NEWOPTO
鑫 永 诚 光 电

惠州市鑫永诚光电科技有限公司
Huizhou Newopto photoelectric Technology Co., Ltd.

产 品 承 认 书
SPEC FOR APPROVAL

客户名称 Customer	
产品型号 Model	SMD2835 对管
承认编号 Part No.	
编制日期 Send Date	2019-11-20

核准(Approval)	审核(Checked)	编制(Drawn)
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鑫永诚 SMD2835 对管是由一颗红外发射二极管和一颗光电接收管组成。其中 IR 具有发射功率强、发光角度均匀等优点，PT/PD 具有低功耗、受光角度均匀等优点。

NEW OPTO SMD2835 940IR and PT or PD can be combined and applied. IR940 infrared LED is a low power consumption diode in SMD2835 package, PD or PT has the advantages of strong transmitting power and uniform light angle and also in SMD2835 package.

特性 Features

- 快速的响应时间 Fast response time
- 高灵敏度 high sensitivity
- 小薄型包装 Thin and small pakage
- 无铅 Pb free
- 符合 RoHS RoHS compliant

应用 Applications

- 复印机 Copier
- 扫描仪 Scanner
- 相机 cameras
- 卫浴设备 Sanitary ware
- 非接触式开关 Non-contact Switching

IR、PT 晶片材质 IR, PT chip material

组件 Device No.	组件晶片材质 Chip Material	组件外观 Lens Color
发射管 IR	GaAsAl/Si	水清透明 Water clear
接收管 PT	Silicon	黑色 Black

额定参数 Absolute Maximum Ratings(Ta=25℃)

规格 specification	电气特性 Electrical characteristics	符号 Symbol	额定值 Rated Value	单位 Unit
发射管 IR	最大持续工作电流 Max continuous working current	IF	100	mA
	最大脉冲工作电流* Max pulse current	IFP	1000	mA
	反向击穿电压 Reverse breakdown voltage	VR	5	V
	最大功耗 Power dissipation	Pd	150	mW
接收管 PT	集电极—发射极电压 Collector-emitter Voltage	VCEO	30	V
	发射极—集电极电压 Emitter-Collector Voltage	VECO	6	V
	功耗 Power Dissipation	PC	70	mW
工作温度 Operating Temperature		Topr	-40--+85	°C
储存温度 Storage Temperature		Tstg	-40--+100	°C

Note：* Pulse width≦100μs, Duty≦1%

光电特性 Elector-Optical Characteristics (Ta=25℃)

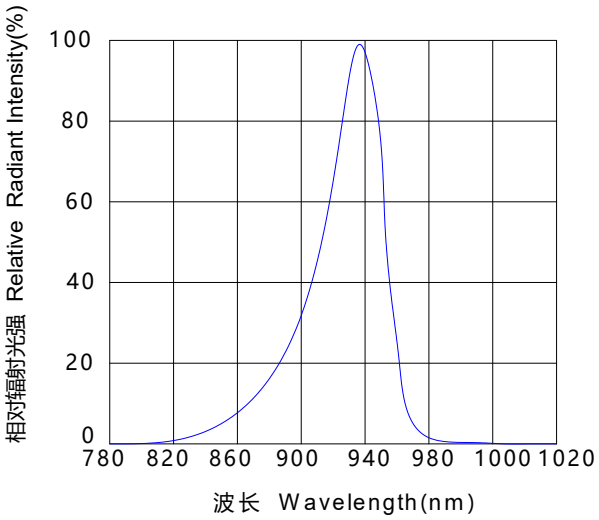
规格 specification	参数 Parameter	符号 Symbol	测试条件 Test Condition	最小 Min	典型 Type	最大 Max	单位 Unit
发射管 IR	峰值波长 Peak wavelength	λ p	IF=20mA	--	940	--	nm
	工作电压 Forward Voltage	VF	IF=40mA	--	1.3	1.8	V
	反向电流 Reverse current	IR	VR=5V	--	--	10	μA
	发射角度 Emission Angle	2θ½	IF=20mA	--	30	--	Deg.
接收管 PT	集电极发射极饱和电压 Collector-Emitter Saturation Voltage	Vce (sat)	IC=2mA Ee=1mW/cm2	--	--	0.4	V
	暗电流 dark current	Iceo	VCE=5V Ev=0Lux	--	--	0.1	μA
	光电流 Photocurrent	IL	Vce=5V Ee=1mW/cm2	--	2	--	mA
	上升时间 rise time	tr	VCE=5V IC=1mA RL=1000Ω	15			us
	下降时间 fall time	tf		15			

