HONGLITRONIC
鸿利光电

Under Development	
Mass production	●

RoHS

Specification

规 格 书

Customer Name： _____

客户名称：

Customer P/N： _____

客户品号：

Factory P/N： **HL-5050RGBW-S1-A40**

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	陈沙霞
☐ Qualified 接受 ☐ Disqualified 不接受		DATE: 日期：			

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Web/网址：www.honglitronic.com

注:1. 此规格书以中英文方式书写, 若有冲突以中文版本为准文本.
2. 此规格书的最终解释权归鸿利智汇集团股份有限公司
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-5050RGBW-S1-A40

产品型号释义

1. 本编码由5个区组成如下所示:

HL-	5050	RGBW	-	S1
①	②	③		④

2. 分区释义：

①:鸿利的缩写

②:产品尺寸

③:发光颜色

④:外封胶类型

HL-5050RGBW-S1-A40



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:1000pcs/reel..(包装每卷1000PCS）
- RoHS compliant. (RoHS 认证）

Description（描述）

The Green source color devices are made with InGaN on Substrate Light Emitting Diode

绿光LED由InGaN三种元素芯片激发而成

The Red source color devices are made with AlGaInP on Substrate Light Emitting Diode

红光LED由AlGaInP四种元素芯片激发而成

The Blue source color devices are made with InGaN on Substrate Light Emitting Diode

蓝光LED由InGaN三种元素芯片激发而成

The White LED which was fabricated using a blue chip and the phosphor

白光LED由蓝光芯片与荧光粉激发而成



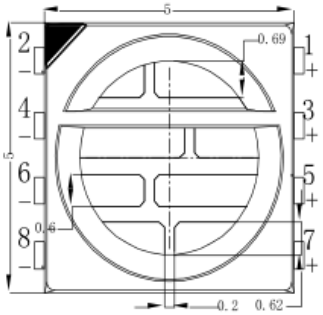
ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DISCHARGE SENSITIVE DEVICES

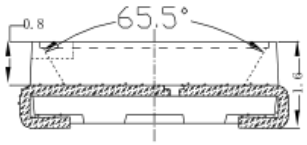
注意：操作时应注意静电敏感释放设备装置

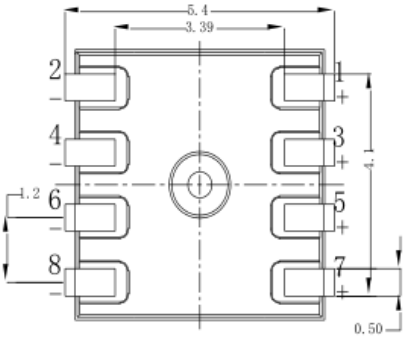
Applications（应用）

■ Decorative lighting 装饰照明

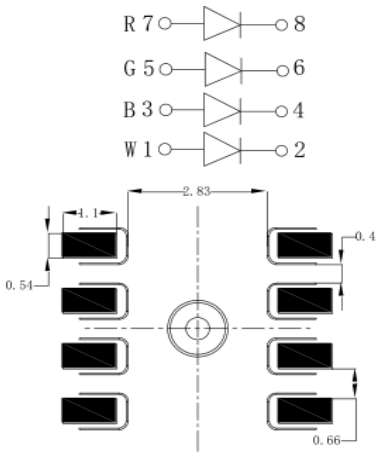
Package Dimensions（封装尺







Recommended Soldering Pattern （建议焊盘尺寸图）



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 ±0.15mm unless otherwise noted.（除特别标注外，所有尺寸允许公差±0.15mm ）

HL-5050RGBW-S1-A40

Selection Guide（选择指南）

Part No.型号	Dice	Lens Type 胶体类型	Luminous intensity(mcd) @20mA		Viewing Angle 角度
			Min.	Max.	2q1/2
HL-5050RGBW-S1	Blue(InGaN)	White Clear	300	700	120°
	Green(InGaN)	White Clear	1800	2200	
	Red(AlGaInP)	White Clear	600	1000	

Part No.型号	Dice	Lens Type 胶体类型	Luminous flux(lm) @20mA		Viewing Angle 角度
			Min.	Max.	2q1/2
HL-5050RGBW-S1-A40	White (InGaN)	Yellow clear	7	9	120°

