

SPECIFICATIONS FOR SMALITE

斯迈得规格书

TOP SL-WM5050-CH series

5050 白光高亮系列

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Descriptions 说明

Our 5050 products, use silica gel solid crystal and silica gel packages, effectively improve the heat dissipation performance. Reliability is better than companies in general, it is a complete white combination with high brightness, low-light decay characteristics.

我们的 5050 产品使用硅胶封装,有效地提高了散热的性能.可靠性优于同类产品,亮度高,颜色一致性好,低光衰。



Features

- Size (mm) 5.4*5.0*1.6
- Viewing angle: 120°
- ROHS compliant lead-free soldering compatible
- White (WM5050)
- CCT: 5000-7000K

特点

- 外观尺寸 (mm) 5.4*5.0*1.6
- 发光角度: 120°
- 符合 ROHS 无铅焊接的标准
- 白光 (WM5050)
- 色温: 5000-7000K

Applications

- Channel letter
- Portable lighting
- Decorative lighting
- OA equipment
- Backlighting of full color LCD
- Bulbs and fluorescent lamps

应用

- 指示灯
- 便携照明
- 装饰照明
- 办公照明
- 液晶背光
- 家居照明

Absolute maximum ratings 最大限定参数(Ta=25℃)

Parameter 项目名称	Symbol 项目符号	Value 规格	Unit 单位
Power dissipation 消耗功率	Pd	320	mW
Forward current 正向电流	If	90	mA
Reverse voltage 反向电压	Vr	5	V
Operating temperature range 工作温度范围	Top	-40 ~+100	℃
Storage temperature range 储存温度范围	Tstg	-40~+100	℃
Pulse Forward Current 正向脉冲电流	lfp	150	mA
Electrostatic Discharge 抗静电能力	ESD	2000(HBM)	V
Junction temperature 结温	Tj	85	℃

Electro-optical characteristics 主要光电参数(Ta=25℃)

Parameter 项目名称	Test Condition 测试条件	Symbol 项目符号	Value 参数			Unit 单位
			MIN. 最小值	TYP. 中间值	MAX. 最大值	
Forward voltage 正向电压	If=60 mA	Vf	2.8		3.6	V
Luminous intensity 光通量	If=60 mA	Iv	6500		7000	Mcd
Viewing angle at 50% Iv 半强角	If=60 mA	2 θ 1/2		120		Deg
Reverse current 反向电流	Vr=5V	Ir			10	μA

NOTES 注释:

Tolerance: Iv ±10%, λd±2nm, Vf±0.05V, X, Y ±0.01)

公差:光强 ±10%,主波长±2nm, 正向电压±0.05V, 色坐标 X,Y ±0.01)

IFP Conditions: Pulse Width ≤ 10msec and Duty ≤ 1/10.

峰值电流条件: 脉冲范围 ≤ 10 毫秒, 占空比 ≤ 1/10.

