

# LKL 产品规格 书

## SPECIFICATION

产品型号 Model. P/N NO.: LKL-S3 10 12 FI H

XXXX X 送承日期 Documents. NO.:

深圳市同一方光电			客户/Customer (加盖公章) 公司名称:		
制作 Maker	审核 Checked	批准 Approved	工程 Engineering	品质部 Quality	批准 Approved
黄胜		刘建强			

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## 1. 产品信息 Product Information

### 外观 Appearance



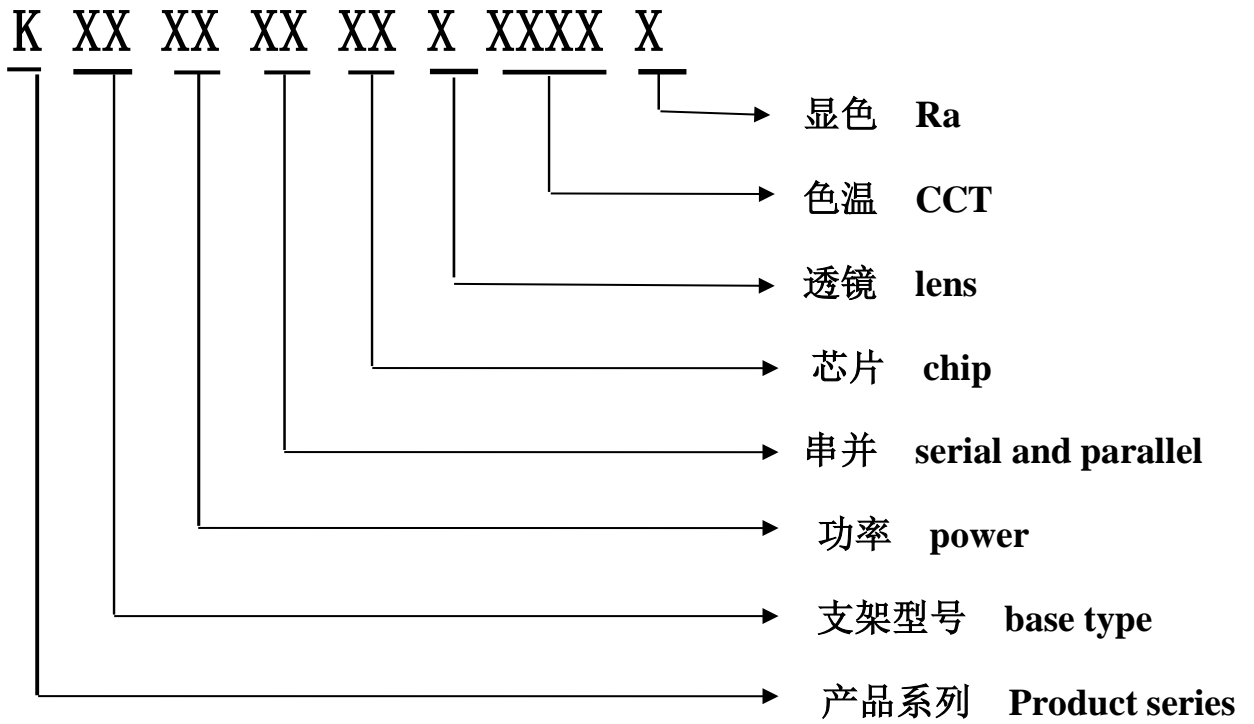
### 特性 Features

- 高光效, 超长光通量维持率, 达到LM-80标准 High luminous efficiency, High luminous flux maintenance, LM-80 standard approved
- 外观尺寸 Package Dimension: 14.5mm×8.0mm×5.1mm
- 发光角度 Viewing Angle: 120° -140°
- 符合ROHS标准 ROHS Approved

