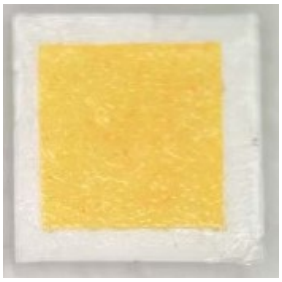
ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES



Product naming rules 产品命名规则

HL-	CSP	1313	A1	W	-	03	-	B	–	90
1	2	3	4	5		6		7		8

1：HL code 鸿利智汇代码
2：Product series code 产品系列代码CSP
3：Product size 尺寸代码
4：Chip code 芯片代码
5：Emitting light colors 发光颜色 W-白光
6：Product thiceness rang 产品厚度
03:0.3-0.4mm
7：CSP structure 封装结构(B:单面发光--side lighting)
8：CRI 显色指数 90:＞90

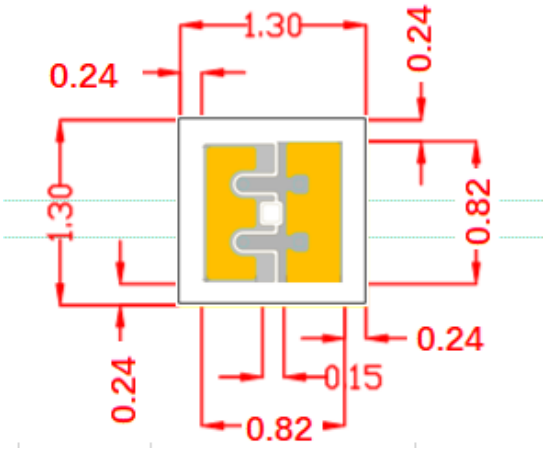
Applications 应用

- General lighting 通用照明
- Portable lightings /(flash lightings, bicycle) 便携式照明应用
- TV backlight 电视背光
- Other lighting 其他照明

Features 特点

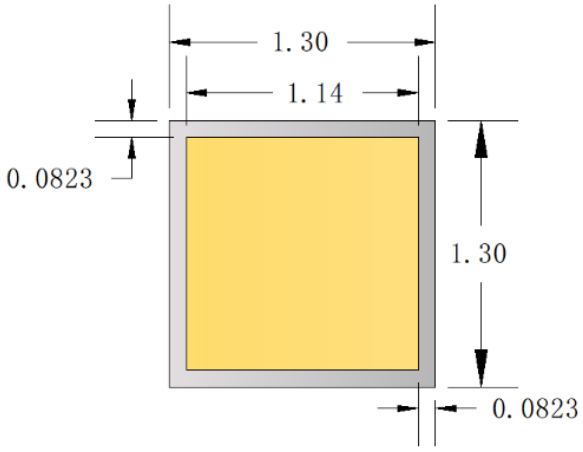
- Chip Scale Package-small and thin package 芯片级封装-尺寸小而薄
- Flip chip technology 倒装芯片工艺
- Package Dimensions 1.3*1.3*0.3mm 产品尺寸：1.3*1.3*0.3mm
- Low voltage DC operated 低电压直流工作
- Thermal performance is good 散热性能好
- Design for PCB assembly 适用于PCB贴装
- RoHS compliant 符合RoHS标准

