

RoHS

Specification

Client Name :

客户名称 : _____

Client P/N :


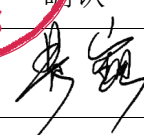
客户品号 : _____

Product P/N :

产品型号 : HL-C2016K9W3CB (Ra1)-FC-CZ

Sending Date :

送样日期 : _____

Client approval 客户审核		Hongli approval 鸿利光电审核		
Approval 核准	Audit 确认	Approval 核准	Audit 确认	Confirmation 制作
				曾昭烜
<input type="checkbox"/> Qualified 接受	<input type="checkbox"/> Disqualified 不接受	DATE: 日期 : 2015. 10. 07		

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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广州市鸿利光电股份有限公司

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

4.广州市鸿利光电股份有限公司提供样品和规格书请客户会签审核确认规格参数和样品,客户会签后表示认同产品的 相关参数和品质性能符合客户要求。

Catalog目录

1. Product naming rules	
产品命名规则	3
2. Features	
特点	3
3. Application range	
应用范围	4
4. Radiation Pattern	
辐射模式	4
5. Specifications	
规范	5-6
6. Product bins	
产品分级	7
7. Typical Optical/Electrical Characteristics Curves	
典型光学/电性特征曲线	8
8. Package Dimensions	
封装尺寸	9
9. Welded plate and steel mesh Dimensions	
焊盘及钢网尺寸	9
10. Label	
标签	10
11. Tape Specifications	
包装规格	11
12. Reflow soldering instructions	
回流焊说明	12
13. Use the matters needing attention	
使用注意事项	13-14

Product naming rules 产品命名规则

Under Development	●
Mass production	

HL-C 2016 K9 W 3 C B (Ra1) -FC-CZ
1 2 3 4 5 6 7 8 9 10 11

- 1：鸿利光电代码
- 2：产品系列代码
- 3：尺寸代码
- 4：芯片代码
- 5：表示发光颜色为白光
- 6：表示建议使用的瓦数
- 7：模具代码
- 8：基板材质代码
- 9：显色指数Ra70
- 10：倒装工艺
- 11: 车载使用



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

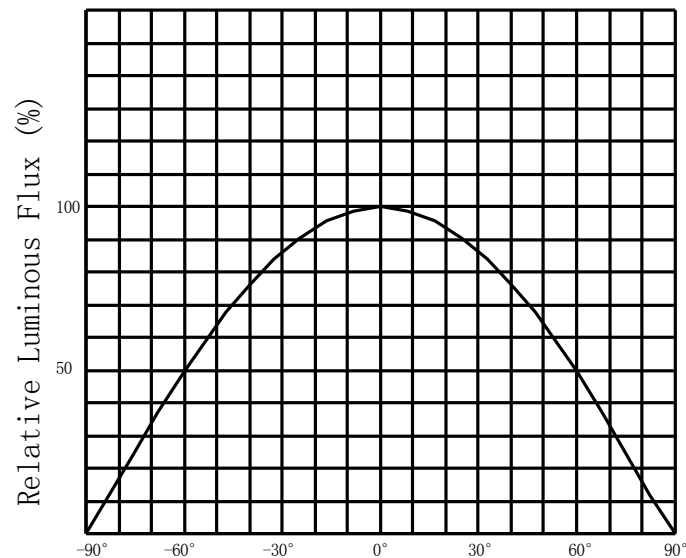
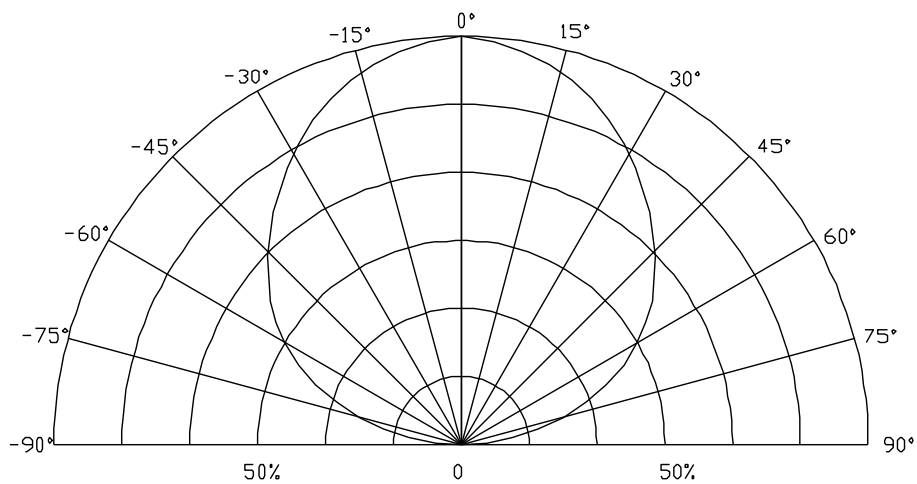
Features 特点