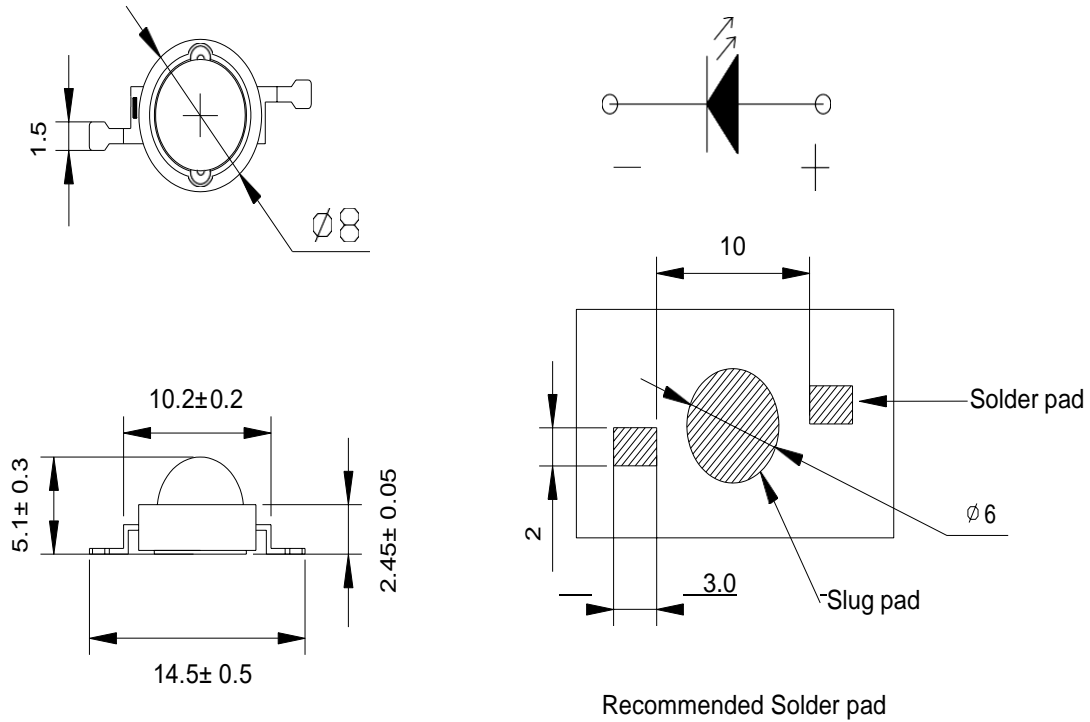
### 应用 Applications

- 室内通用照明 Indoor General Lighting
- 工业照明 Industrial lighting

## 2. 产品编码 Product Number



### 3. 外形尺寸 Dimensions



#### 备注 Postscript:

- 所有尺寸单位为 mm ， 如无特殊说明误差范围为  $\pm 0.2$  mm。
- All dimensions area in mm tolerance is  $\pm 0.2$  mm unless otherwise noted
- 底板材质:铜
- Base material:copper

## 4. 极限参数 Absolute Maximum Ratings

项目/Item	符号/Symbol	数值/Value	单位/Unit
极限功率 Limiting power	P	1	W
正向电流 Forward Current	IF	300	mA
工作温度 Operating Temperature	Topr	-30°C To +105°C	°C
结点温度 Junction Temperature	Tj	120	°C
储存温度 Storage Temperature	Tstg	-35°C To +100°C	°C
静电击穿电压 ESD Sensitivity	ESD	2,000V HBM	V
反向电压 Reverse Voltage	VR	5	V
反向电流 Reverse Current	IR	5	uA
焊接温度 Soldering Temperature	Tsld	205°C/3-5sec.	°C/S
湿度敏感级别 Moisture Sensitivity Rating	MSR	MSL3	°C/RH/H

### 说明:

- 极限功率是指模块温度通过使用合适的散热体下的最大设置数值。
- 最初连接错误的反向电压，超出将可能损坏模组。
- 不一样的温度（Tj 温度测试点）表示模块要按照降级曲线进行对应数据操作。

### Explain:

- Max power and positive current mean the maximum setting value of the bottom temperature of led light source by using the appropriate heat sink.
- Connection error and off-limits voltage may damage LED chip.
- Different temperatures (temperature test point Tj), said LED light should operate follow derating curve on the text

## 5. 光电特性 Electrical-Optical Characteristics

产品型号 Part Number	颜色 Colour	条件 Condition	参数 Parameter	最小值 MIN	典型值 Typ	最大值 MAX
LKL-S3-10-12-FI-H	红光 Red	IF=300mA Tc=25 °C	正向电压 Voltage	2.0	2.2	2.4
			主波长 $\lambda_d$	620	625	630
			光通量 flux	50	55	60
			光量子 PPF			

### 说明:

- 芯片代码: FI 代表LKL20-R 芯片;;

### Explain:

- Chip code: FI stands for LKL20-R chip;