Package Dimensions 产品尺寸



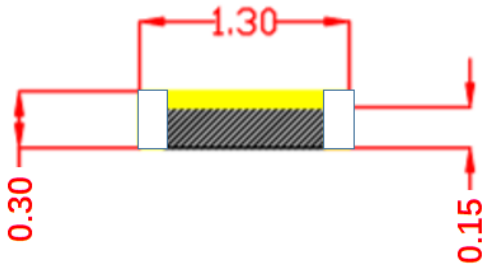
CSP Bottom View 背面图

单位：mm



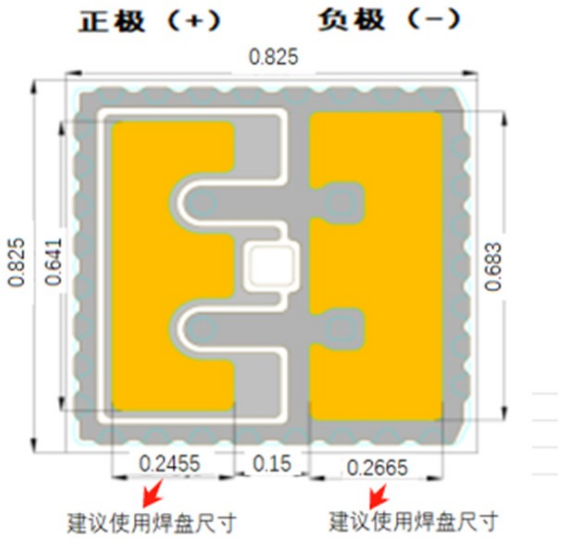
CSP Front View 正面图

单位：mm



CSP Side View 侧面图

单位：mm



Chip Bottom View And Recommended Pad Size

芯片底部示意图及建议使用焊盘尺寸

单位：mm

尺寸公差为±0.05mm

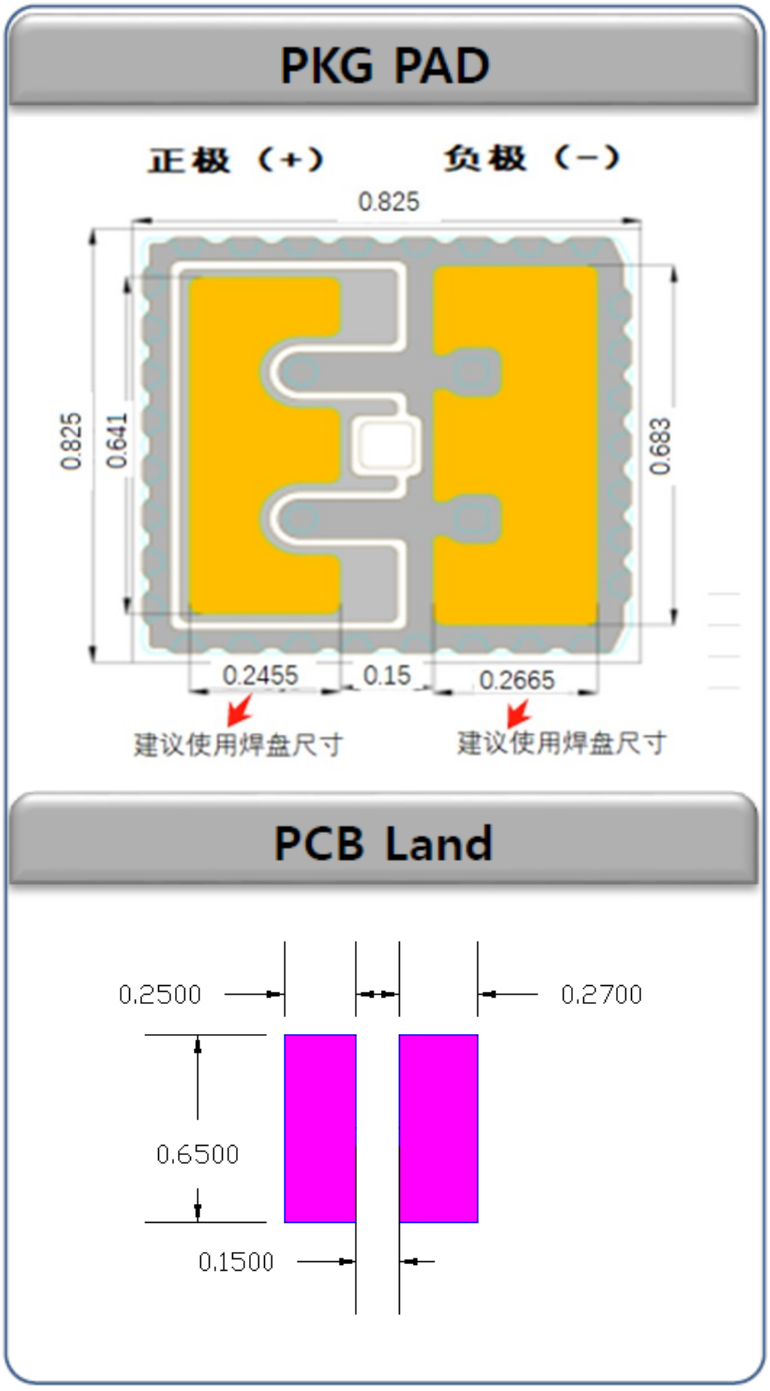
Notes:

All dimension units are millimeters.