Color bin limit(I_f=60mA)—◎White

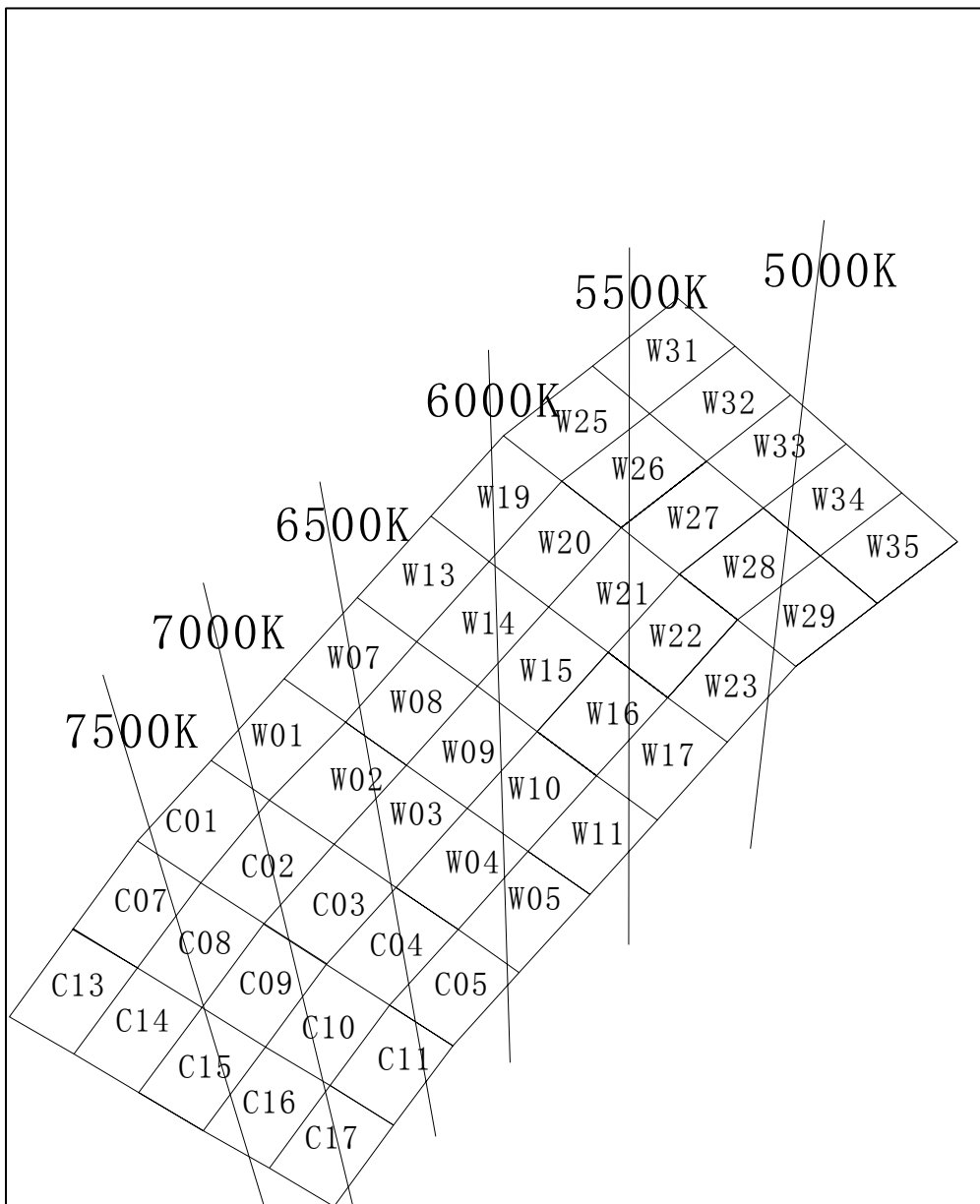
色区范围(IF=60mA) —◎白光

Bin	X	Y	Bin	X	Y	Bin	X	Y
W01	0.3003	0.3330	W09	0.3154	0.3326	W17	0.3301	0.3317
	0.3048	0.3296		0.3201	0.3289		0.3348	0.3279
	0.3107	0.3363		0.3255	0.3355		0.3402	0.3346
	0.3059	0.3400		0.3209	0.3394		0.3356	0.3384
W02	0.3048	0.3296	W10	0.3201	0.3289	W19	0.3173	0.3540
	0.3098	0.3258		0.3248	0.3252		0.3218	0.3501
	0.3154	0.3326		0.3301	0.3317		0.3274	0.3570
	0.3107	0.3363		0.3255	0.3355		0.3229	0.3609
W03	0.3098	0.3258	W11	0.3248	0.3252	W20	0.3218	0.3501
	0.3146	0.3221		0.3296	0.3215		0.3264	0.3462
	0.3201	0.3289		0.3348	0.3279		0.3320	0.3530
	0.3154	0.3326		0.3301	0.3317		0.3274	0.3570
W04	0.3146	0.3221	W13	0.3116	0.3470	W21	0.3264	0.3462
	0.3194	0.3185		0.3162	0.3432		0.3310	0.3423
	0.3248	0.3252		0.3218	0.3501		0.3365	0.3490
	0.3201	0.3289		0.3173	0.3540		0.3320	0.3530
W05	0.3194	0.3185	W14	0.3162	0.3432	W22	0.3310	0.3423
	0.3241	0.3148		0.3209	0.3394		0.3356	0.3384
	0.3296	0.3215		0.3264	0.3462		0.3410	0.3451
	0.3248	0.3252		0.3218	0.3501		0.3365	0.3490
