

江西省晶能半导体有限公司

Jiang Xi Lattice Power Semiconductor Corporation

产 品 规 格 书
Specification

产品名称 Product Name: ASL1-SW1

产品型号 Product P/N: BG

客 户 Client name: _____

客户料号 Client P/N: _____

版 本 号 Version No.: A02

日 期 Sending Date: 2024.12

客户承认栏 Client Approval	
核准 Approval	确认 Audit

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

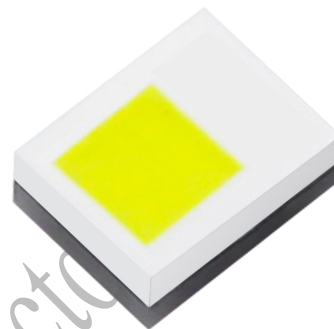
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1、特点 Features

- ◆ 陶瓷封装產品，高亮度，高穩定性，高可靠性，主要用于汽车应用
High performance, high-stability, and highly reliable ceramic packaging products, ideal for automotive applications
- ◆ 尺寸：1.90mm*1.50mm*0.76mm
Size: 1.90mm*1.50mm*0.76mm
- ◆ 根据白光标准分档
According to standard white color gamut
- ◆ MSL 等级 2a
MSL 2a
- ◆ 通过 AEC-Q102
AEC-Q102 qualified
- ◆ 适于 SMT 贴片
Compatible with SMT
- ◆ 发光角度：120°
Viewing Angle: 120°
- ◆ 包装：最大 3000 颗/卷
Package: Max: 3000pcs /reel
- ◆ 建议额定使用电流为 1.0A
Recommended current 1.0A



2、应用 Applications

汽车照明

Automotive Lighting



3、性能 Performance

a) 极限参数 Maximum Ratings

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
最小正向电流 Min DC Forward Current	I_F	50	mA
最大正向电流 Max DC Forward Current	I_F	1500	mA
功率 Typical Power	P	3	W
峰值正向电流 Surge Current	I_{FP}	2500	mA
最大反向电压 Maximum Reverse voltage	不可施加反向电压 Do not apply for reverse voltage		
结温 (DC 模式) LED Junction Temperature (DC mode)	T_j	150	°C
工作温度 Operating Temperature Range	T_{opr}	-40~135	°C
存储温度 Storage Temperature	T_{stg}	-40~135	°C
ESD (人体模式) ESD Human Body Mode	----	8000	V

备注 Notes :

✧ 绝对最大额定值环境温度 $T_a=25^{\circ}\text{C}$

Absolute Maximum Ratings at $T_a=25^{\circ}\text{C}$

✧ I_{FP} 脉冲时间 $\leq 10\mu\text{s}$, 宽度=0.005, $T_S=25^{\circ}\text{C}$

I_{FP} Conditions with pulse time $\leq 10\mu\text{s}$ and duty cycle=0.005

b) 光电参数 Electro-Optical Characteristics (T solder pad =25 °C, I_F =1000mA)

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	375	435	510	Lm
正向电压 Forward Voltage	V _F	2.80	3.15	3.40	V
色坐标 Chromaticity coordinates	X(White) Y(White)		0.322 0.337		
显指 Ra	Ra (white)	60	----	----	----
实际热阻 PN/焊点 Real Thermal Resistance (Junction to Solder point)	R _{thJS} real		4.9	5.8	°C/W
电热阻 PN/焊点 Electrical Thermal Resistance (Junction to Solder point)	R _{thJS} elec.		3	3.9	°C/W
发光角度 Viewing Angle	2θ		120		°

备注 Notes :

✧ 光通量测量误差范围±8%

Luminous flux measurement tolerance: ±8%

✧ 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) 亮度分布特性 Luminous Flux Characteristics (T solder pad = 25 °C, I_F =1000mA)

产品型号 Product	常规色温 Normal CCT	色区块 Chromaticity	最小光通量 Minimum Luminous Flux		出货代码（例） Order Code(e.g.)
			代码 Code	亮度值 Value	
ASL1-SW1	6300~6750	F1	B375	375	BG-B-F1-B395-FJ5
			B395	395	
			B415	415	
	6000~6300	F2	B375	375	BG-B-F2- B395-FJ5
			B395	395	
			B415	415	
	5700~6000	F3	B375	375	BG-B-F3- B395-FJ5
			B395	395	
			B415	415	
	5400~5700	F4	B375	375	BG-B-F4- B395-FJ5
			B395	395	
			B415	415	

4、产品代码 Product Order Code

BG - B - F2 - B415 - FJ5

① ② ③ ④ ⑤

- | | | |
|---|------|----------------------------|
| ① | 产品型号 | Product Type (BG:ASL1-SW1) |
| ② | 显色指数 | Ra level |
| ③ | 色温区块 | Color Area |
| ④ | 亮度等级 | Brightness Level |
| ⑤ | 电压等级 | VF Level |

出货标签(例) Shipping label (e.g.)



