



产品规格承认书

Product Specification

产品名称/Product Name: LAMP ϕ 5 mm 产品

文件编号/Document Number: PDS-L0513A6-WC14A4A4IB3B6-AP00

版本号/Version Number: B1

页数/Page Number: 共 15 页

色容差/SDCM: /

机差/Tolerance: () 无机差 () 有机差:

产品应用/Product Application: 摄影灯

客户要求/Customer Requirement: 1. _____
2. _____ 3. _____

源磊 Runlite		客户 Customer	
制作 Prepared	李兵	工程 Engineering	客户代码:
审核 Checked	Fealty zhu	品质 Quality	
批准 Approved		批准 Approved	

注: 此页和最后一页也为签核部分, 请全部签核并盖章后回传到我司, 谢谢。

5 mm Visible LED

L0513A6-WC14A4A4IB3B6-AP00



Features 特性

- Low Power Consumption/低功耗
- High reliability/高可靠性
- The product itself will remain within RoHS compliant version. /符合 RoHS

Description /描述

The Runlite' s visible LED (L0513A6-WC14A4A4IB3B6-AP00) is a high efficacy and low power consumption diode,which molded in a clean white plastic package. The device is goes for lighting and other applications.

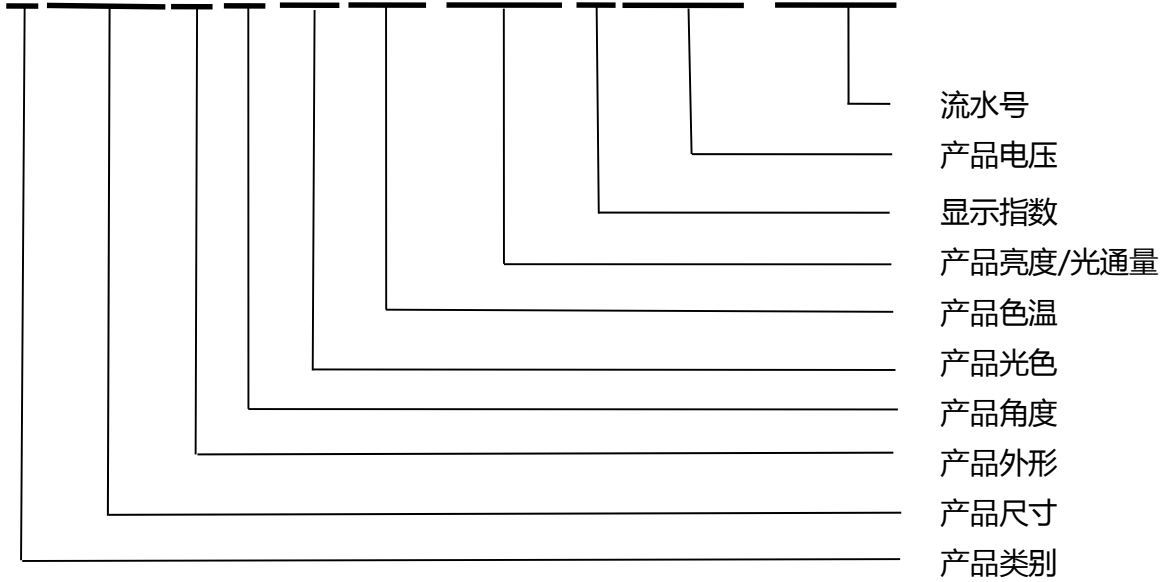
源磊可见光 LED (L0513A6-WC14A4A4IB3B6-AP00) 是一款具有高光效、低功耗、使用透明封装的二极管。该款器件适用于照明等其应用。

Applications 应用

- General lighting 普通照明
- Decorative Lighting 装饰照明
- Indicators 指示
- Illumination 灯彩装饰
- Switch lights 开光灯光

Product Number Explanation /产品编码解说

L XXXX X X-X XXX XXXX X XXXX - 0000



Absolute Maximum ratings ($T_{\text{Soldering}}=25^{\circ}\text{C}$) /极限参数 (温度=25°C)

Parameter / 参数	Symbol 符号	Rating 等级	Unit /单位
Forward Current /正向电流	I_F	30	mA
Peak Forward Current (Duty 1/10 @10ms)/峰值正向电流	I_{FP}	60	mA
Power Dissipation /功耗	P_d	100	mW
Operating Temperature /操作温度	T_{opr}	-40~+85	°C
Storage Temperature /存储温度	T_{stg}	-40~+100	°C
Thermal Resistance (Junction / Soldering point) /热阻	R_{ja}	110	°C/W
Junction Temperature /结点温度	T_j	180	°C
Soldering Temperature /过锡温度	T_{sol}	Max.260°C for 5 sec Max.(3mm from the base of the epoxy bulb) 最大 260°C 5 秒钟以内.(自胶体底部 3mm 以下)	

