



高端 LED 产业基地  
High-end LED Industry Park

# 产 品 规 格 书

## SPECIFICATION

Customer Name : \_\_\_\_\_  
顾客名称

Product Type : ZY-2835xxx-6-R80-xxx  
产品型号

Product Name : TOP LED  
产品名称

<input type="checkbox"/> Technical Reference 技术参考			<input type="checkbox"/> Sample 样品		<input checked="" type="checkbox"/> Mass Product 量产供货
Client 客户			ZhongYang 中阳光电		
Approval 核准	Audit 确认	Confirmation 制作	Approval 核准	Audit 确认	Confirmation 制作
<input type="checkbox"/> Qualified 接受		<input type="checkbox"/> Disqualifid 不接受	DATE: 日期		

Adr : Jiaxinlu 36 hao, Tanbian, Chaolian Town, Jiangmen City, Guangdong Province.

地址：广东省江门市蓬江区潮连坦边嘉兴路36号。

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# 产品承认书

## Product Approve Sheet

产品型号 Type	ZY-2835xxx-6-R80-xxx	键合线 Bond wire	合金线
色温/显指 CCT(K)/Ra	3000-7200K/Ra≥80	支架 Scaffold	2835 对等黄铜 PCT
光通量/亮度 lm / mcd	110-160lm	晶片尺寸 Chip size	/
客户规格/Customer Specification			
产品型号 Type		物料编码 Material Number	
产品应用 Product Application		色温/显指 CCT(K)/Ra	
色容差/R9 SDCM/R9		光通量/亮度 lm / mcd	
客户特殊要求/Customer requirement :			

备注/remarks :

- 1.ZhongYang adopt Germany EVERFNE machine , above parameters as per ZhongYang standard. 中阳使用远方机台为标准，以上参数以中阳测试为标准。
- 2.Please refer to the parameters in Data Sheet while operation. 其他相关参数和要求按规格书使用。
- 3.This page is also for the checkerboard. Please sign and seal all the items and send them back to our company. Thank you. 此页也为签核部分，请全部签核并盖章后回传到我司，谢谢。

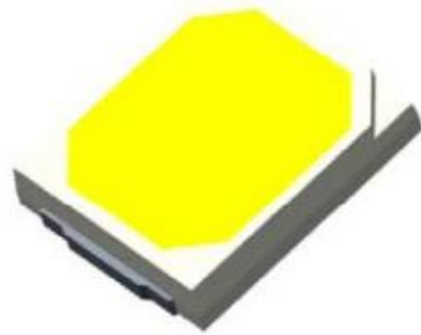
审批/Approved				
中阳 ZHONGYANG	制定 Prepared	工程 Engineer	品质 Quality	批准 Approved
客户 Customer	采购 Procurement	工程 Engineer	品质 Quality	批准 Approved



## ZY-2835xxx-6-R80-xxx

### Features (特征)

- Extremely wide viewing angle. ( 宽的发光角度 )
- Suitable for all SMT assembly and solder process. ( 适用于所有的SMT组装和焊接工艺 )
- Moisture sensitivity level: Level 4. ( 防潮等级 Level 4 )
- Package: 4,000pcs/reel or 25,000pcs/reel. ( 包装每卷 4,000pcs或每卷25,000pcs )
- RoHS compliant. (RoHS 认证 )



### Description (描述)

The White LED which was fabricated using a blue chip and the phosphor

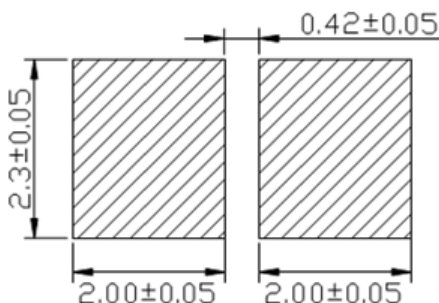
白光 LED 由蓝光芯片与荧光粉激发而成

### Applications (应用)

- Other Indoor Light (室内照明)
- Advertising backlighting (广告背光)
- Panel Light & Tubular Light & Ceiling Light  
面板灯、灯管、吊灯
- Outdoor lighting (用于户外照明)
- General use (一般应用)

### Recommended Soldering Pattern

(建议焊盘尺寸图)

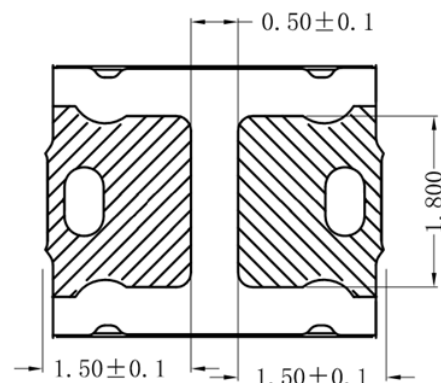
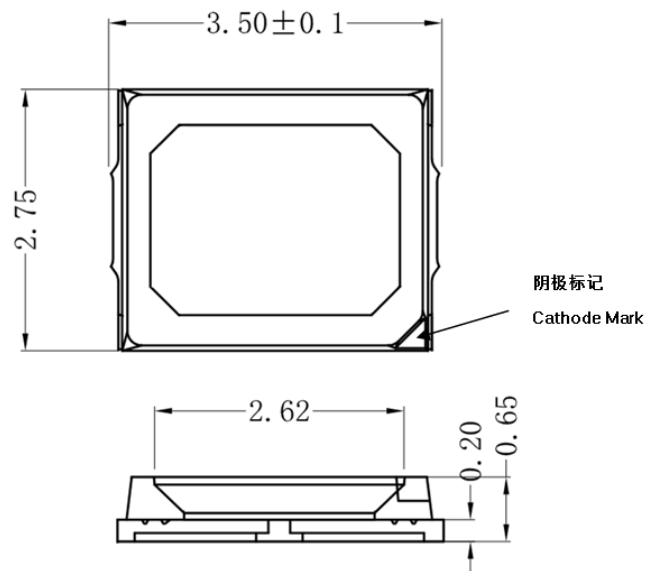