- Long operating life 寿命长
- High flux 光通量高
- Low voltage DC operated 低电压直流工作
- Cool beam, safe to the touch 冷光源，接触安全
- Instant light (less than 100ns) 瞬间点亮（小于100ns）
- No UV 无紫外线
- Flip Chip Technology 倒装芯片工艺
- RoHS compliant 符合RoHS标准
- Thermoelectric separation 热电分离
- Car use 车载使用

Application range 应用范围

- CARLIGHT 车前大灯

Radiation Pattern 辐射模式



Specifications规范

(1) Absolute Maximum Ratings at Ta=25°C

在25°C时绝对极限条件

Parameter参数	Symbol符号	Rating 值	Units单位
Input power 输入功率	Pi	5	W
Forward Current 正向电流	I _F	1500	mA
Reverse Current反向电流	I _R	10	uA
Junction Temperature结温	T _j	135	°C
View Angle (FWHM)- White 发光角度	—	132	degrees
Operating Temperature Range工作温度	Topr	-35°C To +100°C	
Storage Temperature Range储藏温度	Tstg	-40°C To +100°C	

Notes注:

1.* All high power emitter LED products mounted on aluminum metal-core printed circuit board, can be lighted directly, but we do not recommend lighting the high power products for more than 5 seconds without a appropriate heat dissipation equipment.

所有高功率的发光LED产品安装在铝金属为核心印刷电路板，可直接点亮，但我们不建议在没有一个适当的散热设备时，照明高功率LED点亮超过5秒，

2.Reflow soldering should not be done more than two times.The reflow temperature we recommend is 260°C,When the temperature exceeds 260 °C, the product failure of LED can be caused

回流焊不能超过两次,回流焊最高温度建议260°C，当温度超过260°C极大可能引起LED产品失效.

(2) Optical Characteristics at Ta=25°C

在Ta=25°C 时的典型光学特性

Tc (K)			1000mA光通量		显色指数 (Ra)
Center Tc	Min	Max	Min (lm)	Typ (lm)	
5630	5310	6020	300	330	70
6020	5665	6530	300	330	
6530	6020	7040	290	320	
7020	6530	7560	280	320	
7560	7040	8210	280	310	

Notes 注意事项:

*1.the products after this specification refer to the parameters prevail, before the release of specification without refer to the above parameters.

此规格书发布日后生产的产品以上述参数为准，发布前生产的库存品不参考上述参数。

2.Tolerance of measurement of forward voltage $\pm 3\%$ 、Color-rendering index ± 2 、luminous flux $\pm 5\%$

不同标准源测试存在仪器公差：正向电压公差为 $\pm 3\%$ 、显指公差为 ± 2 、光通量公差为 $\pm 5\%$ 。

3. The parameters at IF=1000 mA are just for reference, Do not order the request parameters.

IF=1000mA时的参数仅供参考,不能做为下订单时的参数要求。

(3) Optical Electrical /Thermal Characteristics at Ta=25°

在Ta=25°C 时典型的电学/热学特性

IF (mA)	VF (V)			R (j-s) (°C/W)	Po (W)
	min	typ	max		
1000	2.8	3.2	3.6	5.0	3.30
1500	3.0	3.4	3.8	5.0	5.0