Note:

The products are sensitive to static electricity and must be carefully taken when handling products

本产品对温度敏感，请操作时注意

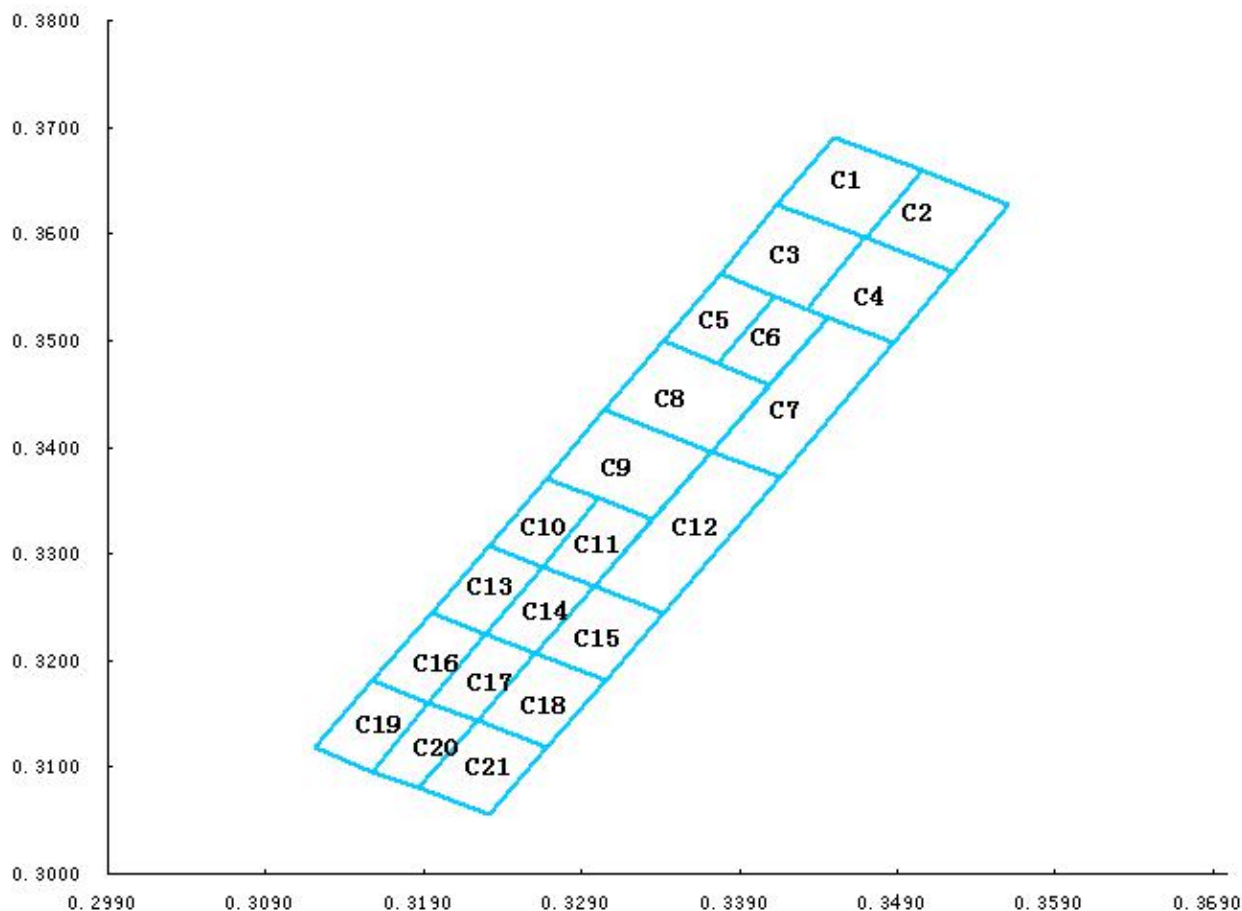
Electro-Optical Characteristics (T_{Soldering}=25°C) / 光电参数 (温度=25°C)

