

江西省晶能半导体有限公司

JiangXi LatticePower Semiconductor Corporation

产 品 规 格 书

Specification

产品名称 Product Name: UA

产品型号 Product P/N: UA275-35F

客 户 Client name: _____

客户料号 Client P/N: _____

版 本 号 Version No.: V002

日 期 Sending Date: _____

客户承认栏 Client Approval	
核准 Approval	确认 Audit

制定 Confirmation: _____ 审核 Approval: _____

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1、特点 Features

- ◆ AIN 陶瓷封装
AlN Ceramic Substrate package
- ◆ 尺寸：3.5mm×3.5mm
Size: 3.5mm×3.5mm
- ◆ 齐纳管保护
Zener Protection
- ◆ 适于 SMT 贴片
Compatible with SMT
- ◆ 发光角度：120°
Viewing Angle: 120°
- ◆ 包装：最大 1000 颗/卷
Package: Max: 1000pcs /reel



2、应用 Applications

固体表面杀菌	Sterilization of solid surface
慢速流体杀菌	Sterilization by Slow Fluid
便携式杀菌	Portable sterilization
生化分析	Chemical and biological analysis



3、特征性能 Characteristic performance

a) 绝对最大额定值 Absolute Maximum Ratings

参数 Parameter	符号 Symbol	最大参数值 Maximum Rating	单位 Unit
正向电流 Forward Current (DC)	I_F	40	mA
功率 Power Dissipation	P	0.23	W
工作温度 Operating Temperature Range	T_{opr}	-30~60	°C
存储温度 Storage Temperature	T_{stg}	-40~100	°C

b) 光电参数 Photoelectric parameters ($T_{solder\ pad}=25\text{ }^{\circ}\text{C}$, $I_F=40\text{mA}$)

项目 Item	符号 Symbol	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
峰值波长 Peak Wavelength	WLP	270	275	280	nm
辐射功率 Radiation Power	Φ_e	----	3.2	----	mW
正向电压 Forward Voltage	VF	----	5.8	----	V
发光角度 Viewing Angle	$2\theta_{1/2}$	----	120	----	°
热阻 Thermal Resistance	----	----	24	----	°C/W
结温 LED Junction Temperature	T_j	----	----	70	°C

备注 Notes :

◇ 上述参数有晶能半导体测试设备提供，不同厂家存在一定的设备测试差异。

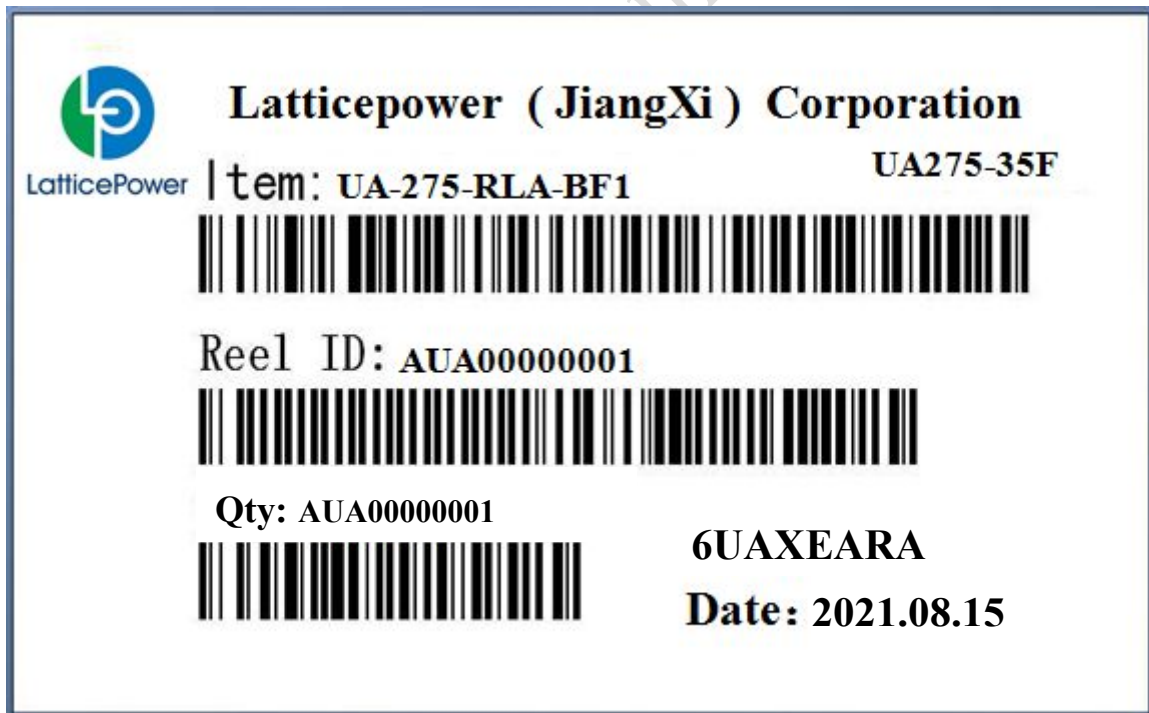
The above parameters are provided by the testing equipment of crystalline semiconductor, and there are certain equipment testing differences between different manufacturers.

