

江西晶亮光电科技协同创新有限公司

JiangXi JingLiang Sci &Tech Corporation

产 品 规 格 书

Specification

产品名称 Product Name:	Chip Scale Package
产品型号 Product P/N:	CSP1212
客 户 Client name:	XX
客户料号 Client P/N:	
版 本 号 Version No.:	V1.1
日 期 Sending Date:	2022.10.18



RoHS



REACH



Halogen
Free

制定 Confirmation: _____ 审核 Approval: _____

工厂地址: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

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1、特点 Features

- ◆ 小尺寸封装，高亮度，高光效，高色域
Small footprint package , High brightness ,High efficiency
- ◆ 尺寸：1.24*1.24*0.41 mm，单面发光
Size: 1.24*1.24*0.41 mm, 1-sided emitter
- ◆ 根据 ANSI 标准分档
According to the ANSI standard colour gamut
- ◆ 适于 SMT 贴片
Compatible with SMT
- ◆ 发光角度：115°
Viewing Angle: 115°
- ◆ 包装：最大 5000 颗/卷
Package: Max: 5000pcs /Reel



2、应用 Applications

TV 背光

TV backlight



3、性能 Performance

a) 绝对最大额定值 Absolute Maximum Ratings

表 1. 产品 CSP1212 绝对最大额定参数

Table 1. Absolute maximum ratings for CSP1212

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	50	mA
功率 Power Dissipation	P	0.9	W
结温 (DC 模式) LED Junction Temperature (DC mode)	T_j	135	°C
工作温度 Operating Temperature Range	T_{opr}	-30~85	°C
存储温度 Storage Temperature	T_{stg}	-40~100	°C

备注:

Notes :

- ◇ 绝对最大额定值需要满足在最高结温以下工作为前提条件

Absolute maximum ratings must be observed to maintain the temperature below the maximum allowable junction temperature.

b) 光电参数

Electo-Optical Characteristics

表 2. 产品 CSP1212 光电性能

Table 2. Electo-Optical Characteristics for CSP1212 at 30mA,

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	51	----	----	Lm
正向电压 Forward Voltage	VF	17.3	18.6	19.7	V
色点 CIE	X	0.253	0.26	0.2724	----
	Y	0.212	0.23	0.2388	
发光角度 Viewing Angle	θ	----	115	----	°

备注:

Notes :

◇ 亮度测试允许最大误差范围: $\pm 7\%$

LP maintains a tolerance of $\pm 7\%$ on luminous flux measurements.

◇ 电压测试允许最大误差范围: 3%

LP maintains a tolerance of 3% on forward voltage measurement.

◇ 发光角度的测试, 是在捕获 90% 的光通量的基础上测量的结果

Total angle at which 90% of total luminous flux is captured.

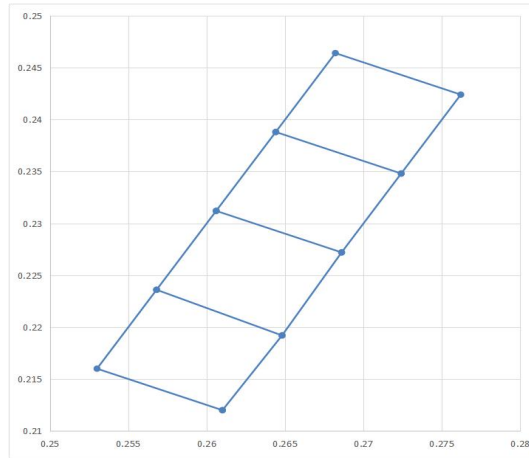
4. 产品代码 Product Order Code

12 - QCY - TG - 00 - E4 - BB
① ② ③ ④ ⑤ ⑥

- ① 产品型号 Product Type (Example: 12 means CSP size = 1.24 mm)
- ② 色温区块 Colour Area (Example: . QCY)
- ③ 亮度等级 Brightness Level (Example: TG=51 to 54 lm)
- ④ 显色指数 Ra Level (Example: 00 means Ra undefined)
- ⑤ 电压等级 VF Level (Example: E4=17.7 to 18.1V)
- ⑥ 波段等级 WD Level (Example: BB=447.5-450nm)

5. 分档规则 Bin Regulations

a) 色度区域 Chromaticity Regions



图片 1. 产品 CSP1212 的色区块定义

Figure 1. Color space definition for CSP1212.

