

RoHS

Specification

规格书

Customer Name : _____

客户名称 :

Customer P/N : _____

客户品号 :

Factory P/N : **HL-EMC-5050RGBW-S1-A1**

公司品号 :

Sending Date : _____

送样日期 :

Client approval 客户审核		Hongli approval 鸿利智汇审核			
Approval 核准	Audit 确认	Audit 确认			Confirmation 制作
		Sales department 营销中心	Quality department 品质部	Engineering technology centre 工程技术中心	
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HL-EMC-5050RGBW-S1-A1

产品型号释义

1. This code consists of 5 parts as shown below:

本编码由6个区组成如下所示:

HL-	EMC-	5050	RGBW	-	S1	-	A1
①	②	③	④		⑤		⑥

2. 分区释义:

①: Hongli's abbreviation(鸿利的缩写)

②: The base material(支架材质)

③: Product size (产品尺寸):

④: Luminous colour (发光颜色)

⑤: Type of outer sealant (外封胶类型):

⑥: Chip combination code)代码芯片组合代码)

HL-EMC-5050RGBW-S1-A1

Features(特征)

- Extremely wide viewing angle. (宽的发光角度)
- Suitable for all SMT assembly and solder process. (适用于所有的SMT组装和焊接工艺)
- Available on tape and reel. (适用于载带及卷轴)
- Moisture sensitivity level: Level 4. (防潮等级 Level 4)
- Package:4500pcs/reel..(包装每卷4500PCS)
- RoHS compliant. (RoHS 认证)



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

注意：操作时应注意静电敏感
释放设备装置

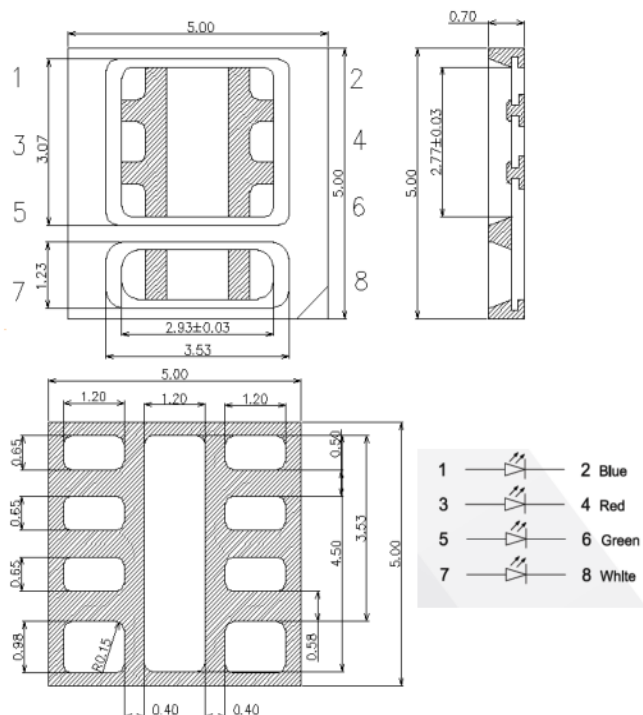
Applications (应用)

- Decorative lighting 装饰照明
- Channel letter 指示灯

Package Dimensions (封装尺寸)

Features 特点

- Size (mm) 5.0*5.0*0.7 ●外观尺寸 (mm)5.0*5.0*0.7
- Viewing angle : 120° ●发光角度 : 120°
- ROHS compliant lead-free soldering compatible ●符合 ROHS 无铅焊接的标准



Notes: (备注)

- All dimension units are millimeters. (所有标注尺寸单位为毫米)
- All dimension tolerance is $\pm 0.15\text{mm}$ unless otherwise noted. (除特别标注外, 所有尺寸允许公差 $\pm 0.15\text{mm}$)