4、产品代码 Product Order Code

UA - 275 - RLA - BF1
① ② ③ ④

- ① 产品型号 Product Type
- ② 峰值波长等级 Peak Wavelength level
- ③ 辐射功率等级 Radiation Power level
- ④ 电压等级 VF Level

出货标签(例) Shipping label (e.g.)



5、分档规则 Bin Regulations

a) 峰值波长分档 Peak Wavelength Groups (T solder pad = 25°C, I_F =40 mA)

代码 Group Code	最小值 Min.	最大值 Max.
275	270nm	280nm

备注 Notes :

◇ 峰值波长测试误差±3nm。

It maintains a tolerance of ±3nm on peak wavelength measurements.

b) 辐射功率分档 Radiation Power Groups (T solder pad = 25°C, I_F =40 mA)

代码 Group Code	最小值 Min.	最大值 Max.
RLA	2mW	5mW

备注 Notes :

◇ 辐射功率测试误差±10%。

It maintains a tolerance of ±10% on Radiation Power measurements.

c) 电压分档 Voltage Groups (T solder pad = 25°C, I_F =40 mA)

代码 Group Code	最小值 Min.	最大值 Max.
BF1	5	8

备注 Notes :

◇ 电压测试误差±0.3V。

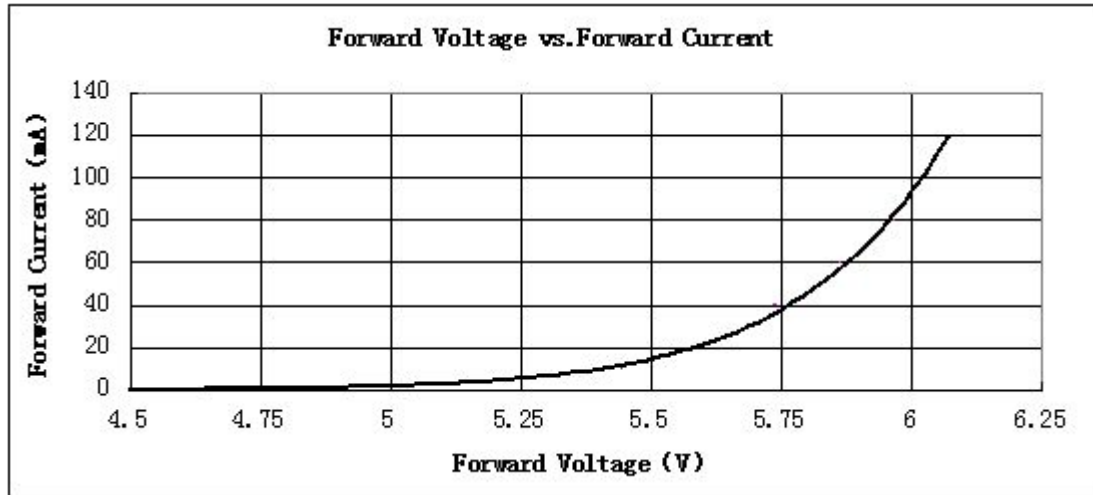
It maintains a tolerance of ±0.3V on Voltage measurements.

6、光电特性图

The Photoelectric Characteristics Graph (Ta= 25 °C)

