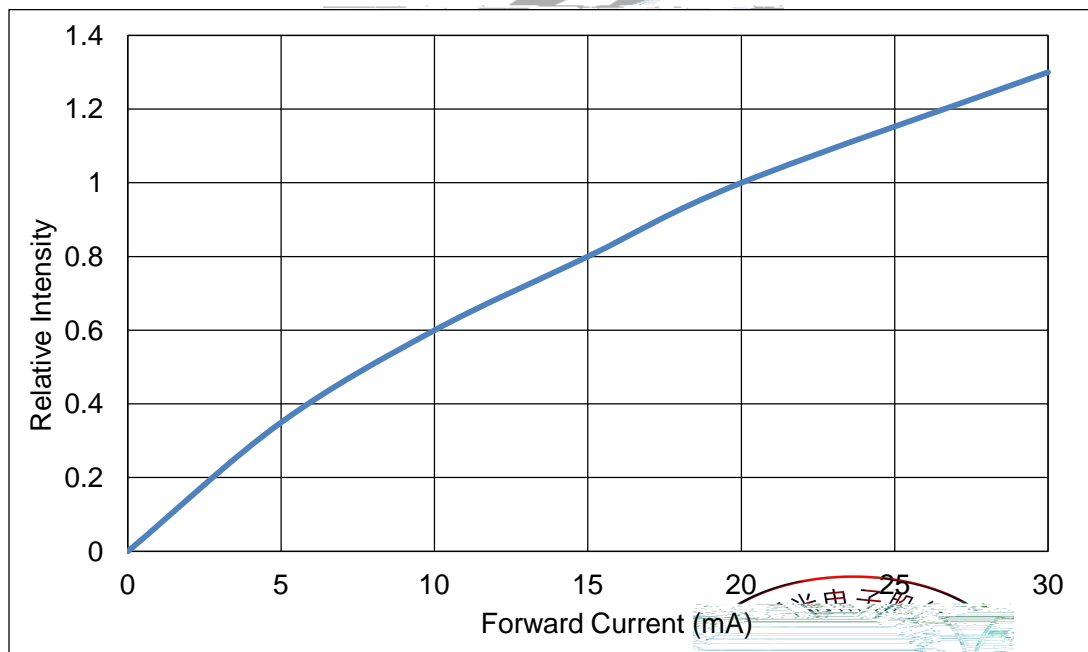


Fig.1-7 Forward Current Vs Relative Intensity 正向电流与相对光强特性曲线

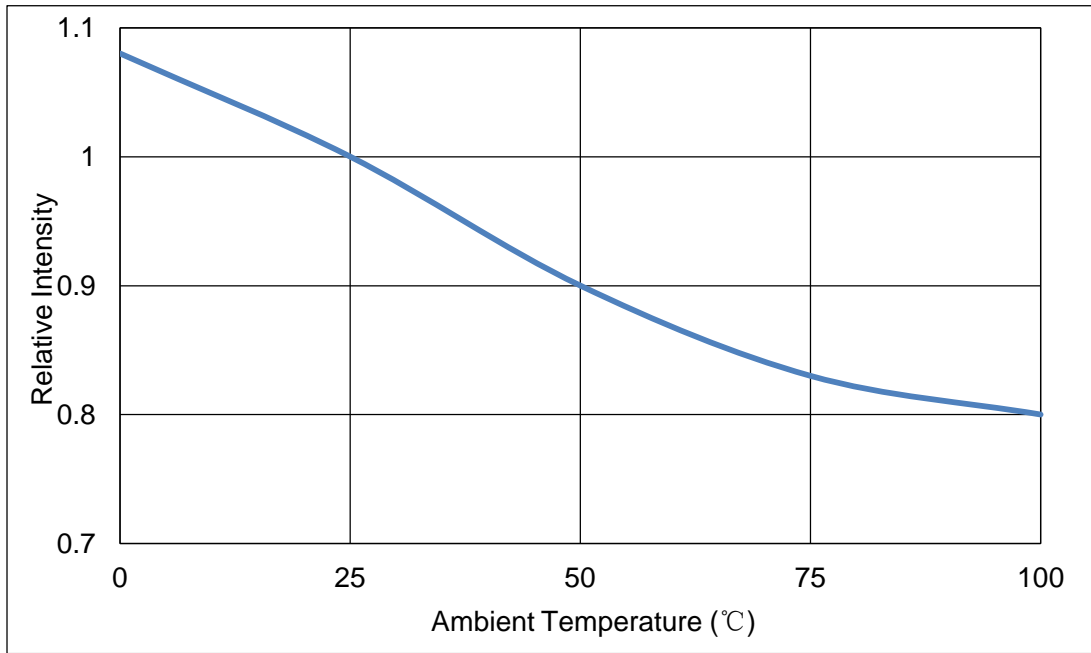


Fig.1-8 Pin Temperature Vs Relative Intensity 引脚温度与相对光强特性曲线

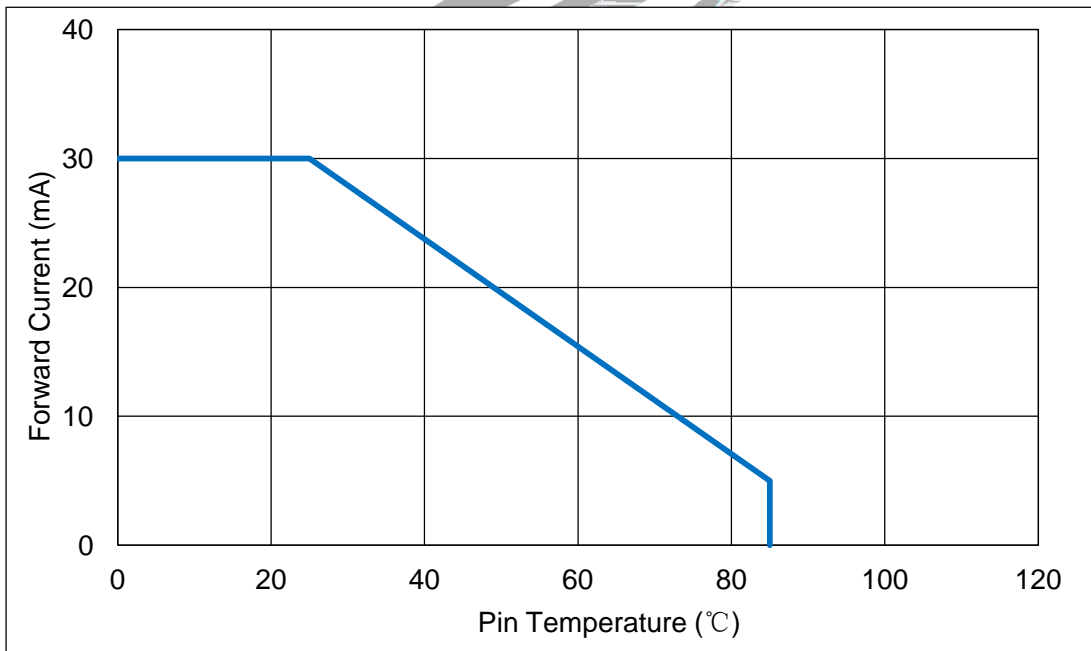


Fig.1-9 Pin Temperature Vs Forward Current 引脚温度与正向电流特性曲线





Fig.1-10 Forward Current Vs Dominate Wavelength (Ta=25°C) 正向电流与主波长关系曲线 (红光)

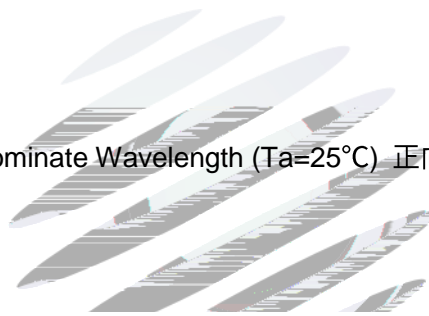


Fig.1-11 Forward Current Vs Dominate Wavelength (Ta=25°C) 正向电流与主波长关系曲线 (黄绿光)