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

Parameter 项目名称	Test Condition 测试条件	Symbol 符号	Color 颜色	Value 参数			Unit 单位
				MIN. 最小值	TYP. 典型值	MAX. 最大值	
Forward voltage 正向电压	If=120 mA	vf	R	2.0		2.6	V
			G	2.8		3.4	
			B	2.8		3.4	
			W	2.8		3.4	
Luminous flux 光通量	If=120 mA	Φ	R	16		25	Lm
			G	28		44	
			B	7		13	
Luminous flux 光通量	If=120 mA	Φ (<4000K)	W	40	50	60	Lm
		Φ (≥4000K)	W	45	55	65	Lm
Color Index 显色指数	If=120 mA	Ra	W	80			/
Wavelength 波长	If=120 mA	λd	R	615		630	nm
			G	515		530	
			B	455		470	
Viewing angle at 50% Iv 半强角	If=120 mA	2 θ 1/2			120		Deg
Reverse current 反向电流	Vr=5V	Ir				10	μA

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

Parameter 项目名称	Symbol 符号	Value 参数				Unit 单位
Power dissipation 消耗功率	Pd	R	G	B	W	W
		0.31	0.51	0.51	0.51	
Forward current 正向电流	If	150	150	150	150	mA
Reverse voltage 反向电压	Vr	5	5	5	5	V
Operating temperature range 工作温度范围	Top	-35 ~+100				℃
Storage temperature range 储存温度范围	Tstg	-35 ~+85				℃

NOTES 注释:

- * The measurement of forward voltage maintains a tolerance of $\pm 0.05V$, flux maintains a tolerance of $\pm 5\%$.
- * 正向电压测量误差 $\pm 0.05V$, 光通量 $\pm 5\%$ 。
- * Ra measurement tolerance is ± 2 .
- * Ra 测量误差为 ± 2 。
- * Rth j-sp is the thermal resistance from LED junction to solder point on MCPCB with electrical power.
- * Rth j-sp 是通电时从 PN 结到铝基板焊点的热阻。

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VF/LM bin limit (If=120mA)
 电压/光通量/波段范围 (If=120 mA)

Forward voltage			Min.(V)	Max.(V)
VF	蓝光	BB	2.8	3.0
		BC	3.0	3.2
		BD	3.2	3.4
	绿光	GB	2.8	3.0
		GC	3.0	3.2
		GD	3.2	3.4
	红光	RB	2.0	2.2
		RC	2.2	2.4
		RD	2.4	2.6
	白光	WB	2.8	3.0
		WC	3.0	3.2
		WD	3.2	3.4

VF/LM bin limit (If=120mA)
 电压/光通量/波段范围 (If=120 mA)