Notes: (备注)

1. All dimension units are millimeters. (所有标注尺寸单位为毫米)

2. All dimension tolerance is  $\pm 0.15\text{mm}$  unless otherwise noted. (除特别标注外, 所有尺寸允许公差 $\pm 0.15\text{mm}$ )

### Package Dimensions (封装尺寸)





**Product Selection Table**    **产品型号**

Modle NO.	CCT	IEC Center	
		CIE-X	CIE-Y
ZY-2835E30A-6-R80-xxx	3000K	0.4400	0.4030
ZY-2835E40A-6-R80-xxx	4000K	0.3800	0.3800
ZY-2835E65A-6-R80-xxx	6200K	0.3168	0.3421
ZY-2835E72A-6-R80-xxx	6950K	0.3070	0.3170

**Photoelectric parameters**    **光电参数**

Absolute maximum ratings    最大限定参数 ( Ta=25°C )

Parameter 项目名称	Symbol 项目符号	Rating ( 值 )	Unit 单位
Power dissipation 消耗功率	<b>P<sub>d</sub></b>	960	mW
Forward current 正向电流	<b>I<sub>f</sub></b>	150	mA
Reverse voltage 反向电压	<b>V<sub>r</sub></b>	10	V
Operating temperature 操作温度	<b>T<sub>opr</sub></b>	-20~+85	°C
Storage temperature range 储存温度范围	<b>T<sub>stg</sub></b>	-35~+85	°C
Pulse forward Current ( Duty cycle 1/10@1KHz ) 正向脉冲电流 ( 占空比 1/10@1KHz )	<b>I<sub>fg</sub></b>	225	mA
Beam angle 发光角度	<b>2θ 1/2</b>	120	°
Electrostatic Discharge (HBM) 抗静电能力	<b>ESD</b>	1000(HBM)	V
Work lamp bead foot temperature 工作时灯珠脚温度	<b>T<sub>p</sub></b>	≤115	°C
Junction temperature 结温	<b>T<sub>j</sub></b>	≤125	°C
Thermal Resistance 热阻	<b>R<sub>thj-s</sub></b>	25	°C/W



Electro-optical characteristic 主要光电参数 ( Ta=25°C )

Parameter 项目名称	Test condition 测试条件	Symbol 项目符号	Value 参数			Unit 单位
			MIN	TYP	MAX	
Forward voltage 正向电压	If=150mA	$V_f$	5.8	--	6.6	V
Luminous flux 光通量	If=150mA	$\Phi$	110	--	160	lm
Reverse current 反向电流	Vr=10V	$I_r$	0	0	10	$\mu$ A
Color Index 显色指数	If=150mA	$R_a$	--	80	--	--

Light standards ( If=150mA ) 分光标准 ( If=150mA )

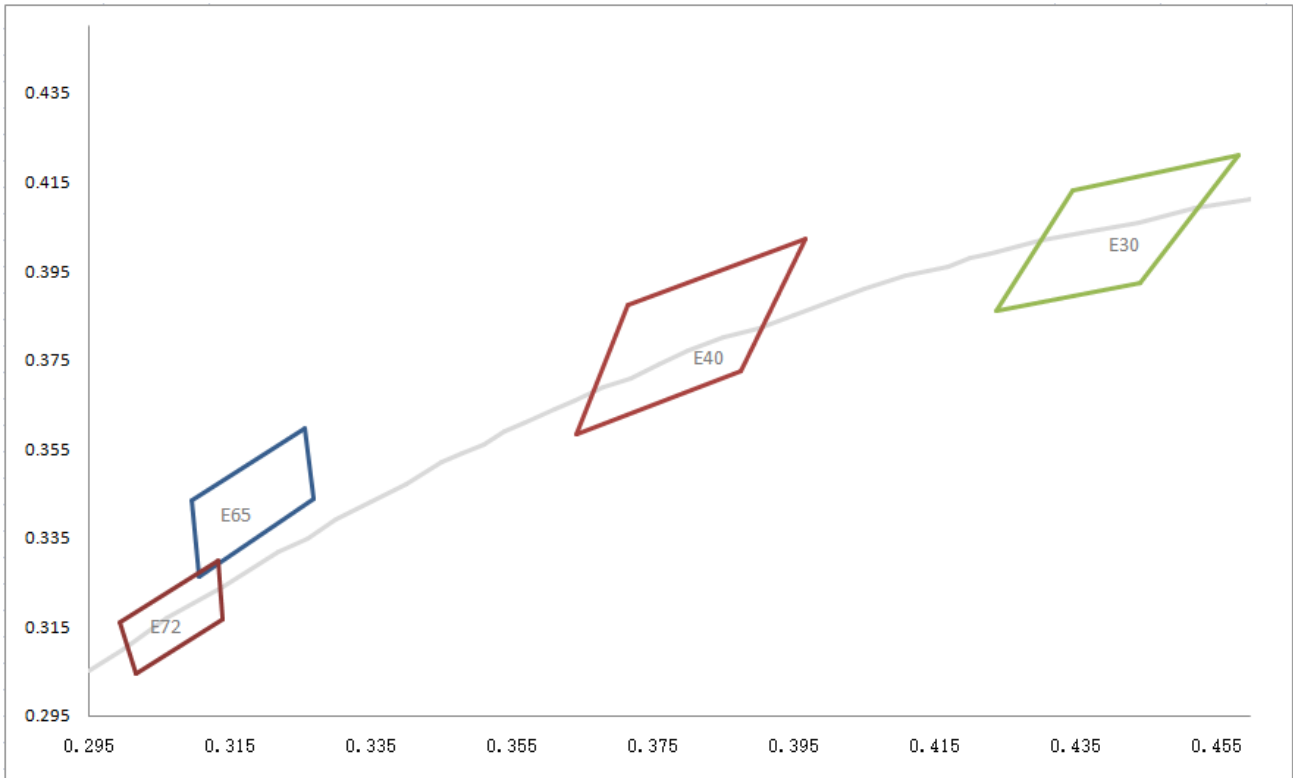
Forward voltage( $V_f$ )			Luminous flux ( $\Phi$ )		
Color	Min.(V)	Max. ( V )	Color	Min.(lm)	Max.(lm)
White 白光	5.8	6.0	White 白光	110	120
	6.0	6.2		120	130
	6.2	6.4		130	140
	6.4	6.6		140	150
				150	160