所有尺寸单位为毫米。

All dimension tolerance is ±0.1mm unless otherwise noted.尺寸公差为±0.1mm，除非另有说明

PCB Soldering pad dimension推荐焊盘尺寸:



单位：mm

Specifications规范

（1）Absolute Maximum Ratings at TA=25°C 在Ta=25°C时绝对最大额定

Parameter 参数	Symbol符号	Rating 值	Units单位
DC Forward Current 正向直流电流	I_F	700	mA
Peak Forward Current 峰值正向电流	I_{FP}	700	mA
Power dissipatlon(at room temperature)室温下的功率耗散	PDL	2.0	W
Reverse Voltage反向电压	V_R	5	V
Operating Temperature Range工作温度	Top	-40°C To +85°C	
Storage Temperature Range储藏温度	TSgt	-40°C To +100°C	
Soldering Temperature焊接温度	TSOL	Reflow Soldering :260°c /10s Hand Soldering : 300°C /3s	
Thermal Resistance（Junction / Soldering point)热阻	Rth	21	℃/W
Junction Temperature结温	Tj	150	℃

（2）Optical Characteristics at IF=350mA, Ta=25℃ 在IF=350mA, Ta=25℃时的典型光学特性

Item	Symbol	Min.	Typ.	Max.	Condition	Unit
Luminous Intensity	Im	88	95	102	IF=350mA	Lm
Color Coordinate	CIE	Color Coordinate			IF=350mA	X/Y
Forward Voltage	VF	2.8	2.9	3.1	IF=350mA	V
Correlated Color Temperature	CCT	/	5000	/	IF=350mA	K
Viewing angle	Deg	/	110	/	IF=350mA	°

Notes注:

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

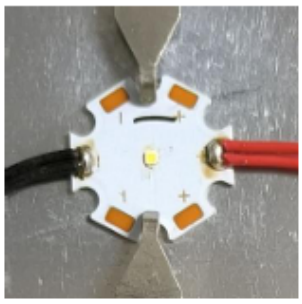
此规格书发布日后生产的产品以上述参数为准，发布前生产的库存品不参考上述参数。

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

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

（3）热阻测试图片机及数据

图片：



驱动方式 ：

恒 流 驱 动 ： 电 流 ： 350mA； 电 压 ： /。

测试结果 ：

编号	IF(mA)	VF (V)	电压温度系数(mV/℃)	$R_{th}-j_c$ (℃/W)
1	350	2.89	-1.034	16.85
2	350	2.90	-1.058	15.81

（4）Optical Characteristics at IF=350mA, Ta=25℃
在IF=350mA, Ta=25℃ 时的典型光学特性

Product Bins 产品分档

Forward voltage	Bin	Min.(V)	Max.(V)	Luminous flux	Bin	Min.(Lm)	Typ.(Lm)	Max.(Lm)
VF	A1	2.8	2.9	Φ	DMS	88	95	102
	A2	2.9	3					
	A3	3	3.1					

Notes 注：

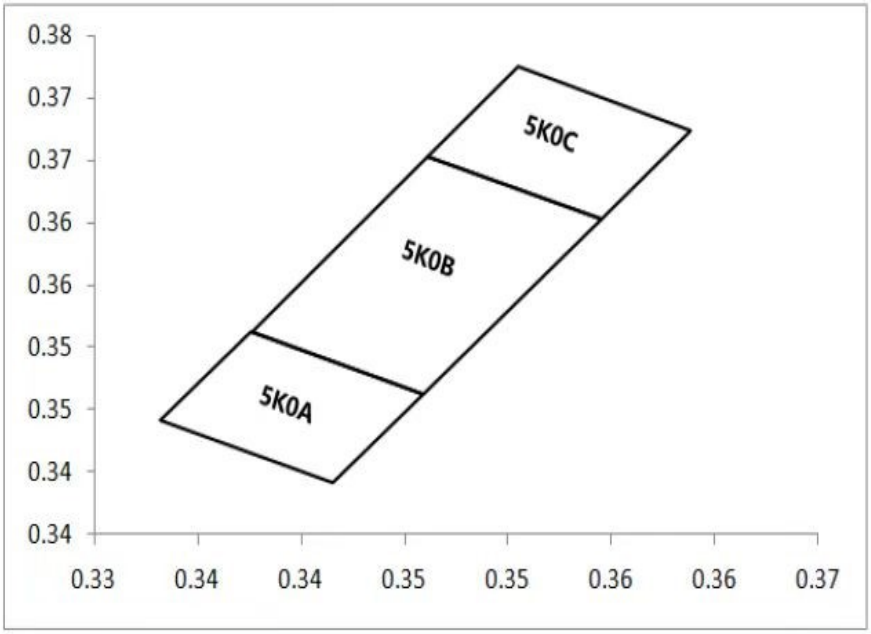
1.Products are tested and binned at a transient forward current(IF) with 350mA. With the use of different IF, it may probably cause differences in CCT & forward voltage. Generally, with the increase of IF, the CCT will be raised as well.