W07	0.3059	0.3400	W15	0.3209	0.3394	W23	0.3356	0.3384
	0.3107	0.3363		0.3255	0.3355		0.3402	0.3346
	0.3162	0.3432		0.3310	0.3423		0.3455	0.3411
	0.3116	0.3470		0.3264	0.3462		0.3410	0.3451
W08	0.3107	0.3363	W16	0.3255	0.3355	W25	0.3229	0.3609
	0.3154	0.3326		0.3301	0.3317		0.3274	0.3570
	0.3209	0.3394		0.3356	0.3384		0.3342	0.3628
	0.3162	0.3432		0.3310	0.3423		0.3298	0.3669
W28	0.3365	0.3490	C01	0.2946	0.3261	C09	0.2996	0.3118
	0.3410	0.3451		0.2995	0.3225		0.3045	0.3084
	0.3474	0.3506		0.3048	0.3296		0.3092	0.3155
	0.3430	0.3547		0.3003	0.3330		0.3044	0.3190
W29	0.3410	0.3451	C02	0.2995	0.3225	C10	0.3045	0.3084
	0.3455	0.3411		0.3044	0.3190		0.3095	0.3051
	0.3518	0.3465		0.3098	0.3258		0.3141	0.3120
	0.3474	0.3506		0.3048	0.3296		0.3092	0.3155
W31	0.3298	0.3669	C03	0.3044	0.3190	C11	0.3095	0.3051
	0.3342	0.3628		0.3092	0.3155		0.3144	0.3017
	0.3408	0.3686		0.3146	0.3221		0.3190	0.3085
	0.3364	0.3727		0.3098	0.3258		0.3141	0.3120
W32	0.3342	0.3628	C04	0.3092	0.3155	C13	0.2847	0.3110
	0.3386	0.3587		0.3141	0.3120		0.2897	0.3078

