

江西晶亮光电科技协同创新有限公司
Jiangxi Lattice Shine Corporation

产 品 规 格 书
Specification

产品名称 Product Name: Chip Scale Package
产品型号 Product P/N: CSP1111
客 户 Client name: _____
客户料号 Client P/N: _____
版本号 Version No.: V4.0

客户承认栏 Client Approval	
核准 Approval	确认 Audit

Confirmation: _____ 审核 Approval: _____

地址:江西省南昌市高新区艾溪湖北路 699 号

Address: No.699 Aixihu North Road, Nanchang, Jiangxi Province, China

目录

Contents

1、特点 Features.....	1
2、应用 Applications.....	1
3、性能 Performance.....	2
4. 产品代码 Product Order Code.....	7
5. 分档规则 Bin Regulations	8
6、光电特性图 The Photoelectric Characteristics Graph.....	12
7. 产品及钢网尺寸 Product and PCB Pad Dimensions.....	8
8、回流焊特性 Reflow Soldering Characteristics.....	9
9、卷轴 Reel Dimensions.....	20
10、可靠性验证 Reliability	21
11、注意事项 Cautions	23

1、特点 Features

- ◆ 陶瓷封装，高亮度，高可靠性
Ceramic Substrate package , High brightness ,High reliability
- ◆ 尺寸：1.1*1.1*0.29mm，单面发光
Size: 1.1*1.1*0.29mm, 1-sided emitter
- ◆ 根据 ANSI 标准分档
According to the ANSI standard color gamut
- ◆ 适于 SMT 贴片
Compatible with SMT
- ◆ 发光角度：120°
Viewing Angle: 120°
- ◆ 包装：最大 6000 颗/卷
Package: Max: 6000pcs /reel



2、应用 Applications

闪光灯	Flash
商业照明	Commercial lighting
室内外照明	Indoor and outdoor lighting



3、性能 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
电流 DC (Video Mode) Forward Current	I_F	500	mA
功率 Power Dissipation	P	1.60	W
脉冲电流 Pulsed(Flash Mode) Forward Current	I_{FP}	700	mA
结温 (DC 模式) LED Junction Temperature(DC mode)	T_j	135	℃
工作温度 Operating Temperature Range	T_{opr}	-40~105	℃
存储温度 Storage Temperature	T_{stg}	-40~120	℃
ESD (人体模式) ESD Human Body Mode	----	2000	V

备注 Notes :

- ◇ 最大额定值环境温度测试温度 $T_a=25^{\circ}\text{C}$
Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$

b) 光电参数

Electro-Optical Characteristics (T solder pad =25 °C, I_F =350mA)

项目 Item	符号 Symbol	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
光通量 Luminous Flux	Φ	130	150	170	Lm
正向电压 Forward Voltage	V _F	2.8	3.0	3.2	V
色温 CCT	----	----	4000	----	K
显指 Ra	----	----	70	----	----
热阻 Thermal Resistance	----	----	0.9	----	°C/W
发光角度 Viewing Angle	2θ1/2	----	120	----	°
结温 LED Junction Temperature	T _j	----	135	----	°C

备注 Notes :