### 注意:

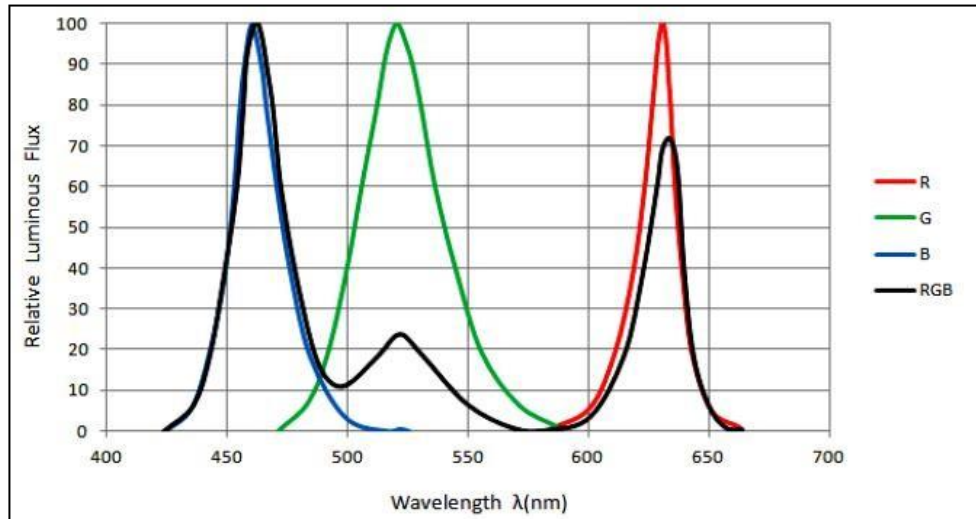
- 测试环境温度 25 °C, 若使用不同电流或不同的环境温度测试, 会引起色温及电压的变化。
- 不同标准测试仪正常测试允许公差: 电压 $\pm 0.1V$ , 流明 $\pm 5\%$ , 显指 $\pm 2$ , 色坐标 $\pm 0.005$ 。

### Attention:

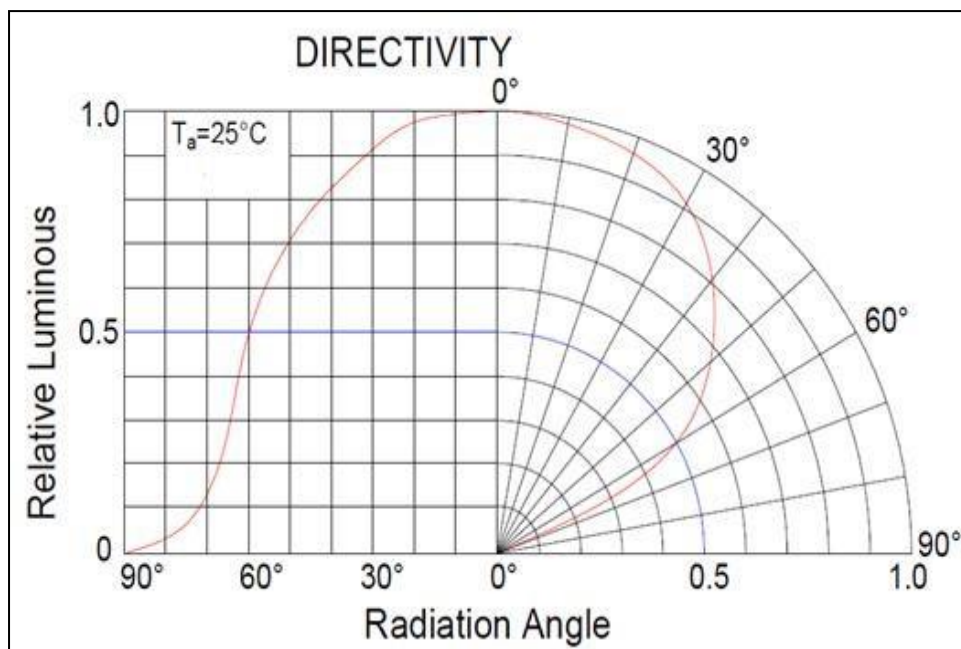
- Testing environment temperature 25 °C, and CCT and voltage will changed if tested in different current and environment temperature.
- Tolerance among different testing machine: Voltage:  $\pm 0.1V$ , Lumen  $\pm 5\%$ , CRI  $\pm 2$ , Color coordinate  $\pm 0.005$ .