LatticePower Corporation Limited

Item: BG-B-F2-B415-FJ5 ASL1-SW1



Reel ID: ABGC00000001

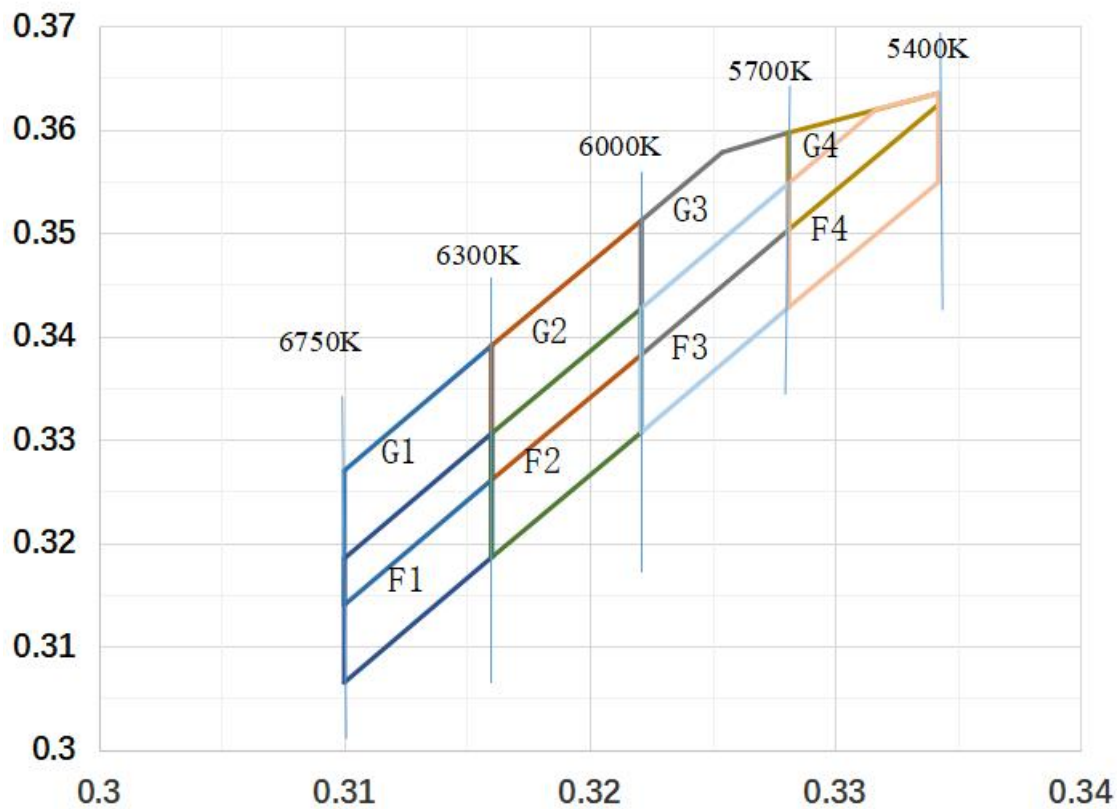
MSL 2a 

Qty: 3000 6BGTCACA

 Date: 2024-04-07

5、分档规则 Bin Regulations

a) 色度区域 Chromaticity Regions ($T_{\text{solder pad}} = 25^{\circ}\text{C}$, $I_F = 1000 \text{ mA}$)