色块	X	Y
RAY	0.2724	0.2348
	0.2762	0.2424
	0.2682	0.2464
	0.2644	0.2388
QDY	0.2686	0.2272
	0.2724	0.2348
	0.2644	0.2388
	0.2606	0.2312
QCY	0.2648	0.2192
	0.2686	0.2272
	0.2606	0.2312
	0.2568	0.2236
QBY	0.261	0.212
	0.2648	0.2192
	0.2568	0.2236
	0.253	0.216

表 3 产品 CSP1212 色块定义

Table 3. color bin definitions for CSP1212.

备注

Notes :

◇ 色度坐标来自 CIE1931 色度图, 测试误差 C_x 、 C_y 允许范围在 ± 0.006

LP maintains a tolerance of ± 0.006 on x and y coordinates in the CIE 1931 color space

b) 亮度分档

Luminous Flux Groups ($T_a=25^{\circ}\text{C}$, $I_F=30\text{ mA}$)

表 4. 产品 CSP1212 亮度分 BIN 定义

Table 5. Luminous flux bin definitions for CSP1212, $T_a=25^{\circ}\text{C}$

代码 Group Code	范围 Range
TG	51-54
TH	54-57
TI	57-60

备注

Notes :

◇ 亮度测试允许最大误差范围: $\pm 7\%$

It maintains a tolerance of $\pm 7\%$ on luminous flux measurements

c) 电压分档

Voltage Groups

代码 Group Code	范围 Range
E3	17.3-17.7
E4	17.7-18.1
E5	18.1-18.5
E6	18.5-18.9
E7	18.9-19.3
E8	19.3-19.7

备注

Notes :

◇ 电压测试允许最大误差范围: $\pm 3\%$

LP maintains a tolerance of $\pm 3\%$ on forward voltage measurements

6、光电特性图

The Photoelectric Characteristics Graph (Ta= 25 °C)

a) Spectral Power Distribution Characteristics

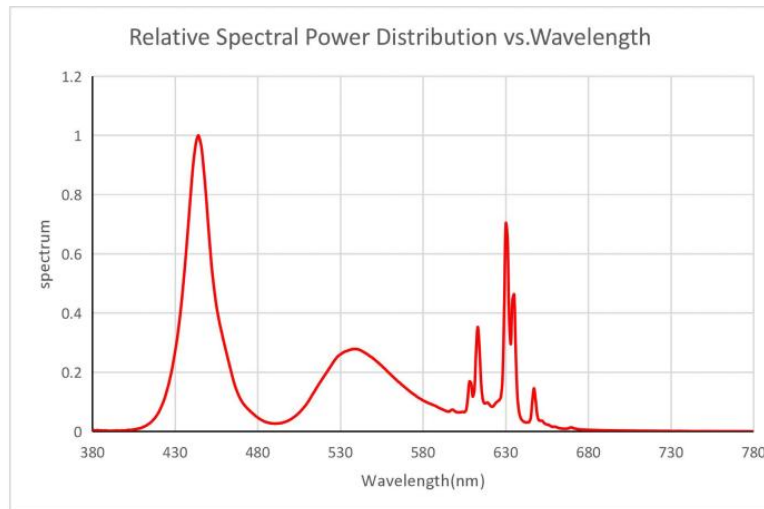


图 2. 产品 CSP1212 光谱

Figure 3. Typical normalized power vs. wavelength for CSP1212 at 30mA, Ta =25°C.