## 6. 典型特性曲线 Typical Characteristic Curves

### 1. 典型光谱分布 Typical spectral distribution



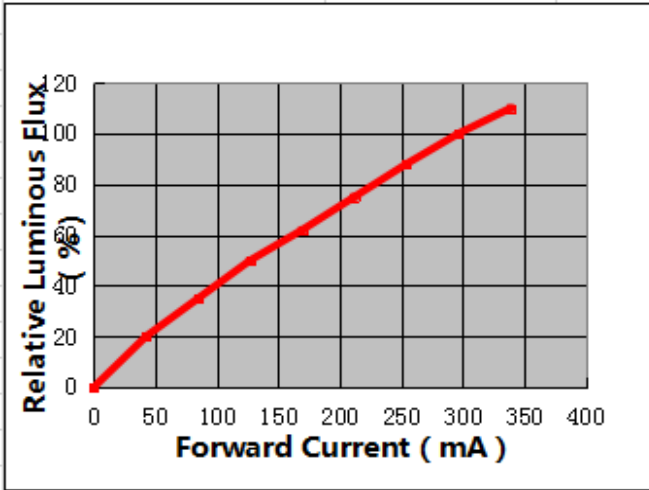
### 2. 典型发光角度辐射图 Typical Light-Emitting Angle Radiation Pattern