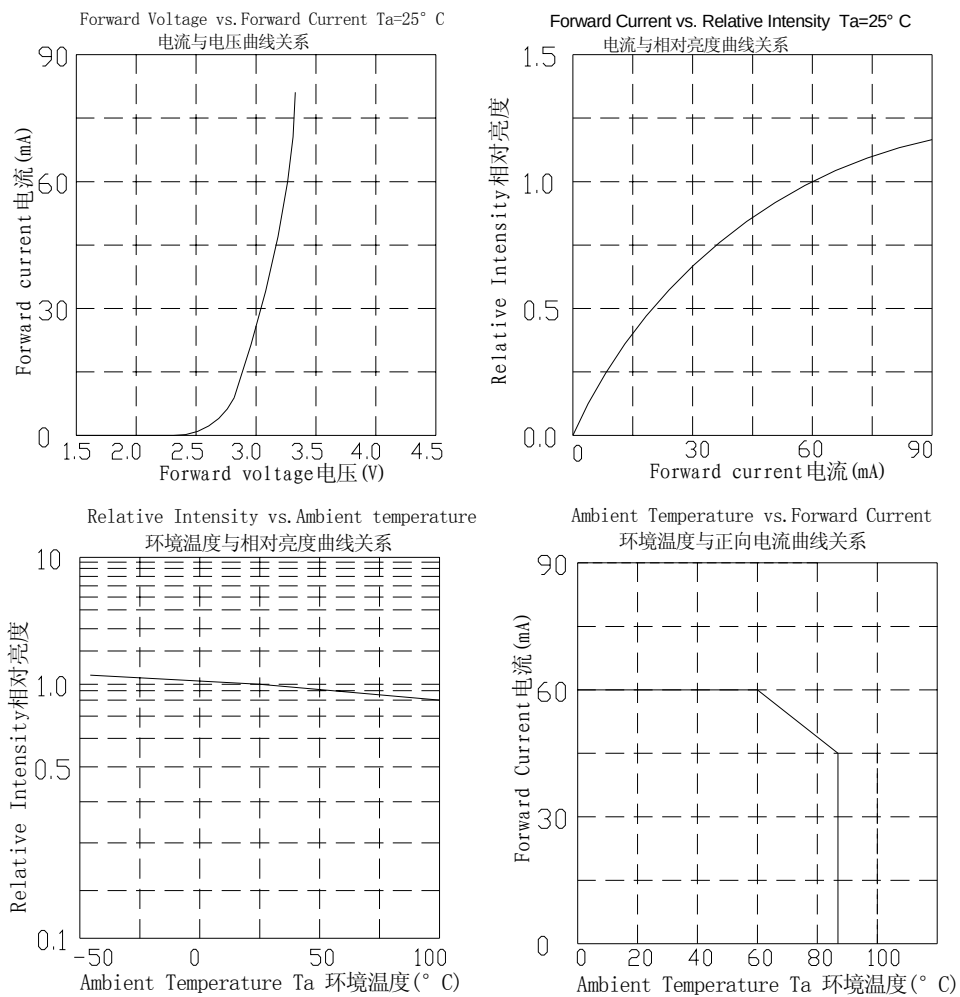
	0.3451	0.3644		0.3194	0.3185		0.2946	0.3152
	0.3408	0.3686		0.3146	0.3221		0.2896	0.3185
W33	0.3386	0.3587	C05	0.3141	0.3120	C14	0.2897	0.3078
	0.3430	0.3547		0.3190	0.3085		0.2947	0.3045
	0.3494	0.3602		0.3241	0.3148		0.2996	0.3118
	0.3451	0.3644		0.3194	0.3185		0.2946	0.3152
W34	0.3430	0.3547	C07	0.2896	0.3185	C15	0.2947	0.3045
	0.3474	0.3506		0.2946	0.3152		0.2997	0.3012
	0.3537	0.3560		0.2995	0.3225		0.3045	0.3084
	0.3494	0.3602		0.2946	0.3261		0.2996	0.3118
W35	0.3474	0.3506	C08	0.2946	0.3152	C16	0.2997	0.3012
	0.3518	0.3465		0.2996	0.3118		0.3048	0.2980
	0.3580	0.3518		0.3044	0.3190		0.3095	0.3051
	0.3537	0.3560		0.2995	0.3225		0.3045	0.3084
W26	0.3274	0.3570	W27	0.3320	0.3530	C17	0.3048	0.2980
	0.3320	0.3530		0.3365	0.3490		0.3098	0.2947
	0.3386	0.3587		0.3430	0.3547		0.3144	0.3017
	0.3342	0.3628		0.3386	0.3587		0.3095	0.3051