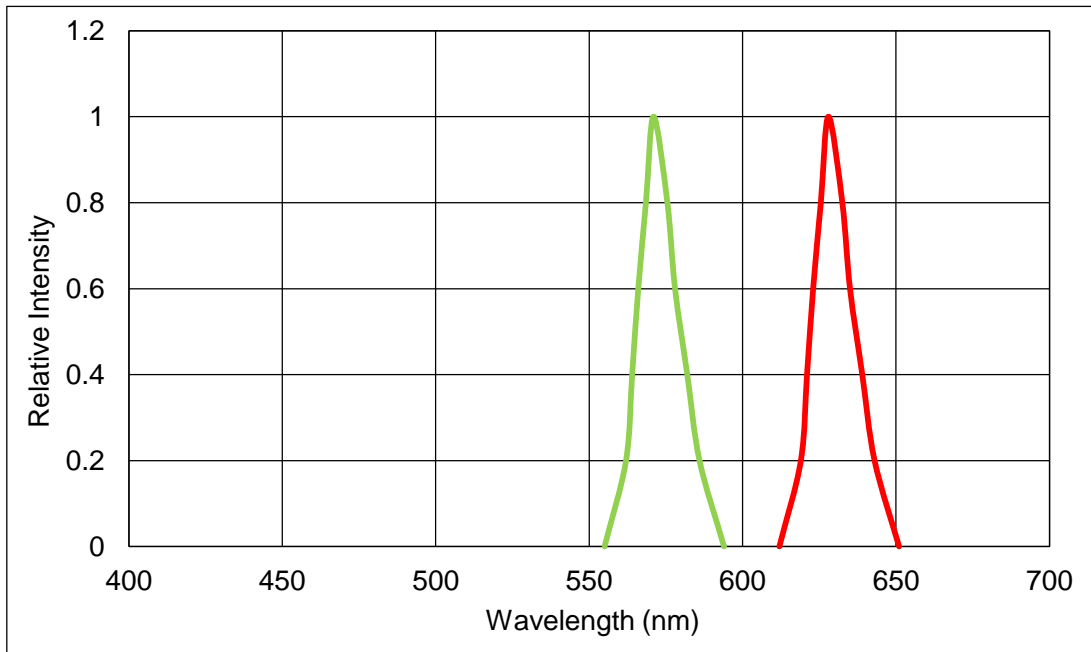


Fig.1-12 Relative Intensity Vs Wavelength (Ta=25°C) 相对光强与波长关系曲线

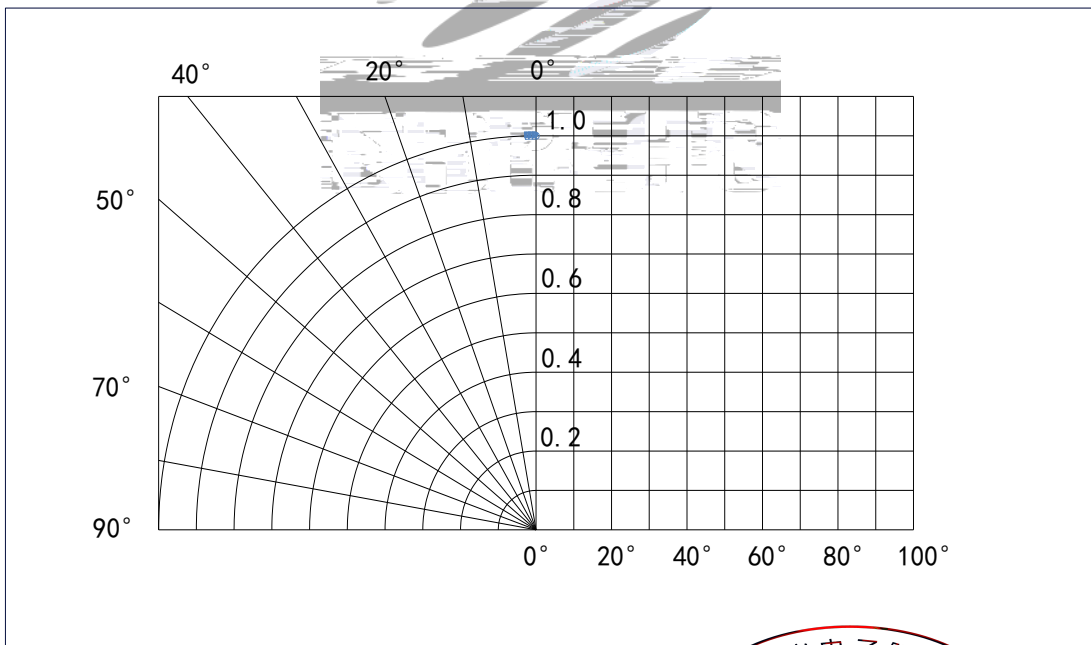
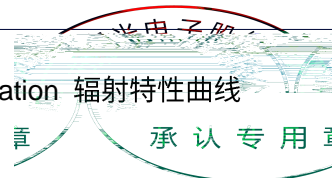