✧ 光通量测量误差范围±7%

Luminous flux measurement tolerance: ±7%

✧ 光电参数测试是瞬态时间为 20ms

Electric and optical data is tested at 20 ms pulse condition

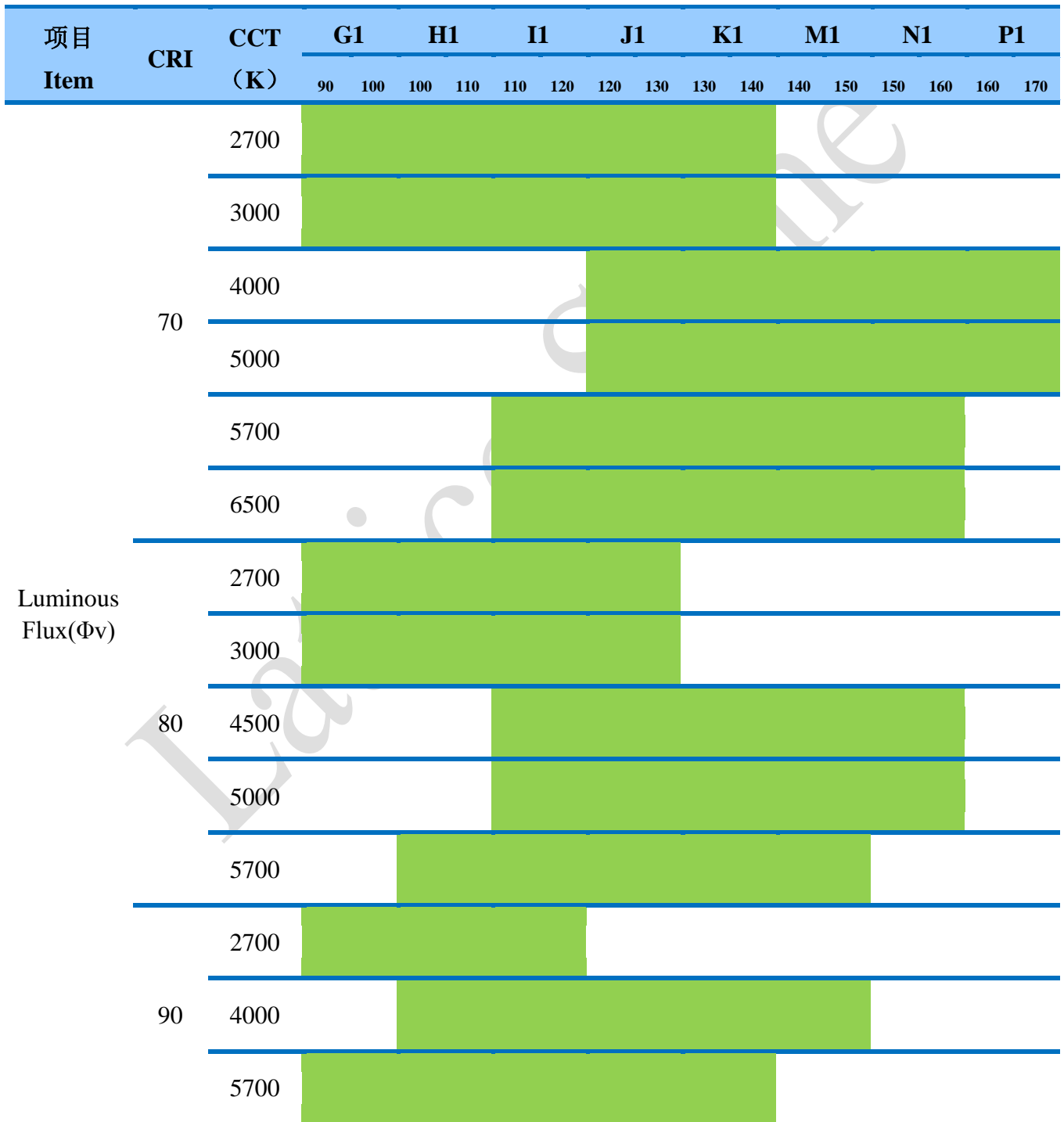
c) 亮度分选规则

Luminous Flux Bins (T solder pad = 25 °C, I_F = 350mA)

典型显指 Typ. Ra	常规色温 Normal CCT	色区块 Chromaticity	光通量		出货代码 (例) Order Code (e. g.)
			Luminous Flux 代码 Code	亮度值 Value	
70/80/90	2700-6500K	ANSI	G1	90-100	11-5A-N1-70-B3-AB
			H1	100-110	
			I1	110-120	
			J1	120-130	
			K1	130-140	
			M1	140-150	
			N1	150-160	
			P1	160-170	
			Q1	170-180	