Note:(备注)

1. The above luminous flux measurement allowance tolerance is  $\pm 5\%$ . 上述发光通量的测试允许公差为 $\pm 5\%$ 。
2. The above forward voltage measurement allowance tolerance is  $\pm 0.1V$ . 上述所示电压测量误差 $\pm 0.1V$ 。



CIE Chromaticity Diagram 色区图



6-step MacAdam Color Bin Definitions 6阶色容差参数

CCT	Color Coordinates							
	X1	Y1	X2	Y2	X3	Y3	X4	Y4
E30	0.4346	0.4130	0.4583	0.4210	0.4443	0.3922	0.4239	0.3861
E40	0.3715	0.3872	0.3642	0.3582	0.3876	0.3726	0.3967	0.4021
E65	0.3095	0.3434	0.3107	0.3264	0.3269	0.3438	0.3257	0.3597
E72	0.3016	0.3045	0.3139	0.3167	0.3133	0.3298	0.2993	0.3159

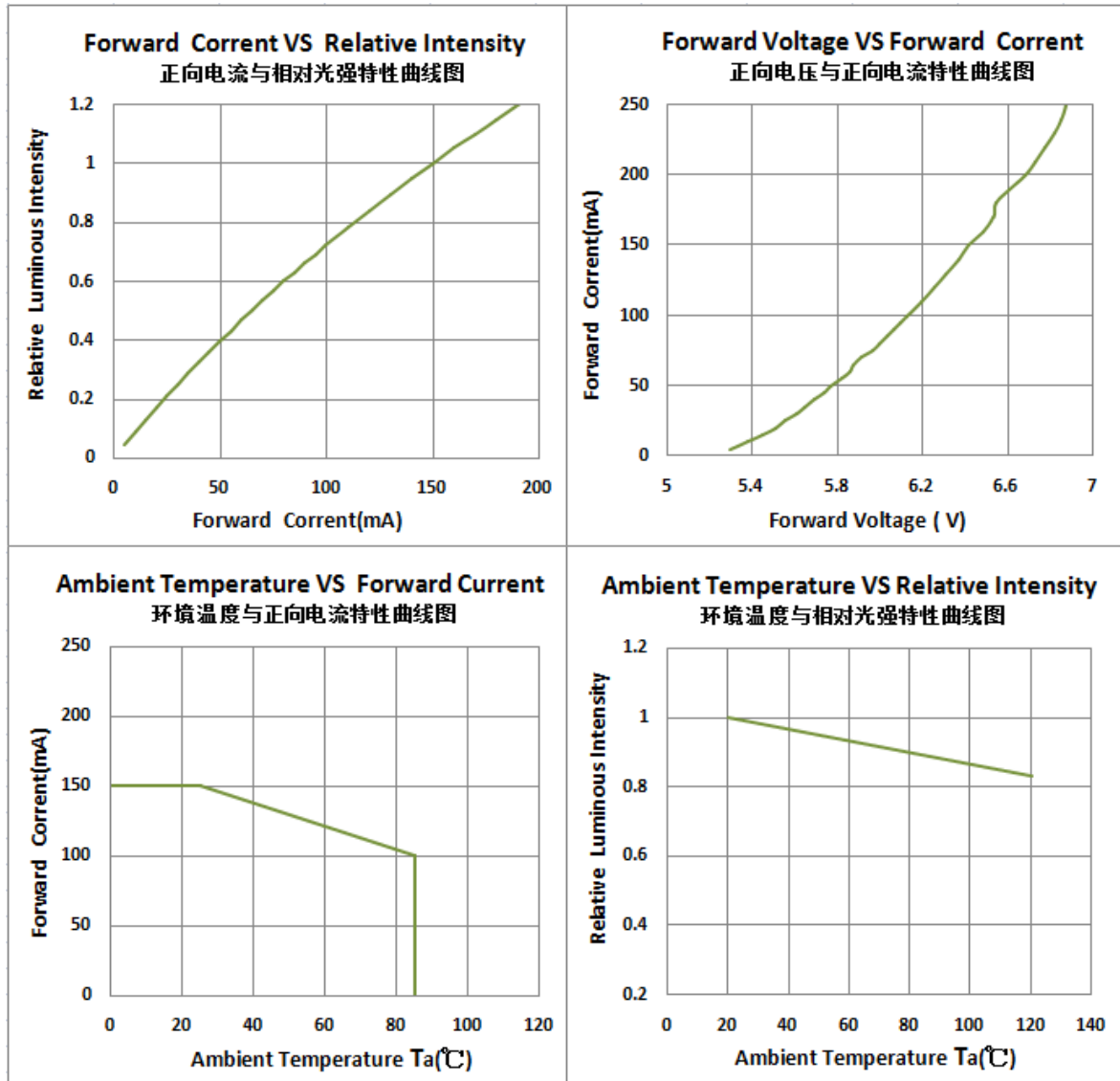
Note:(备注 )