可靠性试验 Reliability Test

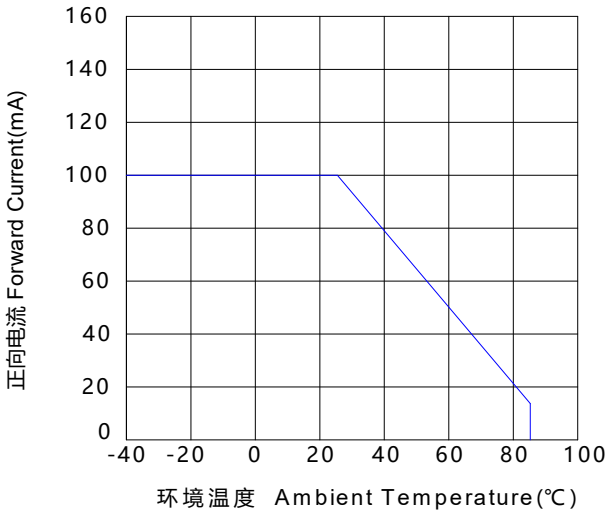
测试项目 Test Parameter	参考标准 Reference Criterion	测试条件 Test Condition	时间 Time	样品数 Quantity	Ac/Re
耐焊接热 Resistance to Soldering Heat	JESD22-B106	260℃±5℃	10 sec	22PCS	0/1
冷热循环 Temperature	JESD22-A104	+100℃(15min) 5min -40℃(15min)	50 cycles	22PCS	0/1
冷热冲击 Thermal Shock	JESD22-A104	+105℃(30min) 5min -45℃(30min)	50 cycles	22PCS	0/1
高温贮存 High Temperature storage	JESD22-A103	+100℃	1000H	22PCS	0/1
低温贮存 Low Temperature storage	JESD22-A119	-40℃	1000H	22PCS	0/1
寿命测试 Temperature Operating Life	JESD22-A108	IF=100mA	1000H	22PCS	0/1
高温高湿 High Temperature High Humidity	JESD22-A101	85℃/85%	1000H	22PCS	0/1