Fig.1-13 Diagram characteristics of radiation 辐射特性曲线



## 2. Packaging 产品包装

### 2.1 Packaging Specification 包装规格

Package:4000pcs/reel.包装每卷 4000pcs。

#### 2.1.1 Carrier Tape Dimension 载带尺寸

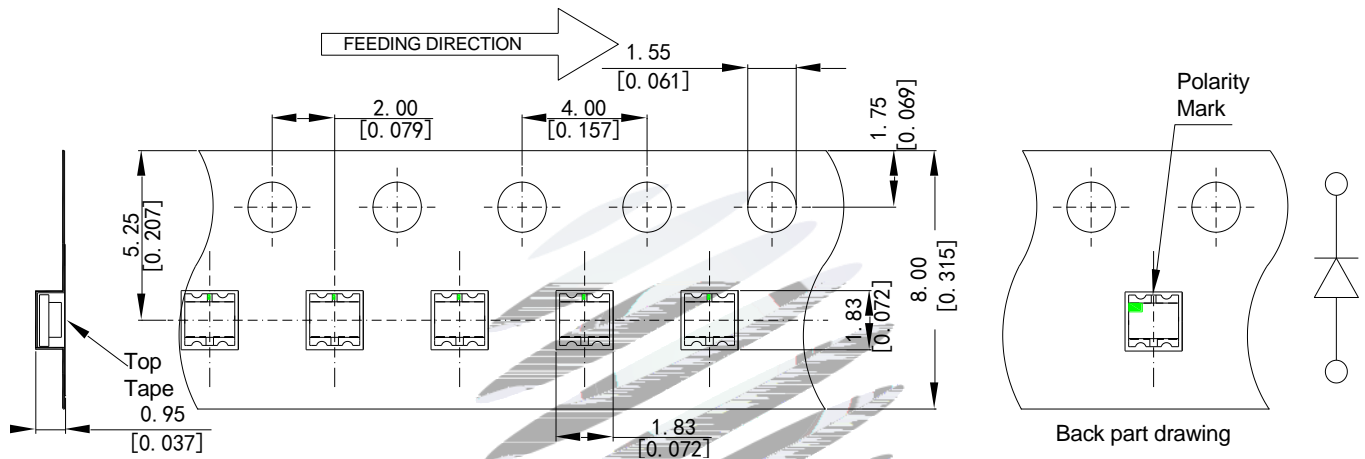


Fig.2-1 Carrier Tape Dimension 载带尺寸

#### 2.1.2 Reel Dimension 卷盘尺寸

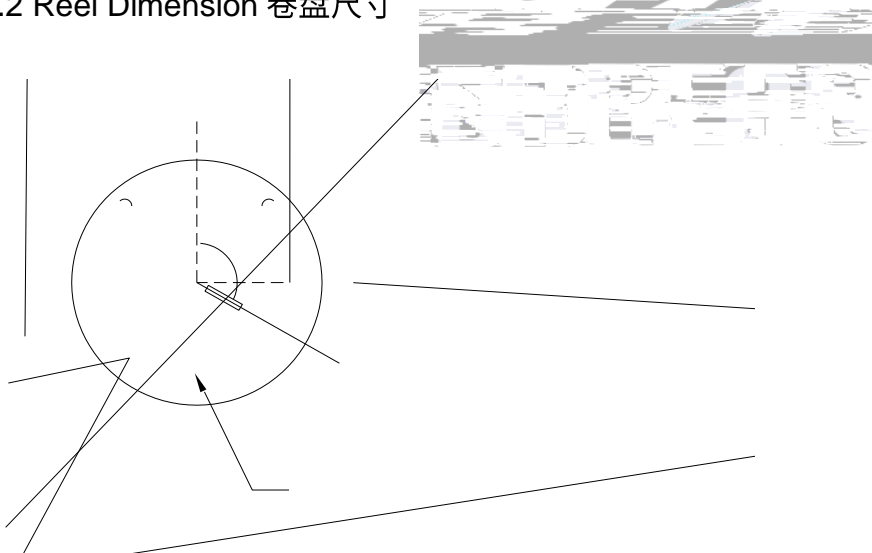


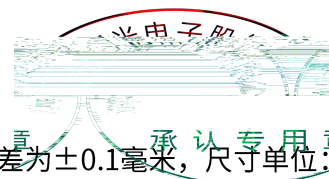
Table 2-1 Dimension 尺寸

A	8.0±0.1mm