1. The above color coordinates measurement allowance tolerance is  $\pm 0.01$ . 上述所示坐标测量误差 $\pm 0.01$ 。



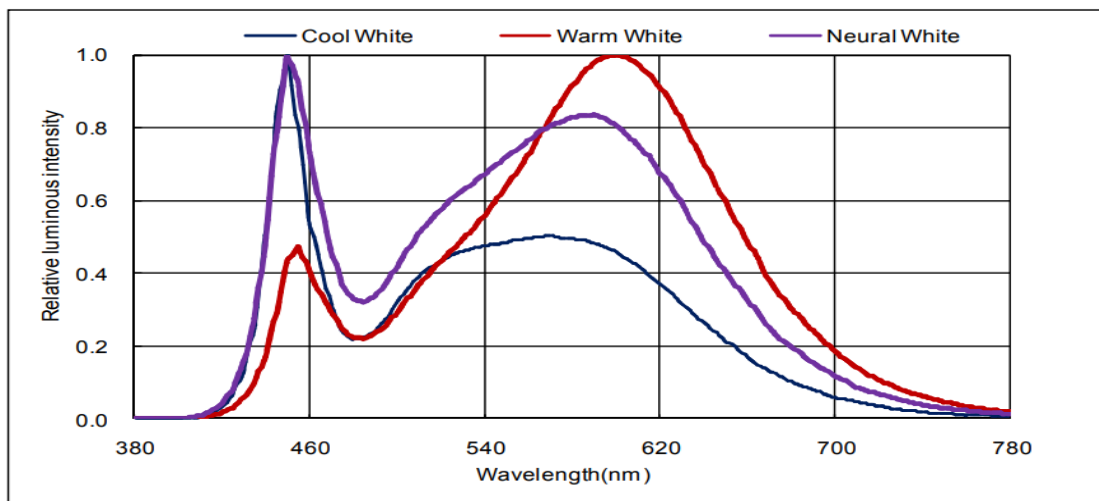
### Typical optical characteristic curves

### 光电特性曲线



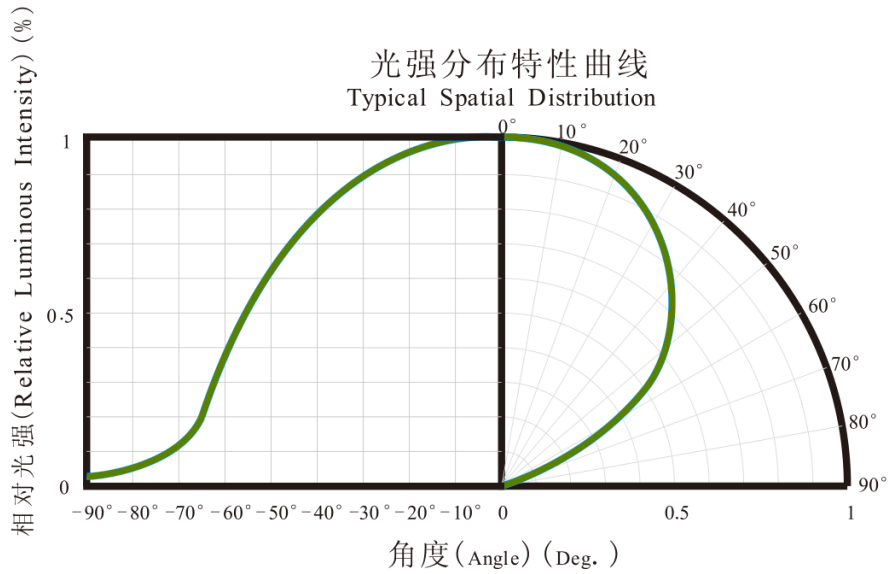
### Spectrum Distribution

### 光谱分布特性曲线





Radiation diagram 辐射图特性曲线



Note:(备注)

All the parameters and standards in the specification are based on ZhongYang standard test platform. 规格书中所有参数和标准都是基于中阳的标准测试平台。