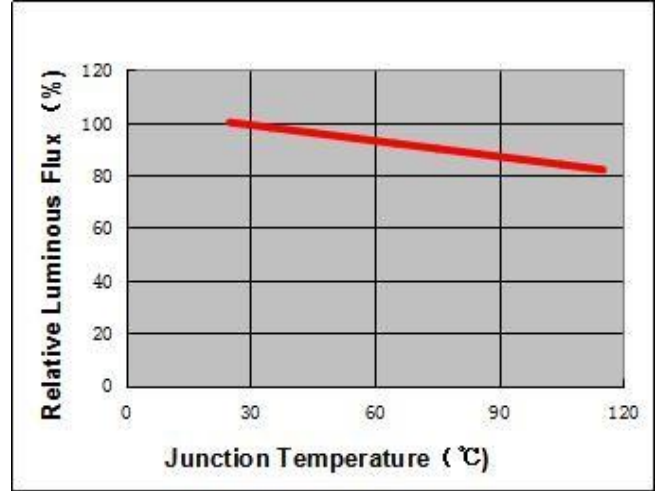
### 3. 亮度与电流关系曲线图

Relative Luminous Intensity VS Forward Current



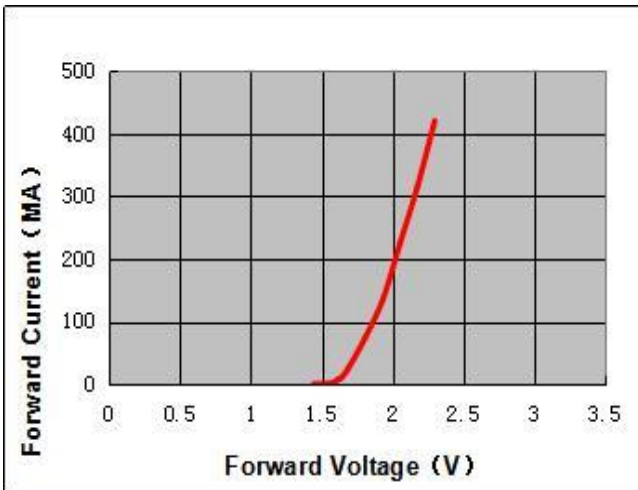
### 4. 亮度与结温关系曲线图

Relative Luminous Intensity VS Junction Temperature



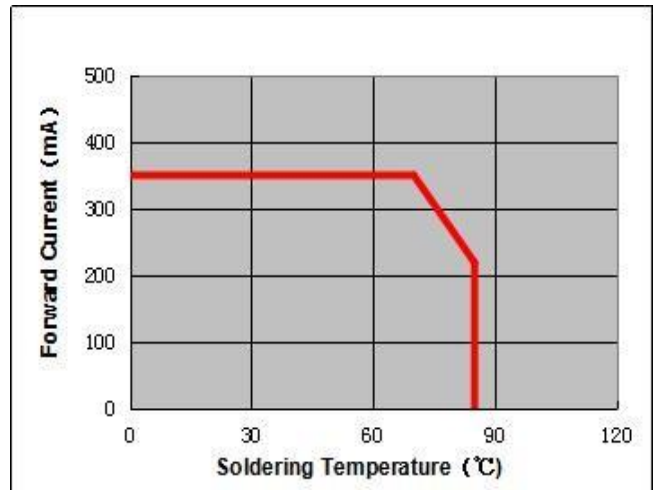
### 5. 电流与电压关系曲线图

Forward Current VS Forward Voltage



### 6. 电流与温度关系曲线图

Forward Current VS Soldering Temperature



## 7. 可靠性试验 Reliability Test Items And Conditions

### 1. 测试项目和测试条件 Testing items and testing conditions

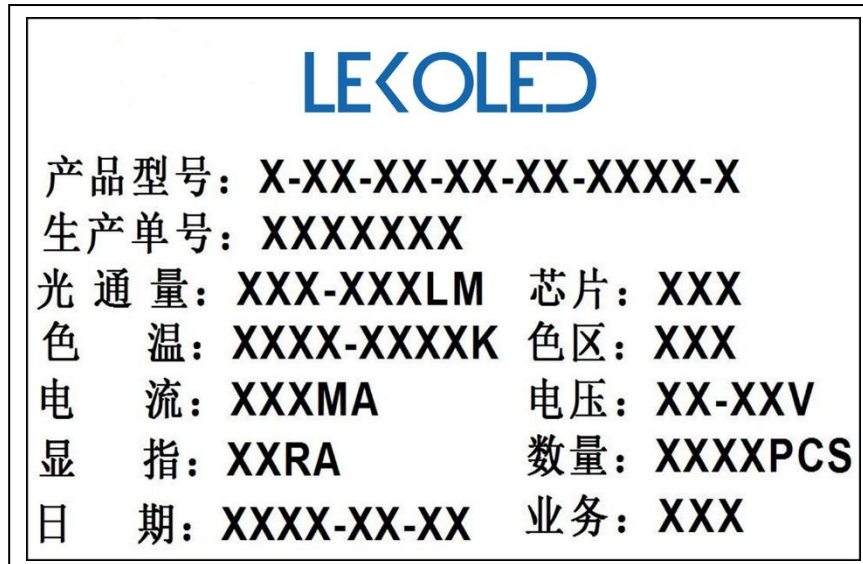
序号 Serial No.	试验项目 Test Item	参考标准 reference standard	试验条件 Test condition	样品数量 Sample Quantity	失效数量 Failure Quantity
1	高低温冲击 Thermal shock	JESD22-A104E	(-40°C15min) ---- +120°C (15min),                   ↑ ↓ 10 mins, 200cycles	22pcs	0
2	高温存放 HighTemperature Storage	JESD22-A103D	+100°C, 1000h	22pcs	0
3	低温存放 Low Temperature Storage	JESD22-A119	-40°C, 1000h	22pcs	0
4	高温高湿老化 High Temperature, High Humidity, Aging Test	JESD22-A101C	T=+85°C, RH=85%      IF=300MA 1000h	22pcs	0
5	高温使用寿命 High-temperature operation	IES LM80-2015	T=+105°C,                IF=300MA 1000h	22pcs	0
6	低温使用寿命 Low temperature operation	JESD22-A108D	T=-40°C,                 IF=300MA 1000h	22pcs	0
7	回流焊湿度敏感实 验Moisture/Reflow Sensitivity Test	J-STD-020E	Precondition: 60°C. 60%RH. 168H Tslid=260°C. 10sec. 3 Reflows	22pcs	0