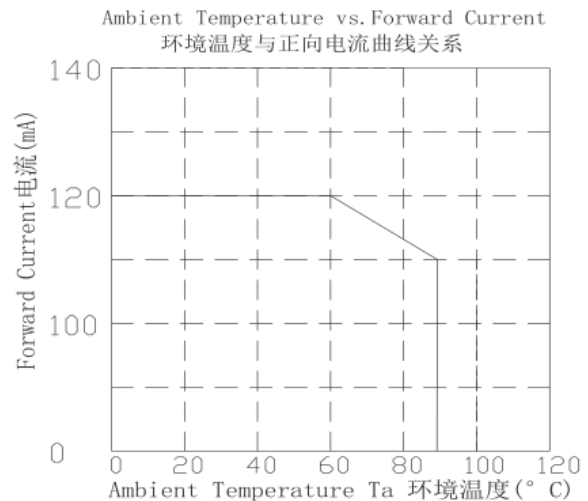
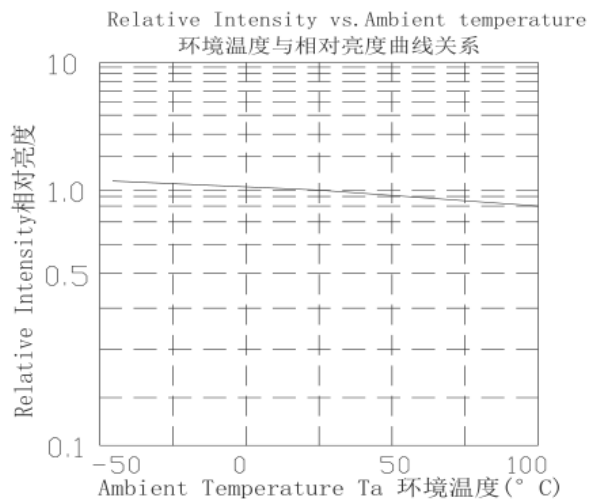
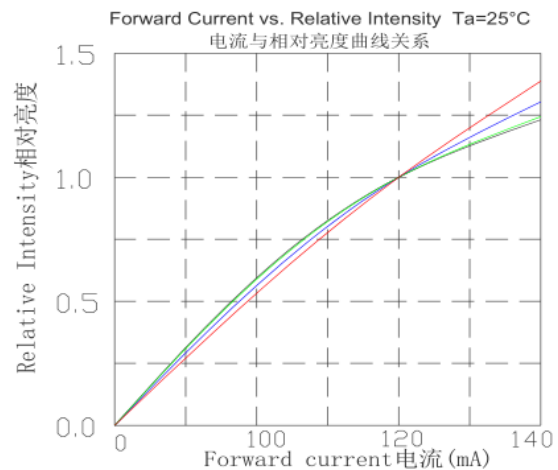
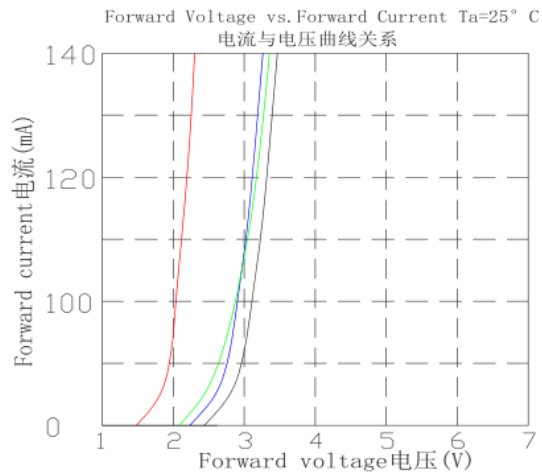
Luminous flux			Min.(lm)	Max.(lm)
Φ	蓝光	BD	9	15
	红光	RD	16	25
	绿光	GD	28	44
	白光	WD	50	80

VF/LM bin limit (If=120mA)
 电压/光通量/波段范围 (If=120 mA)

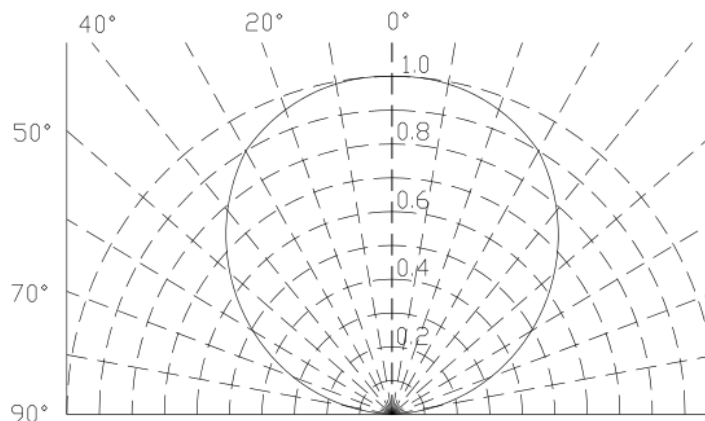
Wave Length		Min.(nm)	Max.(nm)
WLD	蓝光	450	455
		455	460
		460	465
		465	470
	红光	615	620
		620	625
		625	630
	绿光	515	520
		520	525
		525	530

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Typical optical characteristics curves 典型光学特性曲线