Packing specifications 包装规格

Label Form Specification 标签规格

ZY-2835 XXX X - 6 - R80 - xxx

① ② ③ ④ ⑤ ⑥ ⑦

- ① Z为中阳产品
- ② 材料尺寸
- ③ 发光颜色: E30暖白, E40自然白, E65正白
- ④ 支架类型: A为常规杯型, B为圆杯
- ⑤ 电压档位: 6指代6V1W产品, 9指代9V1W产品
- ⑥ 显色指: R80为显指80
- ⑦ 亮度档下限: 如120-130/130-140



江门市中阳光电科技有限公司  
ZY-2835E65A-6-R80-120  
LOT NO.D2308354-001-0001-25.00

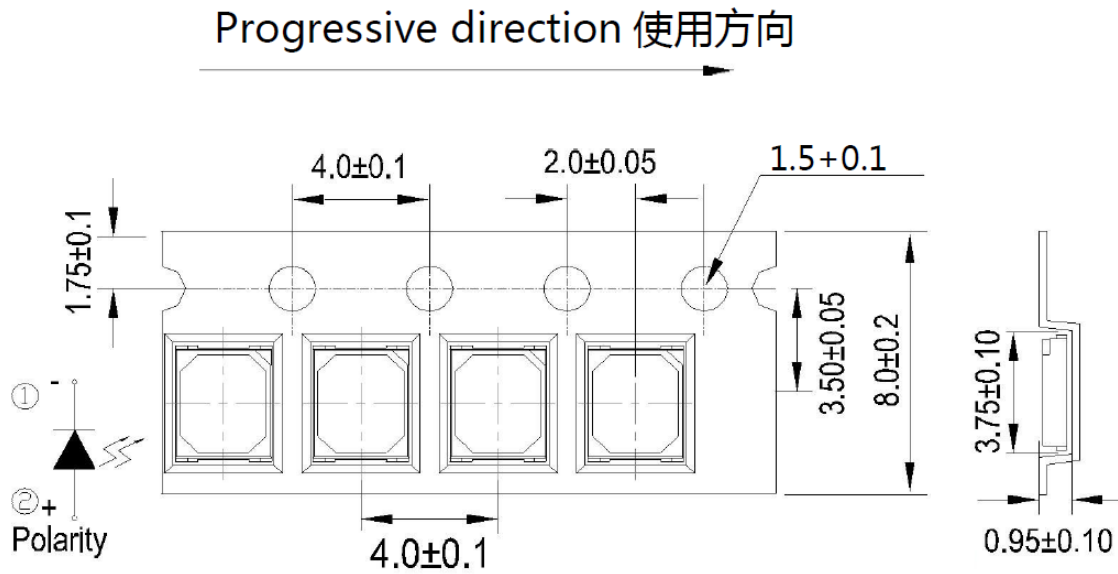
产品型号  
我司批号

亮度范围: Φ: 120-130lm  
电压范围: VF: 6.0-6.4V  
色温: CCT: 6500K  
数量: QTY: 2500pcs  
生产日期: DATE: 2023.9.16