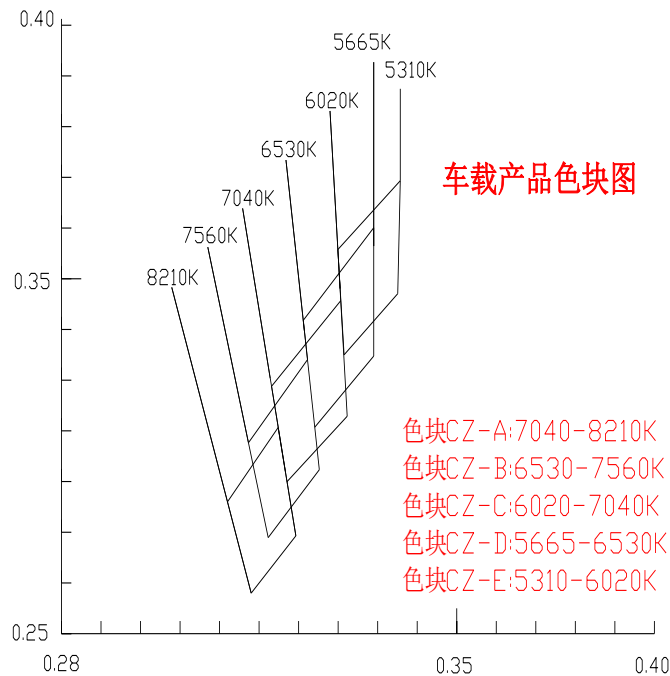


Product bins 产品分级

(1) Forward Voltage bins 电压分级

Min (V)	Max (V)	Min (V)	Max (V)
2.8	3.0	3.4	3.6
3.0	3.2		
3.2	3.4		

(2) Chromaticity bins 色温分级



色块	CZ-A		CZ-B		CZ-C		CZ-D		CZ-D	
色温范围	7040-8210K		6530-7560		6020-7040		5665-6530		5310-6020	
中心色温	7560K		7020K		6530K		6020		6020	
坐标	X	Y	X	Y	X	Y	X	Y	X	Y
	0.2918	0.3062	0.2972	0.3177	0.303	0.3289	0.3114	0.3419	0.3197	0.3559
	0.2978	0.2881	0.3022	0.299	0.3069	0.3099	0.3144	0.3207	0.3215	0.3351
	0.3093	0.2993	0.3152	0.3124	0.3223	0.3229	0.3289	0.3348	0.3350	0.3469
	0.3049	0.3203	0.3122	0.334	0.3207	0.3457	0.3292	0.3601	0.3356	0.3692

Notes 注:

*1. Products are tested and binned at a transient forward current (IF) with 1000mA. With the use of different IF, it may probably cause differences in CCT & forward voltage. Generally, with the increase of IF, the CCT will be raised as well.