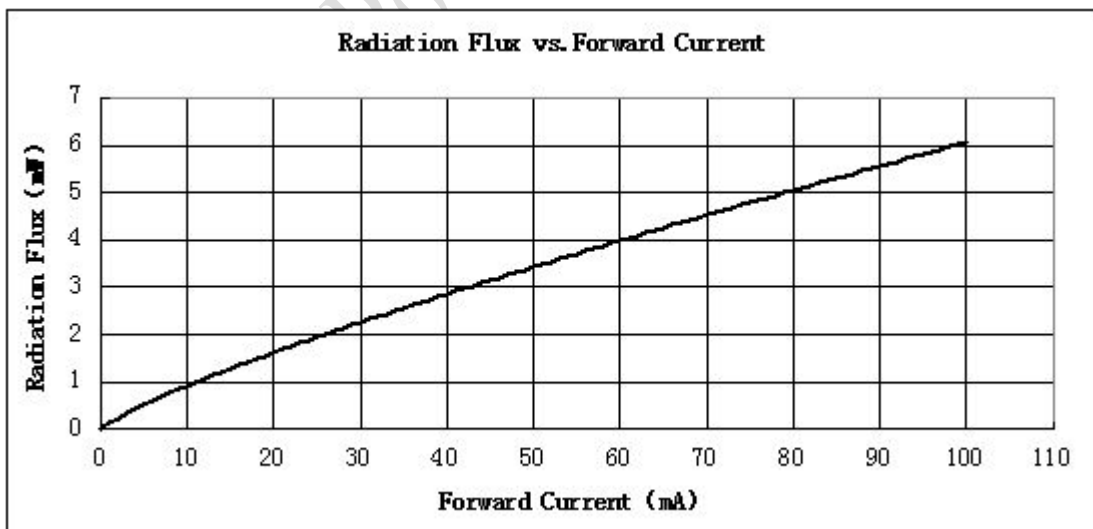
a) 正向电流-正向电压曲线

Forward Voltage VS. Forward Current Curve



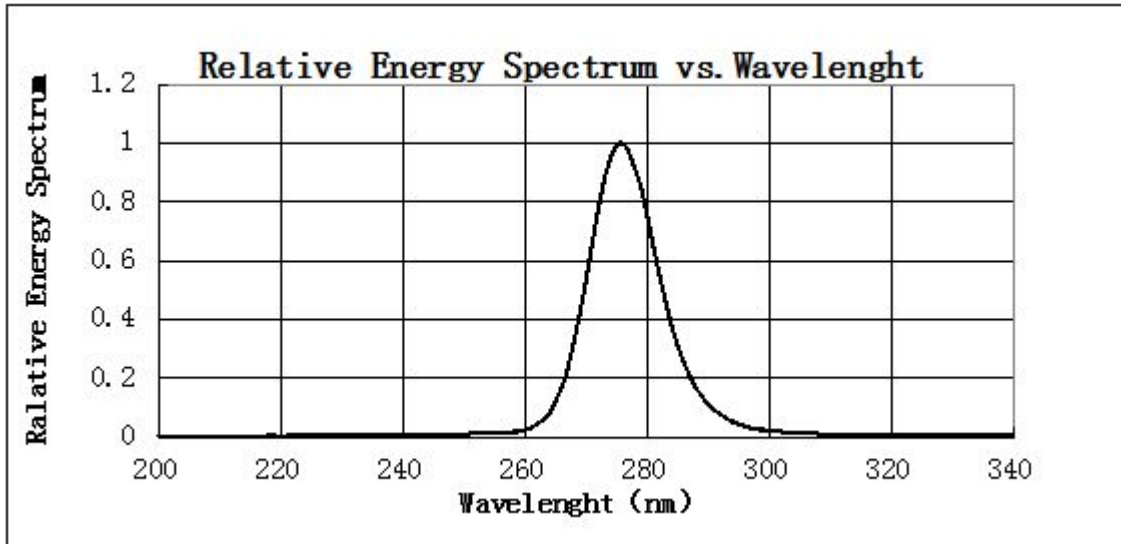
b) 辐射功率-正向电流曲线

Radiation Flux VS. Forward Current Curve



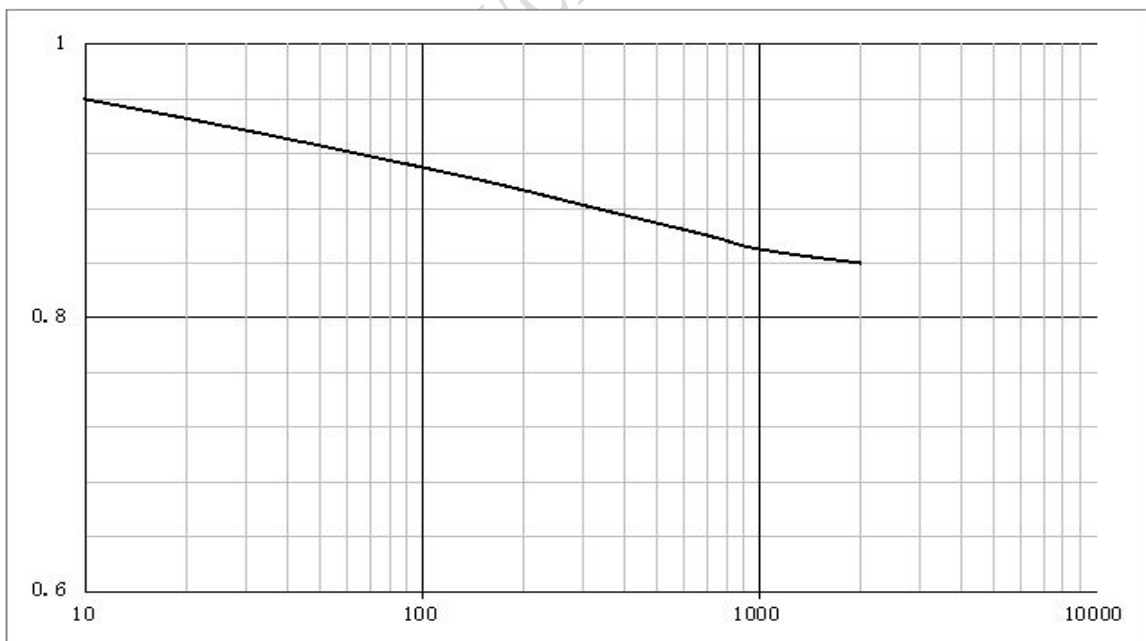
c) 相对能量-波长光谱曲线

