SPECIFICATION
产品规格书

REFOND P/N 产品型号

RF-YUB170TS-AE

□R&D 研发

■Mass Product 量产供货

承 认 专 用 章

Contents 目录

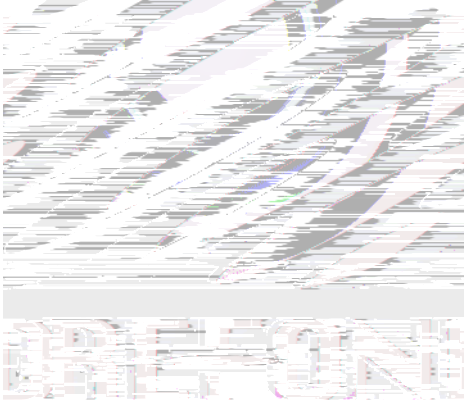
承 认 专 用 章

1. Description 产品介绍

1.1 General Description 产品描述

The Colour LED which was fabricated using a yellow chip，Package Dimension : 2.0mmX1.25mmX0.7mm.

该产品为色光 LED，是由黄光芯片封装形成，产品尺寸：2.0mmX1.25mmX0.7mm。



1.2 Features 产品特征

Extremely

1.4 Package Dimension 封装尺寸

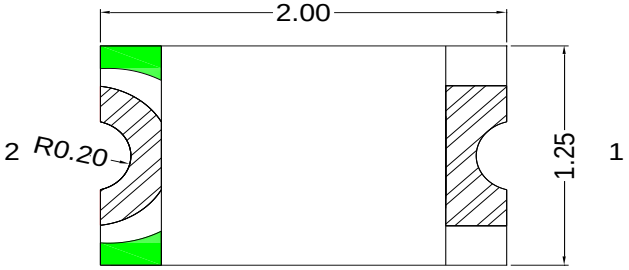


Fig.1-1 Top view 正面视图

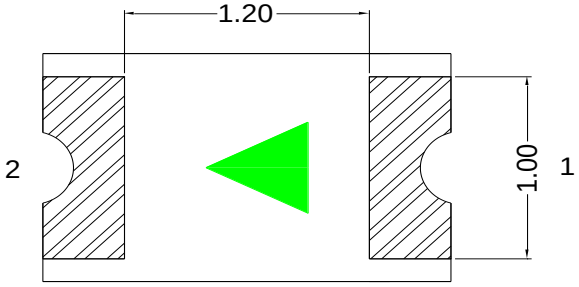


Fig.1-2 Bottom view 背面视图

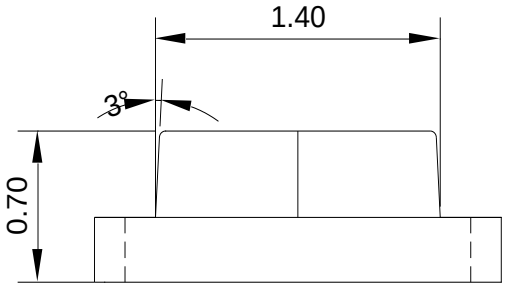


Fig.1-3 Side view 侧面视图

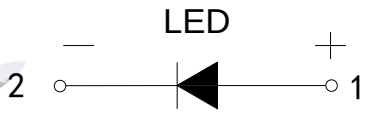


Fig.1-4 Polarity 极性

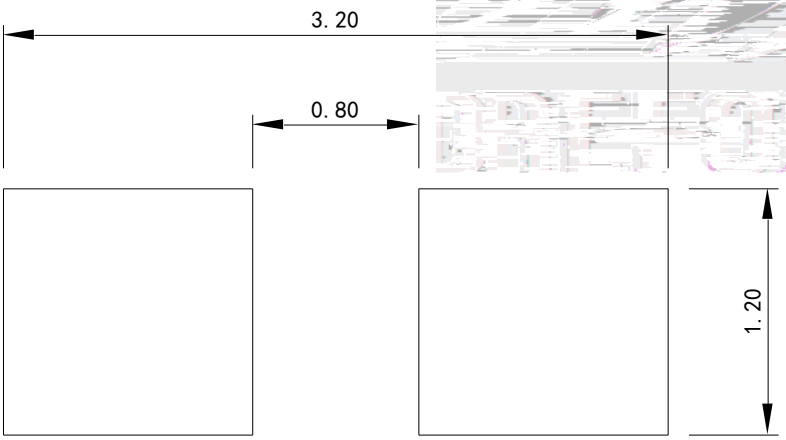


Fig.1-5 Soldering patterns 推荐焊盘

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 ±0.2mm unless otherwise noted. 除特别标注外，所有尺寸公差为±0.2 毫米

1.5 Product Parameters 产品参数

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

Item 项目	Test Condition 测试条件	Symbol 符号		Value			Unit 单位
				Min. (最小值)	Typ. (典型值)	Max. (最大值)	
Spectral Half Bandwidth 半波宽	I_F=20mA	Δ		--	15	--	nm
Forward Voltage 正向电压	I_F=20mA	V_F	B0	1.8	--	2.0	V
			C0	2.0	--	2.2	V
			D0	2.2	--	2.4	V
Dominant Wavelength 主波长	I_F=20mA	λ_D	2K	585		590	nm