Parameter 参数	Symbol 符号	Min. 最小	Typ. 平均	Max. 最大	Unit 单位	Condition 条件
Forward Voltage 正向电压	V _F	2.8	-----	3.2	V	I _F =20mA
Luminous Intensity 亮度	I _v	-----	-----	-----	mcd	I _F =20mA
Luminous Flux 光通量	Φ	8.0	8.4	-----	lm	I _F =20mA
Color Temperature 色温	CCT	4700	-----	6400	K	I _F =20mA
Ra Index 显色指数	Ra	-----	95	-----	-	I _F =20mA
R9 Index R9 指数	R9	-----	90	-----	-	I _F =20mA
R15 Index R15 指数	R15	-----	90	-----	-	I _F =20mA
Television Lighting consistency Index 显示性评价标准	TLCI	-----	90	-----	-	I _F =20mA
Reverse Current 反向电流	I _R	-----	-----	10	uA	V _R =5V
Viewing Angle 发光角度	2θ _{1/2}	-----	60	-----	deg	I _F =20mA
Anti-static ability 抗静电	ESD 模式	HBM(人体模式)		2000V		

Notes:

1. Tolerance of Luminous Flux: ±11% ; 光通量±11%
2. Tolerance of Forward Voltage: ±0.1V ; 正向电压±0.1V
3. Tolerance of Ra Index: ±2 ; 显色指数 ±2
4. Tolerance of Viewing Angle : ±10 ; 全视角(2θ_{1/2}) ±10
5. Tolerance of Wavelength (X,Y) : ±0.007 ; 色坐标 (X,Y) ±0.007

Chromaticity coordinates bin chart \



VF Rank /电压等级 ($I_F=20mA, T_a=25^\circ C$)

Items 项目	Symbol 符号	Condition 条件	Rank 等级	Min 最小值	Typ 典型值	Max 最大值	Unit 单位
Forward Voltage 电压	VF	$I_F=20mA$	---	2.7	---	2.8	V
			---	2.8	---	2.9	V
			---	2.9	---	3.0	V
			---	3.0	---	3.1	V
			---	3.1	---	3.2	V
			---	3.2	---	3.3	V

Range of bins/分光等级

BIN CODE	X	Y	Parameter	
C1	0.3414	0.3627	Ra	92
	0.3450	0.3691	R9	80
	0.3506	0.3660	R15	90
	0.3471	0.3596	TLCI	90
BIN CODE	X	Y	Parameter	
C3	0.3378	0.3563	Ra	94
	0.3414	0.3627	R9	85
	0.3470	0.3596	R15	90
	0.3434	0.3532	TLCI	90
BIN CODE	X	Y	Parameter	
C5	0.3342	0.3499	Ra	94
	0.3378	0.3563	R9	85
	0.3412	0.3542	R15	90
	0.3376	0.3478	TLCI	90
BIN CODE	X	Y	Parameter	
C7	0.3372	0.3396	Ra	95
	0.3446	0.3522	R9	90
	0.3487	0.3498	R15	90
	0.3415	0.3373	TLCI	90
BIN CODE	X	Y	Parameter	
C9	0.3268	0.3371	Ra	95
	0.3305	0.3435	R9	90
	0.3372	0.3396	R15	90
	0.3335	0.3333	TLCI	90
BIN CODE	X	Y	Parameter	
C11	0.3265	0.3288	Ra	95
	0.3301	0.3352	R9	85
	0.3335	0.3333	R15	90
	0.3298	0.3270	TLCI	90

BIN CODE	X	Y	Parameter	
C2	0.3471	0.3596	Ra	93
	0.3506	0.3660	R9	85
	0.3561	0.3628	R15	90
	0.3525	0.3564	TLCI	90
BIN CODE	X	Y	Parameter	
C4	0.3434	0.3532	Ra	94
	0.3470	0.3596	R9	90
	0.3525	0.3564	R15	90
	0.3487	0.3498	TLCI	90
BIN CODE	X	Y	Parameter	
C6	0.3376	0.3478	Ra	95
	0.3412	0.3542	R9	90
	0.3446	0.3522	R15	90
	0.3409	0.3459	TLCI	90
BIN CODE	X	Y	Parameter	
C8	0.3305	0.3435	Ra	95
	0.3342	0.3499	R9	90
	0.3409	0.3459	R15	90
	0.3372	0.3396	TLCI	90
BIN CODE	X	Y	Parameter	
C10	0.3232	0.3307	Ra	95
	0.3268	0.3371	R9	90
	0.3301	0.3352	R15	90
	0.3265	0.3288	TLCI	90
BIN CODE	X	Y	Parameter	
C12	0.3298	0.3270	Ra	95
	0.3372	0.3396	R9	85
	0.3415	0.3373	R15	90
	0.3342	0.3245	TLCI	90

BIN CODE	X	Y	Parameter	
C13	0.3195	0.3244	Ra	95
	0.3232	0.3307	R9	90
	0.3265	0.3288	R15	90
	0.3229	0.3224	TLCI	85