### 2. 失效判定标准 Criteria For Judging Damage

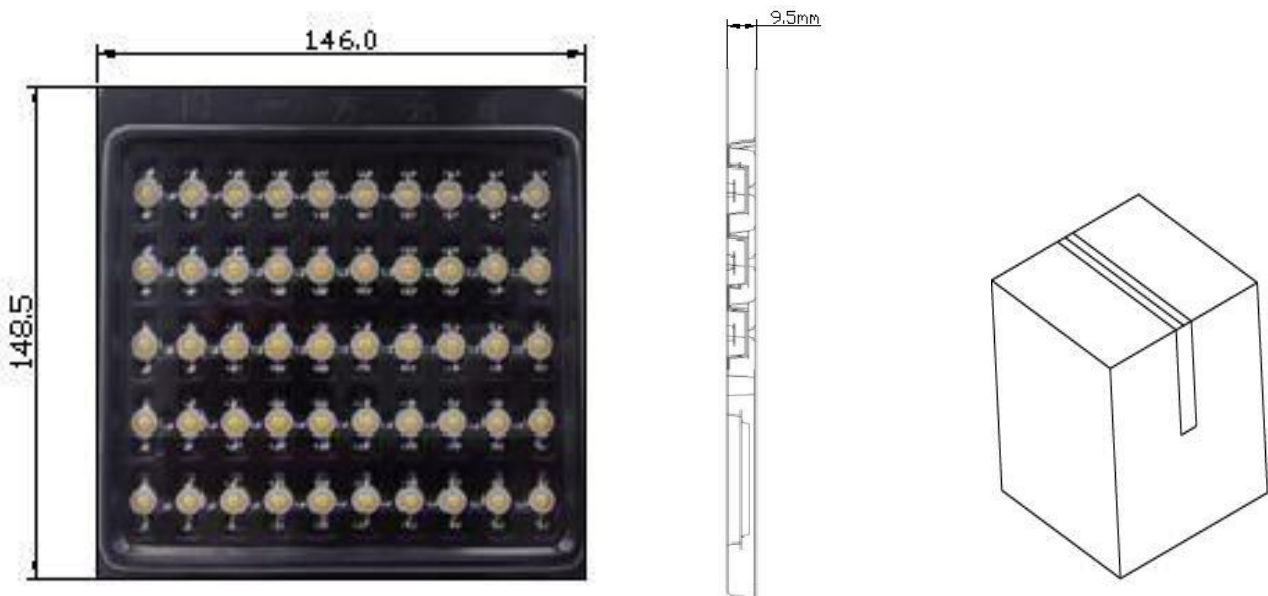
项目 Test Items	测试条件 Test Condition	判定标准 Criteria For Judgement	
		Min. 最小	Max. 最大
正向电压 Forward Voltage	IF=300mA	/	U. S. L*) x1.1
反向电流 Reverse Current	VR=5V	/	U. S. L*) x2.0
光通量 Luminous Flux	IF=300mA	L. S. L*) x0.7	/

## 8. 包装 Packaging

### 1. 铝箔袋标签 Aluminum foil bag label



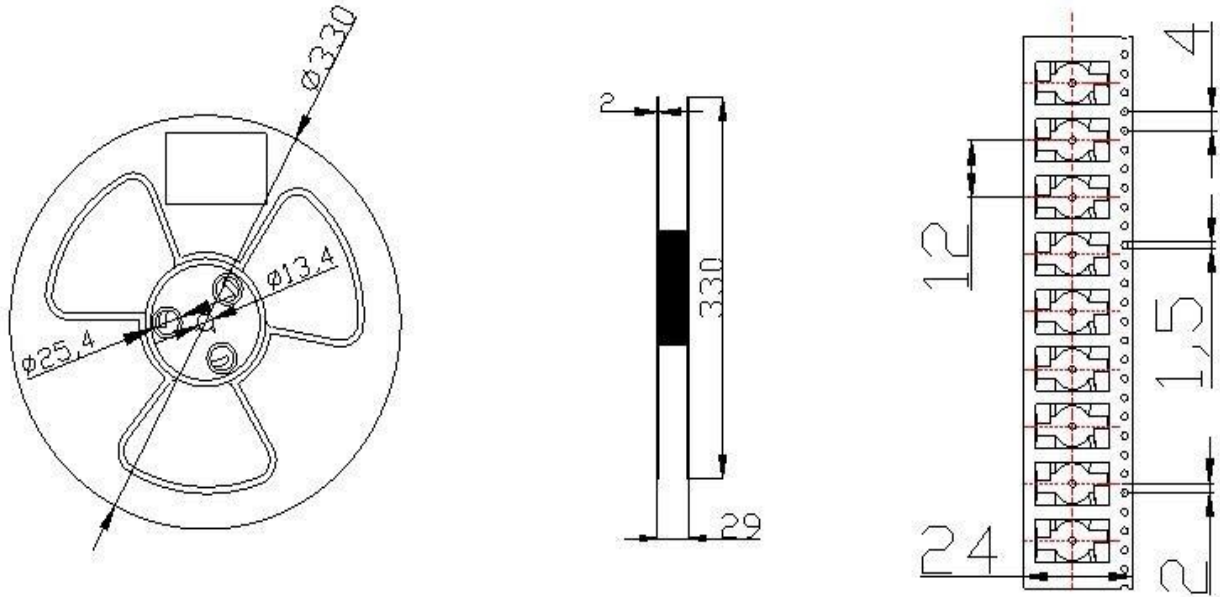
### 2. 吸塑盒包装 Blister box packaging. (单位:毫米 Units:mm)