ASL Series Color Chromaticity Groups

Color Bin	x	y	Color Bin	x	y
G1 6300K~6750K	0.3100	0.3140	G2 6000K~6300K	0.3160	0.3261
	0.3100	0.3270		0.3160	0.3391
	0.3160	0.3391		0.3221	0.3512
	0.3160	0.3261		0.3221	0.3382
G3 5700K~6000K	0.3221	0.3382	F4 5400K~5700K	0.3281	0.3428
	0.3221	0.3512		0.3281	0.3548
	0.3254	0.3578		0.3317	0.3620
	0.3281	0.3597		0.3342	0.3635
	0.3281	0.3503		0.3342	0.3549
G4 5400K~5700K	0.3281	0.3503	F1 6300K~6750K	0.3100	0.3065
	0.3281	0.3597		0.3100	0.3185
	0.3342	0.3635		0.3160	0.3306
	0.3342	0.3624		0.3160	0.3186
F2 6000K~6300K	0.3160	0.3186	F3 5700K~6000K	0.3221	0.3307
	0.3160	0.3306		0.3221	0.3427
	0.3221	0.3427		0.3281	0.3548
	0.3221	0.3307		0.3281	0.3428

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 =1000 mA)

代码 Group Code	范围 Range
B375	375~395
B395	395~415
B415	415~435
B435	435~460
B460	460~485
B485	485~510

c) 电压分档 Voltage Groups (T solder pad = 25°C, I_F =1000 mA)

代码 Group Code	范围 Range
FJ4	2.80~3.10
FJ5	3.10~3.40

d) 显指分档 Ra Groups (T solder pad = 25°C, I_F =1000 mA)

代码 Group Code	范围 Range
B	60~100

备注 Notes :

- ✧ 亮度测试存在±8%的公差
It maintains a tolerance of ±8% on luminous flux measurements.
- ✧ 显指测试存在±2 的公差
It maintains a tolerance of ±2 on CRI measurements