该产品通过瞬态1000mA 点亮，分光分色。若使用不同电流，可能会引起色温及电压的变化，一般情况下，使用电流增加，色温会上升。

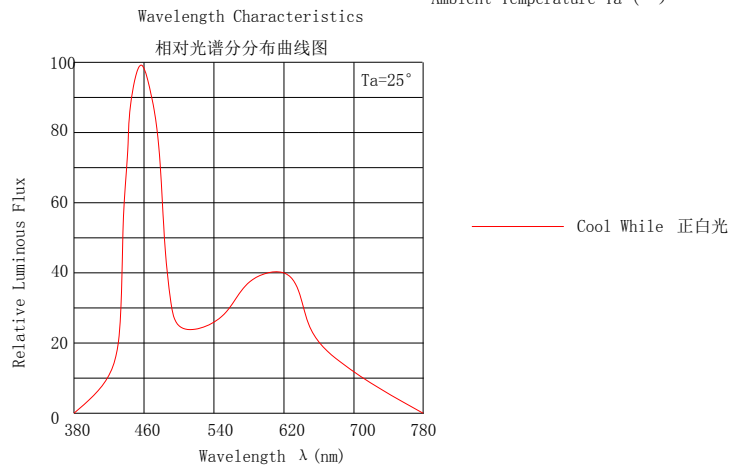
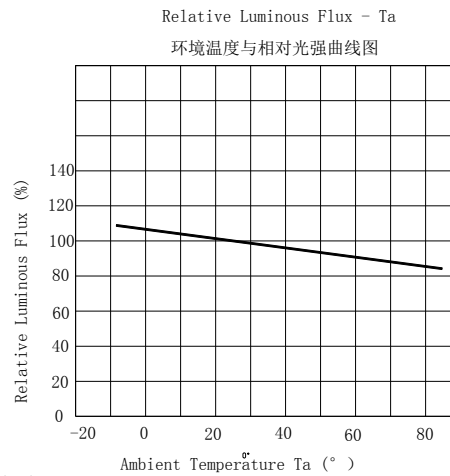
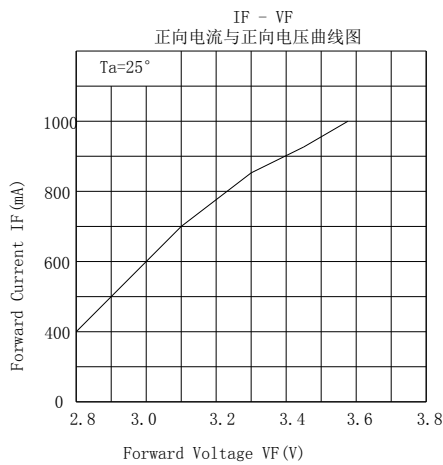
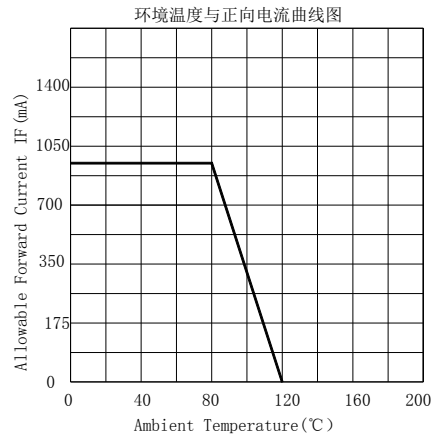
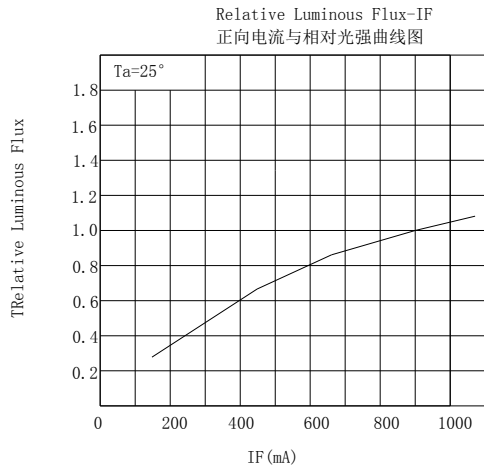
2. Tolerance of ± 0.005 on x,y coordinates.