			2L	590	--	595	nm
Luminous Intensity 发光强度	I_F=20mA	I_V	1AP	90	--	120	mcd
			G20	120	--	150	mcd
			H10	150	--	180	mcd
			H20	180	--	230	mcd
Viewing Angle 发光角度	I_F=20mA			--	140	--	deg
Reverse Current 漏电流	V_R=5V	I_R		--	--	10	μA
Thermal Resistance. 热阻	I_F=20mA	R_{THJ-S}		--	--	450	°C/W

Notes 备注: V_R=5V For test conditions. V_R=5V 为测试分选条件

承 认 专 用 章

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）
Power Dissipation（功耗）	P_d	72	mW
Forward Current（正向电流）	I_F	30	mA
Peak Forward Current Of Pulse（脉冲峰值电流）	I_{FP}	60	mA
Electrostatic Discharge (HBM)（静电）	E_{SD}	2000	V
Operating Temperature（操作温度）	T_{opr}	-40 ~ +85	℃
Storage Temperature（储存温度）	T_{stg}	-40 ~ +85	℃
Junction Temperature（结温）	T_j	95	℃

Notes 备注:

1. 1/10 Duty cycle, 0.1ms pulse width. 脉宽0.1ms,占空比1/10.
2. The above forward voltage measurement allowance tolerance is ±0.1V. 以上所示电压测量误差 ±0.1V.
3. The above dominant wavelength measurement allowance tolerance is ±2nm. 以主波长测量误差±2nm.
4. The above luminous intensity measurement allowance tolerance ±10%. 上述发光强度的测试允许公差为±10%.
5. 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。
6. All measurements were made under the standardized environment of Refond. 本项有的所有测试都是基于瑞标准测试平台。
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。