该产品通过瞬态350mA点亮，分光分色。若使用不同电流，可能会引起色温及电压变化,一般情况下，使用电流增加，色温会上升。

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

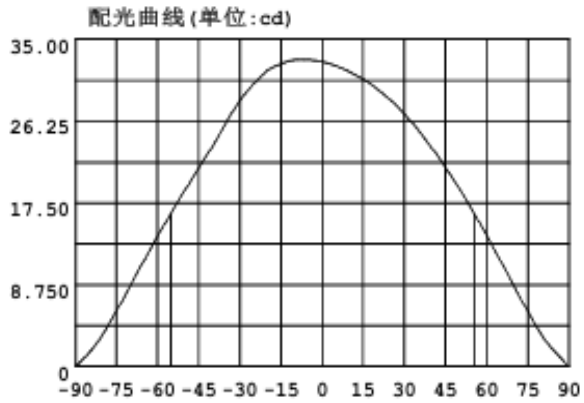
色坐标的测量误差允许在±0.005

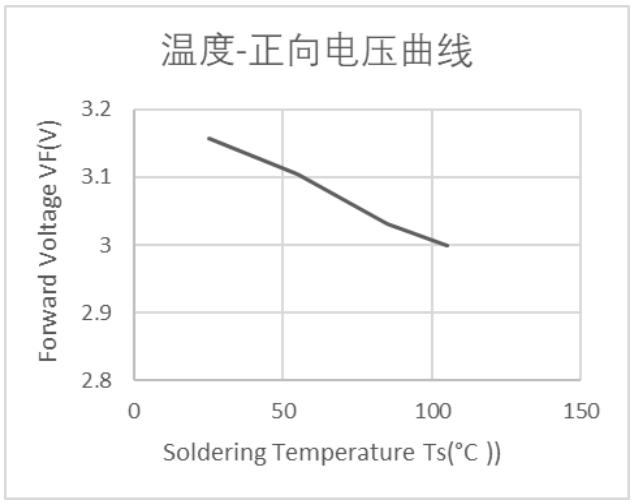
(5). Chromaticity Coordinate bins 色坐标分档

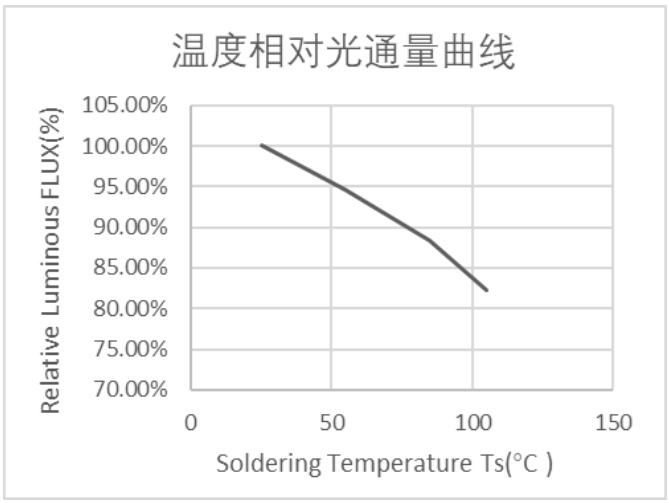


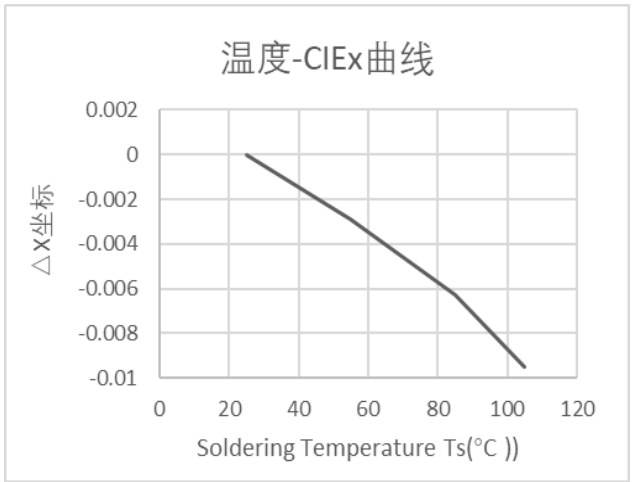
5K0A		5K0B		5K0C	
CIE x	CIE y	CIE x	CIE y	CIE x	CIE y
0.3332	0.3442	0.3376	0.3513	0.3461	0.3653
0.3415	0.3391	0.3459	0.3463	0.3545	0.3603
0.3459	0.3463	0.3545	0.3603	0.3588	0.3674
0.3376	0.3513	0.3461	0.3653	0.3505	0.3725