色坐标的测量误差允许在 ± 0.005

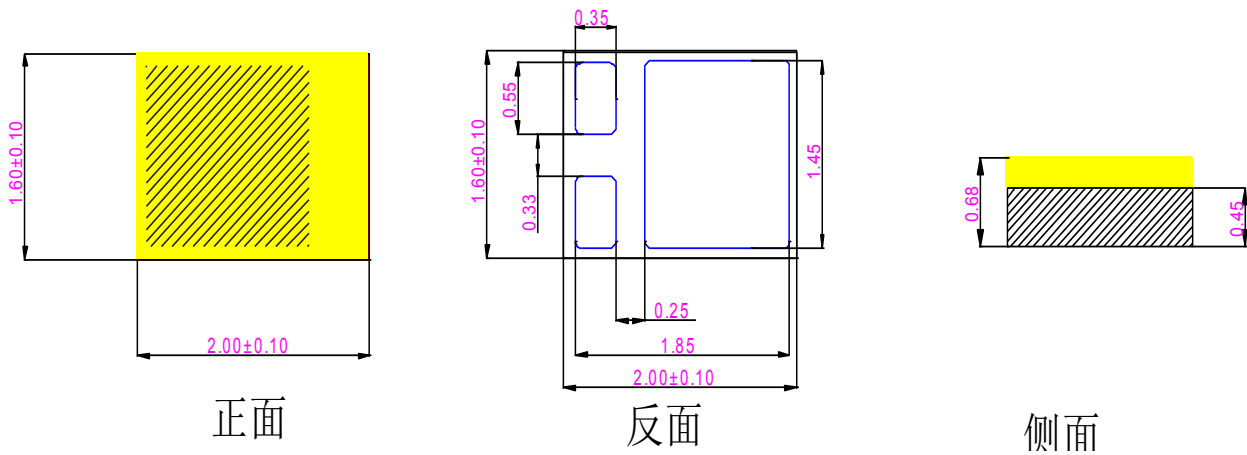


Typical Optical/Electrical Characteristics Curves ($T_a=25^\circ\text{C}$ Unless Otherwise Noted)

典型光学/电性特征曲线 ($T_a=25^\circ\text{C}$ 除非另有注释)



Package Dimensions 封装尺寸



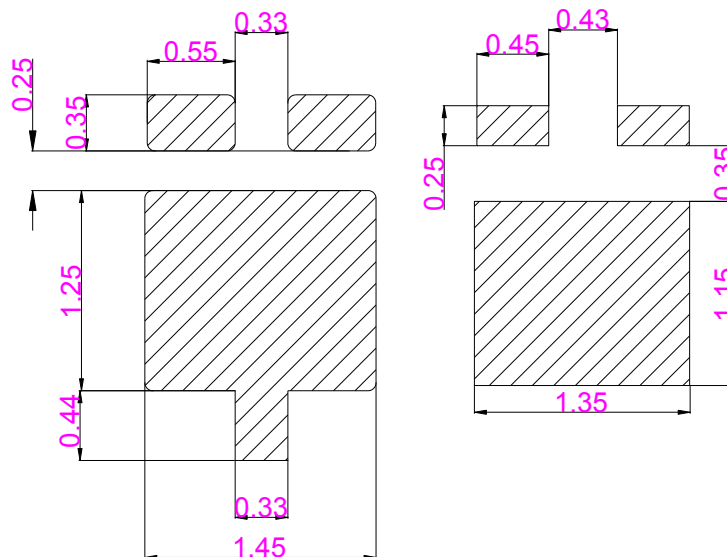
Notes 注:

1. All dimension units are millimeters.
所有尺寸单位均为毫米.
2. All dimension tolerance is $\pm 0.1\text{mm}$ unless otherwise noted.
所有尺寸误差是 ± 0.1 毫米除非另有说明

Welded plate and steel mesh Dimensions 焊盘及钢网尺寸

建议使用的基板焊盘尺寸

建议使用的钢网焊盘尺寸



Notes 注:

When the circuit configuration is not affected, suggested the increase in the middle of the copper area, or the connection between the middle and the pad and the negative electrode can improve the cooling performance of the product.