6、光电特性图 The Photoelectric Characteristics Graph

Fig 1. 辐射特性 / Radiation Characteristics

IF=1000mA; TS = 25°C

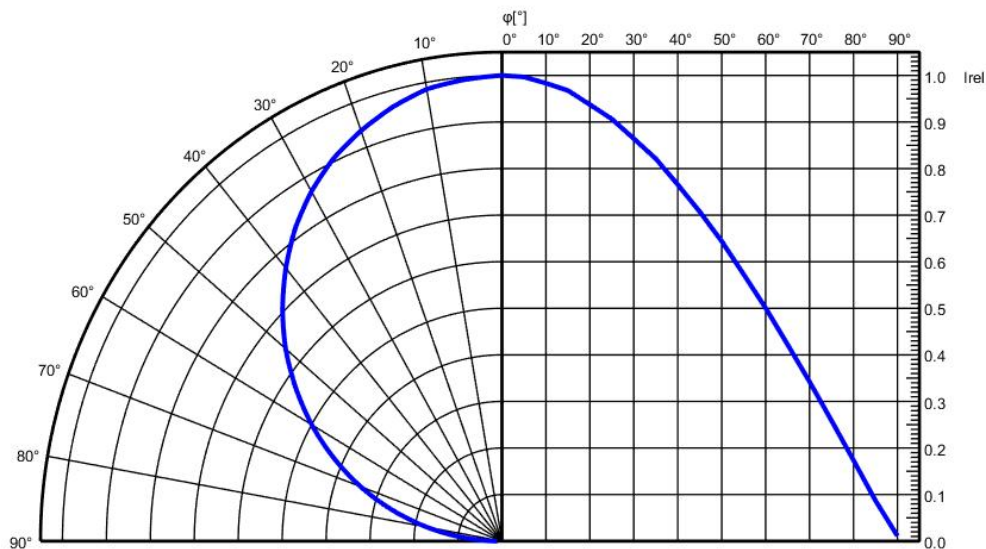


Fig 2. 相对发光光谱 / Relative Spectral Power Distribution vs. Wavelength

IF=1000mA; TS = 25°C

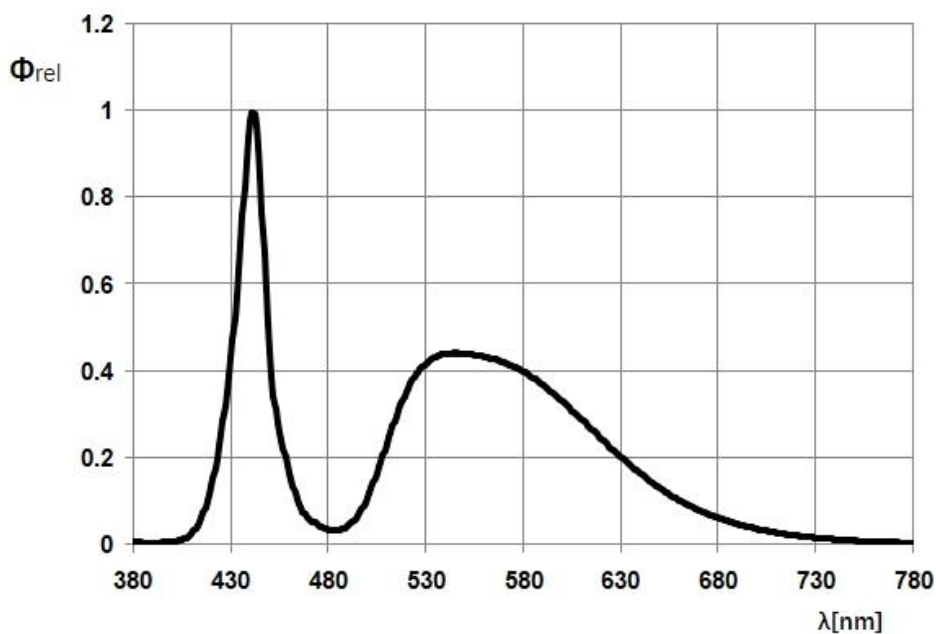


Fig 3. 正向电流/Forward Voltage

$I_F = f(V_F)$; $T_S = 25^\circ\text{C}$

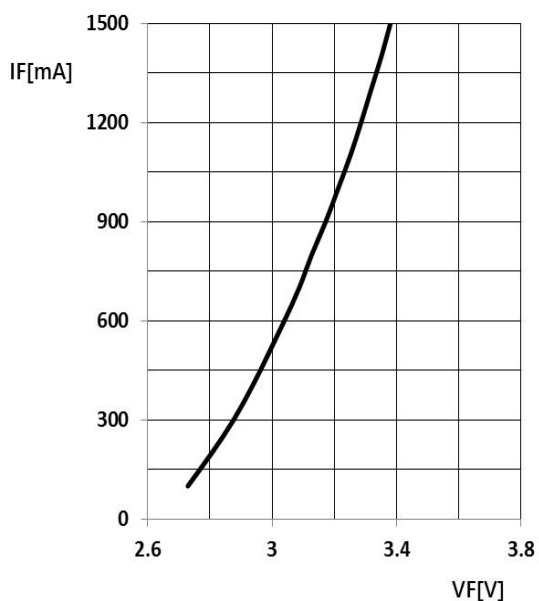