Electrical / Optical Characteristics at Ta=25°C　电性与光学特性

Parameter （参数）	Symbol （符号）	Blue（蓝光）			Green（绿光）			Red(红光）			White(白光）			Units （单位）	Test Condi-tions 测试条件
		Min.	Typ.	Max	Min.	Typ.	Max	Min.	Typ.	Max	Min.	Typ.	Max		
Forward Voltage 正向电压	VF	2.8	--	3.4	2.8	--	3.4	1.8	--	2.4	2.8	--	3.4	V	IF=20mA
Dominate Wave-length 主波长	λd	460	--	470	520	--	530	620	--	630	—	--	—	nm	IF=20mA
Reverse current反向电流	Ir	--	--	10	--	--	10	--	--	10	--	--	10	uA	VR=5V

Parameter（参数）	Symbol （符号）	Min. （最小）	Typ. （平均）	Max. （最大）	Units （单位）	Test Conditions 测试条件
Color Rendering Index 显色性指数	Ra	80	--	--		IF=20mA

Note:(备注）

1. 2θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
   2θ1/2 是半值角,指光强是光学中心线光强的1/2处到光学中心线的角度
2. The above luminous flux measurement allowance tolerance is ±10%.
   上述光通量的测试允许公差为±5%
3. The above Dominate Wavelength measurement allowance tolerance is ±2nm.
   以上主波长的测试允许公差为±2nm
4. The above forward voltage measurement allowance tolerance is ±0.05V.
   以上所示电压测量误差±0.05V
5. The above color coordinates measurement allowance tolerance is ±0.01.
   以上所示坐标测量误差±0.01

HL-5050RGBW-S1-A40

Absolute Maximum Ratings at Ta=25°C 绝对最大额定值

Parameter（参数）	Symbol（符号）	Value (Red)	Value (Green)	Value (Blue)	Value (White)	Units（单位）
Power Dissipation（功耗）	Pd	48	68	68	68	mW
Forward Current（正向电流）	IF	20				mA
Pulse Forward Current [1]（正向脉冲电流）	IFP	40				mA
Reverse Voltage（反向电压）	VR	5				V
Electrostatic Discharge (HBM)（静电）	ESD	2000				V
Operating Temperature（操作温度）	Topr	-35 ~ +85				°C
Storage Temperature（保存温度）	Tstg	-35 ~ +85				°C

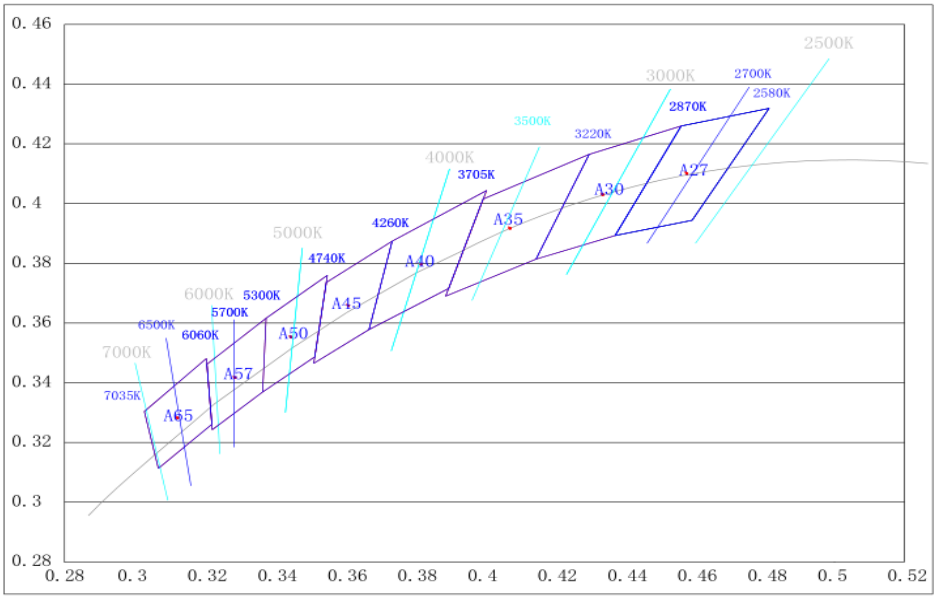
Note:（备注）

1. 1/10 Duty cycle, 0.1ms pulse width.（脉宽0.1ms, 周期1/10）

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Color CIE Chromaticity Diagram