Relative Energy Spectrum VS. Wavelength



d) 寿命曲线

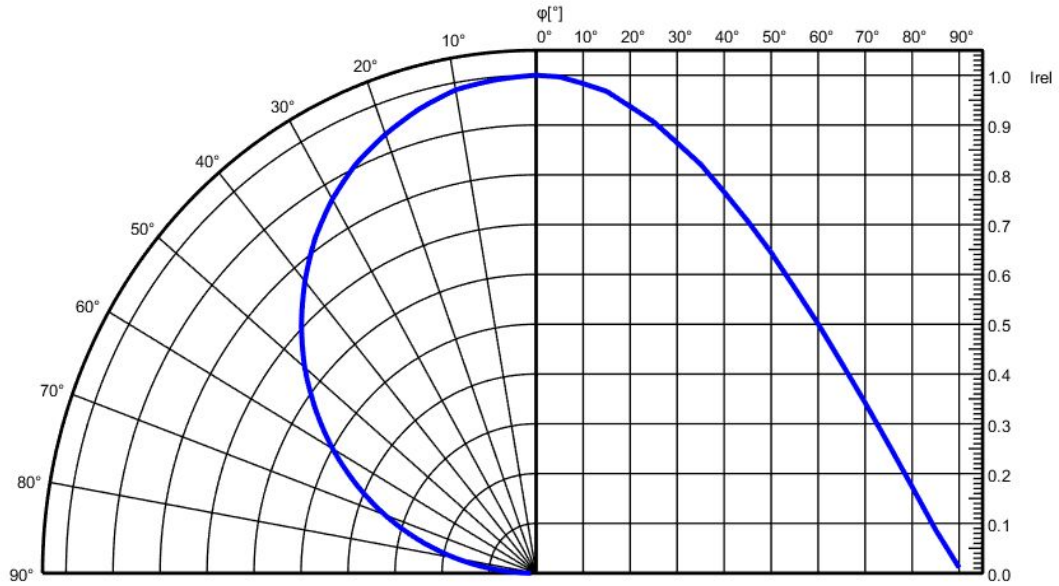
Life curve



测试条件：焊点温度 45°C，湿度 70 电流 40mA

e) 配光曲线

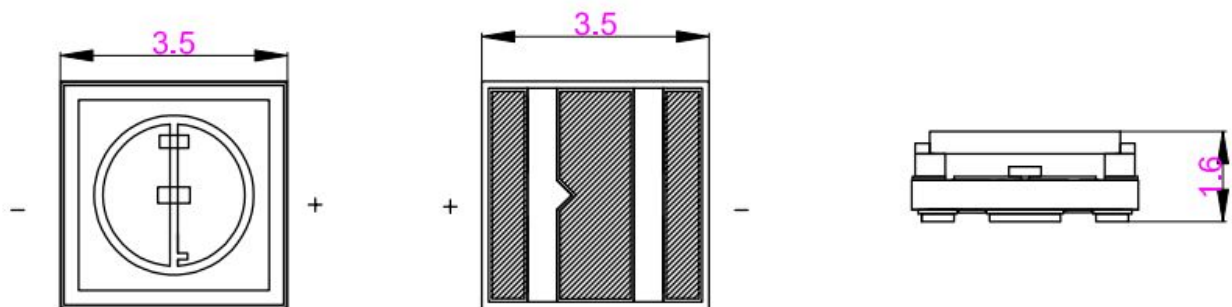
Light distribution curve



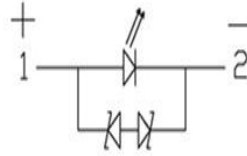