Fig 4. 相对发光强度/Relative Luminous Intensity

$I_v / I_v (1000 \text{ mA}) = f(I_F)$; $T_S = 25^\circ\text{C}$

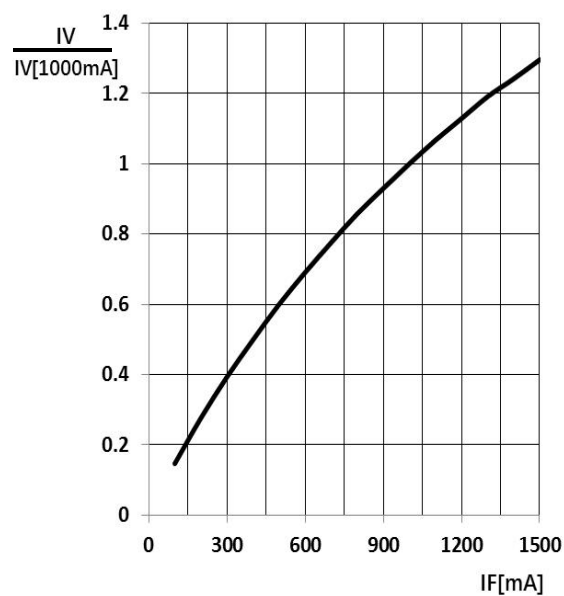


Fig 5. 色坐标偏移/Chromaticity Coordinate Shift

$\Delta C_x, \Delta C_y = f(I_F)$; $T_S = 25^\circ\text{C}$

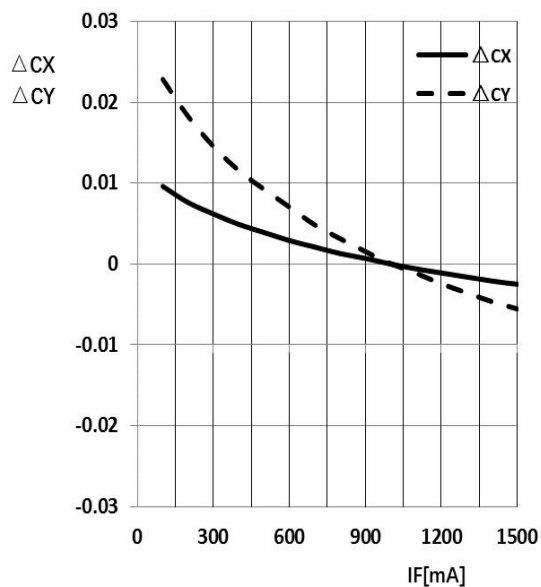


Fig 6. 正向电压/Forward Voltage

$\Delta VF = VF - VF(25^\circ\text{C}) = f(T_j)$; $IF = 1000\text{mA}$

