

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	陈少霞
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3. 此规格书的有效期限为两年,自盖章或签字之日起计算,期满时双方可以续签协议,但应采用书面形式

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

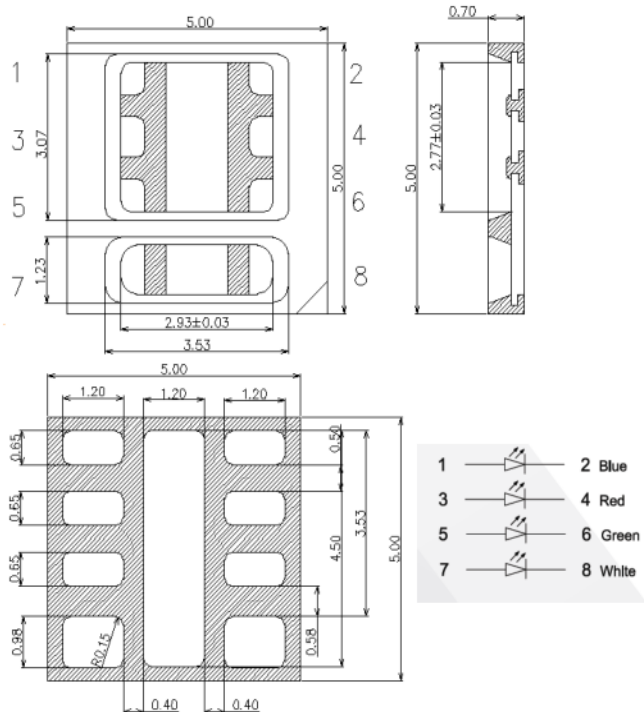
Applications (应用)

- 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)

1. All dimension units are millimeters. (所有标注尺寸单位为毫米)
2. 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°C)

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	lv	R	17		22	Lm
			G	28		38	
			B	10		15	
Luminous flux 光通量	If=120 mA	Φ	W	47		57	Lm
Color Index 显色指数	If=120 mA	Ra	W	80		90	/
Wavelength 波长	If=120 mA	λd	R	615		630	nm
			G	515		530	
			B	450		470	
Viewing angle at 50% lv 半强角	If=120 mA	2 θ 1/2			120		Deg
Reverse current 反向电流	Vr=5V	lr				10	μA

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

Parameter 项目名称	Symbol 符号	Value 参数		Unit 单位
Power dissipation 消耗功率	Pd	R	0.39	mW
		G	0.51	
		B	0.51	
		W	0.51	
Forward current 正向电流	If	150		mA
Reverse voltage 反向电压	Vr	5		V
Operating temperature range 工作温度范围	Top	-35 ~+100		°C
Storage temperature range 储存温度范围	Tstg	-35 ~+85		°C

NOTES 注释:

- * The measurement of forward voltage maintains a tolerance of ± 0.05V, flux maintains a tolerance of ± 5%.
- * 正向电压测量误差±0.05V，光通量±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)