**说明** : 产品按照规定方向放置在吸塑盒凹槽里,上面盖上透明的防护塑料盖子,避免产品胶面受外力挤压。每盘吸塑盒放置的数量根据客户需要分为 1-50PCS 不等(吸塑盒外观标准尺寸为 146.0\*148.5\*9.5mm),如图所示,包装好的材料放置在纸箱中用透明胶带封好。

**Explain:**The product is packed in fluted plastic box with protection cover, preventing from outside force.1-50pcs in one plastic box according to different requirements from customers(Outside demension of the plastice box is 146.0\*148.5\*9.5mm). Packed plastic box will be stored in carton and sealed,which is showed as the picture

### 3. 卷盘包装 Reel packaging 。(单位:毫米 Units:mm)



每卷数量 1000 个/卷. Package: 1000Pcs/Reel

#### 说明：

- LED 编带后放置在铝箔袋中真空包装，内置湿度卡，在装带之后纸箱包装
- 最小包装标签注明以下:产品名称. 批号. 参数范围. 数量
- 请注意防水防潮
- 须采取适当防护措施, 以防包装箱跌落或受到强力撞击造成对产品的损伤.

#### Explain:

- After the LED is braided, it is placed in a vacuum package in an aluminum foil bag, with a built-in humidity card. The LED is packed in a carton after being braided.
- The label on the minimum packing unit shows ; Part Number, Lot Number, Ranking, Quantity.
- Keep away from water, moisture in order to protect the LEDs.
- The LEDs may be damaged if the boxes are dropped or receive a strong impact against them. so precautions must be taken to prevent any damage.

## 9. 使用注意事项 Caution

### 1. 储藏条件 Storage conditions

• 打开前:温度为 5~30℃, 相对湿度低于 60% (打开后模组应在 24H 之内使用完毕), 如未用完之产品, 请进行除湿并抽真空后密封保存。湿度卡变色或包装袋漏气等现象必须除湿, 除湿条件: 60° C±5° C, 24H。产品密封保存有效使用期为 3 个月。

• Before open: temperature is 5 ~ 30 °C, relative humidity below 60%. ( the module should be used within 24H when opens), if not, please dehumidification and vacuum sealing .Humidity card changes color or bags leak must dehumidifier, dehumidifier conditions: 60° C±5° C, 24 h.The effective use period of product seal is 3 months.

### 2. 取放条件 Attention

• 取放及组装过程禁止挤压发光区胶体表面, 注意 SMT 贴装吸嘴选择, 防止压死灯现象。  
• During use and assembly, please do not press light-emitting colloid surface, pay attention to the choice of suction nozzle SMT , to prevent chip die.

### 3. 静电防护 Electrostatic protection

• LED 属于 I 级静电敏感器件, 接触、使用过程做好防静电保护  
• LED belong to grade I electrostatic sensitive device, please do ESD protection when touch and use

### 4. 清洁条件 Clean condition

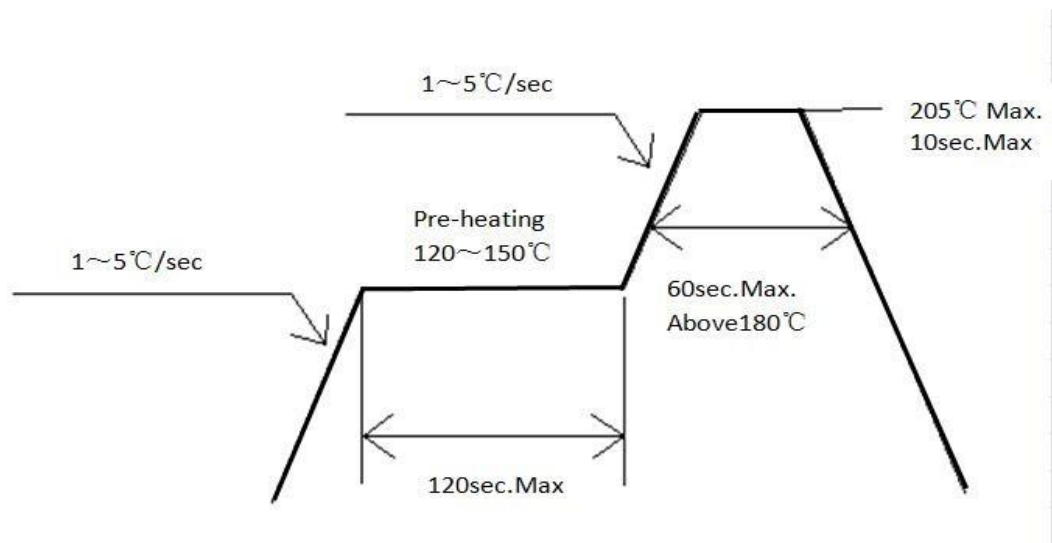
• LED 胶体表面脏污, 可用酒精清洗, 不可用丙酮等腐蚀性的清洗溶剂清洗。  
• If LED colloid surface dirt, use alcohol to clean. Can't use acetone or corrosive to clean.