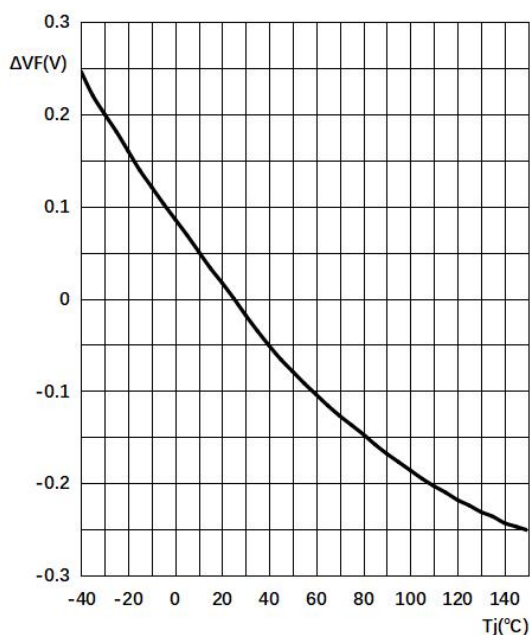


Fig 7. 相对发光强度 Relative Luminous Flux

$I_v / I_v(25^\circ\text{C}) = f(T_j)$; $IF = 1000\text{mA}$

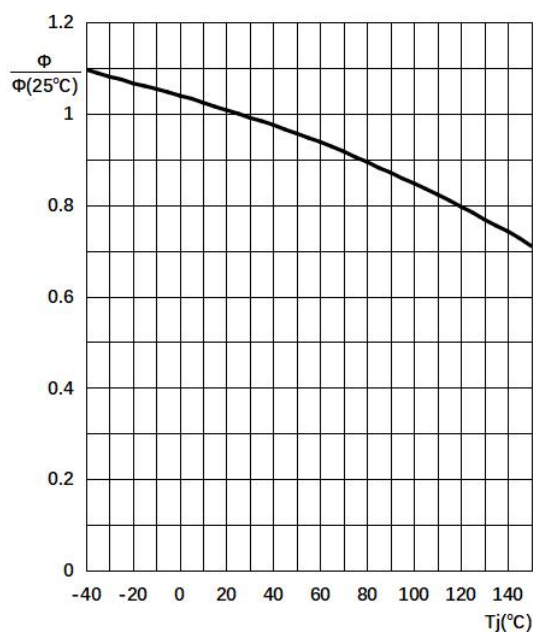


Fig 8. 色坐标偏移/

Chromaticity Coordinate Shift

$\Delta C_x, \Delta C_y = f(IF)$; $T_s = 25^\circ\text{C}$

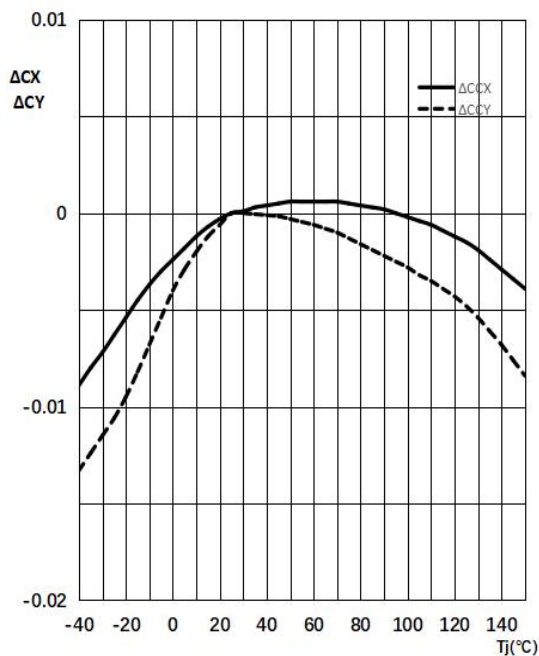
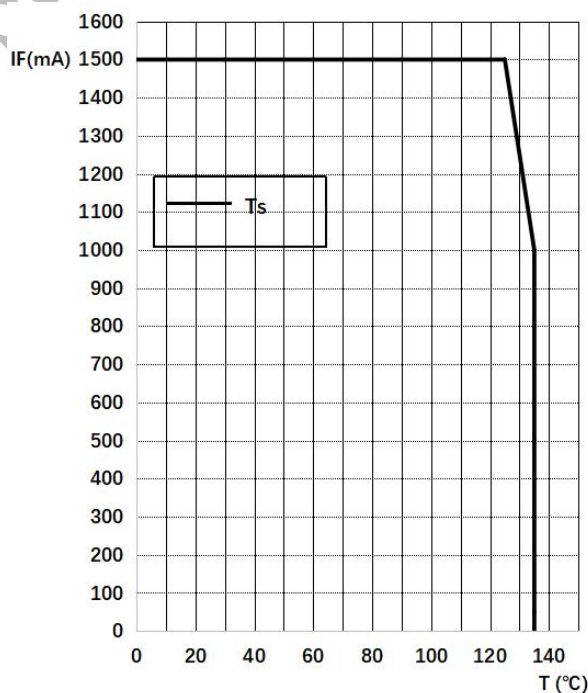