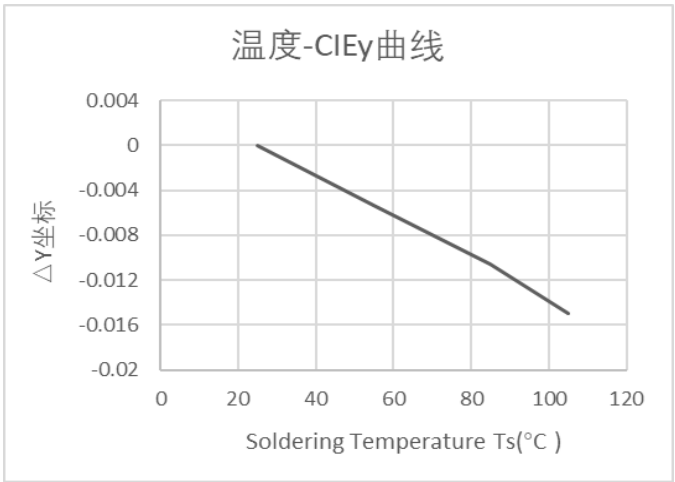
Typical Optical/Electrical Characteristics Curves典型光学/电性特征曲线 (IF=350mA Unless Otherwise Noted)（IF=350mA 除非另有注释）