IR 光电特性曲线 Typical electro-optical characteristics curves for IR

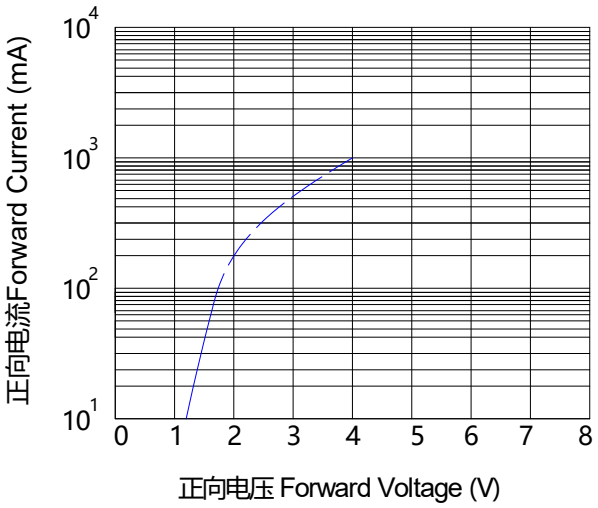
光谱分布特性曲线
Relative Spectral Distribution



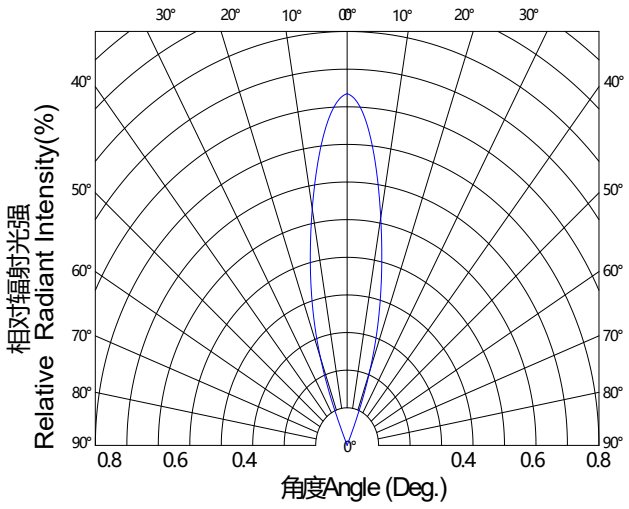
正向电流降额曲线
Forward Current Derating Curve



电流vs电压曲线图
Current & Voltage Curve

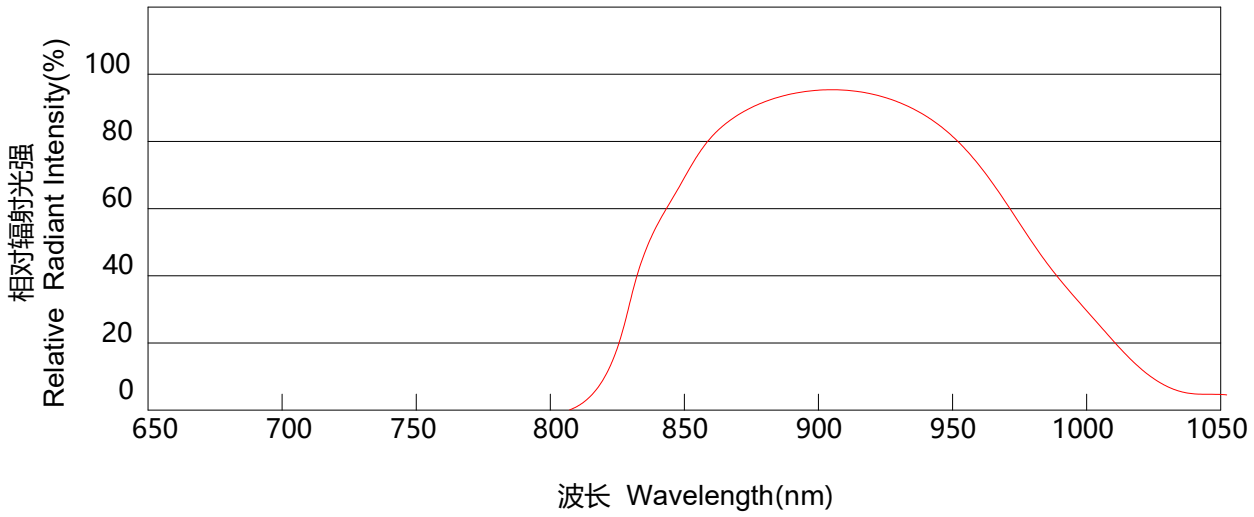


辐射光强分布特性曲线
Radiant Intensity Spatial Distribution



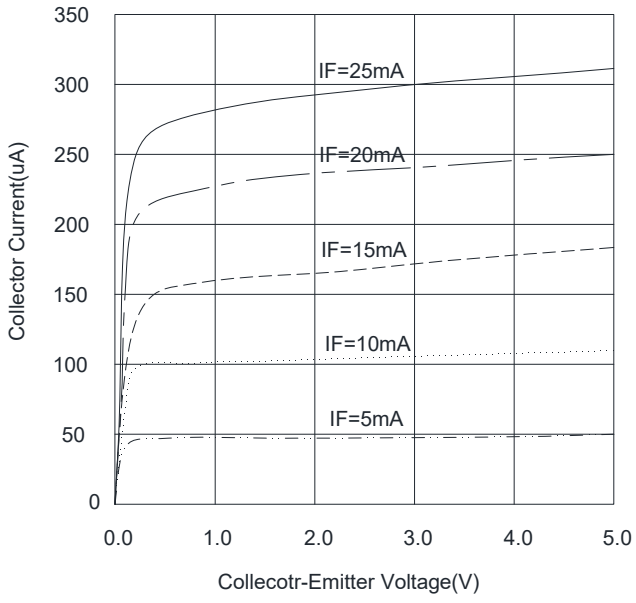
PT 光电特性曲线 Typical electro-optical characteristics curves for PT