Fig 9. 最大正向电流/

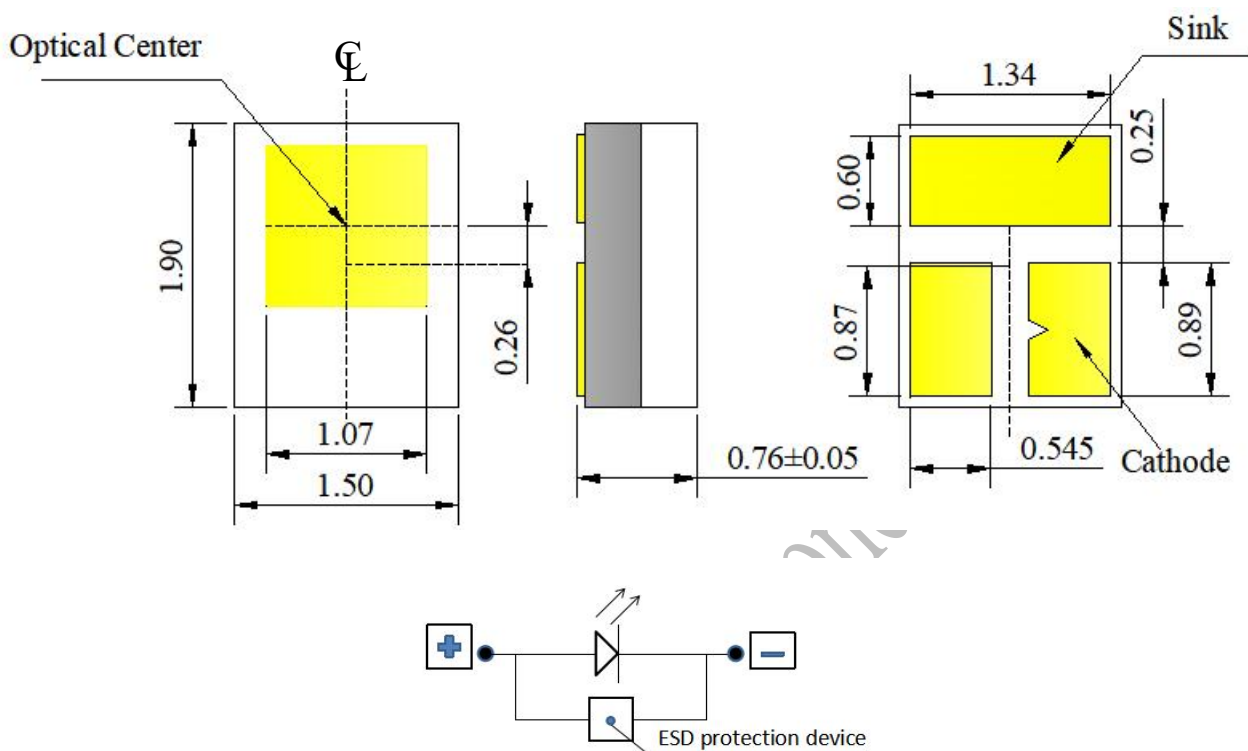
Max. Permissible Forward Current

$IF = f(T)$

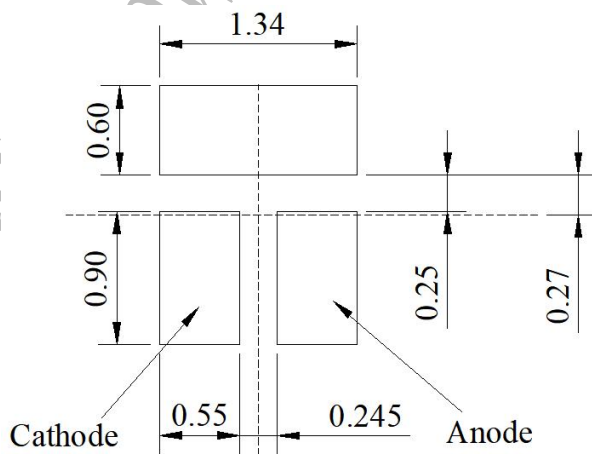


7、产品和焊盘尺寸 Product and solder Pad Dimension

a) 产品尺寸 Product Dimension:



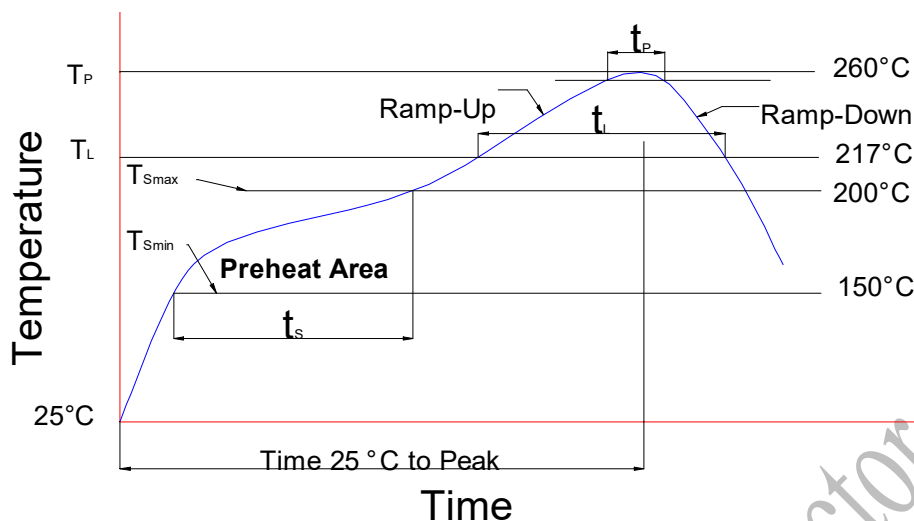
b) 推荐焊盘尺寸 Solder Pad Dimension



备注 Notes:

- ✧ 所有尺寸均以 mm 为单位
All dimensions are in millimeter
- ✧ 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 $\pm 0.1\text{mm}$ and dimension tolerance in accordance with drawings
- ✧ 灯珠近似重量: 7.4mg
Approximate Weight: 7.4mg