$$2\theta_{1/2} = 120^\circ$$

7、产品尺寸&产品电路 Product Size & Product Circuit

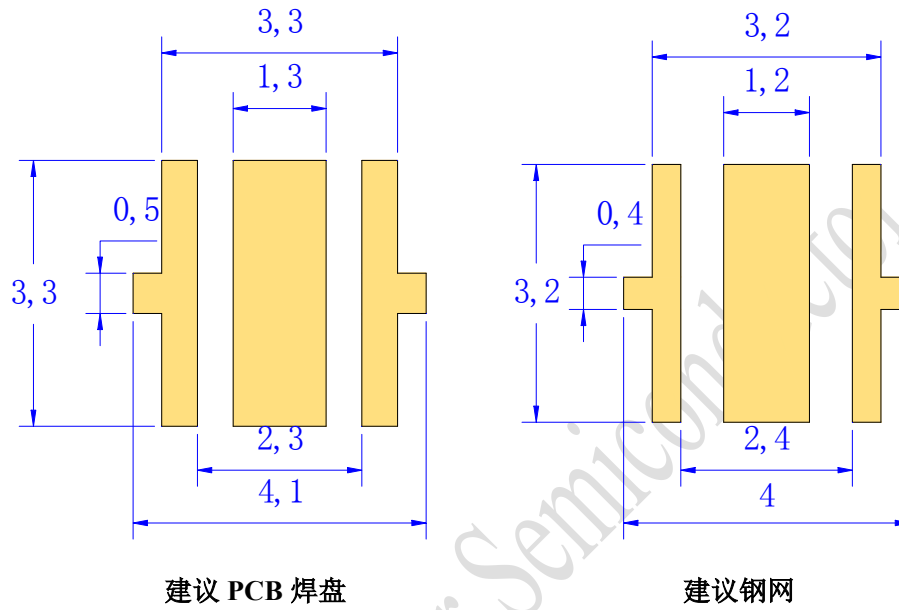
产品尺寸 Product Dimensions:



产品电路 Product Circuit:



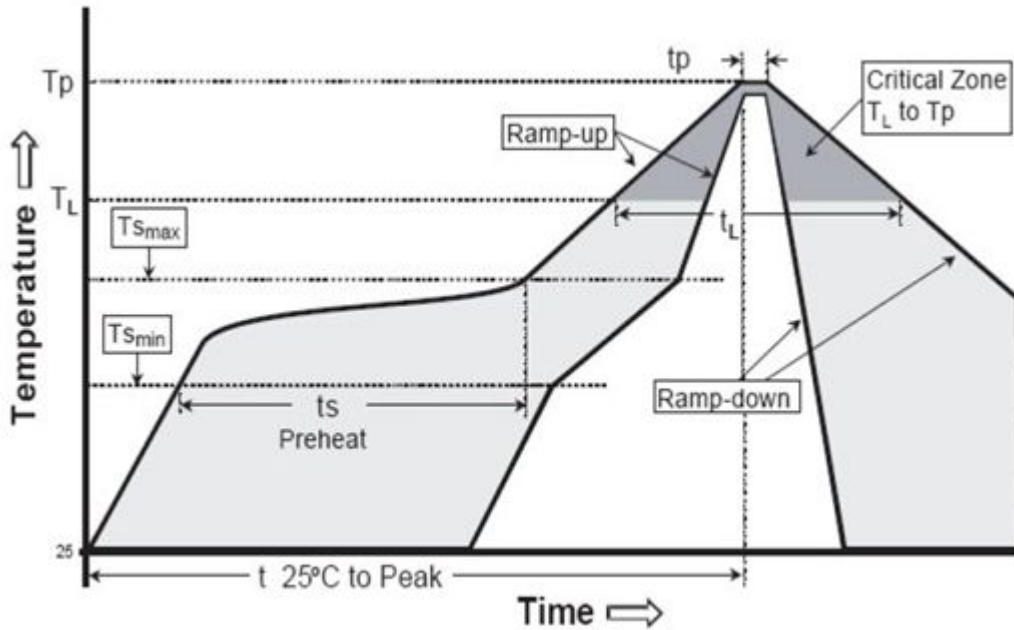
PCB 焊盘尺寸 PCB Pad Dimensions:



备注 Notes:

- ◇ 所有尺寸均以 mm 为单位
All dimensions are in millimeters
- ◇ 上图中：尺寸公差±0.1mm
Size is not marked in accordance with tolerance $\pm 0.1\text{mm}$

8、回流焊特性 Reflow Soldering Characteristics

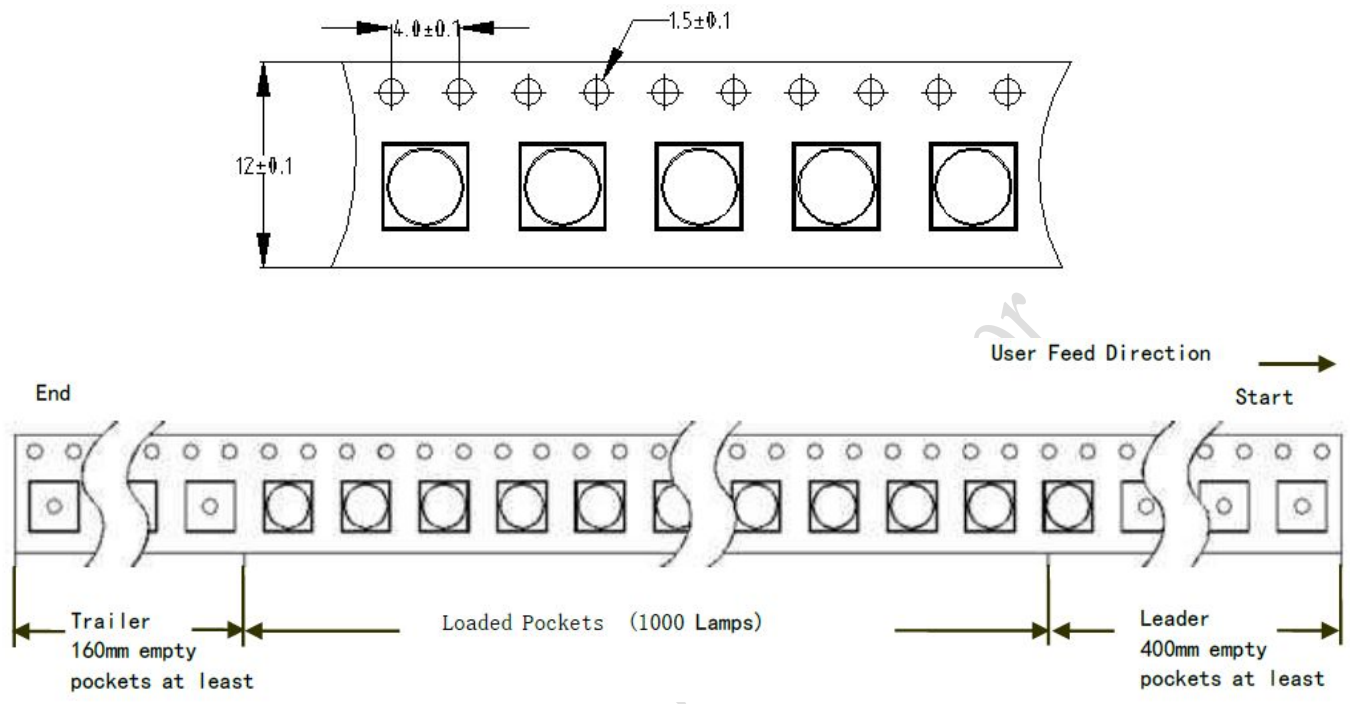


根据 EDEC-J-STD-020D 内容，参考以下内容。

Compatible with the JEDEC-J-STD-020D, using the parameters listed below.

特制参数 Profile Feature	无铅焊料 Lead-Free Solder	铅基焊料 Lead-Based Solder
平均上升速率 (Tsmax 至 Tp) Average Ramp-Up Rate (Tsmax to Tp)	3 °C/sec max.	3 °C/sec max.
预热: 温度最小值 (Tsmin) Preheat: Temperature Min (Tsmin)	150°C	100°C
预热: 最高温度 (Tsmax) Preheat: Temperature Max (Tsmax)	200°C	150°C
预热: 时间 (tsmin 到 tsmax) Preheat: Time (tsmin to tsmax)	60-180 secs	60-120 secs
回流温度 (TL) Time Maintained Above: Temperature (TL)	217°C	183°C
回流时间 (tL) Time Maintained Above: Time (tL)	60-150 secs	60-150 secs
峰值/分类温度 (Tp) Peak/Classification Temperature (Tp)	255 ± 5°C	215 ± 5°C
实际峰值温度 (tp) 在 5°C 以内的时间 Time Within 5°C of Actual Peak Temperature (tp)	20-40 secs	10-30 secs
降低速率 Ramp-Down Rate	5°C/sec max.	5°C/sec max.