White CIE Chromaticity Diagram

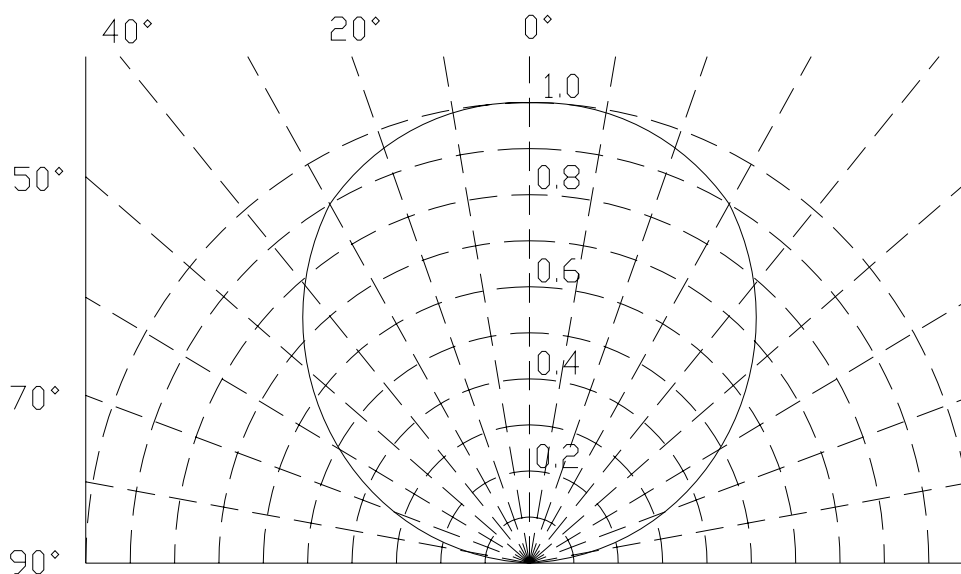
白光色区图



Typical optical characteristics curves 光电特性曲线

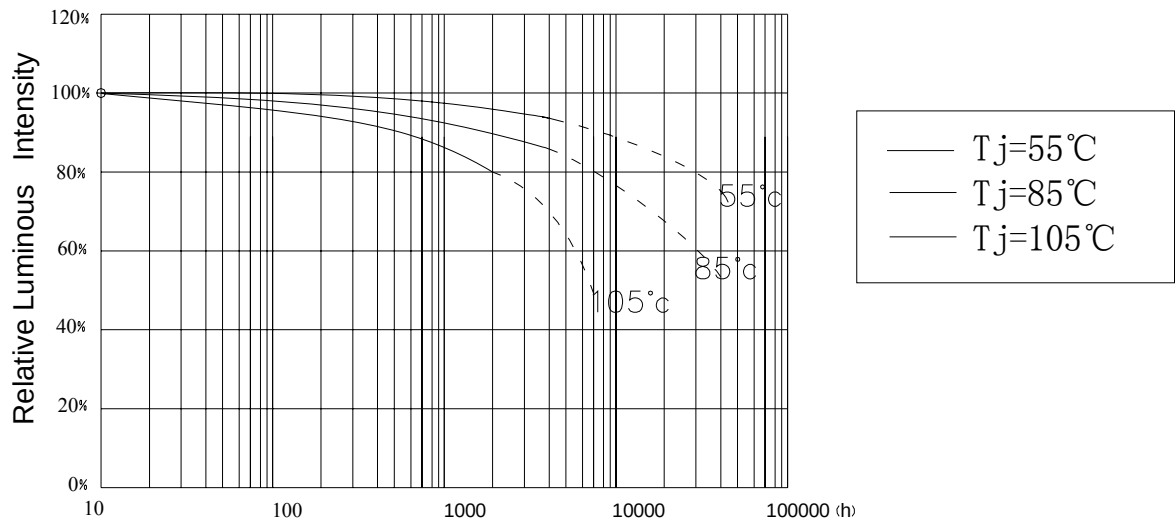