承 认 专 用 章

1.6 Typical Optical Characteristics Curves 典型光学特性曲线

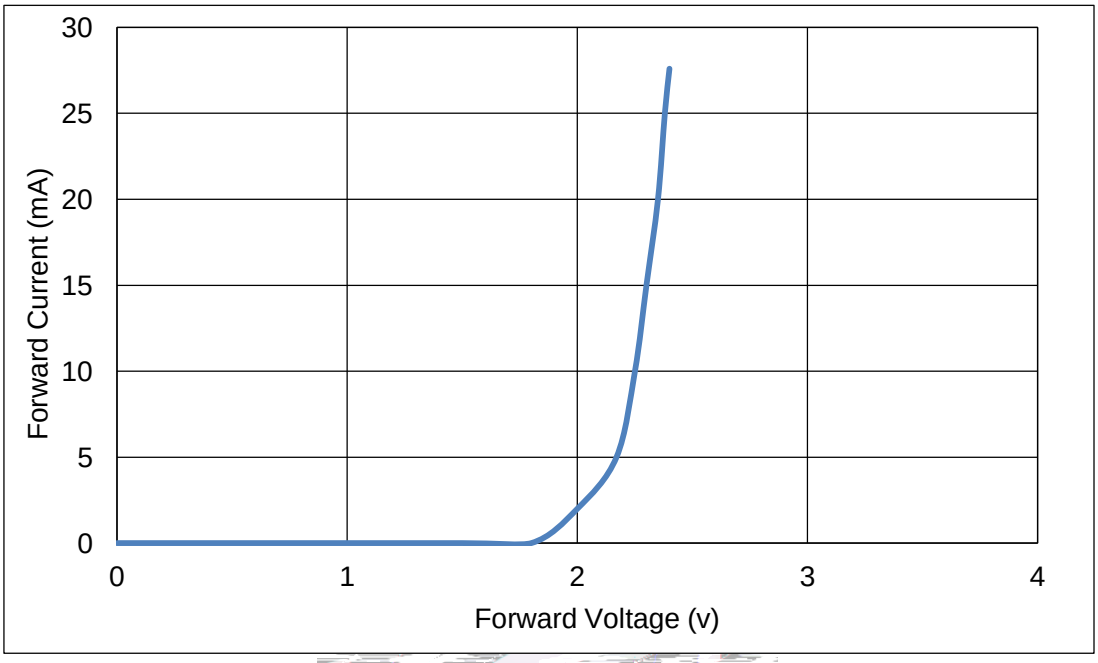


Fig 1-6 Forward Voltage Vs Forward Current 伏安特性曲线

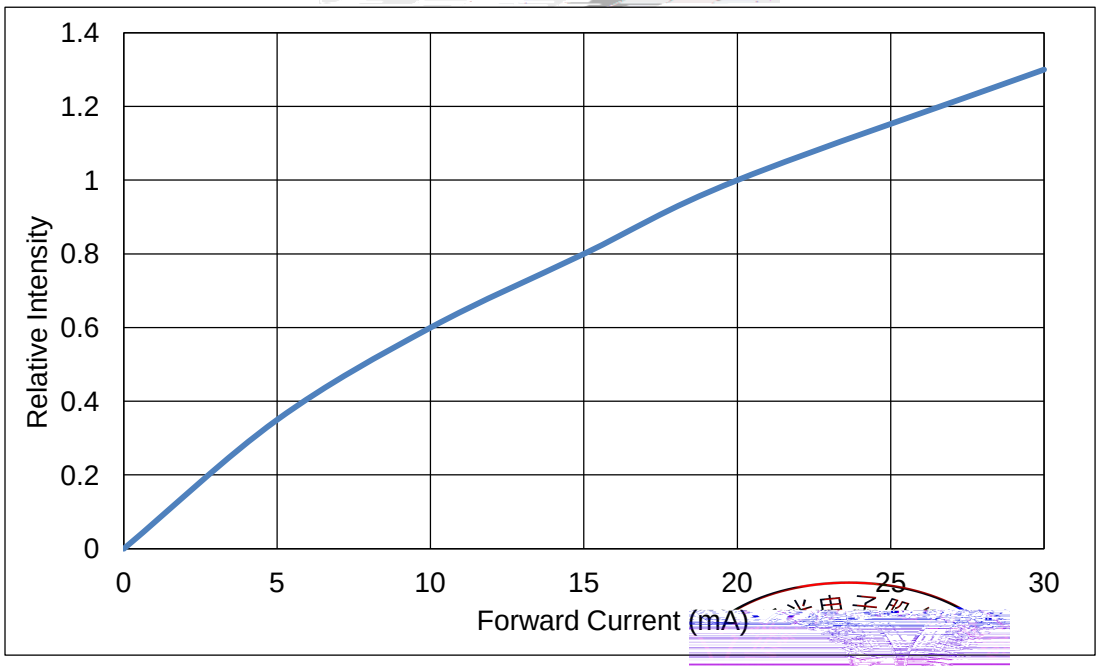


Fig 1-7 Forward Current Vs Relative Intensity 正向电流与相对光强特性曲线

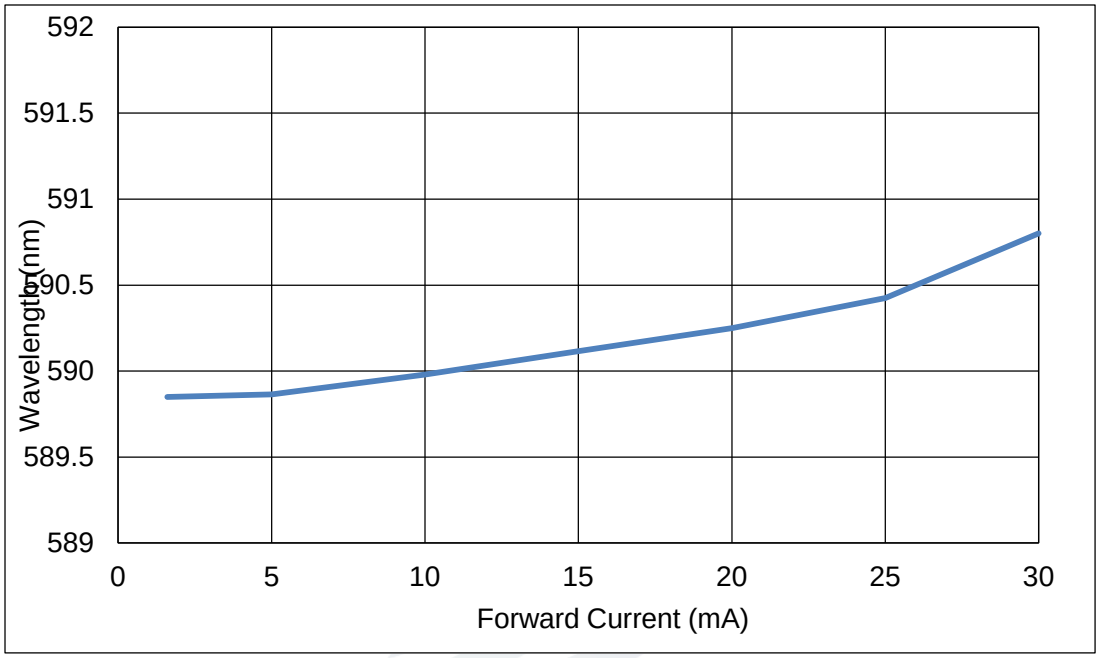


Fig 1-10 Forward Current Vs Dominate Wavelength (Ta=25℃) 正向电流与主波长关系曲线

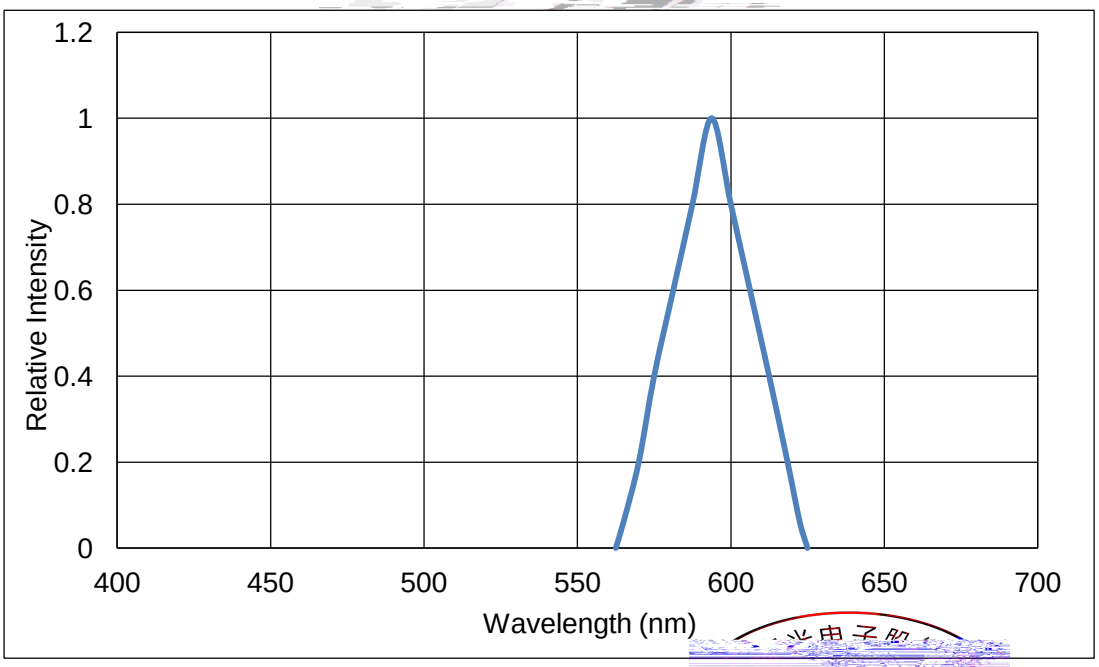


Fig 1-11 Relative Intensity Vs Wavelength (Ta=25℃) 相对光强与波长关系曲线

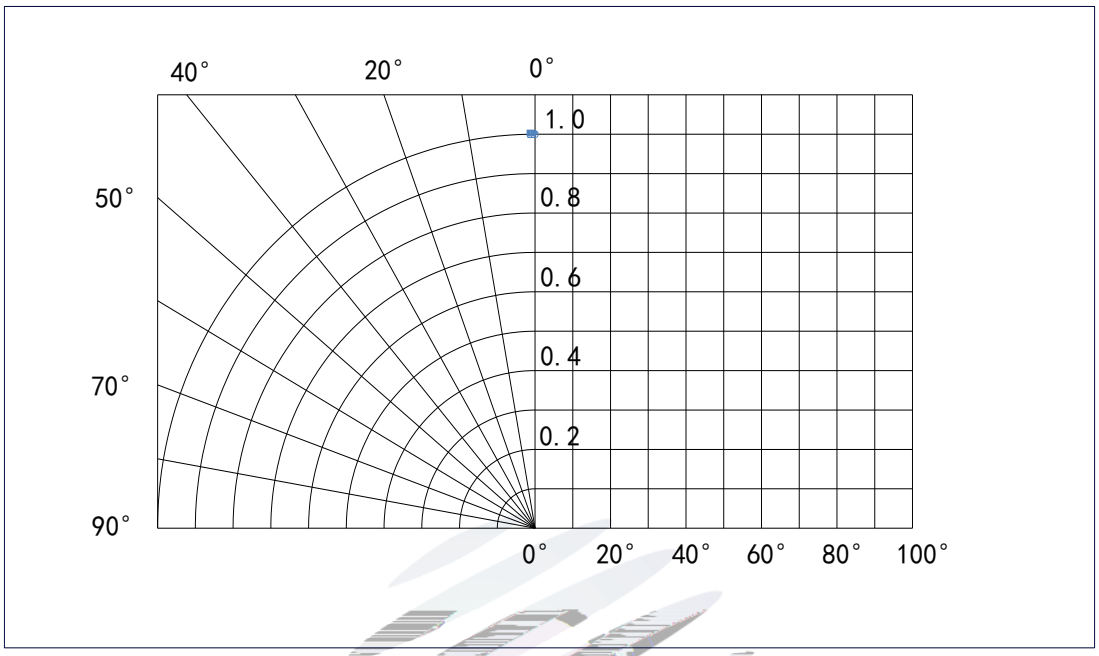


Fig 1-12 Diagram characteristics of radiation 辐射特性曲线

承 认 专 用 章

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

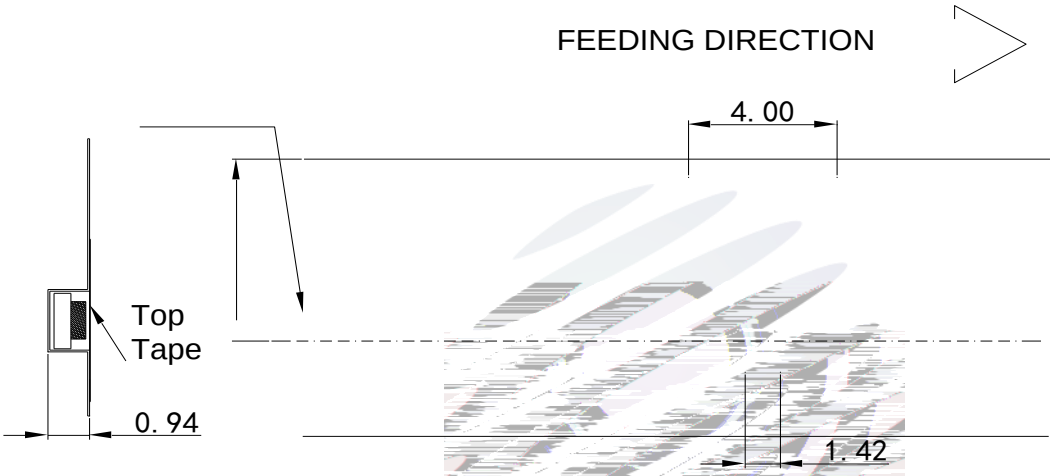


Fig.2-1 Carrier Tape Dimension 载带尺寸

2.1.2 Reel Dimension 卷盘尺寸