d) 亮度分布特性

Luminous Flux Characteristics



4. 产品代码 Product Order Code

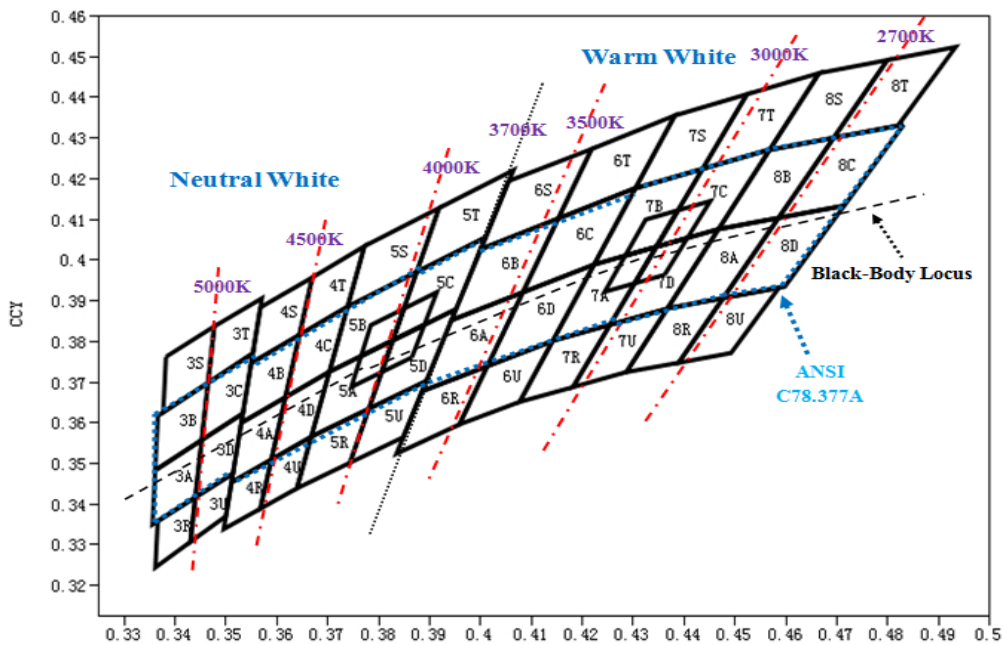
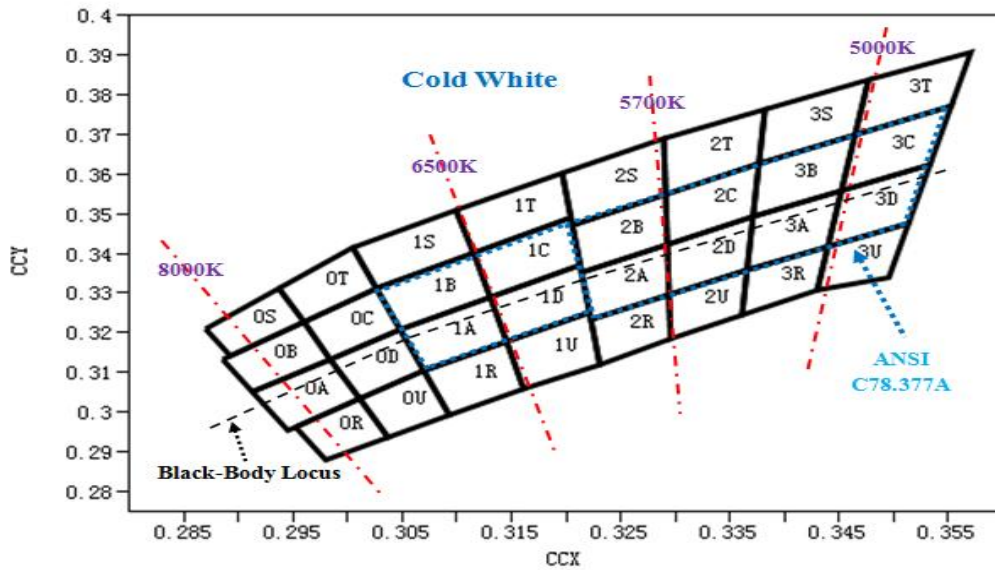
11 - 5A - K1 - 80 - C2 - AB
① ② ③ ④ ⑤ ⑥