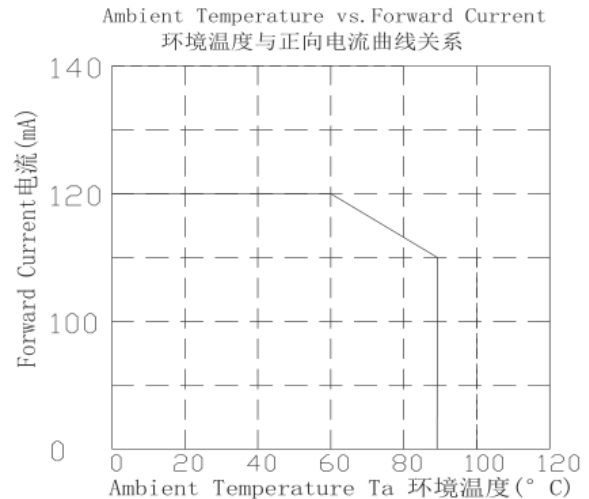
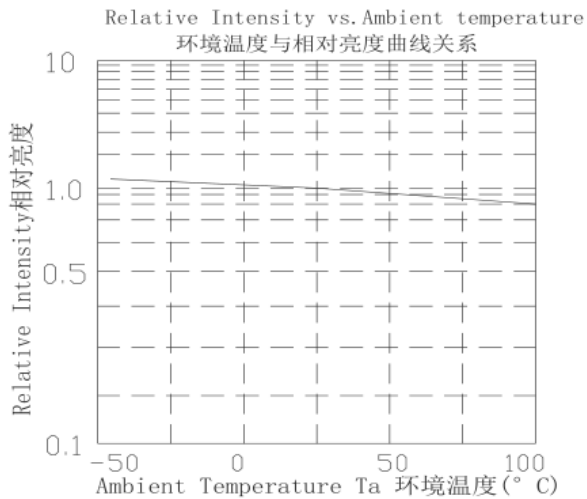
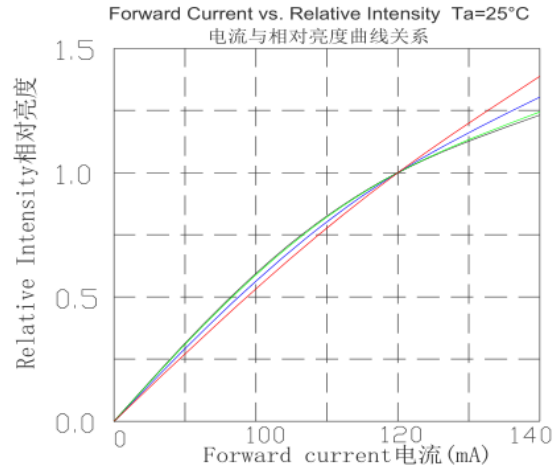
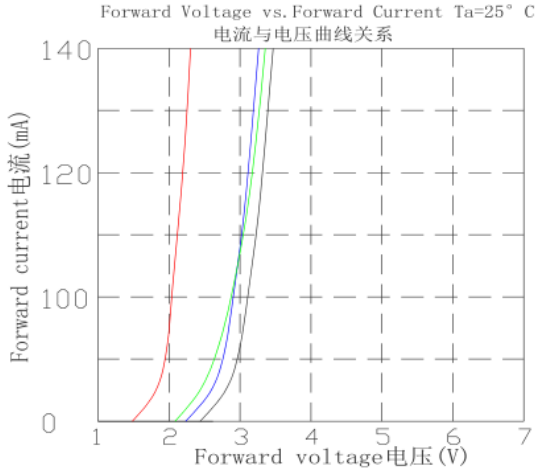
Luminous flux			Min.(lm)	Max.(lm)
Φ	蓝光	BD	10	15
	红光	RD	17	22
	绿光	GD	28	38
	白光	WD	47	57

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

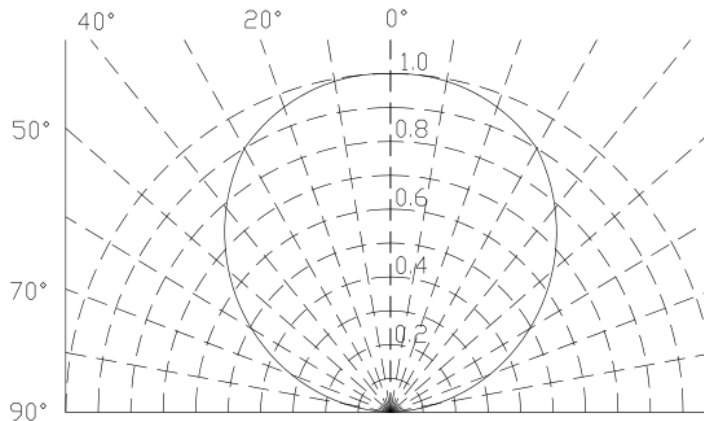
Wave Length		Min.(nm)	Max.(nm)
WLD	蓝光	450	455
		455	460
		460	465
		465	470
	红光	615	620
		620	625
		625	630
	绿光	515	520
		520	525
		525	530