在不影响电路配置时，建议增加中间焊盘覆铜区域，或中间焊盘和负极焊盘连接，能提高产品散热性能。建议使用热电分离的铜基板作为散热基板。

Label 标签

TYPE: XXXXXXXXX

产品型号

QTY: XXXXX

包装数量

VF: Forward voltage rank

正向电压档次范围

ΦV: Luminous Flux rank

光通量档次范围

IF: XXXX

分选电流

TC: Color temperature


色温

DATE: XXXX

生产日期

LOT.NO: Lot Number

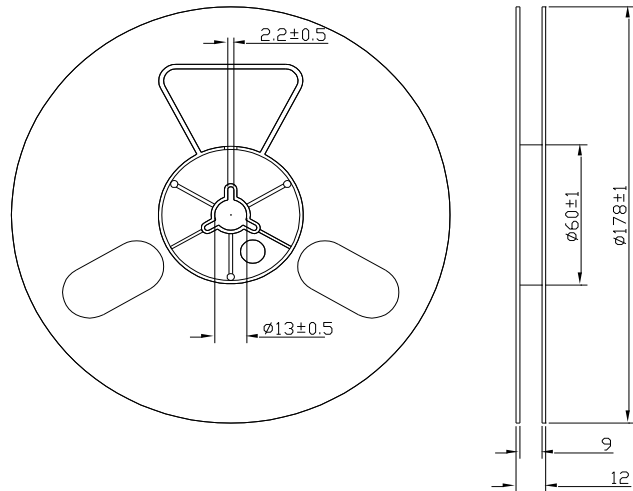
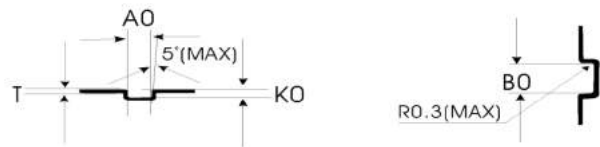
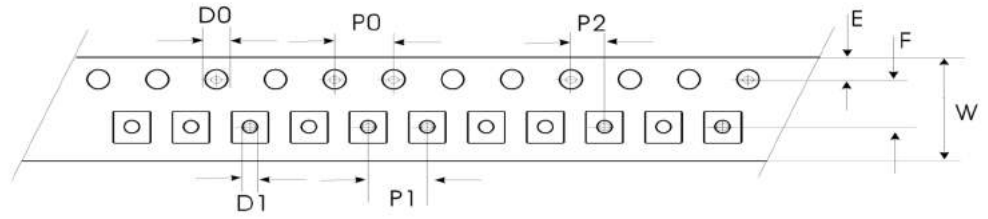
生产批号

	HONGLITRONIC 鸿利光电	
TYPE: xxxxxxxx		QTY: xxxxx
VF: xx-xxV		ΦV: xx-xxLM
IF: xxxmA		TC: xx-xxK
DATE: xxxx-xx-xx		LOT.NO: xxxxx

Tape Specifications(Units:mm)包装规格

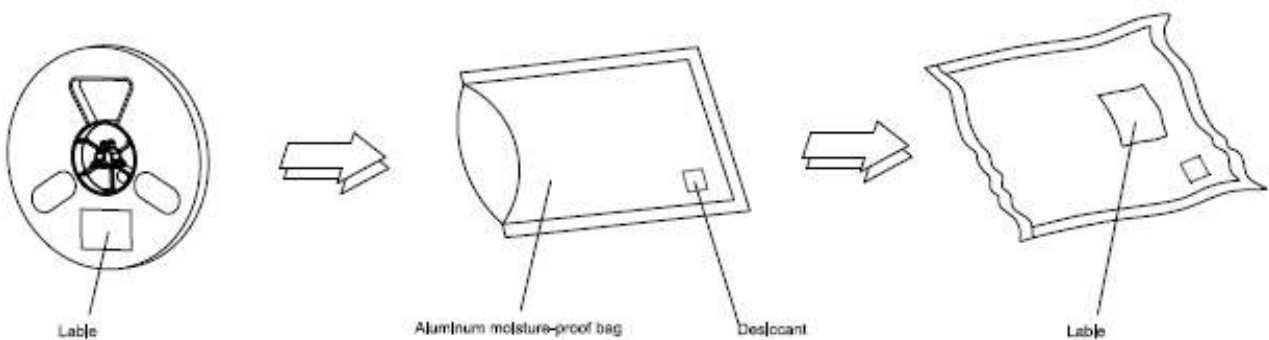
(1)Reel package (3000 pcs/reel) 卷轴包装 (3000 pcs/卷)

AO	1.85± 0.1
BO	2.35± 0.1
KO	0.80± 0.1
PO	4.00± 0.1
P1	4.00± 0.1
P2	2.00± 0.05
T	0.25± 0.05
E	1.75± 0.1
F	3.50± 0.05
DO	1.55± 0.05
D1	1.0(MIN)
W	8.00± 0.1
10PO	40.00± 0.2