- ① 产品型号 Product Type
- ② 色温区块 Colour Area
- ③ 亮度等级 Brightness Level
- ④ 显色指数 Ra level
- ⑤ 电压等级 VF Level
- ⑥ 内部波长代码（不影响其他参数，不用参考）
Internal Wavelength Code (Do not affect other parameters)

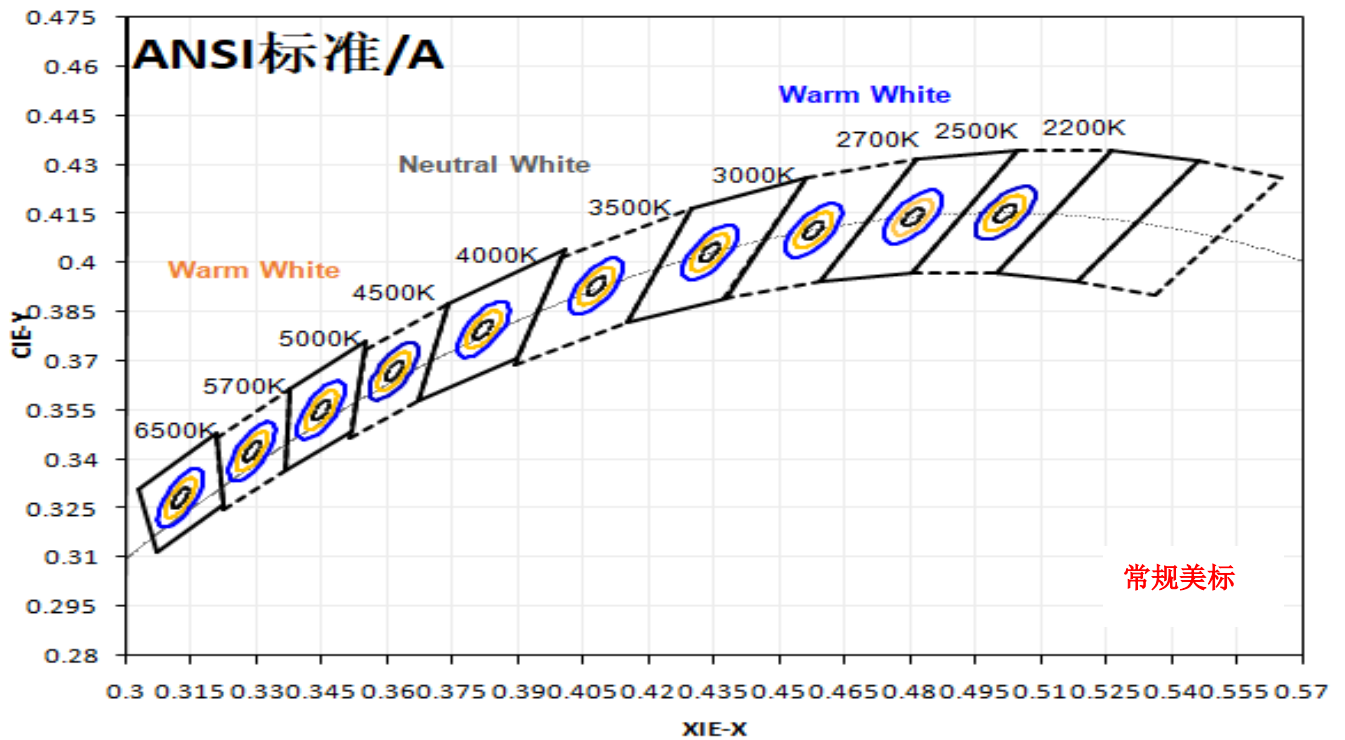
5. 分档规则 Bin Regulations

a) 色度区域 Chromaticity Regions

常规 ANSI 标准分 Bin



3 阶/5 阶麦克亚当椭圆分 Bin



备注 Notes :