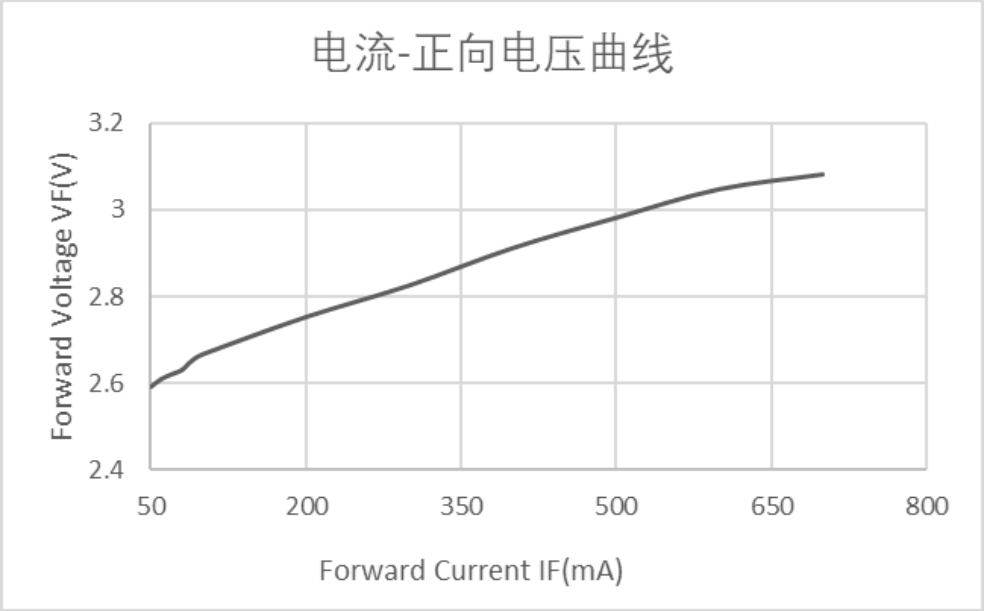


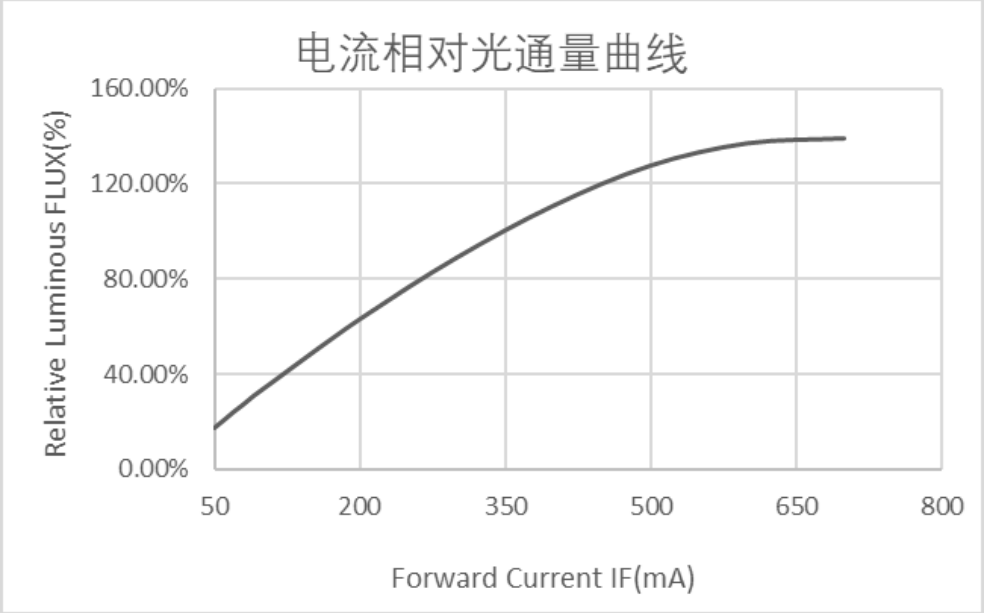




Typical Optical/Electrical Characteristics Curves典型光学/电性特征曲线

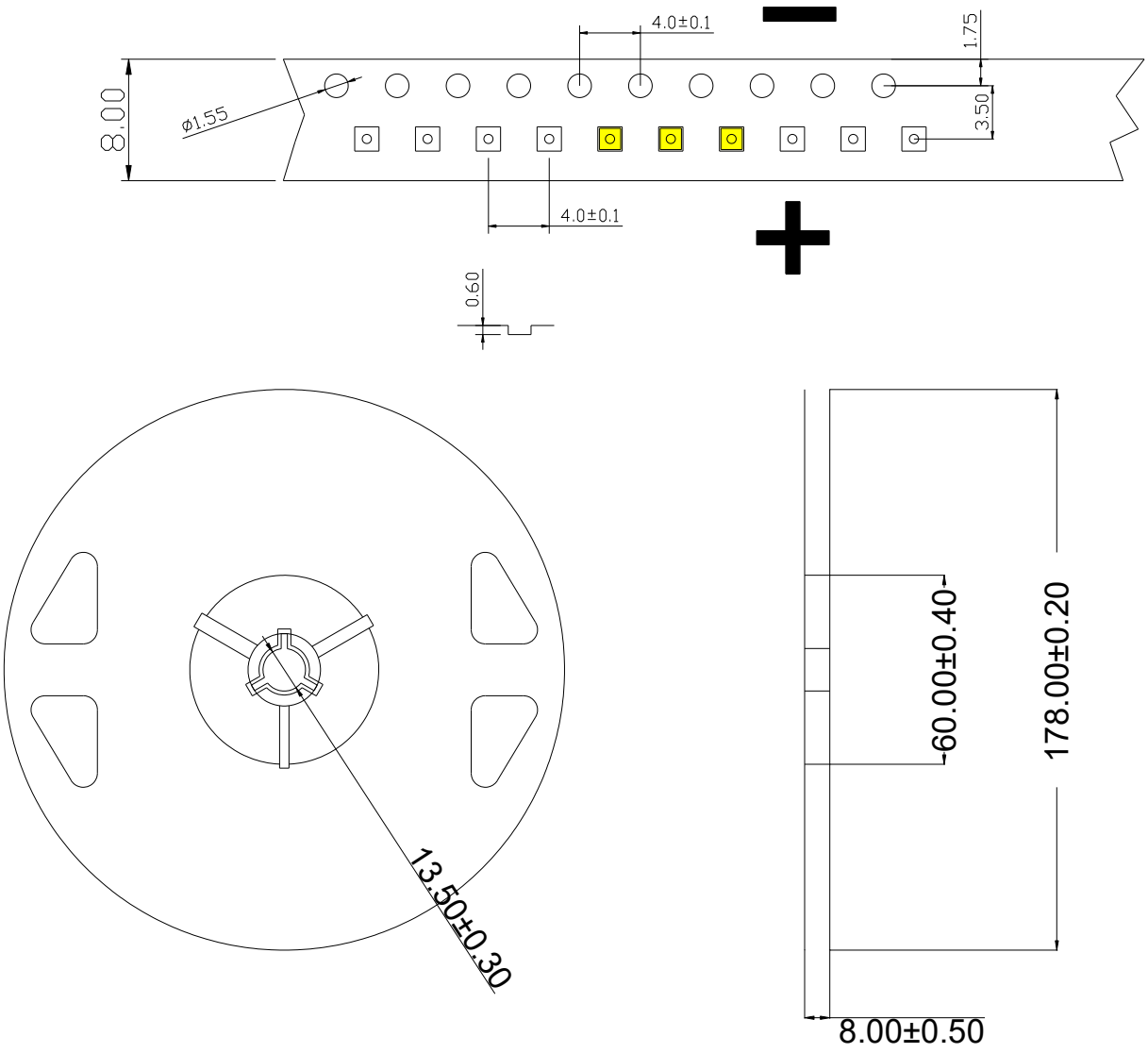
(T_s=25□ Unless Otherwise Noted)（T_s=25□ 除非另有注释）