B	178±1mm
C	60±1mm
D	13.0±0.5mm

Fig.2-2 Reel Dimension 卷盘尺寸

Notes 备注:

The tolerances unless mentioned ±0.1mm. Unit : mm 注: 未注公差为±0.1毫米, 尺寸单位: 毫米。



### 2.1.3 Label Form Specification 标签规格

Table 2-2 Parameter 参数

Fig. 2-3 Label Form Specification 标签规格

### 2.2 Moisture Resistant Packing 防潮包装



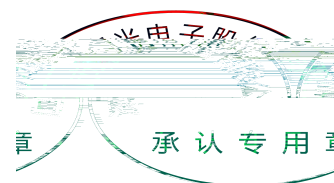
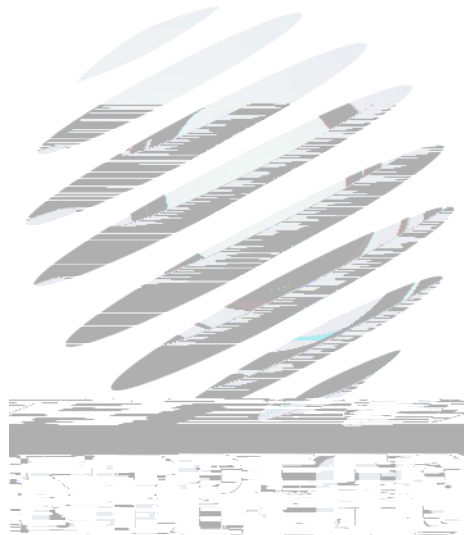
Fig.2-4 Moisture Resistant Packing 防潮包装