- ◇ 色度坐标 (x, y) 来自 CIE1931 色度图
The chromaticity coordinates(x,y)is derived from the CIE 1931 chromaticity diagram
- ◇ PT86 测试设备用于光通量 (lm) 和 CIE1931 色度坐标 (x, y) 测试。
PT86 is for the luminous flux(lm) and the CIE1931 chromaticity coordinates(x,y) testing.
- ◇ 色度坐标 (x, y) 存在 ± 0.006 公差。
The chromaticity coordinates(x,y) guarantee should be added ± 0.006 tolerance.

b) 亮度分档

Luminous Flux Groups (T solder pad = 25°C, I_F = 350 mA)

代码 Group Code	最小值 Min.	最大值 Max.
G1	90	100
H1	100	110
I1	110	120
J1	120	130
K1	130	140
M1	140	150
N1	150	160
P1	160	170
Q1	170	180
Y6	60	1000

备注 Notes :

◇ 亮度测试存在±7%的公差

It maintains a tolerance of ±7% on luminous flux measurements.

c) 电压分档 Voltage Groups

代码 Group Code	范围 Range
B2	2.8-3.0
B3	3.0-3.2
B4	3.2-3.4
Z6	2.8-3.4

d) 显指分档 Ra Groups

代码 Group Code	范围 Range
70	70~100
80	80~100
90	90~100

e) 内部代码 Internal Groups

代码 Group Code	范围 Range
AA	445-450
AB	450-455
AC	455-460

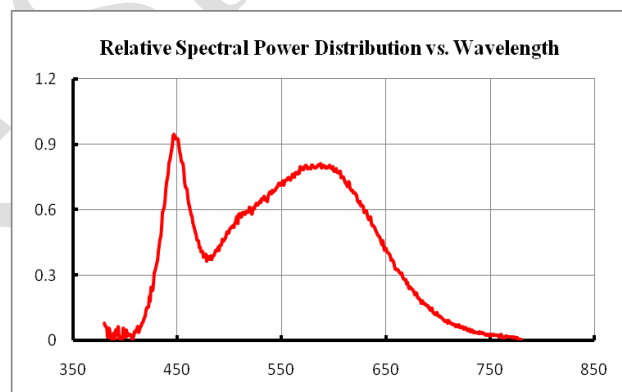
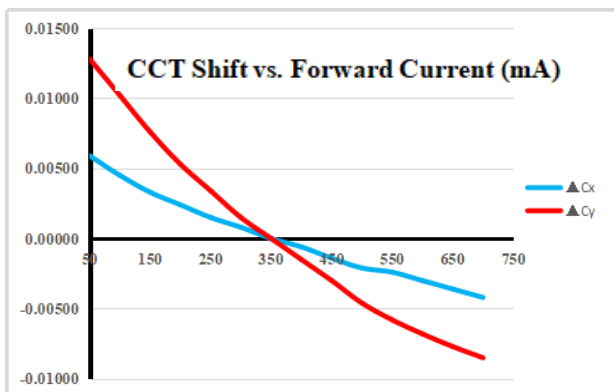
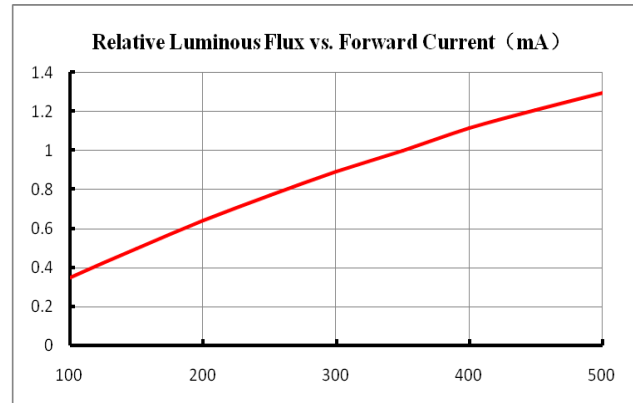
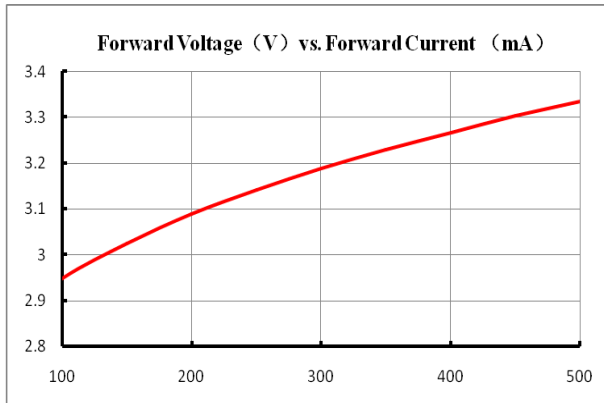
Lattice Shine