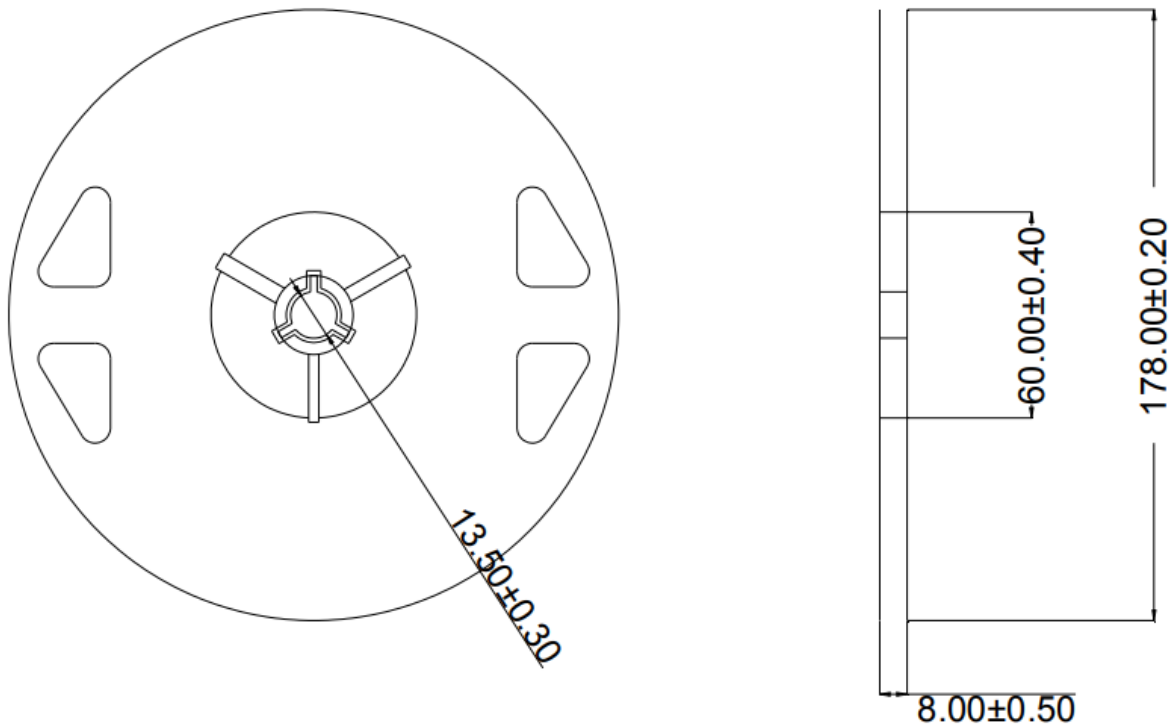


Carrier Tape Dimensions 载带尺寸



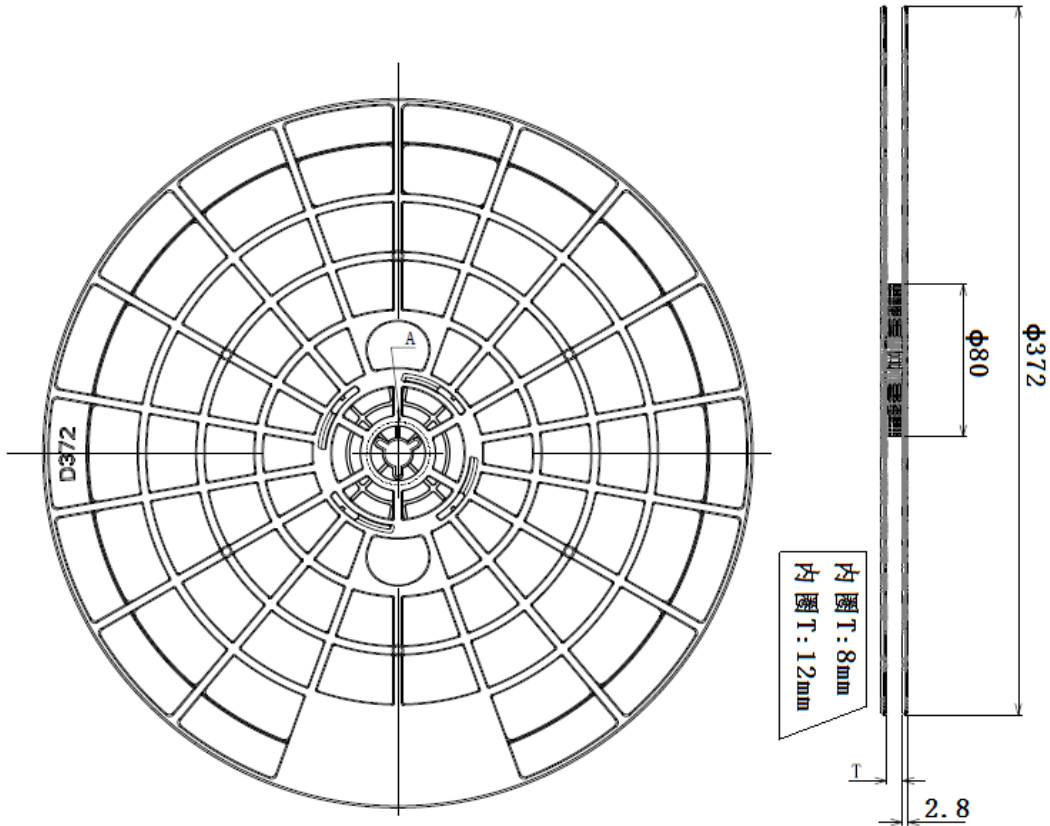
Reel Dimension 转盘尺寸

4,000pcs/Reel

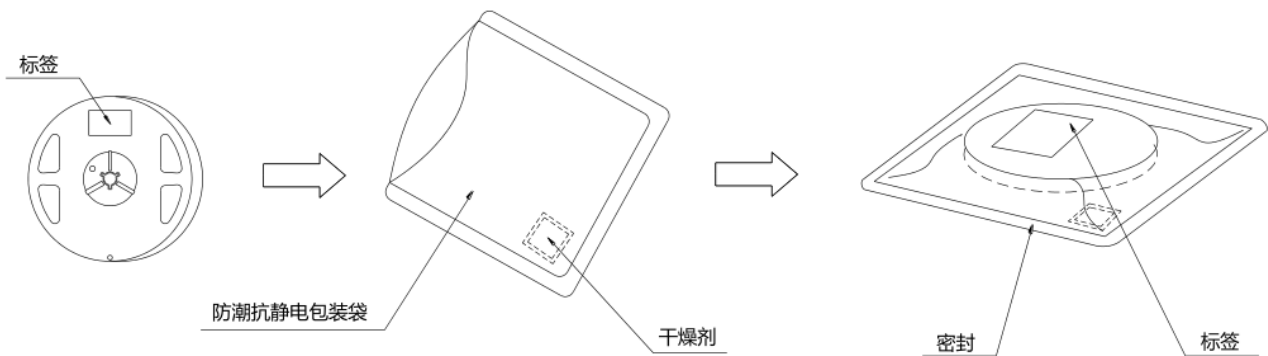




25,000pcs/Reel



Moisture Resistant Packing Process 包装步骤



NOTES 备注:

1. Empty component pockets are sealed with top cover tape. 预留载带空位也贴有上封带。
2. The maximum number of missing lamps is two. 最多缺失的LED 不能超过两颗。
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.  
根据 ANSI/EIA RS-481 的规格, 产品的负极指向卷带的导孔。
4. 小盘 ( small ) 4,000 pcs / Reel. 4,000 颗/卷. 大盘 ( big disc ) 25,000 pcs / Reel. 25,000 颗/卷。