### 5. 焊接条件 Welding conditions

• 可用加热台或回流焊机焊接。加热台焊接: ≤200℃, 熔锡后 3-6 秒内取出, 最多可焊接 2 次, 自然降温到室温, 方可包装。回流焊接如图:

• Heating units or reflow welding machine are available to weld. Heat welding machine: 200 °C or less and molten tin, 3-6 seconds after maximum welding 2 times, natural cooling to room temperature, before packing. Reflow soldering is shown in figure:

预热温度	无铅
	120-150℃
预热时间	<120S 秒
峰值温度	<205℃
峰值温度焊接时间	<10 秒



**说明：**最多只可回焊两次,且在首次回焊后须冷却至室温之后方可进行第二次回焊.

**Explain:** LEDs can be welded twice at most, it can be welded again only after the LEDs are cooled as room temperature.

## 6. 灯珠检测 The electrical test

- 单颗灯珠电压不能高于 5 V, 灯珠有正负方向, 焊反则不能正常点亮。
- Unit chip voltage can not higher than 5 v, chip has positive and negative pad, the chip can not light up if weld wrong.

## 7. 电路及散热设计 Design of circuit and heat dissipation

- 产品正常工作温度: TS 点 (负极焊盘) 小于 75°C, 如果超出我司给定要求, 客户必须做产品可靠性评估, 风险由客户承担。
- 电源驱动选取: 本产品需使用恒流源进行驱动, 且输出电流符合规格书上的功率使用范围, 如需使用恒压源或其他使用条件, 请进行使用效果风险评估。
- Normal operating temperature: TS point (negative pad) is less than 75 °C, if exceeded, customer needs to make reliability assessment, customer takes the risk.
- Power Supply Select: This product is powered by using a constant current driver, and the output current of the power range meets the requirement of specifications book, if use constant voltage source or other conditions, please do risk assessment.

## 8. 使用环境要求 Environmental requirements

- 此产品设计不针对下列任何条件，如在下列任何条件下使用产品，请确定其正常性能和可靠性；如：潮湿，有露水凝霜，盐水空气，腐蚀性气体的地方（CL, H<sub>2</sub>S, NH<sub>3</sub>, SO<sub>2</sub>, NO<sub>X</sub>, 等）；太阳直晒下，户外暴露，多灰尘的地方。水中，油，医用液体和有机溶剂等。

- This product can not use under below situations, if use the product in any of the below conditions, please make sure the performance and reliability; Such as: wet, frost, salt air, corrosive gases (Cl, H<sub>2</sub>S, where NH<sub>3</sub>, SO<sub>2</sub>, NO<sub>X</sub>); Exposure under the sun, exposure outdoor, dusty. Water, oil, liquid medical and organic solvent.

## 9. 使用兼容性 Using Compatibility

- 灯具中气体的化学成分以及光源周围的环境对灯具的寿命至关重要，特别是当您选择在灯具设计中使用化学成分时尤为重要。考虑使用任何材料之前，务必先咨询产品供应商或 LED 制造商。使用某种材料前获取的信息越多，灯具寿命期内的性能越高。

- 产品色差问题
- 不同 BIN 的 LED 光电参数有差异，使用前，须仔细评估。
- 具体使用注意事项参考《**点光源产品使用注意事项**》

- The chemical composition of gas in lamps and surrounding environment of light source are essential to the life of the lamps, especially when you choose to use chemical composition, it is particularly important in lighting design. Before considering the use of any material, be sure to consult the product supplier or LED manufacturer. The more information obtained before using some material, the higher the performance of the lamp.

- Color difference matters needing attention
- The different Bin led has different photoelectric data, before use, please assess carefully
- Specific please check the <<**Notice of the point light source products**>> for reference