b) Light Output Characteristics

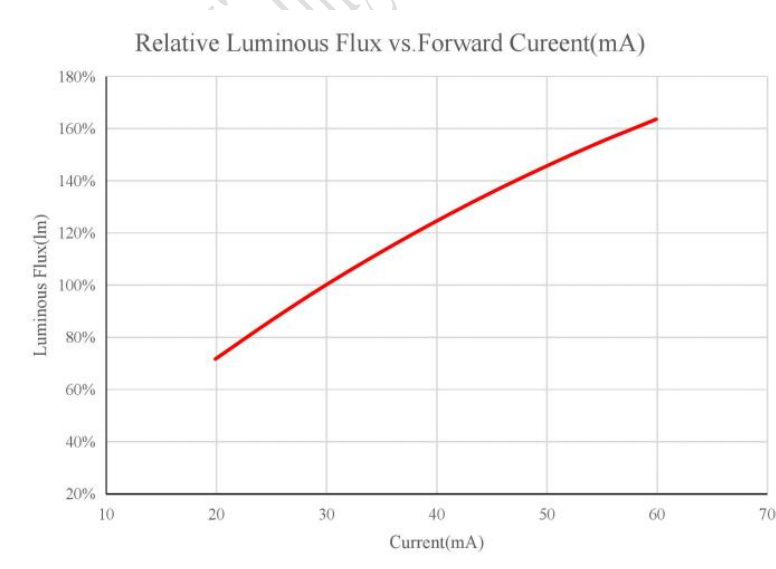


图 3. 产品 CSP1212 电流-亮度关系

Figure 5. Typical normalized light output vs. forward current for CSP1212 at 30mA, Ta =85°C.

c) Forward Current Characteristics

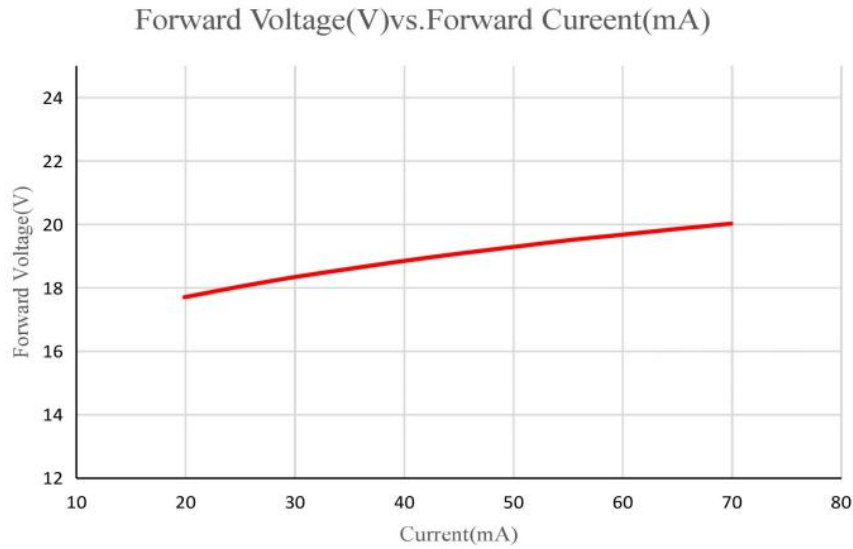
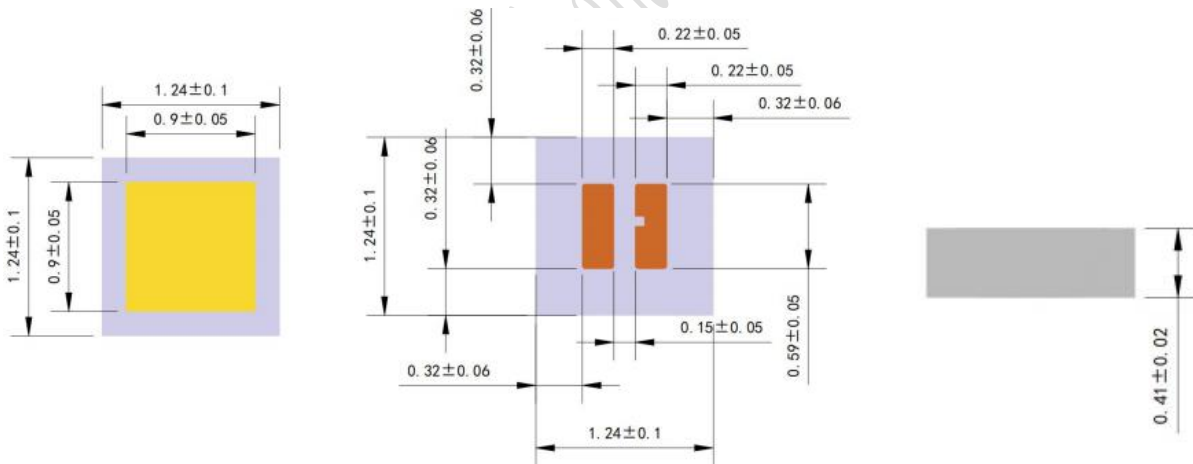