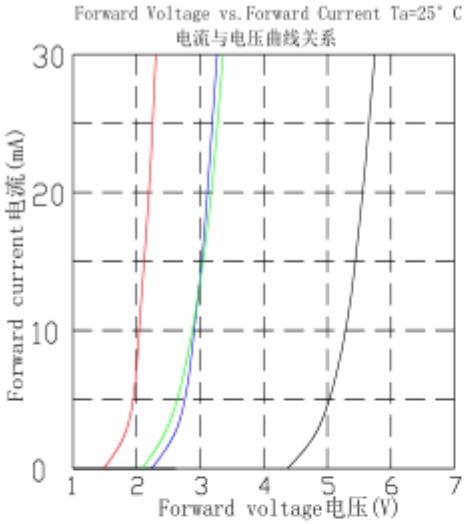
白光色区图

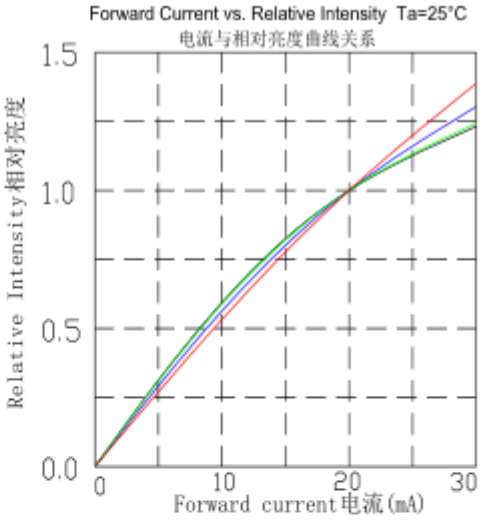


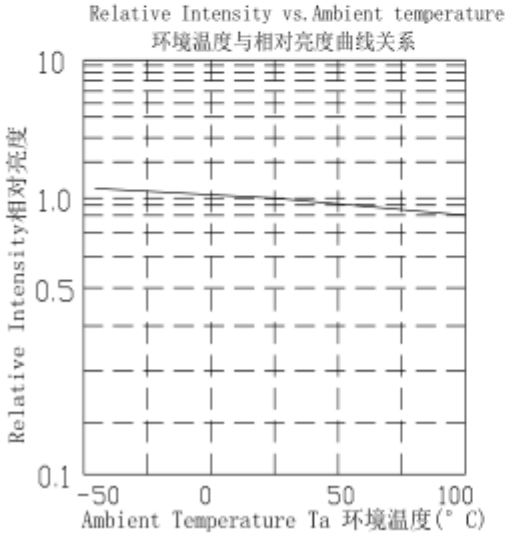
Bin Code	CIE_X	CIE_Y	CCT 范围(K)
A27	0.4813	0.4319	2580-2870
	0.4562	0.426	
	0.4373	0.3893	
	0.4593	0.3944	
A30	0.4562	0.426	2870-3220
	0.4299	0.4165	
	0.4147	0.3814	
	0.4373	0.3893	
A35	0.4299	0.4165	3220-3705
	0.3996	0.4015	
	0.3889	0.369	
	0.4147	0.3814	
A40	0.4005	0.4044	3705-4260
	0.3736	0.3874	
	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	