感光特性曲线 Photographic property Curve



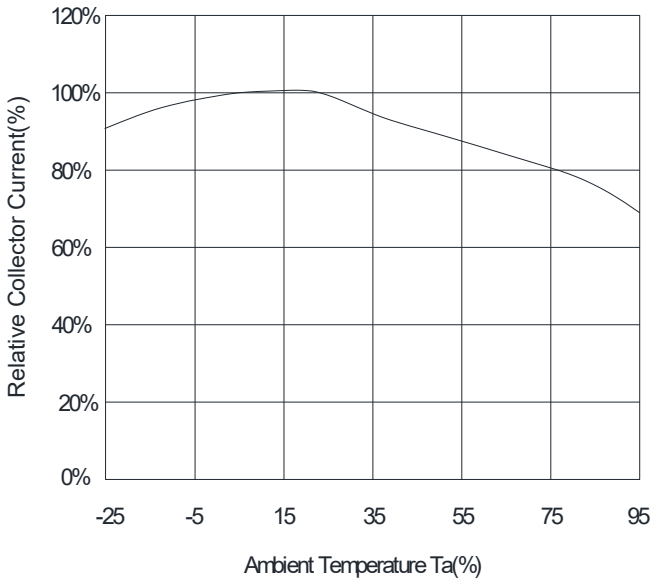
集电极电流 V.S 集电极电压曲线图

Collecotr Current V.S Collecotr-Emitter Voltage

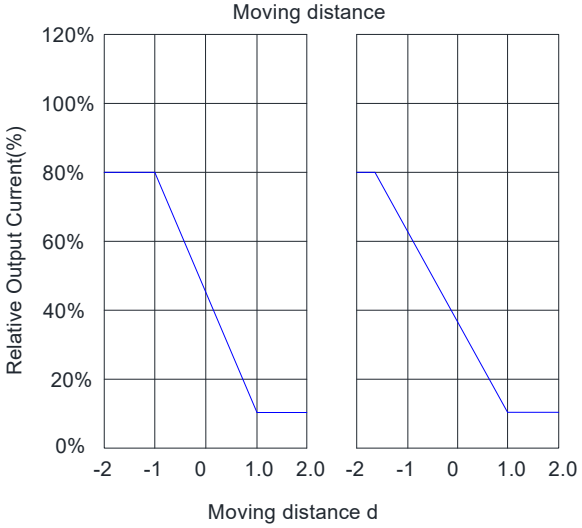


相对集电极电流VS环境温度曲线图

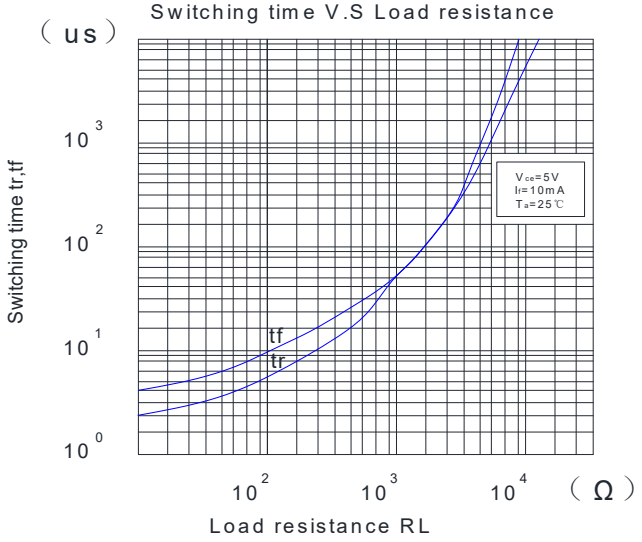
Relative Collector Current V.S Ambient Temperature



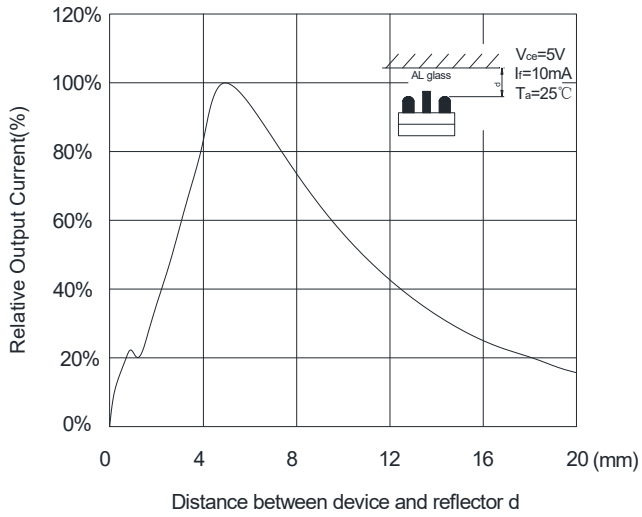
相对输出电流VS器件与移动距离曲线图
Relative Output Current V.S
Moving distance

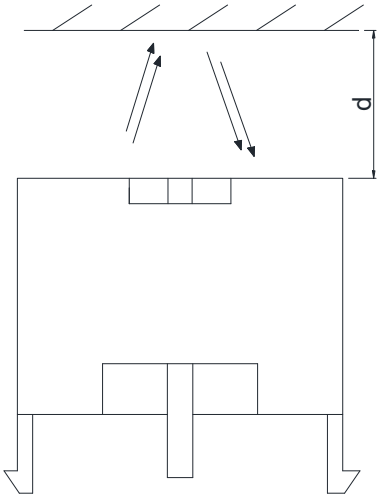


开关时间VS负载电阻曲线图
Switching time V.S Load resistance



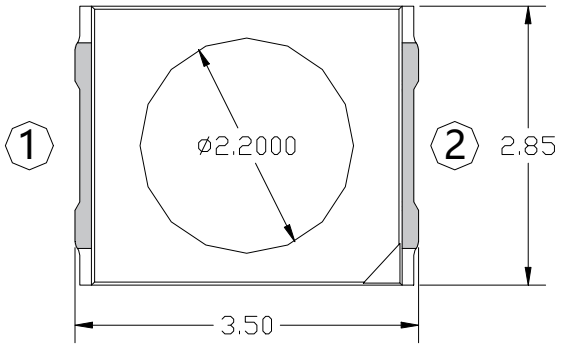
相对输出电流VS器件与反射器之间的距离曲线图
Relative Output Current V.S
Distance between device and reflector