图 4.产品电流-电压关系

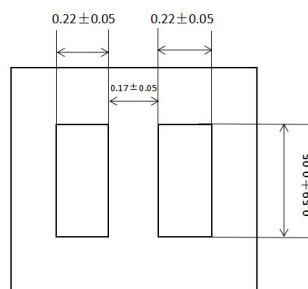
Figure 6. Typical forward current vs. forward voltage for CSP2323 at Tj =85°C.

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

Product Dimensions:



PCB Pad Dimensions



8、回流焊特性 Reflow Soldering Characteristics

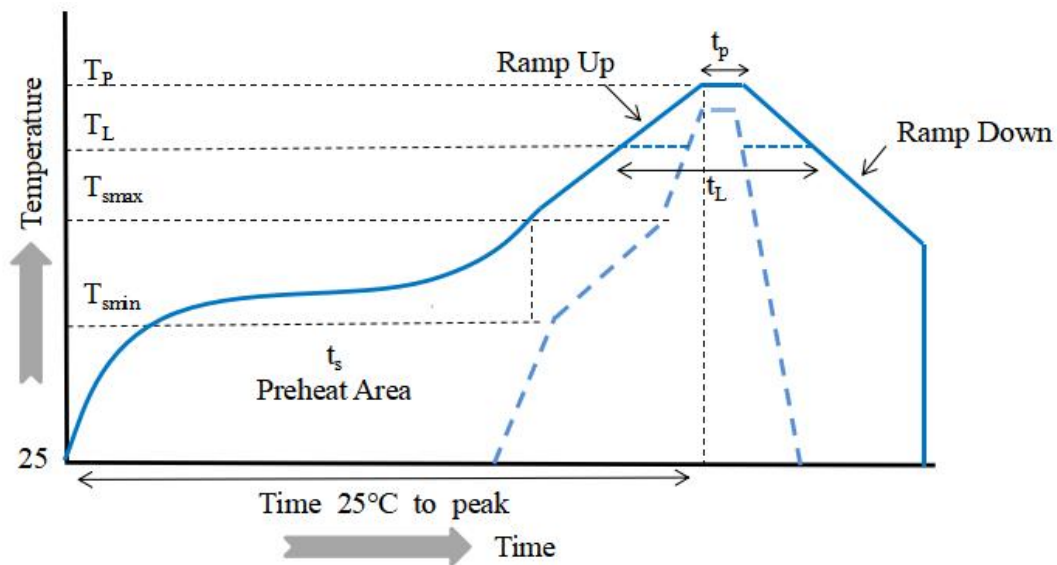


图 8. 可接受的回流温度曲线见表 6

Figure 8. Visualization of the acceptable reflow temperature profile as specified in Table 6.

表 6. 产品 CSP1212 回流焊参数

Table 6. Reflow profile characteristics for CSP1212.

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})	60-120 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)	5 secs
降低速率 Ramp-Down Rate	4°C/sec max.

9、 卷轴 Reel Dimensions

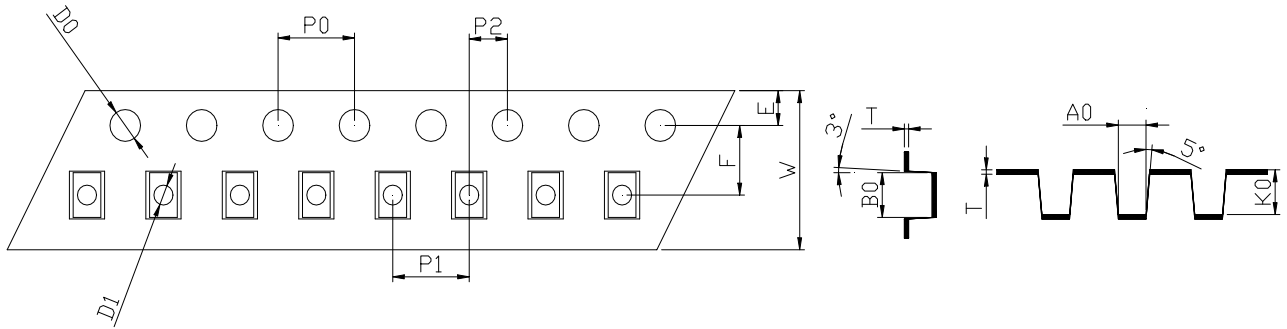


表 9. 产品 CSP1212 载带图纸

Figure 9. Pocket tape dimensions for CSP1212.