备注 Notes :

- ◇ 显指测试存在 ± 2 的公差
It maintains a tolerance of ± 2 on CRI measurements
- ◇ 内部波长代码（不影响其他参数）
Internal Wavelength Code (Do not affect other parameters)

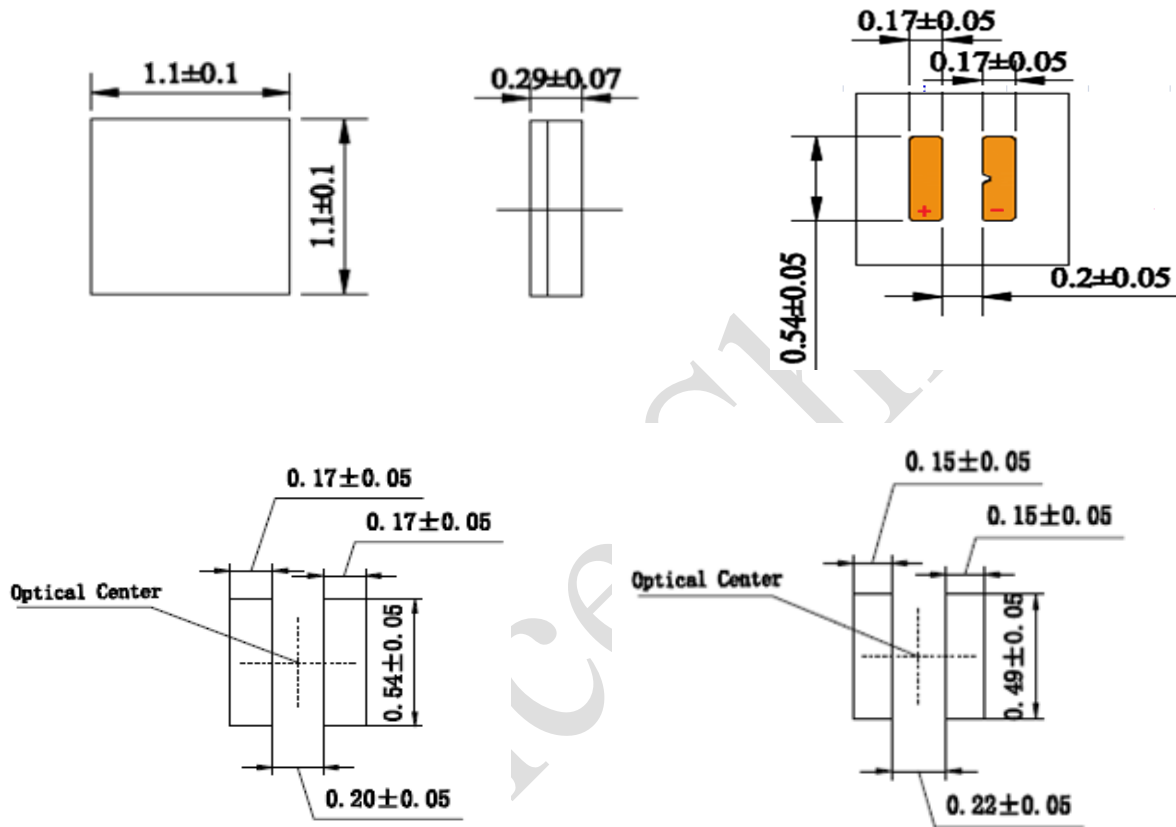
6、光电特性图

The Photoelectric Characteristics Graph (Ta= 25 °C,4000K)