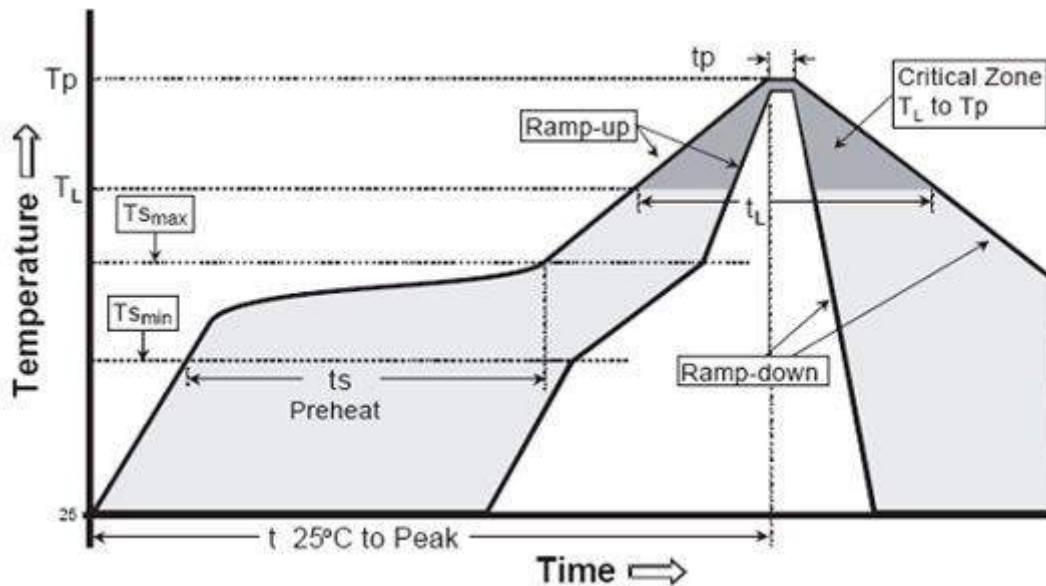
Reel Dimensions
卷轴尺寸

(2)Moisture resistant packaging 防潮包装





Reflow soldering instructions 回流焊说明



Profile Feature	Lead-Based solder	Lead-Free Solder
Average Ramp-Rate (T_{smax} to T_p)	3°C/second max	3°C/second max
Preheat: Temperature Min (T_{smin})	100°C	150°C
Preheat: Temperature Max (T_{smax})	150°C	200°C
Preheat: Time (t_{smin} to t_{smax})	60-120 seconds	60-180 seconds
Time Maintained Above: Temperature (T_L)	183°C	217°C
Time Maintained Above: Time (t_L)	60-150 seconds	60-150 seconds
Peak/Classification Temperature (T_p)	215°C	260°C
Time Within 5°C of Actual Peak Temperature (t_p)	10-15 seconds	20-40 seconds
Ramp-Down Rate	6°C/second max	6°C/second max
Time 25°C to Peak Temperature	6 minutes max	8 minutes max

Note:

1. recommend to use a convection type reflow machine with 8 zones.
建议使用八温区回流焊机。
2. recommend to use Lead-Free Paste with a melting point between 170°C-180°C.
建议使用熔点为210°C-220°C的无铅锡膏。
3. the reflow soldering time should not be more than 400s.
总的回流焊时间不要超过400s。
4. all temperature means the temperature measured on the surface of the package body.
所有温度均指在封装本体表面上测得的温度。
5. When using hot plate, the temperature is no more than 220 °C, the time is not more than 60 seconds.
当使用热板作业时，温度不超过260°C，时间不超过10秒。

Use the matters needing attention(使用注意事项)

一、储存(storage)：

为避免受潮的影响，我司建议产品在未开包装前储存条件为 5-30°C，相对湿度小于 60%；已开包装的 LED 光源请在 24H 内使用安装完毕，如未用完之产品，请进行除湿并抽真空后密封保存。开封超过一周或湿度卡发生变化时，请务必进行除湿，除湿条件：60°C±5°C，12H；

产品密封保存有效使用期为一年。

To avoid moisture, we recommend storage conditions for the unopened LED +5 ~ +30 °C, relative humidity <60%. LED should be used within 168 Hrs. of opening the package. Please make sure to dehumidify and vacuum pack the remaining/ unused LED. Dehumidifying condition: +120 ° C ± 5 ° C, 04 Hrs. Effective age for the sealed led is one year.