BIN CODE	X	Y	Parameter	
C15	0.3261	0.3207	Ra	93
	0.3298	0.3270	R9	70
	0.3342	0.3245	R15	85
	0.3305	0.3182	TLCI	85

BIN CODE	X	Y	Parameter	
C17	0.3193	0.3160	Ra	93
	0.3229	0.3224	R9	70
	0.3261	0.3207	R15	85
	0.3224	0.3144	TLCI	85

BIN CODE	X	Y	Parameter	
C19	0.3121	0.3118	Ra	93
	0.3158	0.3181	R9	70
	0.3193	0.3160	R15	85
	0.3157	0.3096	TLCI	85

BIN CODE	X	Y	Parameter	
C21	0.3187	0.3081	Ra	90
	0.3224	0.3144	R9	60
	0.3268	0.3119	R15	80
	0.3231	0.3056	TLCI	85

BIN CODE	X	Y	Parameter	
C14	0.3229	0.3224	Ra	95
	0.3265	0.3288	R9	80
	0.3298	0.3270	R15	90
	0.3261	0.3207	TLCI	85

BIN CODE	X	Y	Parameter	
C16	0.3158	0.3181	Ra	94
	0.3195	0.3244	R9	80
	0.3229	0.3224	R15	90
	0.3193	0.3160	TLCI	85

BIN CODE	X	Y	Parameter	
C18	0.3224	0.3144	Ra	92
	0.3261	0.3207	R9	65
	0.3305	0.3182	R15	85
	0.3268	0.3119	TLCI	85

BIN CODE	X	Y	Parameter	
C20	0.3157	0.3096	Ra	92
	0.3193	0.3160	R9	65
	0.3224	0.3144	R15	85
	0.3187	0.3081	TLCI	85

Recommended soldering conditions / 推荐焊接条件

焊接模式 Mode		Fixed form 固定形式
Hand Soldering 手工焊接	Temperature at tip of iron 电烙铁温度	300°C Max. (30W Max.) 最高温度 300°C (功率不超过 30 瓦)
	Soldering time 焊接时间	3 sec Max. 时间不超过 3 秒
	Distance 焊接位置	3mm Min. (From solder joint to case) 大于 3 毫米 (从焊点到胶体)
DIP Soldering 锡炉焊接	Preheat temperature 预热温度	100°C Max. (60 sec Max.) 最高温度 100°C (不超过 60 秒)
	Soldering temperature 浸焊温度	260°C Max 最高 260°C
	Soldering time 浸焊时间	3 sec Max. 不超过 3 秒
	Distance 浸焊位置	2mm Min 大于 2 毫米
Wave Soldering 波峰焊接	Preheat temperature 预热温度	100°C Max. (60 sec Max.) 最高温度 100°C (不超过 60 秒)
	Soldering temperature 浸焊温度	260°C Max. 最高 260°C
	Soldering time 焊接时间	5 sec Max. 不超过 5 秒

注意：

1. 我们建议的回流焊温度为 240°C ± 5°C。
2. 当产品在处在高温状态中时不要对其胶施加压力。
3. 回流焊的次数应小于两次。

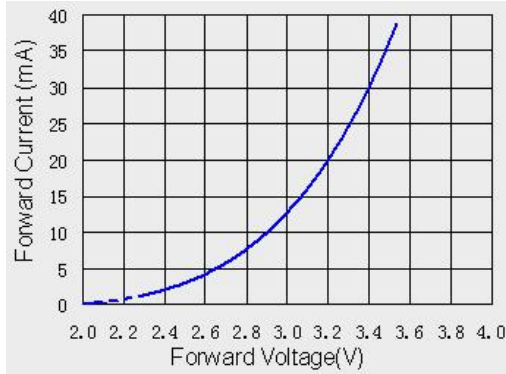
NOTES：

1. We recommend the reflow temperature 240°C ± 5°C.
2. Don't cause stress to the silicone resin while it is exposed to high temperature.
3. Number of reflow process shall be less than 2 times.