7. 产品及钢网尺寸 Product and PCB Pad Dimensions

Product Dimensions:



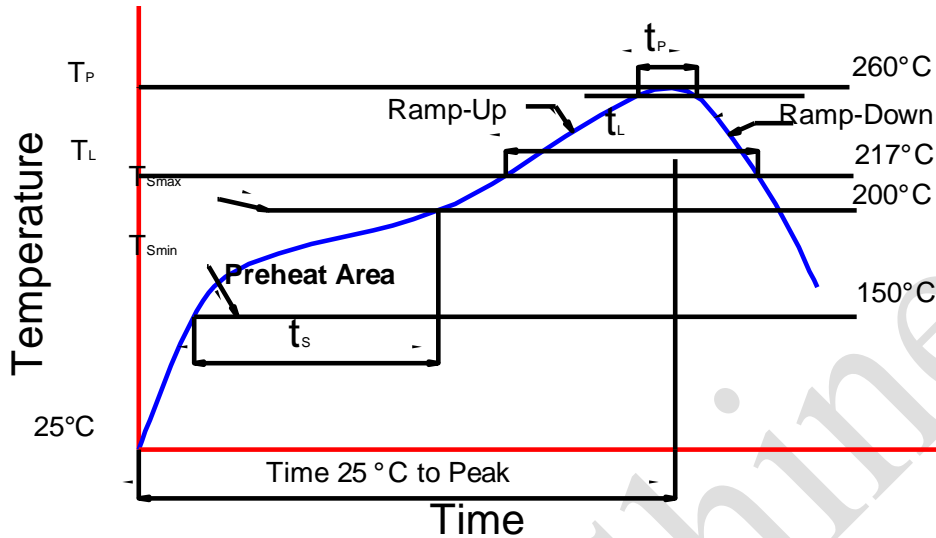
建议 PCB 焊盘

建议钢网

备注 Notes:

- ◇ 所有尺寸均以 mm 为单位
All dimensions are in millimeters
- ◇ 尺寸未按照公差±0.1mm 标记的, 按照图纸标记
Size is not marked in accordance with tolerance ±0.1mm and dimension tolerances in accordance with drawings