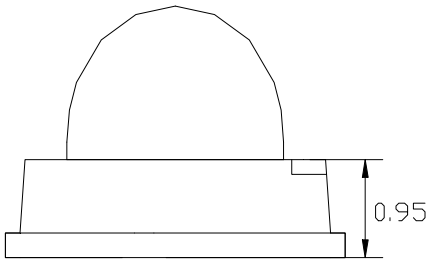
Vce=5V
IF=10mA
d=10cm

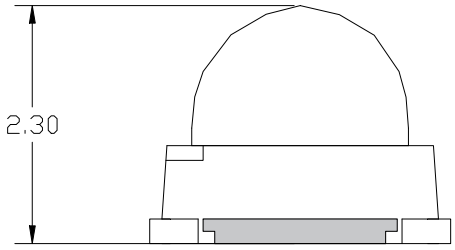
产品外型尺寸 Package outline dimensions

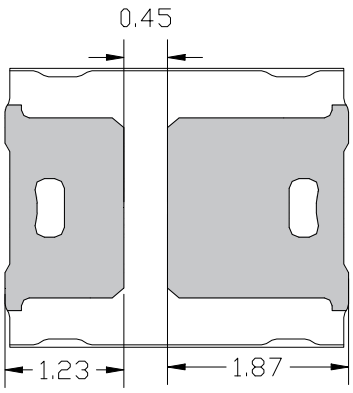


① Cathode

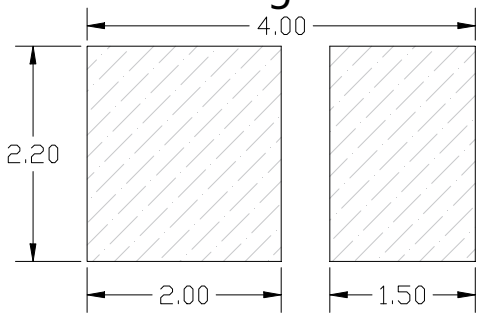
② Anode







Soldering Patterns



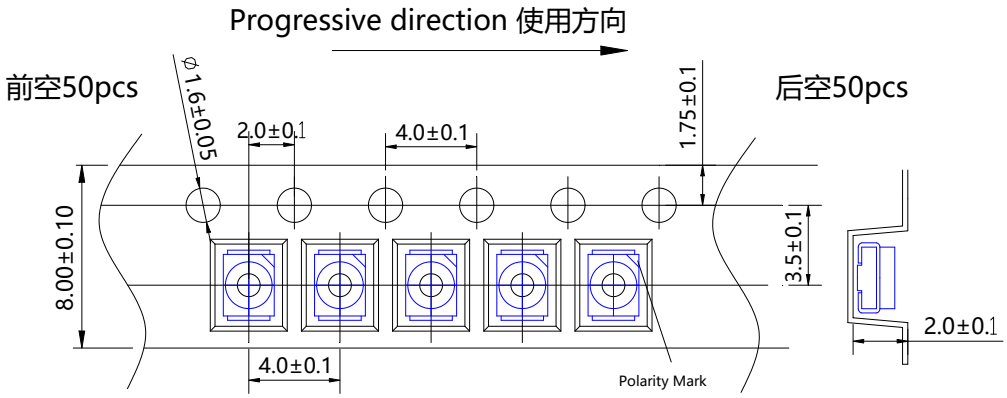
备注：所有尺寸单位均为 mm，如无特殊说明误差范围为±0.15mm

Note：All dimensions in mm,tolerance is ±0.15mm unless otherwise noted