Fig.2-2 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

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

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

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

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

Test Items 项目	Symbol 符号	Test Condition 测试条件	Criteria For Judgement 判定标准	
			Min. 最小	Max. 最大
Forward Voltage 正向电压	V_F	I_F=20mA	-	U.S.L*)x1.1
Reverse Current 漏电流	I_R	V_R= 5V	-	U.S.L*)x2.0
Luminous Flux 光通量		I_F=20mA	L.S.L*)x0.7	-

Notes 备注:

1.U.S.L: Upper standard level 规格上限 L.S.L: Lower standard level 规格下限

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. 以上可靠性测试是基于瑞丰现有实验平台单颗/条 LED 在良好散热条件验证下的结果。客户端将 LED 应用于串、并联线路时，需自行评估电流、电压分配、散热等问题。

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. 以上技术数据仅为产品的典型值，只作为参考，不作为任何应用条件及应用方式的保证。

承 认 专 用 章

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（Tsmax 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）

Notes 备注:

(1)Reflow soldering should not be done more than twice. If more than 24 hours between the two solderings , LED 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 do soldering by hand, 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) Soldering by hand should be done only one time.手工焊接只可焊接一次。

3.1.2 Repairing 修补

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[illegible]会损坏LED本身的特性。

3.1.3 Cautions 注意事项

(1) 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，也不要弯折线板。

(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。

[illegible]
承 认 专 用 章

(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 的电流不能超过规定的最大值，同时，还要使用保护电阻。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。

(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 容是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。

(6) Storage

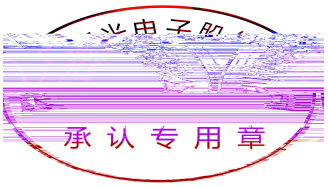
Table 4-1 Storage 储存

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

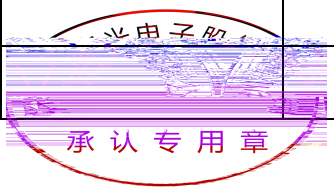
If the package is flatulence or damaged,please notify the sales staff to assist.如果包装胀气或者破损，请通知销售人员协助处理。

承 认 专 用 章


承 认 专 用 章

Version History/修订历史

Date日期	Revisor修订者	Version版本	Verifier审核	Remarks备注
2019.06.16	贾彬浩	E2	宋明	新版本制定



承 认 专 用 章

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。