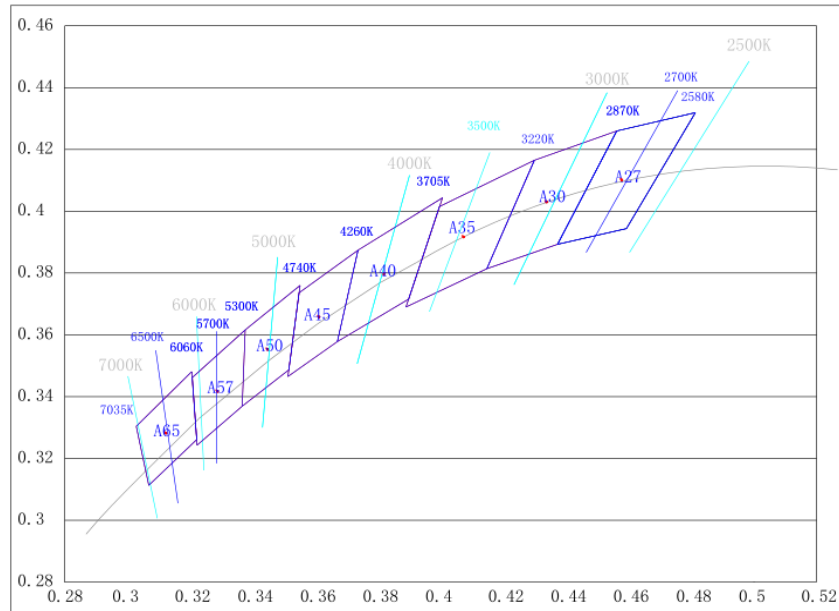
Curves of beam angle and relative brightness



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Color CIE Chromaticity Diagram

白光色区图



Bin Range of Chromaticity Coordinate 白光分 BIN 及色坐标范围

Bin Code	CIE_X	CIE_Y	CCT 范围(K)
A27	0.4813	0.4319	2580-2870
	0.4562	0.426	
	0.4373	0.3893	
	0.4593	0.3944	
A30	0.4562	0.426	2870-3220
	0.4299	0.4165	
	0.4147	0.3814	
	0.4373	0.3893	
A35	0.4299	0.4165	3220-3705
	0.3996	0.4015	
	0.3889	0.369	
	0.4147	0.3814	
A40	0.4005	0.4044	3705-4260
	0.3736	0.3874	
	0.367	0.3578	
	0.3897	0.3716	
A45	0.3736	0.3874	4260-4740
	0.3548	0.3736	
	0.3512	0.3465	
	0.367	0.3578	
A50	0.3551	0.376	4740-5300
	0.3376	0.3616	
	0.3366	0.3369	
	0.3515	0.3487	
A57	0.3376	0.3616	5300-6050
	0.3207	0.3462	
	0.3222	0.3243	
	0.3366	0.3369	
A65	0.3205	0.3481	6060-7035
	0.3028	0.3304	
	0.3068	0.3113	
	0.3221	0.3261	

NOTES 注释

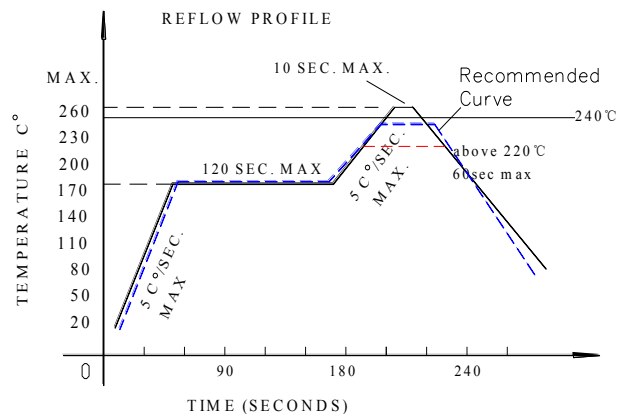
Test and binned at 25C, IF=额定电流

Tester tolerance: ± 0.01 in x and y coordinates.