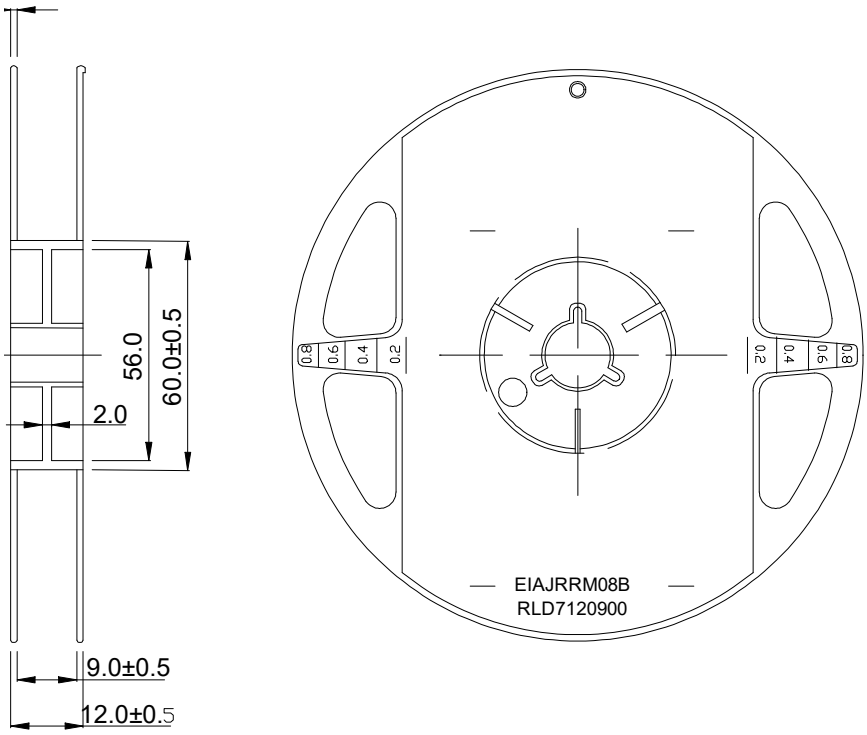
包装规格 Packing Specification

■ 卷盘规格 Carrier Tape

编带 6000pcs/卷 Quantity 6000 pcs Per Reel



■ 卷轴尺寸 Reel Dimensions



备注：若无特别标注，图中尺寸公差为±0.1mm，单位=mm

Note：Tolerance s unless mentioned ±0.01mm. Unit=mm

■ 标签规格 Label specification

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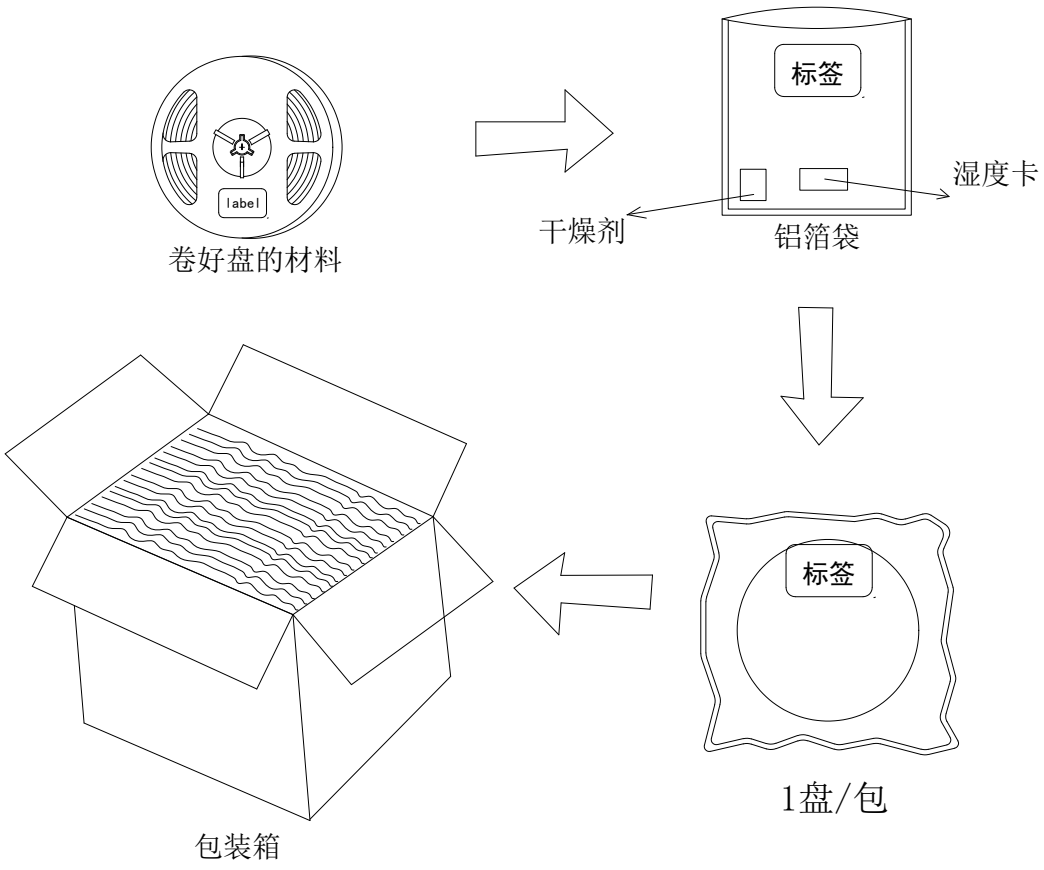
料号	Material Number	
型号	Model Number	
单号	Lot.Number	RoHS
箱号	Box Number	
数量	Quantity	
日期	Date	