二、组装注意事项(the assembly notes)：

焊接条件：此产品必须使用回流焊接的作业方式,回流曲线最高温度不可超过 260°C.作业或存放过程中不可有 1000g 以上的外力或尖锐物体作用于灯珠表面（如压力，摩擦等外力以及钳子镊子等工具），以免造成元件损伤；

如果超出此使用条件，鸿利光电将不能保证产品的稳定性，如需使用超出的操作条件，请务必进行风险评估。

Soldering Conditions：This product must be used reflow soldering practices, the maximum temperature of reflow should not exceed 220°C.Please make sure when soldering, there is no external force on the soldering surface (such as pressure, friction or sharp metal nails, etc.), to avoid gold wire deformation or damage and other abnormalities.

If beyond recommended conditions, we cannot guarantee the LED stability, please do the risk assessment first.

三、防静电措施(anti-Static Measures)：

请采取足够的措施来防止静电产生，比如带静电环或防静电手指套等；每个制造工程关于产品（工厂、设备、机器、载波机和运输单位）应当连接地面，避免产品电气带电。

Please take adequate measures to prevent electrostatic generation, such as wearing electrostatic ring or anti-static fingerstall etc; any relative products like plant equipment, machinery, carrier and transportation units shall be connected to discharging unit/ ground. After assembly, please make sure to discharge Static Electricity with proper ESD equipment.

四、温度控制(temperature Control)：

为确保在组装时降低接触热阻，请注意在组装过程中，散热片采用良好品质的导热膏涂布均匀且分布面积合理，不可出现太少或高低不平等现象。散热介质需保证电介质耐压测试至少通过500V。

During assembly, please ensure that a good quality thermal paste is applied and distributed evenly over the surface. While using thermal pad (Heat Sink), make sure LED is firmly tightened and there is no gap between surfaces. The need to ensure the cooling medium dielectric withstand test at least through 500V.

五、驱动控制(drive control)：

本产品需使用恒流源进行驱动，且输出电流符合规格书上的功率使用范围，如需使用恒压源或其他使用条件，请进行使用效果风险评估。

Drive this product at constant current. Output current range specifications should be according to the operational and other conditions, as mentioned in data sheet. Before using a constant voltage source or altered specifications, other than recommended, please consider risk factors.

六、其他(other)：

本产品不可在以下条件下使用，如果产品在以下条件下使用，评估其使用效果和风险是有必要的：

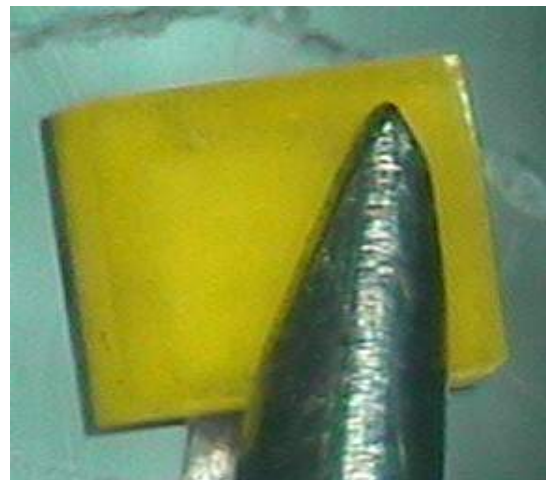
- 直接或间接的打湿或受潮，比如淋雨等；
- 被海水损害或侵蚀；
- 被暴露于腐蚀性气体(如 Cl₂, H₂S、NH₃、SO_x、NO_x等)；
- 被暴露于粉尘、液体或油；

Product is not suitable to use in following conditions;

- Direct or indirect wet / damp conditions, such as rain, etc;
- in contact with sea water and erosive materials;
- Exposed to corrosive gases (e.g., Cl₂, H₂S, NH₃, SO_x, NO_x, etc.);
- Exposed to dust, liquids or oils;



OK



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