9、 卷轴 Reel Dimensions



备注 Notes:

- ◇ 卷轴包装 1000pcs
Reel:1000pcs.
- ◇ 卷轴包装方法符合 IJSC0806 (连续胶带上的电子元件包装)
The tape packing method complies with IJSC0806(Packing of Electronic Components on Continuous Tapes).
- ◇ 当卷轴由于工作中断而重绕时, 载带上压力不应超过 10N, 否则 LED 可能会粘在盖带上
When the tape is rewound due to work interruptions, no more than 10N should be applied to the embossed carrier tape.
The LEDs may stick to the cover tape.

10、可靠性 Reliability

a) 测试和结果 Tests and Results

测试项目 Test Item	参考标准 Reference Standard	测试条件 Test Conditions	测试周期 Test Duration	失效标准 Failure Criteria#	失效数/测试数 Units Failed/Tested
可焊性(回流焊) Solderability(Reflow Soldering)	JEITA ED=4701 303 303A	$T_{\text{std}}=215\pm 5^{\circ}\text{C}$, 5sec, Lead-free Solder(Sn-3.0Ag-0.5Cu)	3times	#2	0/22
高温/低温储存 High/Low Temperature Storage	JEITA ED=4701 200 201/ JEITA ED=4701 200 202	$T_A=120^{\circ}\text{C}/T_A=-40^{\circ}\text{C}$	1000h	#1	0/22
高低温循环 Temperature Cycle	JEITA ED=4701 100 105	-40°C (30min)~ 25°C (5min)~ 85°C (30min)~ 25°C (5min)	100cycles	#1	0/22
常温老化 Room Temperature Operating		$T_A=25^{\circ}\text{C}$, $I_F=40\text{mA}$ Test board:See NOTES below	1000h	#1	0/22

b) 失效判定 Failure Criteria

判定 Criteria #	项目 Items	条件 Conditions	失效判定 Failure Criteria
#1	正向电压 Forward Voltage (V_F)	I_F	> 初始值×1.2 倍 > Initial value×1.2
	辐射功率 Radiation Power (Φ_e)	I_F	< 初始值×0.6 倍 < Initial value×0.6
	反向电流 Reverse Current (I_R)	$V_R=5\text{V}$	> 10uA > 10uA
#2	回流焊 Solderability	-	焊接面积<80% Less than 80% solder coverage