Typical Optical-Electrical Characteristics curves / 典型光电特性曲线图

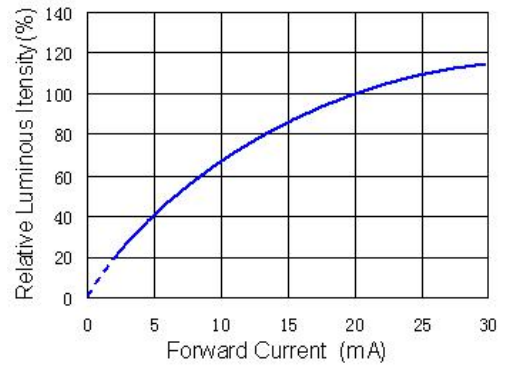
Forward Current vs. Forward Voltage

芯片伏安特性曲线



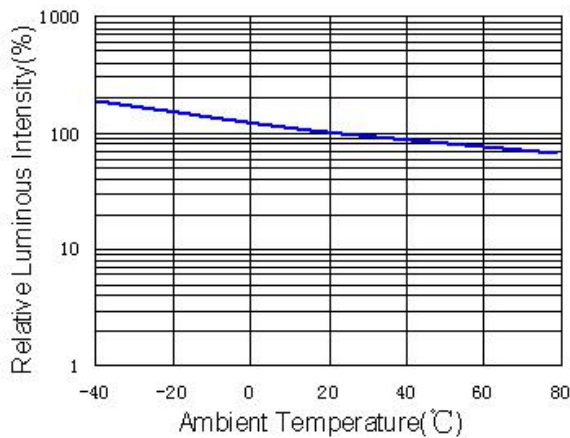
Relative Luminous Intensity vs. Forward Current

相对光强与正向电流特性曲线



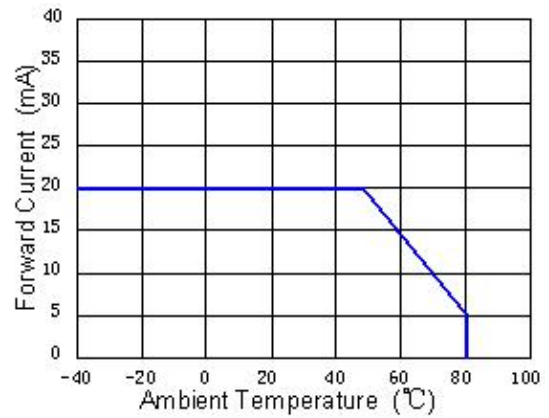
Relative Luminous Intensity vs. Ambient Temperature