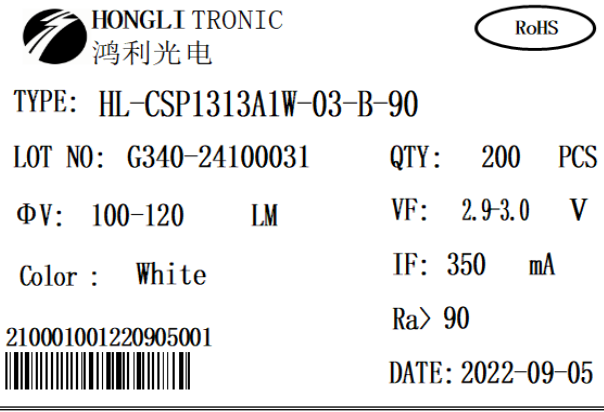
Tape Specifications(Units:mm)包装规格 （单位:mm）

Reel package（ 5000 pcs/reel） 卷轴包装（5000 pcs/卷）

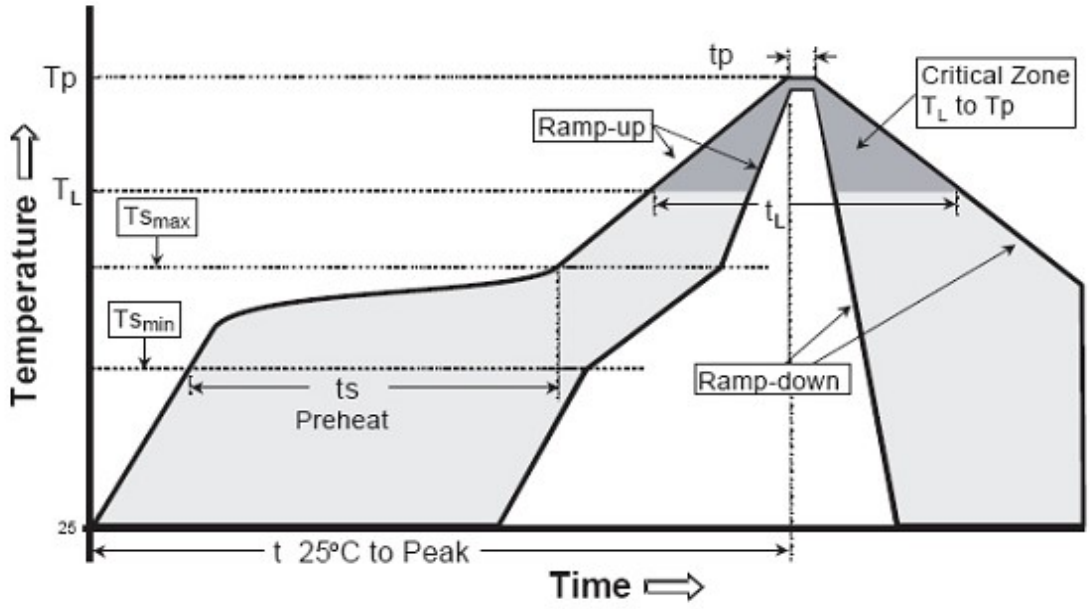


Label 标签

TYPE:Product naming 产品名称
QTY:quantity 包装数量
Bin:BIN code 档次代码
ϕV: Luminous Flux range 光通量档次范围
VF: Forward voltage range 正向电压档次范围
TC: Color temperature 色坐标
LOT.NO: Lot Number Lot 批号



Reflow Soldering Instructions 回流焊说明



Profile Feature	Lead-Based solder	Lead-Free Solder
Average Ramp-Rate (Ts_{max} to Tp)	3℃/second max	3℃/second max
Preheat: Temperature Min (Ts_{min})	100℃	150℃
Preheat:Temperature Max (Ts_{max})	150℃	200℃
Preheat:Time(ts_{min} to ts_{max})	60-120 seconds	60-180 seconds
Time Maintained Above: Temperature(T_L)	183℃	217℃
Time Maintained Above: Time(t_L)	60-150 seconds	60-150 seconds
Peak/Classification Temperature(Tp)	215℃	260℃
Time Within 5℃ of Actual Peak Temperature(tp)	10-15 seconds	20-40 seconds
Ramp-Down Rate	6℃/second max	6℃/second max
Time 25℃ 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，**参考运输速度90cm/min**。