Curves of beam angle and relative brightness

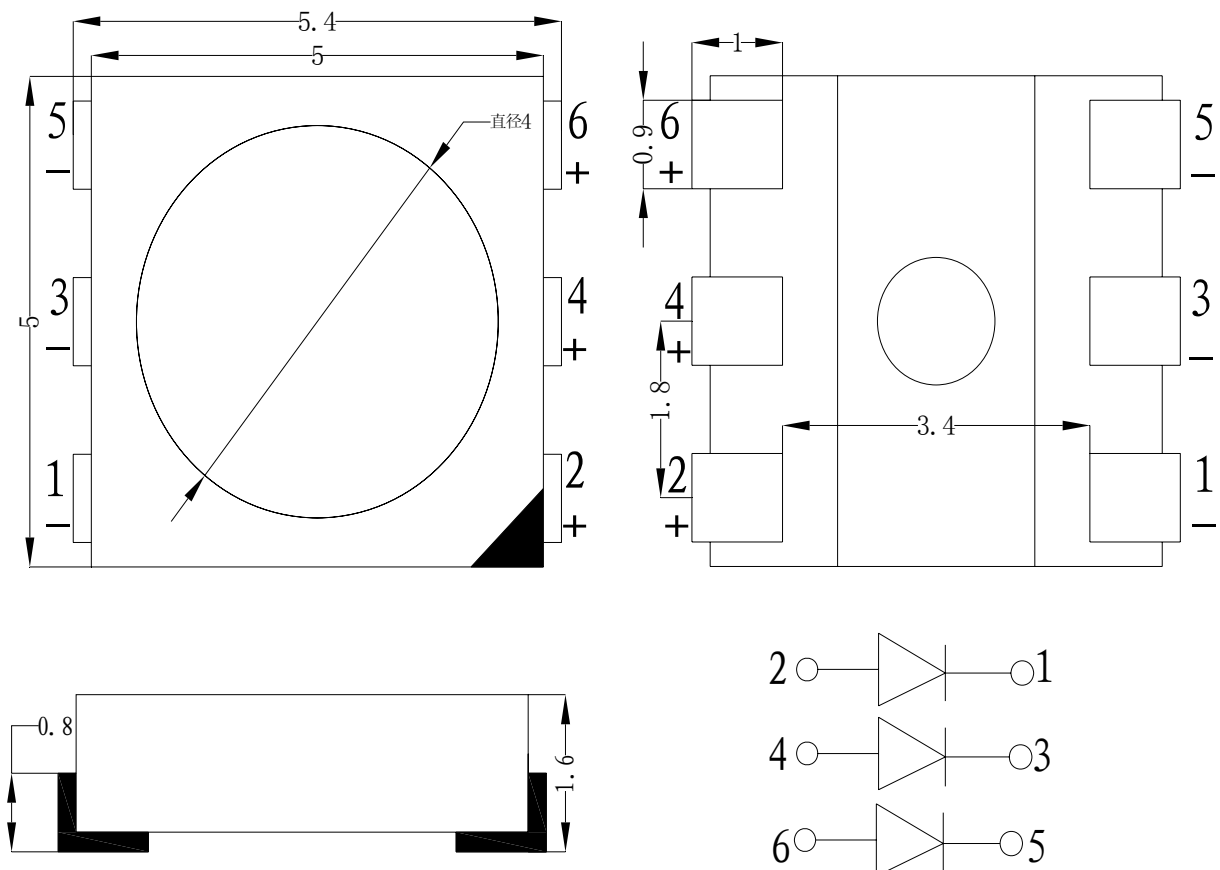


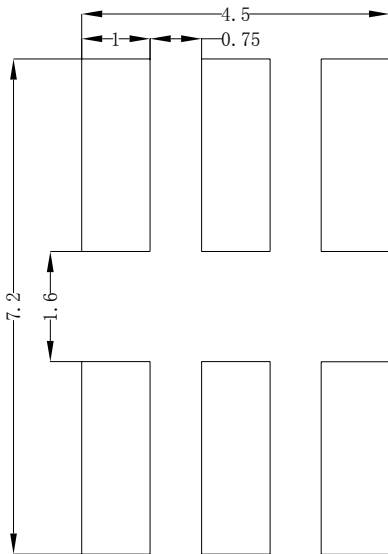
life test:

Affect of Tj on Luminous Maintenance
(If=60mA)
(Dot line: Expected Life)