Ac/Re  
接收/拒收

0/1

## 2.5 Criteria For Judging Damage 失效判定标准

Table 2-4 Criteria For Judging Damage 失效判定标准



### 3. SMT Reflow Soldering Instructions SMT

#### 3.1 SMT Reflow Soldering Instructions SMT 回流焊说明

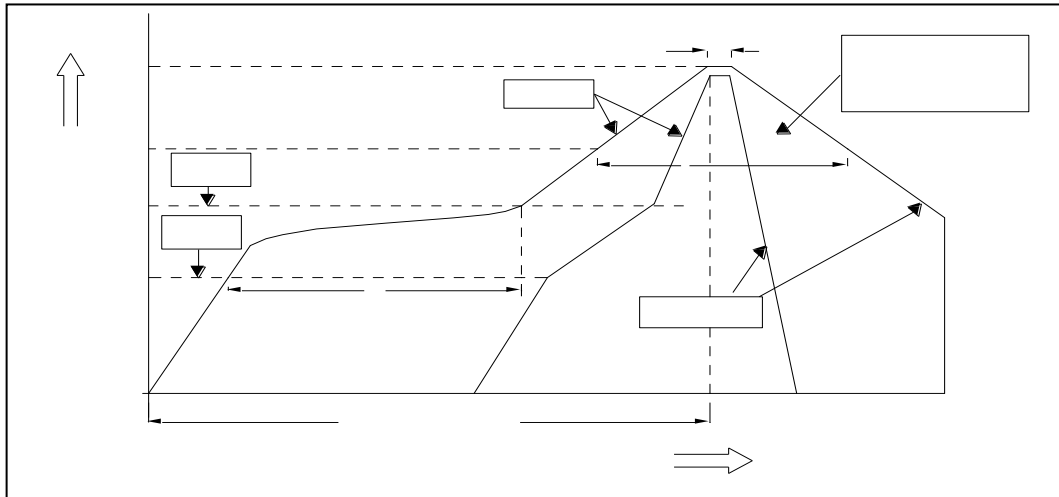
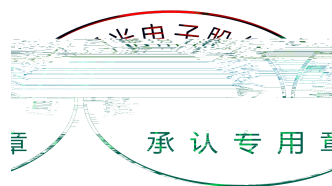
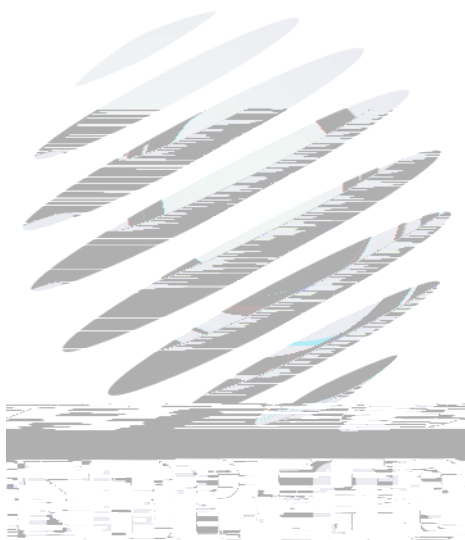


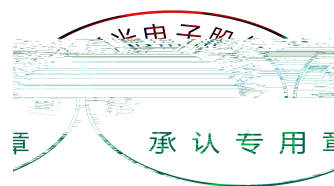
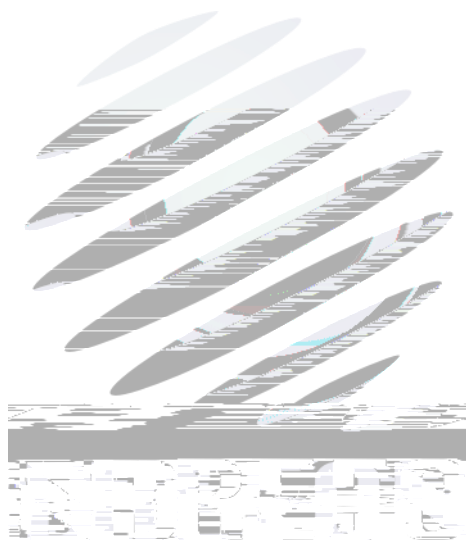
Fig.3-1 SMT Reflow Soldering Instructions SMT 回流焊说明

Table 3-1 Parameter 参数

Average temperature rise speed 平均升温速度 (T <sub>max</sub> 至 T <sub>P</sub> )	最高3 °C/秒 Max 3 °C/ s
Preheating: minimum temperature 预热: 最低温度 (T <sub>min</sub> )	150 °C
Preheating: Max temperature 预热: 最高温度 (T <sub>max</sub> )	200 °C
Preheating: Time 预热: 时间 (T <sub>min</sub> 至 T <sub>max</sub> )	60 - 120秒 60s-120s
Time limited to maintain high temperature: the temperature 限时维持高温: 温度 (T <sub>L</sub> )	217 °C
Time limited to maintain high temperature: The Time 限时维持高温: 时间 (t <sub>L</sub> )	60 - 150秒 60s-150s
Peak /Classification of temperature: 峰值 / 分类温度 (T <sub>P</sub> )	260 °C
Time limit classification of peak temperature time 限时峰值分类温度: 时间 (t <sub>p</sub> )	最多10秒 Max 10s
Hold time within 5 °C with the actual peak temperature (T <sub>P</sub> ) 与实际峰值温度 (T <sub>P</sub> ) 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 T <sub>p</sub> 25 °C 升至峰值温度所需时间	最多8分钟 Max 8 minutes