2、recommend to use Lead-Free Paste with a melting point between 210℃-220℃.For example M705 。
建议使用熔点为210℃-220℃的无铅锡膏，建议使用千住 M705锡膏。

3、the reflow soldering time should not be more than 400s.all temperature means the temperature measured on the surface of the package body
总的回流焊时间不要超过400s，所有温度均指在封装本体表面上测得的温度。。

4、When using hot plate, the temperature is no more than 220 ℃, the time is not more than 60 seconds.
当使用热板作业时，温度不超过260℃，时间不超过10秒。

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

1、storage(储存)：

1-1.To avoid moisture, we recommend storage conditions for the unopened LED is +5 ~ +30 °C, relative humidity <60%.

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%；

1-2.LED should be used within 24 Hrs. after opening the package. Not use the LED must seal preservation.

LED 光源应在打开包装后24H 内使用安装完毕，未使用完产品须密封保存.

Products using the environment after opening the package：temperature: +5 ~ +30 °C, relative humidity <60%.

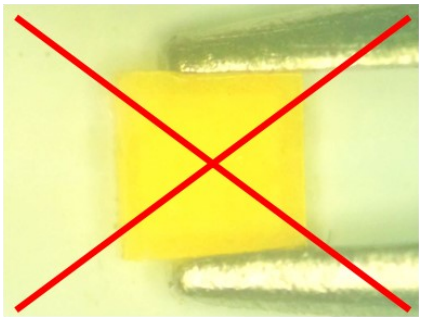
打开包装后产品使用环境：温度：5~30℃，湿度：小于30%

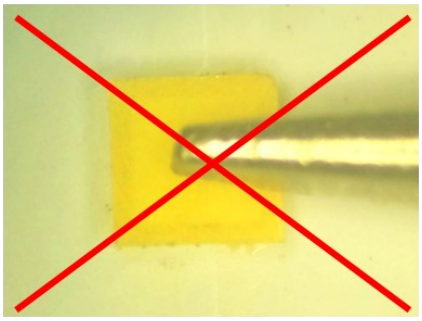
1-3.Effective age for the sealed led is one year.

产品密封保存有效使用期为一年。

2、 Don't use tweezers or sharp-edged tools to pick up the LED, Suggest that use rubber or silica gel suction nozzle to pick up,Also can use a vacuum.

不可使用镊子或锋利器具夹取材料，建议使用橡胶或硅胶吸取操作，也可使用真空。





3、Because the LED appearance special, easy to absorb dust particles,so the operating environment requirements of product is higher, must pay special attention to dustproof.

由于CSP产品外观特殊性，易吸附灰尘，因此对产品操作环境要求较高，须注意防尘处理。

4、 The LED recommend to used reflow soldering practices, and reflow soldering should not be done more than two times ,the maximum temperature of reflow should not exceed 260°C.

此产品建议使用回流焊接的作业方式, 回流焊不能超过两次,回流曲线最高温度不可超过 260°

5、In the process of reflow soldering, there is no external force or excess vibration factors ,avoid bad welding.

在回流焊接过程中,不可有外力或剧烈震动以免焊接不良;

6、 Make sure that mechanical stress on the surface should be minimized as much as possible to avoid damage and other abnormalities.

作用在产品表面力度尽可能最小化，以免造成元件损伤异常.

7、Please avoid rapid cooling after soldering.

请避免焊接后快速冷却.

8、Components should not be mounted on warped direction of PCB.

贴装组件的PCB不能翘曲.

9.、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.

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。

10、Please take adequate measures to prevent electrostatic generation, such as wearing electrostatic ring or anti-static fingerstall etc. Also include the relevant equipment should be grounded.

请采取适当措施来防止静电产生，比如带静电环或防静电手指套等，同时相关设备也要做好接地处理。

11、 Drive this product at constant current. Output current range specifications should be according to the operational and other conditions, as mentioned in data sheet.

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

12、This device should not be used in any type of fluid such as water, oil, organic solvent and etc.

本产品不适用于任何类型的流体环境,比如水,石油、有机溶剂等。

修订次数	修订人	修订内容	修订日期	版次
1	周文秀	新制定	2024.10.28	A/0
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				