相对光强与环境温度曲线



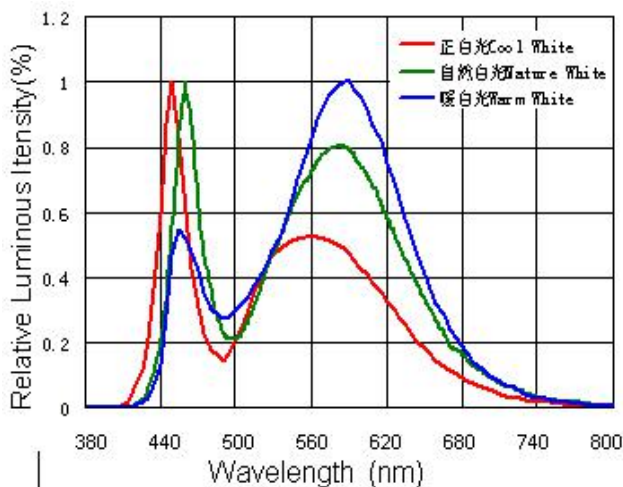
Relative Flux vs. Ambient Temperature

电流与温度关系曲线



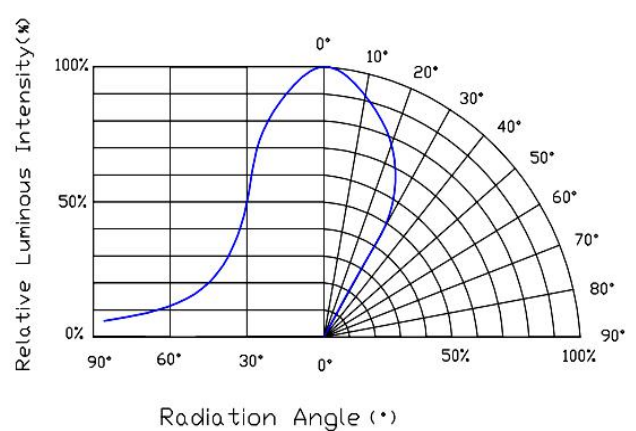
Relative Spectral Distribution

光谱特性曲线图

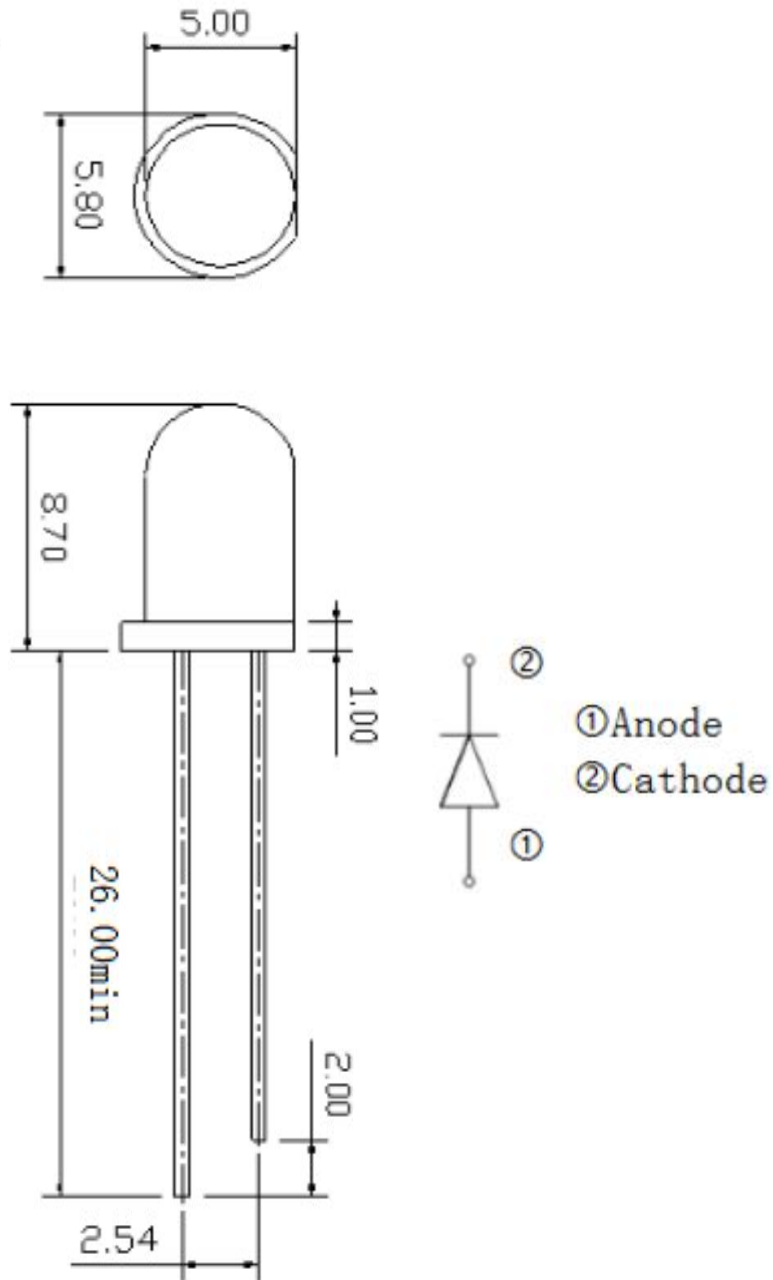


Relative Luminous Intensity

光强分布与角度



Package Dimension 封装尺寸



Note:

Tolerance unless mentioned is $\pm 0.25\text{mm}$; Unit = mm 若无特别标注，图中尺寸公差为 $\pm 0.25\text{mm}$

Moisture Resistant Packing Materials /防潮包装


Label specification/ 标签规格



深圳市源磊科技有限公司

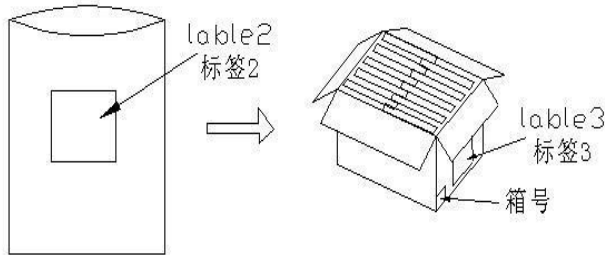
RUNLITE® Shenzhen Runlite Technology Co., Ltd

产品型号 Part No		外观描述 appearance	
客户料号 Client P/N		批号 Lot NO.	
显色指数 Ra		BIN 号 CIE Range	
R9 指数 R9 Index		光通量 Luminous Flux	
R15 指数 R15 Index		电压 Voltage	
显示性 TLCI		数量 Q.TY	PCS



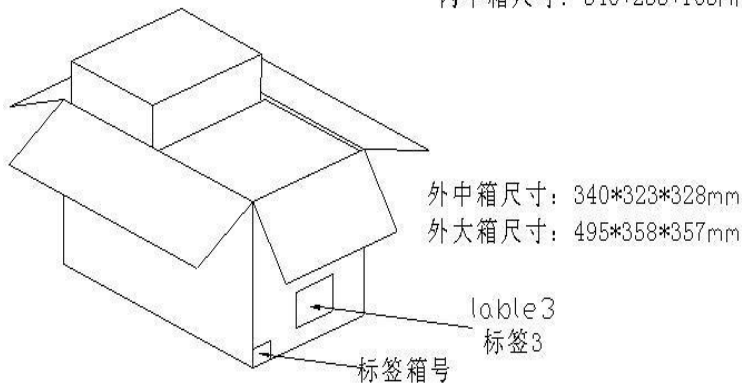
201606151247 5087-C1-3X-8-C1

Packing specification/包装规格



防静电袋:150*225mm

内中箱尺寸: 340*235*165mm



外中箱尺寸: 340*323*328mm

外大箱尺寸: 495*358*357mm

Note:

Tolerances unless mentioned ± 1 mm. Unit = mm

若无特别标注, 图中尺寸公差为 ± 1 mm, 单位 = mm

Reliability Test Items and Conditions/信赖性测试项目条件

The reliability of products shall be satisfied with items listed below.

测试项目 Test Item	测试条件 Test Conditions	持续周期 Duration/Cycle	数量 Quantity	接收/拒收 Ac/Re
冷热冲击 Thermal Shock	-40°C 30min ↑↓ 5sec 100°C 30min	循环 100 次 100 Cycle	100PCS	0/1
高温储存 High Temperature Storage	Ta=100°C	1000 小时 1000 hours	22PCS	0/1
高温高湿老化 Humidity Heat Storage	Ta=85°C RH=85% If=10mA	1000 小时 1000 hours	22PCS	0/1
低温储存 Low Temperature Storage	Ta=-40°C	1000 小时 1000 hours	22PCS	0/1
常温老化 Room Temperature Test	Ta=25°C If=20mA	1000 小时 1000 hours	22PCS	0/1
高温老化 High Temperature Test	Ta=85°C If=10mA	1000 小时 1000 hours	22PCS	0/1
回流焊试验 Soldering reflow	T:30°C、RH: 70%/48H 260°C	3 次 3 times	100PCS	0/1
渗透试验 Permeability Test	英雄红墨水：酒精=1:1 混合，恒温加热 100°C	2 小时 2 H	22PCS	0/1

Lamp 型 LED 使用说明

Thanks for using relevant LED products of Shenzhen Runlite Technology Co.,Ltd., in order to enhance your understanding of the characteristics of our products, as far as possible to reduce or avoid unnecessary damage to the product due to human factors ,and make it can better service your production. we give corresponding instructions, According to the characteristic in the process of standard use. At the same time, even if the same specifications LED, in the practical application field its reliability are related to overall system design level ,mode of operation and conditions of use. This Instructions can't cover all questions may encounter during customer use process, We sincerely apologize for any inconvenience this may cause.

感谢您使用深圳市源磊科技有限公司的系列 LED 产品，为增进您对我公司产品特性的了解，也为方便您快速掌握产品的基本操作。为尽量减少或避免因人为等因素造成不必要的产品损坏，使其能够更好的为您的生产服务，特针对使用过程中的一些规范使用作相应说明，同时即使是同一规格 LED，在实际应用领域其可靠性与整体系统设计水平、作业方式、使用条件均相关。本使用说明不可能涵盖客户使用过程中可能碰到的所有问题，由此带来的不便，敬请谅解！

1、Declaring :

In order to confirm if it is right for the purpose , Pretest is necessary before use the product. This product presentation does not guarantee not contravene any patent. Relate to imports and exports LED product Legal liability should be responsible by customer ,so please verify relevant provision about the LED product in your Target market. we may change specifications from time to time in the interest of product development,without prior notification or public announcement. An agreement of formal product specifications is required prior to mass production.

1、产品申明：

使用本产品之前，请贵司务必预先进行测试，以便确认是否适合使用目的。产品介绍的用途并不保证不抵触任何专利，有关 LED 产品的进出口法律责任应由客户担负，请预先查清每一国家或地区的有关规定。产品可能会因性能提高或规格参数改变等缘故，恕不经预告更改。我们要求量产前签订正式的产品规格书。

2、Before use :

We suggest that the same parameters products should be used together , such as BIN coordinate , VF and luminous flux etc.

2、物料确认：

投料的 LED BIN 等级是否吻合，如 VF、CIE BIN、亮度等是否属同一等级，同一等级应在一起使用。若不是同一等级的 LED 应用在同一物件上，应先评估其适用性，（若不同 VF 或 CIE BIN 投在一起可能会发生亮度上或颜色上的差异）

3、注意事项/Caution

3.1、 After open the package, the LED should be kept at 25oC, 65 % RH environment .

打开包装后请在温度 25±3 °C 湿度 65±5%的环境下使用。

3.2、 10°C-26°C , 40%-65% RH. Store the product in sealed package.