Reliability test 可靠性试验

实验 Experiment	测试条件 Test conditions	测试周期 Test cycle	不良数量/总数 量 Bad/Total
硫化实验 Sulfide Test	在 0.5g 硫磺粉环境 80°C，烘烤 In 0.5 g sulfur powder in the environment of 80 °C, bake	4 小时/H	0/10
红墨水实验 Red Ink Test	红墨水与水 100°C烘烤 Red ink and water 100 °C baking	1 小时/H	0/20
冷热冲击 Thermal Shock	-45°C(15min) ~ 125°C (15min)	100 循环/cycle	0/20
高温高湿储存 High Temperature High Humidity Storage	=85°C, RH=85%	1000 小时/H	0/20
常温老化 Life Test	=25°C, =150mA	1000 小时/H	0/10
高温老化 High Temperature Life Test	=80°C, =150mA	1000 小时/H	0/10
回流焊 Reflow Soldering	250°C< 10sec.	3 次/Time	0/20

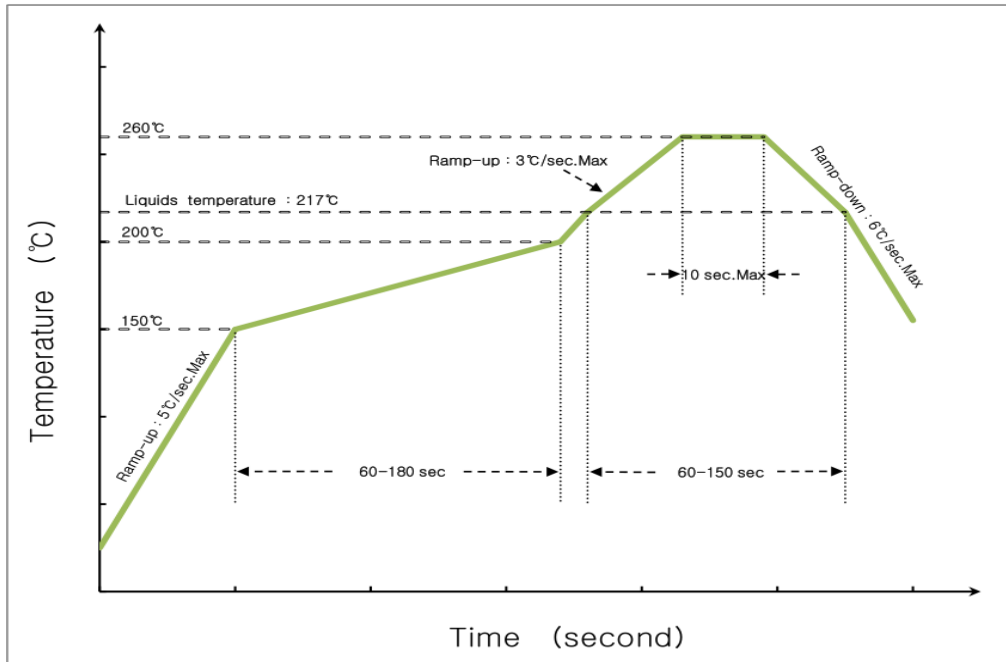
Criteria For Judging Damage 失效判断标准

测试项目 Parameter	符号 Symbol	测试条件 Test condition	判定标准 Criteria
正向电压 Forward voltage	$V_F$	$I_F = I_{FT}$	初始值±10% Initial Data±10%
反向电流 Reverse current	$I_R$	$V_R = 10V$	$I_R \leq 10\mu A$
光强 Light intensity	$I_v$	$I_F = I_{FT}$	平均 IV 衰减≤30%；单个 IV 衰减≤50% Average IV degradation≤30%； Single LED IV degradation≤50%
耐焊热接 Resistance to Soldering Heat		$T_{sol}=250^\circ C$	材料内部无裂痕，无材料间爆裂、剥离，无死灯。 Material without internal cracks , no material between stripped , no deaded light.



## SMT Reflow soldering Instructions

## SMT回流焊说明



### NOTES 备注:

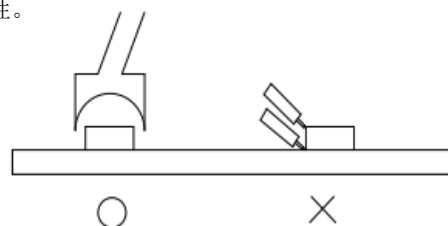
- ( 1 ) . No more than twice for reflow soldering. 注意回流焊不可超过两次。
- ( 2 ) . To ensure the quality of our LEDs, we encapsulate them with silicon resin . So please do not put pressure on the LEDs.  
为保证产LED 质量及可靠性我司采用硅树脂封装，胶体表面较软，焊接加热过程中，不可施加压力在LED表面。
- ( 3 ) . Please choose the right nozzle ( try to learn from the plastic products parts ) to avoid the damage to products due to the pressure.  
在吸嘴的选取上要选择吸嘴的大小和压力合适的吸嘴（尽量吸取产品的塑胶部分），以避免造成压力过大伤害产品。
- ( 4 ) . LED for electrostatic sensitive products, when using, please wear antistatic bracelet, workbench good anti-static processing, machine equipment guarantee grounded.  
LED 为静电敏感产品，使用时请佩带防静电手环，工作台做好防静电处理，机台设备等保证接地。

## Soldering iron 烙铁焊接

- ( 1 ) .When hand soldering, keep the temperature of iron below less 300°C less than 3 seconds.  
当手工焊接时，烙铁的温度必须小于300°C，时间不可超过3秒。
- ( 2 ) .The hand solder should be done only one times. 手工焊接只可焊接一次。

## 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，当修复是不可避免时，必须使用双头烙铁（如下图），但必须事先确认此种方式会或不会损坏 LED 本身的特性。



## 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封装为硅胶，故LED胶体表面较软，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封装的零件上的强大压力，当使用吸嘴时，胶体表面的压力应是恰当的。

( 2 ) 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.