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SMT Reflow Soldering Instructions SMT回流焊说明

(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)



1. Reflow soldering should not be done more than three times. 回流焊不可以做三次以上

2. When soldering, do not put stress on the LEDs during heating

当焊接时, 不要在材料受热时用力压胶体表面

Soldering iron 烙铁焊接

1. When hand soldering, keep the temperature of iron below less 350°C less than 5 seconds

当手工焊接时, 烙铁的温度必须小于350°C, 时间不可超过5秒

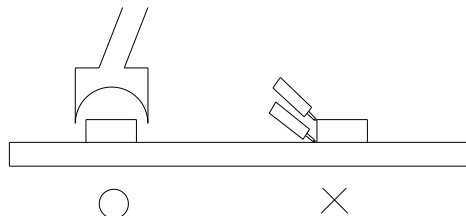
2. The hand solder should be done only one times

手工焊接只可焊接一次

Repairing 修补

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed in advance whether the characteristics of LEDs will or will not be damaged by repairing.

LED回流焊后不应该修复, 当修复是不可避免时, 必须使用双头烙铁(如下图), 但必须事先确认此种方式会不会损坏LED本身的特性。



Cautions 注意事项

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the silicone resin should be proper.

LED封装为硅胶, 故LED胶体表面较软, 用力按压胶体表面会影响LED可靠性, 因此应有预防措施避免在封装的零件上的强大压力, 当使用吸嘴时, 胶体表面的压力应是恰当的。

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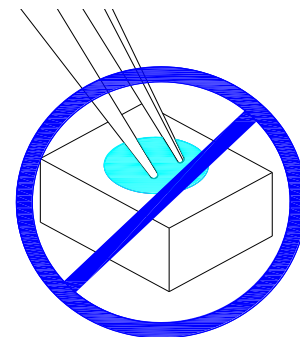
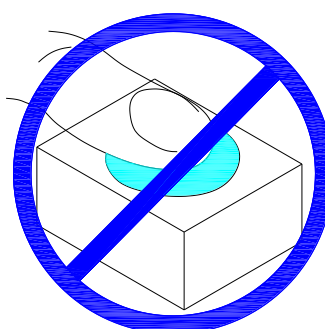
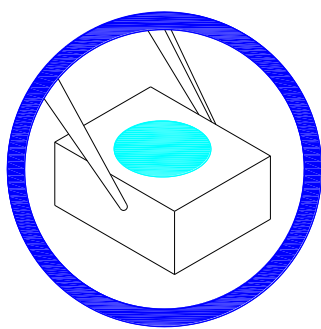
Handling Precautions 处理防备措施

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more prone to damage by external mechanical force. As a result, Special handling precautions must be observed during assembling using silicone encapsulated LED products, Failure to comply might leads to damage and premature failure of the LED.

相对环氧树脂较脆较硬而言，硅胶封装较柔软且有弹性，虽然它的特性大大减少了热应力，但易受机械外力损坏，因此在手工处理方面须要对硅胶封装材料做预防措施，若未按要求操作，可能会导致LED损坏和光衰

1.Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

通过使用适当的工具从材料侧面夹取，不可直接用手或尖锐金属压胶体表面，它可能会损坏内部电路



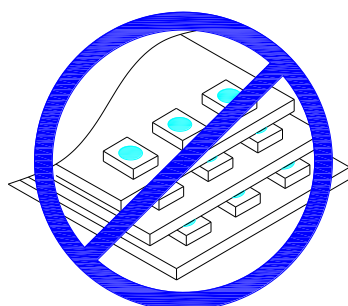
2.The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.

为防止气压泄漏，SMD吸咀外径不可以超过LED尺寸，吸咀内径尺寸应尽可能大，吸咀顶端材质建议采用柔软材料以防在吸取期间刮伤或损坏LED胶体表面，元件的尺寸必须在取放机里准确的编程好，以确保精确的吸取和避免生产过程中的损害



3.Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry

不可将模组材料堆积在一起，它可能会损坏内部电路



4.Not suitable to operate in acidic environment, PH<7

不可用在PH<7的酸性场所