11、注意事项 Cautions

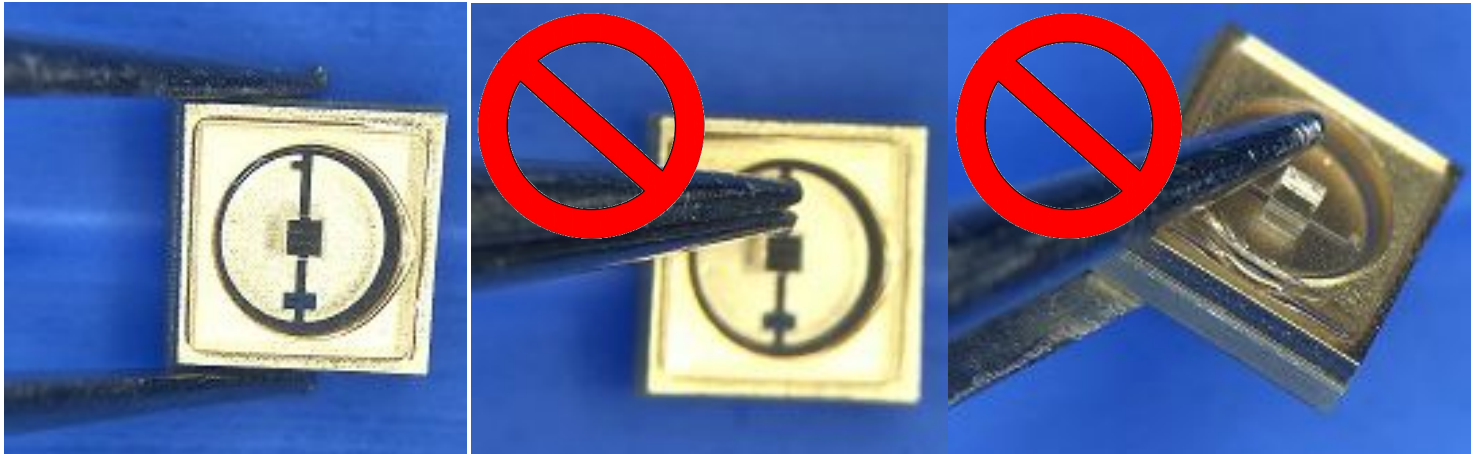
a) 存储 Storage

- 不要将灯珠放在潮湿的地方，存放温度在 5℃~30℃之间，相对湿度在 30% 以下。
Do not place the PKG in damp places, Storage temperature between 5 °C and 30 °C, Relative humidity under 30%.
- 开包后建议在 24 小时内过完回流焊，车间条件 ≤30℃/60%RH。
After opening the package, it is recommended to finish the reflow within 24 hours. The workshop conditions are ≤30°C/60%RH
- 如果受潮，需将贴片卷盘放入 60℃烤箱烘烤 24 小时；打开后，LED 灯可重新密封在原始真空袋中。
If it is wet, the patch reel should be baked in a 60 °C oven for 24 hours; after opening, the LED light can be resealed in the original vacuum bag.
- 不要接触任何未知的液体，特别是丙酮。
Don't touch any unknown liquid, In particular, acetone.
- 防止静电死亡，手动操作需要戴橡胶手套并佩戴静电环。
Prevent electrostatic killed, Manual operation is required to wear rubber gloves and wear electrostatic ring.

b) 清洗 Cleaning

- 通常，LED 不建议对部件进行湿式清洁处理，因为封装不是密封的。
In general, LED does not recommend a wet cleaning process for component as the package is not hermetically sealed.
- 由于采用开放式设计，所有类型的清洁液都可能渗透到封装中，导致 LED 退化或完全失效。
Due to the open design, all kind of cleaning liquids can infiltrate the package and cause a degradation or a complete failure of the LED.

c) 操作注意 Handling Precautions



- 在搬运过程中，应该尽可能的减少 LED 灯珠表面机械应力。任何尖锐物体（例如镊子，指甲等）都会损伤密封胶。
During the handling, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types (e.g. forceps, fingernail, etc) could crack the seal compound.
- 通常建议，LED 灯珠抓取搬运仅抓取灯珠侧面。抓取顶部玻璃透镜部分易导致透镜损伤或透镜碎裂。
In general, LEDs should only be handled from the side. Grabbing the top window part could cause damaging or cracking of the window.



- 表面压力会损伤玻璃透镜。
 - a. 非常非常注意不要使用镊子或尖硬工具触碰玻璃透镜。玻璃透镜可能会碎裂或脱落。
 - b. 产品空中掉落也会出现摔坏风险。
 - c. 产品在 SMT 后堆积放置，也有可能被损坏。

Glass can be damaged by force.

 - a. Be careful not to touch the lens with tweezers or sharp tools. The lens can be shattered or fall apart.
 - b. The product can break when it falls.

c. If products were stacked after SMT, the product can be damaged.

- 请注意，平面玻璃透镜 LED 灯珠产品应用过程中可能会被外来异物污染（诸如细小颗粒物，烟气，气体等）

Be careful with process that LEDS (Flat glass lens) can be contaminated by foreign materials (particles, fume, gas, etc).

- 在 SMT 贴片作业中，除了对玻璃透镜施加机械压力有限制外，诸如抓取灯珠吸嘴的形状是没有限制的。吸嘴接触尺寸需要大于 UVCLED 灯珠封装支架内反射碗杯内径尺寸。

When populating boards in SMT production, there are basically no restrictions regarding the form of the pick and place nozzle, except that mechanical pressure on the surface of the resin must be prevented. This is assured by choosing a pick and place nozzle which is larger than the UVC-LED'S reflector area.

- 本器件不允许在任何类型的液体中进行使用，诸如水，油，有机溶剂等。超声波清洗同样不推荐。超声波清洗也有可能损伤该类 LED 灯珠产品。

This device is not allowed to be used in any type of fluid such as water, oil, organic solvent, etc. Ultrasonic cleaning is not recommended. Ultrasonic cleaning may cause damage to the LED.

- 请不要将本产品模塑进其他树脂中（诸如环氧树脂，聚氨酯等），同时，也请不要在密闭环境中使用酸或硫磺材料处理本产品。

Please do not mold this product into another resin (epoxy, urethane, etc) and do not handle this product with acid or sulfur material in sealed space.

- 避免在玻璃透镜上遗留手指印记。

Avoid leaving fingerprints on glass lens parts.