HL-EMC-5050RGBW-S1-A1

Typical optical characteristics curves 典型光学特性曲线



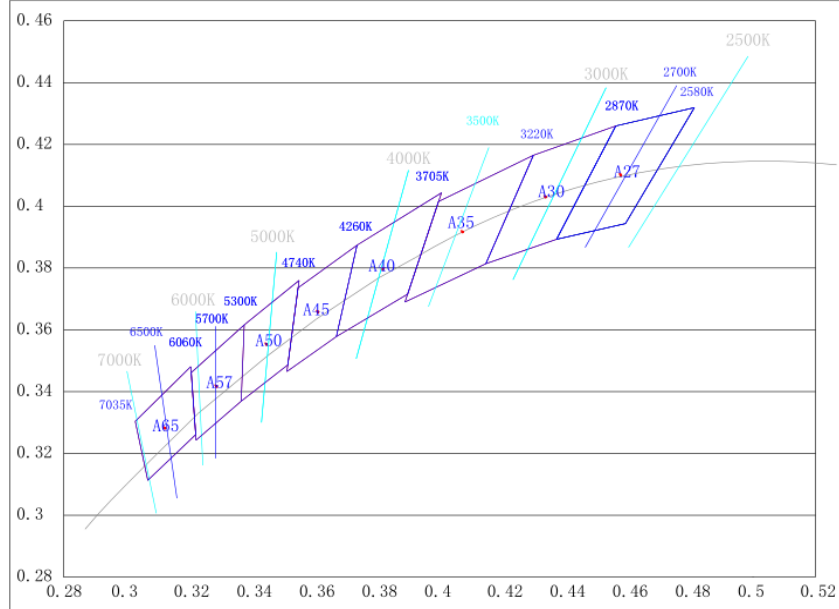
Curves of beam angle and relative brightness



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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

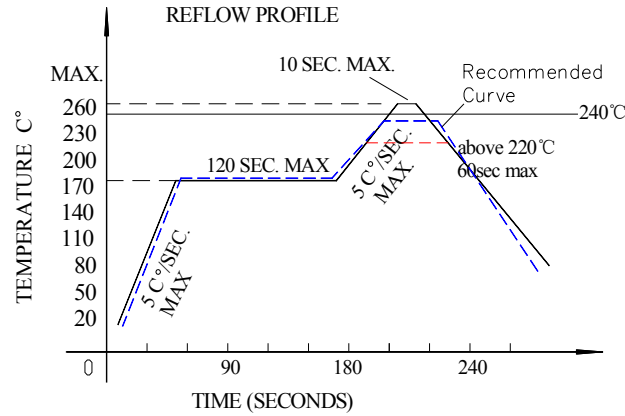
Test and binned at 25C, IF=额定电流

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

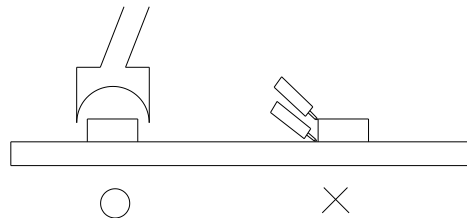
Soldering iron 烙铁焊接

- 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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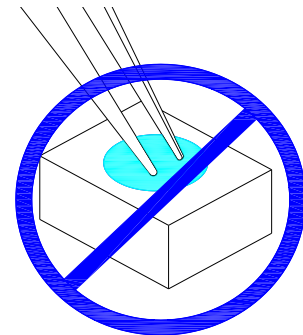
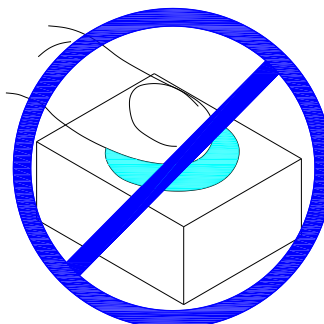
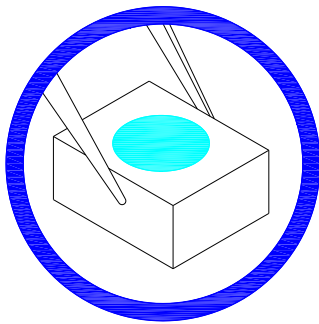
Handling Precautions 处理防备措施

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



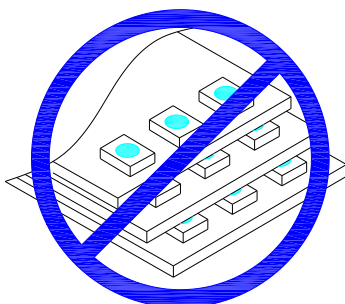
2.The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of 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

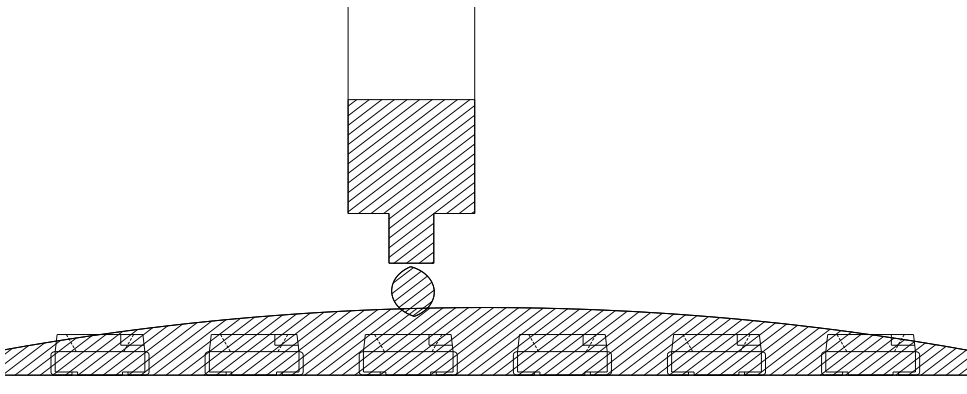


5.LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material.