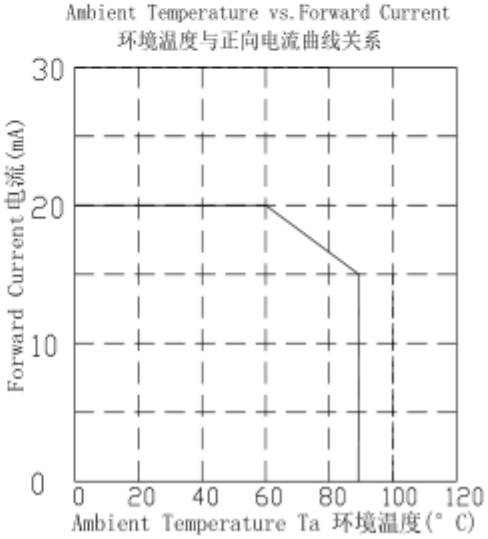
HL-5050RGBW-S1-A40

Typical optical characteristics curves光电特性曲线

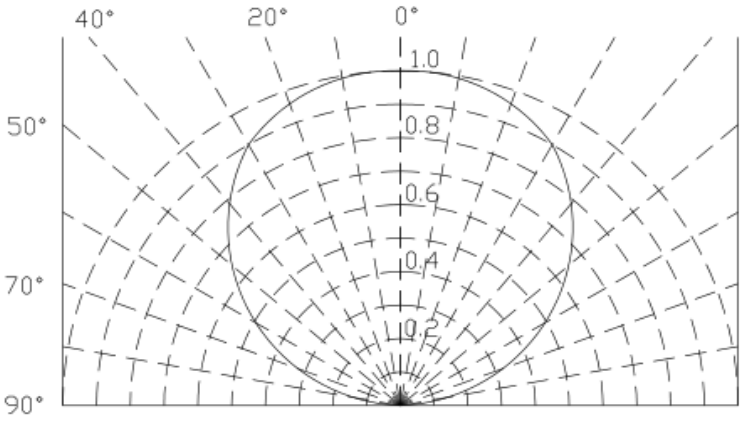








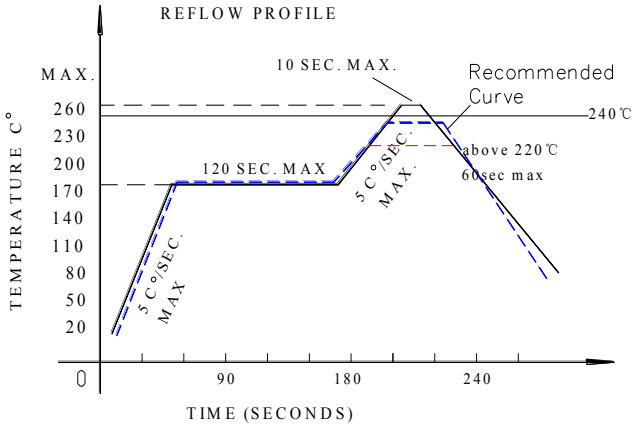
Curves of beam angle and relative brightness



HL-5050RGBW-S1-A40

SMT Reflow Soldering Instructions SMT回流焊说明

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



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℃ less than 5 seconds

当手工焊接时，烙铁的温度必须小于350℃，时间不可超过5秒。

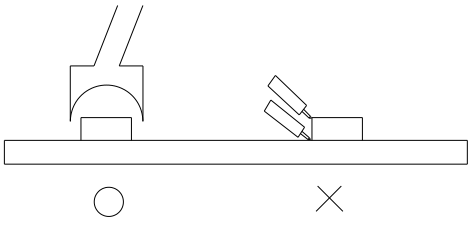
2.The hand solder should be done only one times

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或不会损坏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。

HL-5050RGBW-S1-A40

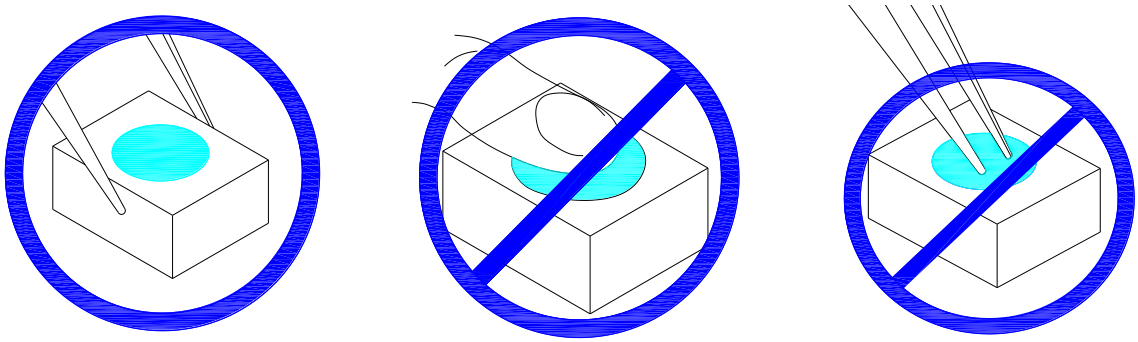
Handling Precautions 处理防备措施

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。

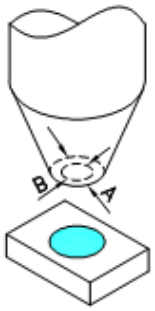
1.Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.