W	8.00 ± 0.05
T	0.20 ± 0.02
A0	1.36 ± 0.05
B0	1.36 ± 0.05
K0	0.65 ± 0.05
D0	1.60 ± 0.10
D1	0.80 ± 0.10
E	1.75 ± 0.10
F	3.50 ± 0.10
P0	4.00 ± 0.10
P1	4.00 ± 0.10
P2	2.00 ± 0.10
10P0	40.00 ± 0.20

Unit:mm

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

表 7. 产品 CSP1212 可靠性测试项目

Table 7. Reliability test items for CSP1212.

测试项目 Test Item	测试条件 Test Conditions	测试周期 Test Duration	失效标准 Failure Criteria#
高温/低温储存 High/Low Temperature Storage	$T_a=125^{\circ}\text{C}/T_a=-40^{\circ}\text{C}$	1000H	#1
高温老化 High Temperature Operating	$T_a=85^{\circ}\text{C}, I_F=40\text{ mA}$	2000H	#1
高温高湿老化 Temperature Humidity Operating	$60^{\circ}\text{C}, \text{RH}=90\%, I_F=40\text{ mA}$	2000H	#1
冷热冲击 Thermal Shock Test	-40°C 15min $\uparrow\downarrow$ 15 s 125°C 15min	200 cycles	#1
静电测试 (ESD)	人体模式 (HBM): 2KV 机械模式 (MM): 400V	3 cycles	#1
气密性 Hermeticity	$T_a=80^{\circ}\text{C}, 1\text{H}$ (Red ink)	/	#1
硫化 Vulcanization	$T_a=75^{\circ}\text{C}, 8\text{H}$ (1.3mg/ml)	/	#1

b) 失效判定 Failure Criteria

表 8. 产品 CSP1212 可靠性失效判定
Table 8. Judging the damage for CSP1212.

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 > Initial value×1.1
	光通量 Luminous Flux (Φ_v)	I_F	< 初始值×0.9 倍 < Initial value×0.9
	反向电流 Reverse Current (I_R)	$V_R=5V$	> 1uA > 1uA
#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。

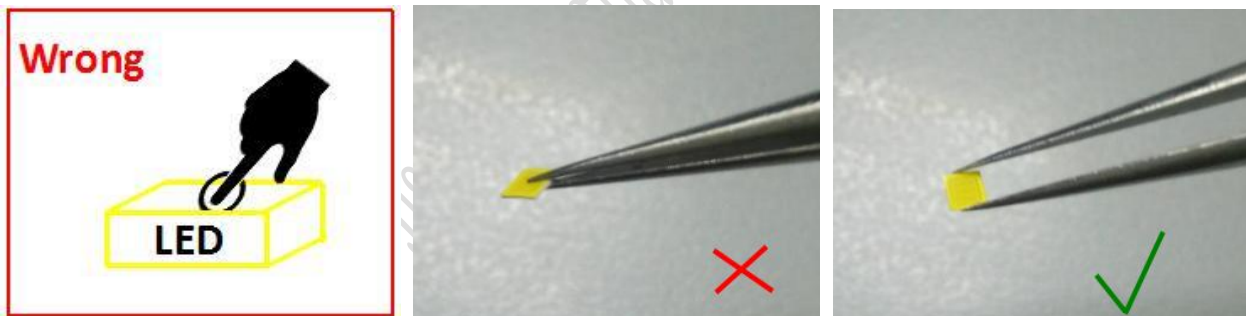
Due to the open design, all kind of cleaning liquids can infiltrate the package and cause a degradation or a complete failure of the LED.

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.