湿度 10°C ~ 26°C , 湿度 40% ~ 65% , 包装袋密封保存.

3.3、 The LED should be soldered within 48 hours (2 days) after opening the package.

打开包装后请在 24 小时内作焊接.

3.4、 It is recommended to use a wrist band or an anti-static glove when handling the LEDs. Operation tables must electrical grounding, and in order to avoid the oxidizing of the Lamp leads make sure you will seal the package soon after it is opened.

接触 LED 时需戴手套或手指套，工作台面要接地，包装袋开口后及时封口，防止脚位氧化

3.5、 The LAMP LED is an ESD sensitive device. All the equipment and machine must be properly grounded.

LED 是静电敏感器件，使用时所有设备、机械都需有适当的接地导电措施。

3.6、 When make use of it, please use static-free container, operator should ware Anti-static clothes and rope-static-ring also should make effective ground.

使用时请使用防静电的盛装容器，作业人员应穿著防静电服装及佩带有绳之静电环并作有效接地。

3.7、 Damaged device will appear some symptoms, lower forward voltage, higher leak current, or even short current.

受静电与突波破坏之 LED 的电性特性上，会有明显的漏电流，或驱动电压明显变低，甚至是短路现象。

3.8、 When shaped pin should used tong or by professional staff ,keep 3mm at least between lens and bend pin, the pin should been shaped before soldering.

引脚成形必须使用夹具或由专业人员来完成，离胶体最少 3mm 才能弯折引脚，并请在焊接前完成引脚成形。

3.9、 The pin can't not be press in high temperature, cut pin in room temperature because in high temperature LED may fail.

3.10、 After shape ,pin space should keep in line with the PCB board space

引脚成形后必须保证引脚间距和线路板上的一致。

3.11、 LED is one-way continuity, please check electrode before mount, if amount wrong, the LED chip will damage or fail when LED applied voltage

单向导通性，安装前确认极性，若装反，在施加电压时容易造成 LED 晶片损伤或失效。

3.12、 Ordinary our LED the long pin is anode ,shot pin is cathode, lens without gap is anode ,with gap is cathode.unless other special require and note

通常在没有特别要求或提示下，我们提供的 LAMP LED 的长脚为正极，短脚为负极。胶体无缺口的一端为正极，有缺口的一端为负极。

3.13、 Please design the PCB board to keep a distance between LED and other emit heat component.

线路设计时，请不要将 LED 与发热元件靠得过近。

3.14、 Strongly recommend design the board according setting current other than setting voltage .if you are really need setting voltage type please consider there may cause influence arise by difference voltage of difference LED.

电路设计上，建议以定电流设计，若为定电压设计，请考虑 LED 之间不同正向电压所可能造成之影响。

3.15、 The outer voltage change will bring the current index change .unsuitable design and current control,easy cause LED fail .for example excess current will cause LED life short or even burn down , too little electricity will cause lacking light

LED 之外加电压变化，会造成电流指数级变化，不当之设计与电流控制，易造成 LED 失效，如电流过大引起寿命问题甚至烧毁，电流过小引起亮度不足。

3.16、If you need make difference BIN LED in the one module .please confirm whether it can meet the electric and optics characteristic require such as the current balance, emitting and brightness consistency.

不同 BIN 号之 LED 需安装在同一个组件时，请先确认是否可满足相关电流及光学之特性要求如电流是否均衡，光色、亮度的一致性。

3.17、To protect your eyes, please don't watch the product directly when the LEDs lighting.

请不要直视点亮的 LED，以免伤害眼睛。

3.18、It's unsuitable for circumfluence soldering

本产品不适宜回流焊接。

3.19、Soldering :power keep no more than 30W,tip temperature should not pass 280 °C,soldering time within 3 second, welding position and lens should keep 3mm distance at least .

烙铁焊接时烙铁功率不要超过 30W，尖端温度不要超过 280 °C，焊接时间不要超过 3 秒，焊接位置最少与胶体保持 3mm 距离。

3.20、Wave-soldering: temperature should not pass 260 °C, soldering time within 5 second, welding position and lens should keep 3mm distance at least.

波峰焊接时温度不超过 260 °C，焊接时间不要超过 5 秒，焊接位置最少与胶体保持 3mm 距离。

3.21、After soldering the LED should keep out off any shake or outer force before it come to normal temperature.

在焊接温度回到正常以前，必须避免使 LED 受到任何震动或外力。

源磊/Runlite		客户/Customer	
制作/Prepared	李兵	工程/Engineering	
审核/Checked	Fealty zhu	品质/Quality	
批准/Approved		批准/Approved	