LED工作环境及与LED适配的材料中硫元素及化合物成份不可超过100PPM

6.When we need to use external glue for LED application products, please make sure that the external glue matches the LED packaging glue. Additionally ,as most of LED packaging glue is silica gel, and it has strong Oxygen permeability as well as strong moisture permeability; in order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine element is required to be less than 900PPM,the total content of Bromine element and Chlorine element in the external glue of the application products is required to be less than 1500PPM

当我们需要使用外封胶涂抹LED产品时，应确保外封胶与LED封装胶水相匹配，因为大多数LED的封装胶水为硅胶，它有较强的氧化性和较强的吸湿性，必须防止外封材质进入LED内部以造成LED的损伤，单一的溴元素含量要求小于900PPM，单一氯元素含量要求小于900PPM，在涂抹LED产品时要求外封胶溴元素与氯元素总含量必须小于1500PPM



7.Other points for attention, please refer to our LED user manual , In accordance with the user manual, the product shelf life is 24 months , If there is a warranty agreement, the warranty agreement shall prevail

其它注意事项请参照我们的LED使用手册，符合使用手册的情况下，产品保质期为24个月，已签订保质协议的则以保质协议为准

After the product life cycle for recycling 产品生命周期后进行回收处理

HL-EMC-5050RGBW-S1-A1

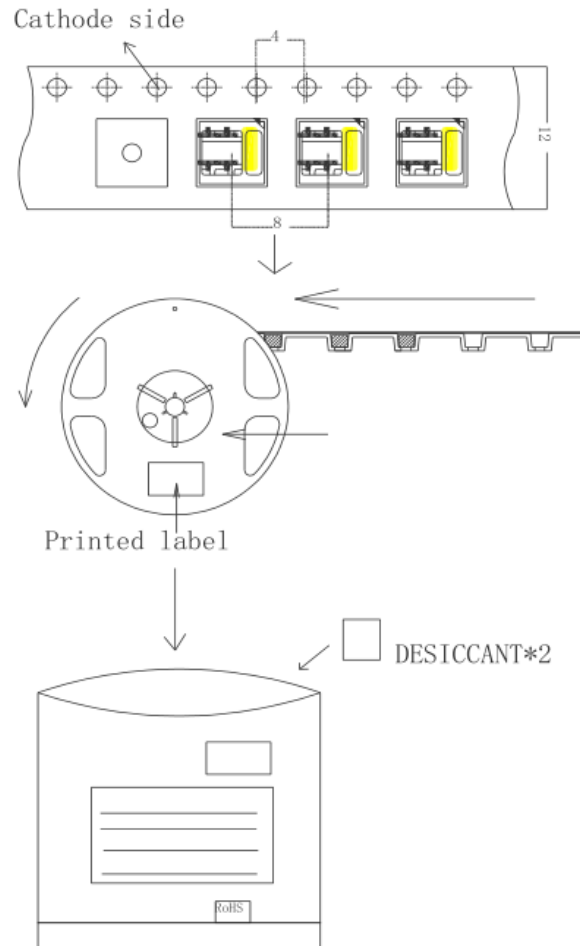
Label 标签

IV: Luminous intensity rank 亮度等级
 WD: Dominate Wavelength 波长等级
 VF: Forward voltage rank 电压等级
 QTY:数量



Tape Specifications (Units : mm) 载带规格 (单位: mm)

Packaging 包装: Unit 单位 (mm)



Reel Dimensions

卷轴尺寸

Moisture Resistant Packaging 防潮带包装

NOTES 注意:

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. 2,000 PCS / Reel.
2,000 颗/卷

HL-EMC-5050RGBW-S1-A1

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 70℃ with 12hours.

开封后，LED 在 $\leq 30^{\circ}\text{C}$ ， $\leq 60\%RH$ 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70℃ 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 70℃ 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：70℃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。

修订次数	修订人	修订内容	修订日期	版次
1	陈少霞	新建文件	2020/11/27	A/0
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