(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 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 的电流不能超过其绝对最大额定值，否则微小的电压变化会导致大电流变化，可能引起 LED 烧毁。驱动电路必须设计为仅在 LED 导通或关断时允许正向电压，如果施加反向电压，LED 可能会发生电迁移，导致 LED 损坏。

(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 的特性会随着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。

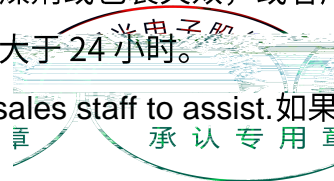
(6) Storage 储存

Table 4-1 Storage 储存

Conditions 种类		Temperature 温度	Humidity 湿度	Time 时间
Storage 储存	Before Opening Aluminum Bag 拆包前	≤30°C	≤75%	Within 1 Year From Date 一年内
	After Opening Aluminum Bag 拆包后	≤30°C	≤60%	168hours 168小时
Baking 烘烤		60±5°C	-	≥24hours 大于24小时

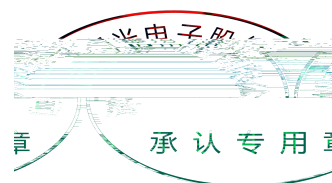
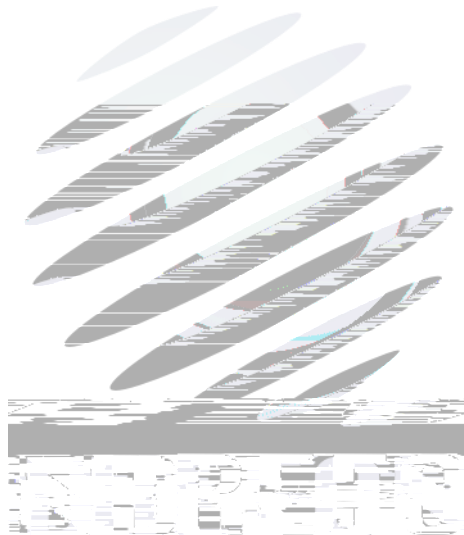
(7) If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed after unpacking and based on the following condition (60±5) °C for above 24 hours. 如果干燥剂或包装失效，或者产品不符合以上有效储存条件，需拆包后进行烘烤。烘烤条件：60±5°C，大于 24 小时。

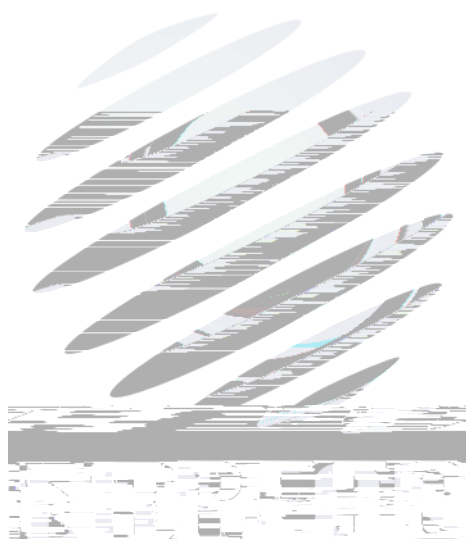
If the package is flatulence or damaged, please notify the sales staff to assist. 如果包装胀气或者破损，请通知销售人员协助处理。

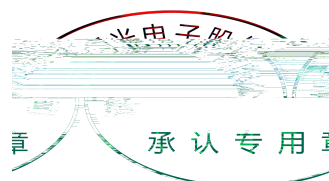


(8) Similar to most Solid state devices; LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). 像其他的半导体电子器件一样，LED 对静电过流击穿非常敏感，需要做好防护。

(9) 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。







Declare 申明

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

产品规格书以中英文方式书写，若有冲突以中文版本为准。