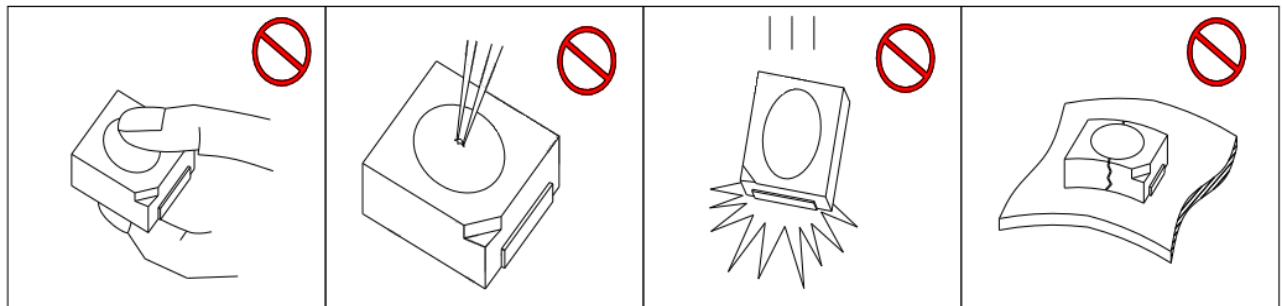
LED工作环境及与LED适配的材料中，硫元素及化合物成份不可超过100PPM，单一的溴元素含量要求小于900PPM，单一氯元素含量要求小于900PPM，溴元素与氯元素总含量必须小于1500PPM（检测含量为与LED直接接触面上元素含量）。

( 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 properties of the materials selected to be used in the construction of fixtures can help prevent these issues. ZhongYang advises against the use of any chemicals or materials that have been found or are suspected to have an adverse affect on device performance or reliability. To verify compatibility, ZhongYang recommends that all chemicals and materials be tested in the specific application and environment for which they are intended to be used. Attaching LEDs, do not use adhesives that outgas organic vapor.

应用套件中的挥发性物质会渗透到LED内部，可能对LED性能或者可靠性不利，在通电情况下会加剧影响。因此客户需提前验证，避免套件材料或其他组装原物料存在未经验证的挥发性物质，针对特定的用途和使用环境，中阳建议对所有的物质和材料进行相容性的测试。

( 4 ) Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

通过使用适当的工具从材料侧面夹取，不可直接用手或尖锐金属压胶体表面，它可能会损坏内部电路。



( 5 ) In designing a circuit ,the current through each LED must be 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 ) Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry. 不可将模组材料堆积在一起，它可能会损坏内部电路。



( 8 ) Not suitable to operate in acidic environment, PH<7.  
不可用在PH<7的酸性场所。



## Storage 储存

### 1、 Before opening the package 打开包装袋前：

The LEDs can be preserved for 1 year in condition of temperature no more than 30°C and humidity no more than 60%RH. Recommended for moisture-proof foil bag with desiccant packaging methods and stored in the constant temperature and humidity box. Can not reach the requirements under the environment of the guarantee as far as possible in six months after use.

在温度不超过30°C及湿度不超过60%RH 条件下，LED 可以保存一年，建议采用带干燥剂的防潮铝箔袋的包装方式，存放在恒温恒湿箱中。达不到要求的环境下，尽量保证在6个月内使用完毕。

### 2、 After opening the package 打开包装后：

( 1 ).The LEDs can be preserved for 1year in condition of temperature no more than 30°C and humidity no more than 60%RH.The rest products should be pressurized in vacuum condition with desiccants.Stored for more than 7days,next time also must be dehumidification,the dehumidification conditions is 70°C with 12hours.

开封后，LED在≤30°C，≤60%RH相对湿度的条件下，12小时内完成贴片作业，未用完的产品重新真空密封，并放置在一个密封容器中，同时必须使用干燥剂。存储超过7天，下次使用时同样需要除湿操作，除湿条件为70°C12小时。

( 2 ).The sealed storage products stock in the drying cabinet more for than one mouth,then must be dehumidified before used,and the dehumidified conditions is 70°C 24 hours.

密封的产品在干燥箱中存储超过1个月的，须经过深度除湿作业才能上线，除湿条件：70°C24小时。

( 3 ).If the product does not vacuum sealed packaging,and in the air for more than 40 hours,this product must be removed from the tape of reel and put into the steel plate to dehumidify with 150°C 2 hours,then could ensure the quality of the product after the soldering operation.

如果产品没有真空包装密封保存，且在空气中放置超过40小时，此产品必须从载带中拆出，放入钢盘进行150°C2小时的除湿，之后进行回流焊作业才能保证产品品质。

## Declare 申明

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

此规格书以中英文方式书写，若有冲突以中文版本为准。

Both the customers and ZhongYang will agree on official specifications of supplied products before a customer's volume production. 在量产供货前，中阳需与客户签署一份正式的产品规格书并各自备份。