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。



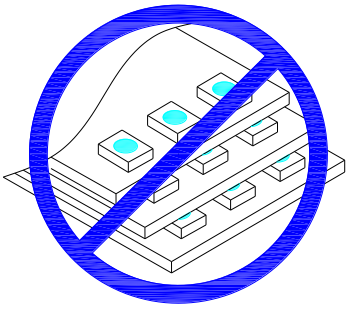
2.The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of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

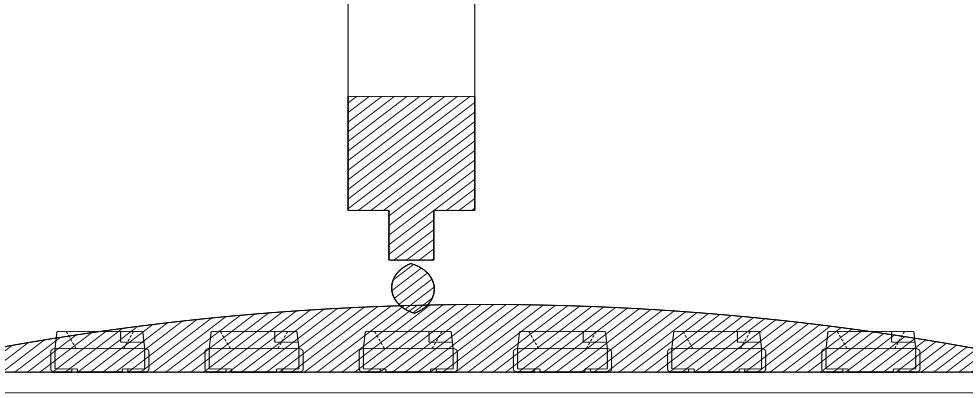


5.LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating usage material.

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

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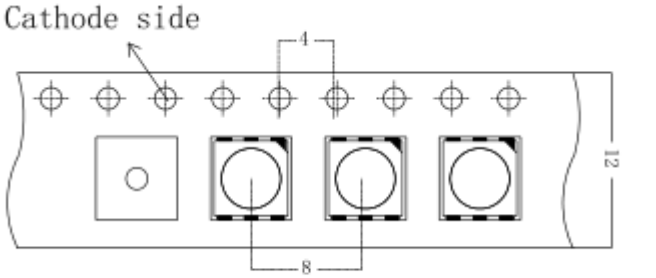
Label 标签

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

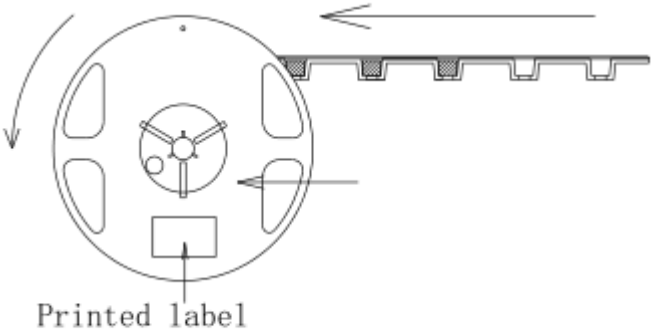


Tape Specifications (Units : mm) 载带规格（单位：mm)

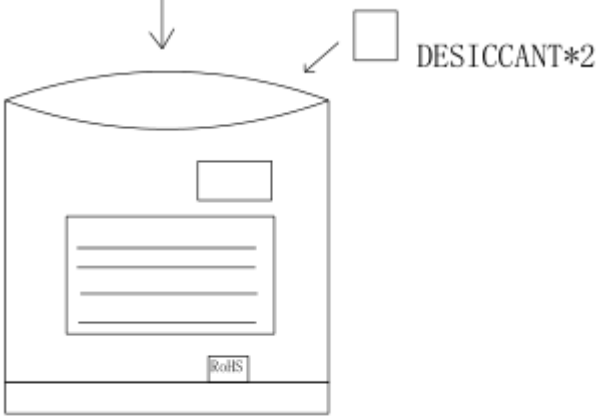
Packaging 包装



Reel Dimensions 卷轴尺寸



Moisture Resistant Packaging 防潮带包装



Note: The tolerances unless mentioned is ±0.1mm , Unit: mm 注：标注公差为±0.1mm ，单位：mm

修订次数	修订人	修订内容	修订日期	版次
1	周欣	新建文件	2018/12/6	A/0
2	周欣	修改规格名称	2019/4/25	A/1
3	陈少霞	修改参数 R:560-700变更为600-700mcd G:1200-1500变更为1800-2200mcd B:3800-450变更为300-700mcd	2019/07/22	A/2
4	陈少霞	更新的封面	2022/04/24	A/3
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