Mechanical Dimensions 外观尺寸： 单位（mm）



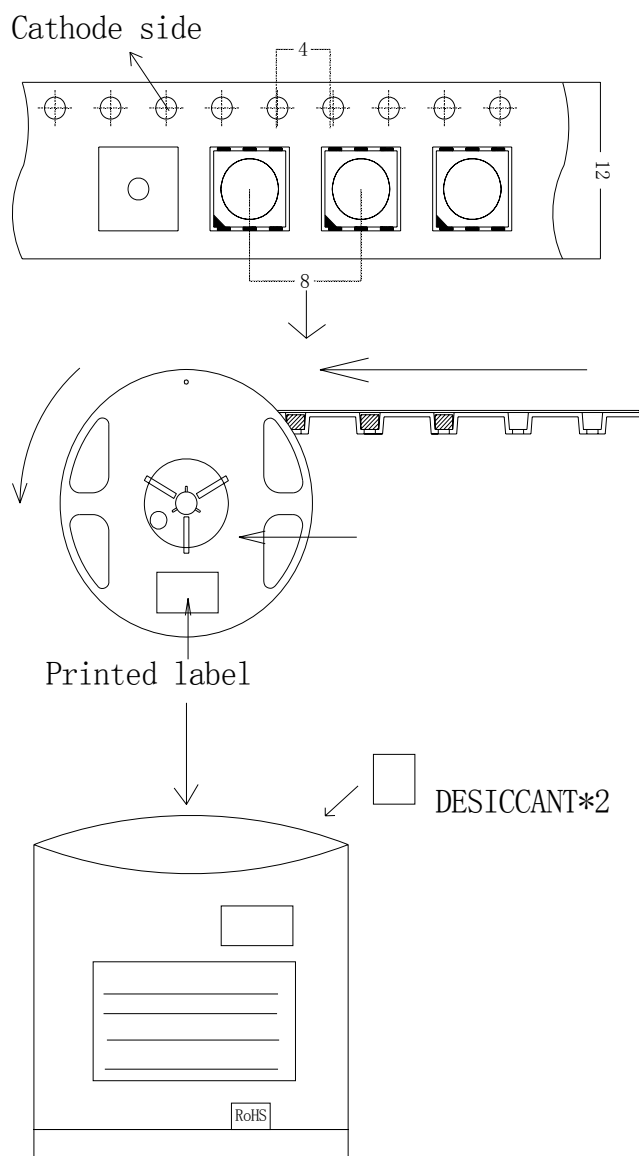


For reflow soldering 建议焊盘尺寸

Kit number system 产品命名规则

SL	-□	□	□□□□	-□	□
Smalite 斯迈得	R: Red 红光 G: Green 绿光 B: Blue 蓝光 W: White 白光 I: Warm 暖白光 Y: Yellow 黄光 O: Orange 橙光 L: Kelly 黄绿光 C: Color 全彩 S: Bi-color 双色 A: Amber 琥珀色 P: Pink 粉红色 Z: Purple 紫光	M: More chip 多芯片系列 H: High Ra 高显色	5050: TOP5050	C:60mA	H: 高亮

Packaging 包装： 单位 (mm)



NOTES 备注：

1. Empty component pockets are sealed with top cover tape;
预留载带空位也贴有上封带
2. The maximum number of missing lamps is two;
最多缺失的 LED 不能超过两颗
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
根据 ANSI/EIA RS-481 的规格,产品的负极指向卷带的导孔.
4. 1,000 pcs / Reel.
1,000 颗/卷

Reliability 信赖性

(1) TEST ITEMS AND RESULTS 测试条件和测试结果

Type 项目	Test Item 测试项目	Ref. Standard 参考标准	Test Conditions 测试条件	Note 记录	Number of Damaged 受损数量
Environmental Sequence 环境变化	Resistance to Soldering Heat(Reflow Soldering) 热阻	JESD22-B106	Tsld=260℃, 10sec	2 times	0/22
	Temperature Cycle 冷热循环	JESD22-A104	-40℃ 30min ↑↓5min 100℃ 30min	1000 cycle	0/100
	Thermal Shock 冷热冲击	JESD22-A106	-40℃ 15min ↑↓ 100℃ 15min	1000 cycle	0/100
	High Temperature 高温测试	JESD22-A103	T _a =100℃	1000 hrs	0/100
	Low Temperature 低温测试	JESD22-A119	T _a =-40℃	1000 hrs	0/100
	Power temperature Cycling 高温点亮循环测试	JESD22-A105	On 5min -40℃>15min ↑↓ ↑↓<15min Off 5min 100℃>15min	100 cycle	0/100
Operation Sequence 操作环境	Life Test 常温大电流老化	JESD22-A108	T _a =25℃ I _F =120mA	1000 hrs	0/100
	High Humidity Heat Life Test 高温高湿老化	JESD22-A101	60℃ RH=90% I _F =60mA	1000 hrs	0/100

(2) CRITERIA FOR JUDGING THE DAMAGE 判断受损的标准

Item 项目	Symbol 符号	Test Conditions 测试条件	Criteria for Judgment 判断标准	
			Min. 最小	Max. 最大
Forward Voltage 正向电压	VF	IF=60mA	—	U.S.L*)×1.1
Reverse Current 反向电流	IR	VR=5V	—	U.S.L*)×2.0
Luminous Intensity 光强	IV	IF=60mA.	L.S.L**)×0.7	—

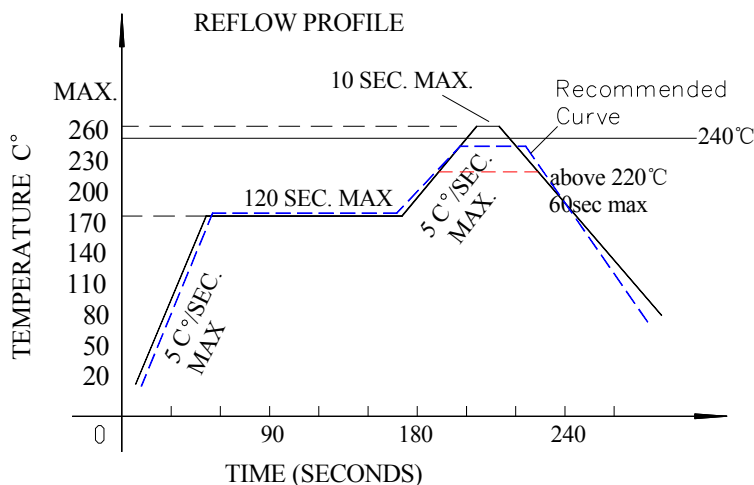
U.S.L.: Upper Standard Level

L.S.L.: Lower Standard Level



Specifications 规格

一、 Requirements for application and reflow soldering 应用及回流焊要求:



Reflow soldering curve 回流焊曲线图

(Product is highest resistant to 260°C reflow but suggested the highest temperature of 240°C within)
(产品最高可耐260°C回流焊, 但建议最高温度设为240°C)

■ Notes for reflow soldering 回流焊注意事项:

1. No more than twice for reflow soldering.
注意回流焊不可超过两次。
2. To ensure the quality of our LEDs, we encapsulate them with silica gels. So please do not put pressure on the LEDs.
为保证产 LED 质量及可靠性我司采用硅胶封装, 胶体表面较软, 焊接加热过程中, 不可施加压力在 LED 表面。
3. Please choose the right nozzle(try to learn from the plastic products parts) to avoid the damage to products due to the pressure.
在吸嘴的选取上要选择吸嘴的大小和压力合适的吸嘴 (尽量吸取产品的塑胶部分), 以避免造成压力过大伤害产品。
4. Please put on the antistatic hand loop during the use. The worktable should be with antistatic finish. The equipments must be contacted with ground.
LED 为静电敏感产品, 使用时请佩带防静电手环, 工作台做好防静电处理, 机台设备等保证接地。

■ Handwork soldering 手工焊接:

1. During the soldering, the electronic soldering iron must be kept under the temperature of 300°C and the soldering time must not be beyond 3 seconds. No touch between the electronic soldering iron and colloid.
手工焊接时, 要保持电烙铁温度在 300 摄氏度以下, 并且焊接时间小于 3 秒, 电烙铁不可接触胶体。
2. Handwork soldering is only allowed once. We won't take responsibility for more than that.
手工焊接只可进行一次, 重复焊接不保证产品是否完好。
3. Avoid using sharp objects to compress products Colloidal Part directly.
避免使用尖锐的物体直接接触产品胶体部分。
4. Please put on the antistatic hand loop during the use. The worktable should be with antistatic finish. The equipments must be contacted with ground.
LED 为静电敏感产品, 使用时请佩带防静电手环, 工作台做好防静电处理, 机台设备等保证接地。

二、Storage conditions 储存条件

Before opening the package 打开包装袋前:

1. The LEDs can be preserved for 1 year in condition of temperature no more than 30℃ and humidity no more than 60%RH. Recommended for moisture-proof foil bag with desiccant packaging methods and stored in the constant temperature and humidity box. Can not reach the requirements under the environment of the guarantee as far as possible in six months after use.
在温度不超过30℃及湿度不超过60%RH 条件下, LED 可以保存一年, 建议采用带干燥剂的防潮铝箔袋的包装方式, 存放在恒温恒湿箱中。达不到要求的环境下, 尽量保证在6个月内使用完毕。

After opening the package 打开包装后:

1. The SMD LEDs should be run out with 12hours in condition of temperature no more than 30℃ and humidity no more than 60%RH. The rest products should be pressurized in vacuum condition with desiccants. Stored for more than 7 days, next time also must be dehumidification, the dehumidification conditions is 75℃ with 12hours.
开封后, LED 在 $\leq 30^{\circ}\text{C}$, $\leq 60\%\text{RH}$ 相对湿度的条件下, 12 小时内完成贴片作业, 未用完的产品重新真空密封, 并放置在一个密封容器中, 同时必须使用干燥剂。存储超过7 天, 下次使用时同样需要除湿操作, 除湿条件为75℃ 12 小时。
2. The sealed storage products stock in the drying cabinet more for than one month, then must be dehumidified before used, and the dehumidified conditions is 75℃ 24 hours.
密封的产品在干燥箱中存储超过1个月的, 须经过深度除湿作业才能上线, 除湿条件: 75℃ 24小时。
3. If the product does not vacuum sealed packaging, and in the air for more than 40hours, this product must be removed from the tape of reel and put into the steel plate to dehumidify with 150℃ 2 hours, then could ensure the quality of the product after the soldering operation.
如果产品没有真空包装密封保存, 且在空气中放置超过40小时, 此产品必须从载带中拆出, 放入钢盘进行150℃ 2小时的除湿, 之后进行回流焊作业才能保证产品品质。