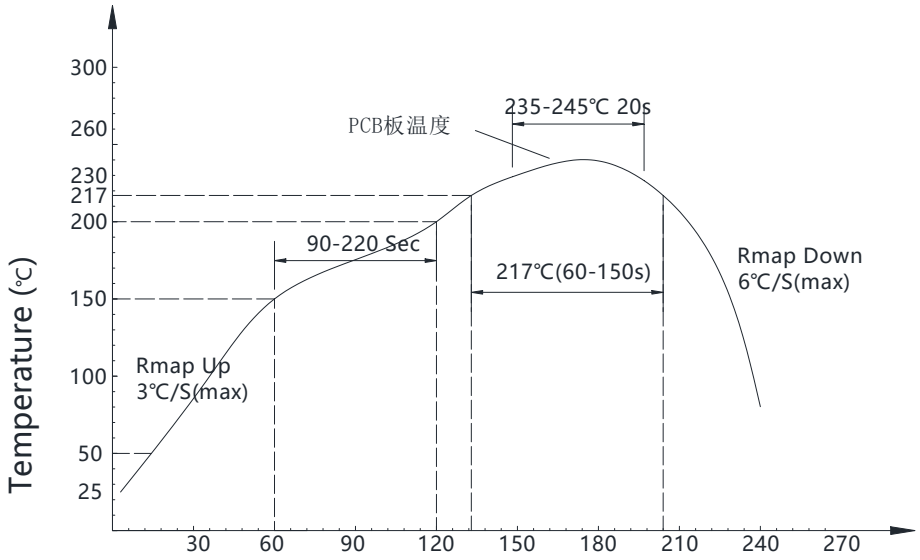
■ 包装步骤 Moisture Resistant Packing Process



回流焊 Refolw

- 回流焊接：推荐使用以下无铅回流焊接温度图进行

  Roflow Soldering:Use the conditions shown in the under Figure of PB-Free Reflow Soldering.



- 回流焊接 Roflow Soldering
  - 回流焊次数不可以超过一次，否则 LED 可能损坏。

    Reflow soldering should not be done more than once, or LED may be damaged.
  - 当焊接时，不要在材料受热时用力压胶体表面。

    When soldering,do not put stress on the LEDs during heating.
- 络铁焊接 Soldering Iron
  - 如使用手工焊接，建议使用小于 25 瓦的电络铁，络铁温度必须空置在 300℃以下，焊接时间需控制在 3 秒钟以内，且每个点击只能焊接一次。

    If manual soldering is used,the use of a soldering iron of less than 25W is recommended,and the temperature of the iron must be kept below 300℃，with soldering time within 2 seconds.
  - 当焊接时，不要在材料受热时用力压胶体表面。

    When soldering,do not put stress on the LEDs during heating
  - 手工焊接只可焊接一次。

    The hand solder should be done only one time
  - 器件外部温度在 40℃以下时，才可以对其进行处理。避免高温时操作对 LED 造成损伤。

    Handing of the SMD LED should be done when the package has been cooled down to below 40℃ or less.This is to prevent LED failures due to thermal-mechanical stress during handing.
- 清洗 Cleaning

- 在焊接后推荐使用酒精进行清洗，在温度不高于 30℃的条件下持续 3 分钟，不高于 50℃的条件下持续 30 秒。使用其他类似溶剂清洗前，请先确认使用的溶剂不会对 LED 的封装和环氧树脂部分造成损伤。

  It is recommended that alcohol be used as a solvent for cleaning after soldering.Cleaning is to go under 30℃ for 3 minutes or 50℃ for 30 seconds.When using other solvents,it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.

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

  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.

■ 修补 Repairing

- LED 回流焊后不应该修复，当修复是不可避免时，必须使用双头络铁，但必须事先确认此种方式会或不会损坏 LED 本身的特性。

  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 the characteristics of LEDs will or will not be damaged by repairing.

注意：此一般指导原则并不适用于所有 PCB 设计和焊接设备的配置。具体工艺收到诸多因素的影响，请根据特定的 PCB 设计和焊接设备来确定焊接方案。

Note：This general guideline may not apply to all PCB designs and configurations of all soldering equipment.The technique in practice is influenced by many factors,it should be specialized base on the PCB designs and configurations of the soldering equipment.

使用注意事项 Precautions

感谢您使用惠州市鑫永诚光电科技有限公司的系列 LED 产品，为增进您对我司产品特性的了解，也为方便您快速掌握产品的基本操作，为尽量减少或避免因人为等因素造成不必要的产品损坏，使其能够更好的为您的生产服务，特针对使用过程中的一些规范使用作相应说明，同时即使是同一规格 LED，在实际应用领域其可靠性与整体系统设计水平、作业方式、使用条件均相关。本使用说明不可能涵盖客户使用过程中可能碰到的所有问题，由此带来的不便，敬请谅解！

Thanks for using relevant LED products of Shenzhen Newpoto Optoelectronic Technology Co., Ltd. in order to enhance your understanding of the characteristics of our products, as far as possible to reduce or avoid unnecessary damage to the product due to human factors, and make it can better service your production. We give corresponding instructions, According to the characteristic in the process of standard use. At the same time, even if the same specifications LED, in the practical application field its reliability are related to overall system design level, mode of operation and conditions of use. This Instructions can't cover all questions may encounter during customer use process, We sincerely apologize for any inconvenience this may cause！

■ 产品声明

- 使用本产品之前，请贵司务必预先进行测试，以便确认是否适合使用目的，产品介绍的用途并不保证不抵触任何专利，有关 LED 产品的进出口法律责任应由客户担负，请预先查清每个国家或地区的有关规定。产品可能会因性能提升而更改物料和规格参数，恕不另行通知。

  In order to confirm the product is right for using purpose，pretest is necessary before use . We don’ t guarantee the product application introduction don’ t contravene any patent. The corresponding import and export legal responsibility should be taken by customers. Please verify relevant provision about the LED product in each country and district beforehand. We may change material and specifications from time to time in the interest of product development, without prior notification or public announcement.