8、回流焊特性 Reflow Soldering Characteristics



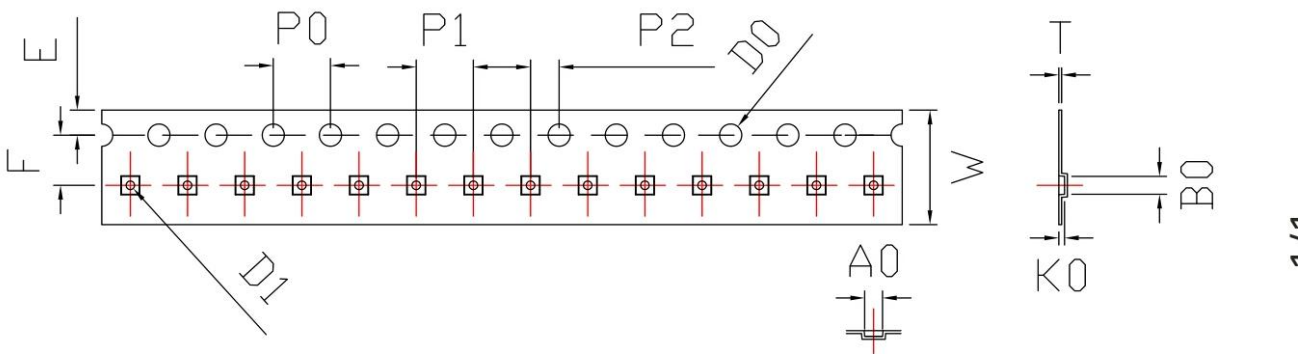
根据 EDEC-J-STD-020D 内容，参考以下内容。

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
平均上升速率 (T _{smax} 至 T _p) Average Ramp-Up Rate (T _{smax} to T _p)	3 °C/sec max.
预热: 温度最小值 (T _{smin}) Preheat: Temperature Min (T _{smin})	150
预热: 最高温度 (T _{smax}) Preheat: Temperature Max (T _{smax})	200
预热: 时间 (t _{smin} 到 t _{smax}) Preheat: Time (t _{smin} to t _{smax})	60-180 secs
回流温度 (T _L) Time Maintained Above: Temperature (T _L)	217°C
回流时间 (t _L) Time Maintained Above: Time (t _L)	60-150 secs
峰值/分类温度 (T _p) Peak/Classification Temperature (T _p)	255 ± 5°C
实际峰值温度 (t _p) 在 5°C 以内的时间 Time Within 5°C of Actual Peak Temperature (t _p)	20~40 secs
降低速率 Ramp-Down Rate	4°C/sec max.

9、 卷轴 Reel Dimensions

1	2	3	4		5	
symbol	AO	BO	KO	PO	P1	P2
Spec	1.25±0.05	1.25±0.05	0.40±0.05	4.00±0.10	4.0±0.1	2.0±0.10
symbol	W	T	E	F	DO	D1
Spec	8.0±0.2	0.20±0.05	1.75±0.10	3.5±0.1	1.50 ^{+0.1} ₋₀	0.6±0.1



备注 Notes:

- ◇ 卷轴包装最大 5000pcs
Reel: max 5000pcs.
- ◇ 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

老化电流条件: $I_F = 500\text{mA}$

测试项目 Test Item	标准 Reference Standard	测试条件 Test Conditions	测试周期 Test Duration	失效判定 Failure Criteria#
回流焊 Solderability(Reflow Soldering)	JESD22-B102	$T_{\text{sld}}=255 \pm 5^\circ\text{C}, 5\text{sec}, \text{Lead-free Solder}$ (Sn-3.0Ag-0.5Cu)	3 times	#2
高低温循环 Temperature Cycle	JESD22-A105	$I_F, -40^\circ\text{C} (30\text{min}) \sim 85^\circ\text{C} (30\text{min})$	200cycles	#1
高低温存储 High/Low Temperature Storage	JESD22-A119	$T_A=120^\circ\text{C} / T_A=-40^\circ\text{C}$	1000H	#1
高温老化 High Temperature Operating Life	JESD22-A108	$T_a=85^\circ\text{C}, I_F$	1000H	#1
高温高湿 Temperature Humidity Operating Life	JESD22- A101	$T_a=85^\circ\text{C}, \text{RH}=85\%, I_F$	1000H	#1
震动 Vibration	JESD22-B103	$10\text{m/s}^2, 100 \sim 20000 \sim 100\text{Hz}, 4\text{cycles}, 4\text{min},$ each X,Y,Z	3 times	#1

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 × 1.1 倍或 < 初始值 × 0.9 倍 > Initial value × 1.1 or < Initial value × 0.9
	光通量 Luminous Flux (Φ_v)	I_F	< 初始值 × 0.9 倍 < Initial value × 0.9
#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

- 不要将芯片放在潮湿的地方，存放温度在 5°C~30°C 之间，相对湿度在 30% 以下。
Do not place the chips 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°C/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°C 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) 推荐吸嘴 Recommend Nozzle Dimensions

- 建议使用聚四氟乙烯等材料作为喷嘴，锐化钢材料拾取工具不建议使用
Recommend using Teflon material for the nozzle, sharpen steel material pick up tools are refused.

d) 操作注意 Handling Precautions



- 在处理过程中，还应注意确保组件顶面没有压力
During the handling, care should be taken as well to ensure no pressure on the top surface of component.
- 应避免使用所有类型的尖锐物体（例如镊子，指甲等），以防止对硅树脂造成压力，因为这会导致部件损坏。
All types of sharp objects(e.g. forceps, fingernail, etc) should be avoided in order to prevent stress to the silicone, since this can lead to damage of the component.