8、回流焊特性 Reflow Soldering Characteristics

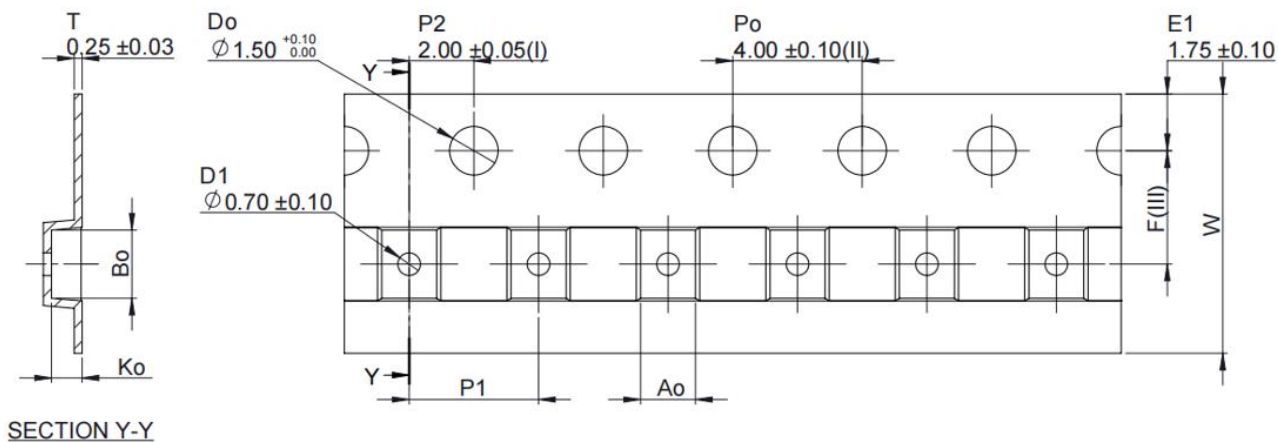


根据 EDEC-J-STD-020E 内容，参考以下内容。

Compatible with the JEDEC-J-STD-020E, 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 Dimension



Ao	1.70	+/- 0.05
Bo	2.10	+/- 0.05
Ko	0.95	+/- 0.05
F	3.50	+/- 0.05
P1	4.00	+/- 0.10
W	8.00	+/- 0.10

备注 Notes:

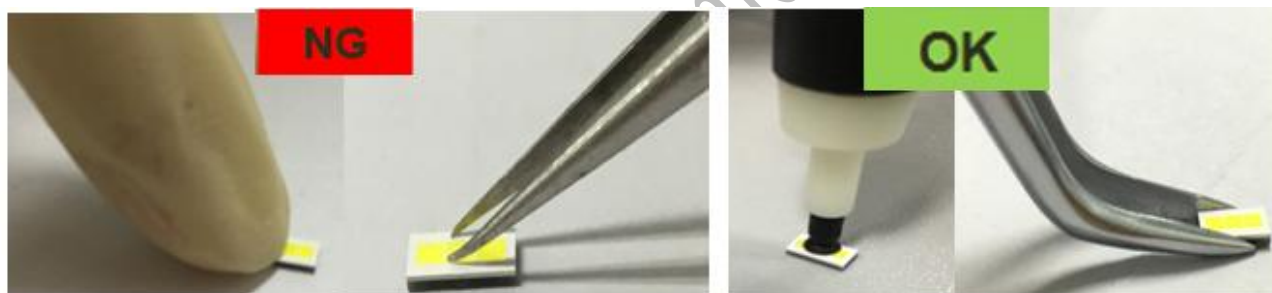
- ◇ 卷轴包装 3000pcs
Reel:3000pcs.
- ◇ 卷轴包装方法符合 IJSC0806 (连续胶带上的电子元件包装)
The tape packing method complies with IJSC0806(Packing of Electronic Components on Continuous Tapes).
- ◇ 当卷轴由于工作中断而重绕时, 载带上压力不应超过 10N, 否则 LED 可能会粘在盖带上
When the tape is rewound due to work interruptions, no more than 10N should be applied to the embossed carrier tape.
The LED may stick to the cover tape.

10、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) 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.

11、文件履历表 Document Resume

序号	变更日期	变更人	版本	变更内容
01	2022.11.14	袁丁	Y00	1.新制定;
02	2023.06.16	袁丁	Y01	1.新增 B460(460-485)亮度档位;
03	2023.07.25	袁丁	Y02	1.更新公司标签抬头;
04	2024.03.19	李俊杰	Y03	1.新增 LED 质量信息;
05	2024.04.07	袁丁	A01	1. 新增产品湿敏等级信息; 2. 更新电压分档方式;
06	2024.12.10	袁丁	A02	1. 更新温度曲线; 2. 纠正灯珠厚度规格, 由 0.78mm 调整为 0.76mm;