■ 储存 Storage

- 本产使用密封防潮抗静电袋包装,并附有干燥剂,未开封的产品保存时间 2 个月。

  Moisture proof and anti-electrostatic package with moisture absorbent material is used, Packaged products have 2 months to save time.

- 开封前,产品须存放在温度不高于 30℃,湿度不高于 60%RH 的环境中。

  Before opening the package, the product should be kept at30℃ or less and humidity less the60%RH 的环境中.

- 密封防静电袋内的湿度卡应在打开袋子后立即查看袋内的湿度指示卡来确定,湿度显示小于或等于 30%时,使用前须进行烘烤。

  Seal anti-electrostatic bag humidity card should immediately check bag humidity indicator card in the open the bag after, Humidity is less than or equal to 30%, Must be baked before use.

- 开封后,产品必须 24 小时内使用完(建议工作环境温度不高于 30℃,湿度不高于 60%),如未使用完,余料须存放在温度不高于 30℃,湿度不高于 10%的环境中。

  After opening the package, the product should be soldered within 24 hours. If not, please store at 30℃or less and humidity less than 10%RH. It is recommended that the product be operated at the workshop condition of 30℃ or less and humidity less than 60%RH.

- 对于尚未焊接的 LED,如果吸湿剂或包装失效,或者产品没有符合以上有效存储条件,烘烤可以起到一定的性能恢复效果. 烘烤条件:65±5℃,持续时间 24H。

  If the moisture absorbent material has fade away or the LEDs have exceeded the storage time, baking treatment should be performed based on the following condition : 65±5℃ for 24 hours.

■ 静电 Static Electricity

以下操作可降低静电破坏的可能性。

The following procedures may decrease the possibility of ESD damage。

- 将产品和外界之间的摩擦减到最低以避免静电产生。

  Minimize friction between the product and surroundings to avoid static buildup.

- 所有的产品设备和测试仪器必须接地。

  All production machinery and test instruments must be electrically grounded.

- 操作人员必须配戴静电环。

Operators must wear anti-static bracelets.

- 进入带电设备工作区域时需穿防静电服。

  Wear anti-static suit when entering work areas with conductive machinery.

- 所有操作 IC 和 ESD 敏感器件元器件的工作台必须保持低于 150V 的静电保护。

  All workstations that handle IC and ESD-sensitive components must maintain an electrostatic potential of 150V or less.

■ 反压保护 Reverse voltage protection

- 通常 LED 的反向漏电流都会很小,不会影响正常使用. 如果长期遭受超过其所能承受的反向电压冲击时,LED 会损伤,反向漏电流会迅速变大,引起显示屏零灰度下串光的发生. 在设计中，要注意控制反向电压，建议加在 LED 上的反向电压值不超过 10V。

  In generally the reverse current of LED is very small, it can't effect using the component normally, but when it often suffered the reverse voltage which exceed the limits of the component than it will be damaged, the reverse current increases rapidly causing the string light display gray scale so when designing, please pay attention to control the reverse voltage we suggest the reverse voltage less than 10V.

■ 温度保护 The safe temperature for LEDs working

- LED 在高温条件下，衰减会加速,本身应力也会增大，若长期处于高温环境下，极容易出现失效. 对于高密度排列使用的情况,建议在使用过程中灯面温度不超过 55℃， 灯脚温度不超过 75℃。

  The high temperature will make the LED's Luminous Intensity deceased radically, if LEDs worked in hot environment for a long time, they will be disabled easily. When LEDs are working in a closed array, we suggest that the LED's surface temperature should be lower than 55℃ and the leg's temperature should be lower than75℃.

■ 其他事项 Others

- 请勿直接触摸或操作硅胶透镜表面，这可能会损坏内部的电路，拿取时用镊子或合适的工具夹在元件的侧边。

  Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry. Handle the component along the side surfaces by using forceps or appropriate tools.

- LED 的环氧树脂封装部分相当脆弱，请勿用坚硬、尖锐的物体刮、擦封装树脂部分。在用镊子夹取的时候也应当小心注意。

  The epoxy resin of encapsulation is fragile,so please avoid scratch or friction over the epoxy resin surface.while handing the product with tweezers,do not hold by the epoxy resin,be careful.