



洲光源
CHAULIGHT

产品规格书 SPECIFICATION

客户名称: _____

Customer Name

产品类型: 红外光电传感器

Product Name

产品型号: ZOS-R3228B-15A-Z2

Part No.

☐ 技术参考 Technical Reference		☐ 样品 Sample		☐ 量产供货 Mass Product	
客户审核 (加盖公章) Client approval (Stamp)		洲光源审核 Chaulight approval			
核准 Approval	确认 Checked	核准 Approval	确认 Checked	制作 Edited	
		黄瑞良	郝三强	谢育国	
☐ 接收 Qualified		☐ 不接收 Disqualified		日期 Date: 2022.01.18	

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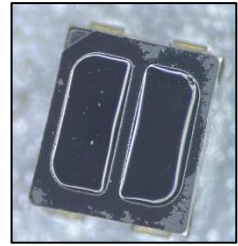
No.3,Lian Sheng South Road ,Dong Sheng Town,Zhongshan City,Guang Dong Province.

本规格书仅用于双方交流用需经双方签订后方可生效, 自签订后有效期为两年, 期满后需以书面形式续签。最终解释权为洲光源所有。

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ZOS-R3228B-15A-Z2 由红外发射二极管和硅光晶体管组成，并排封装在黑色热塑性外壳中的汇聚光轴上。光电晶体管只接收来自 IR 的辐射。这是正常情况。但当物体在中间时，光电晶体管不能接收辐射。有关更多组件信息，请参阅 IR 和 PT。

The ZOS-R3228B-15A-Z2 Composed of infrared emission emitting diodes and silicon transistors, encased side-by-side on converging optical axis in a black thermoplastic housing. The phototransistor receives radiation from the IR only. This is the normal situation. But when an object is in between, phototransistor could not receive the radiation. For additional component information, please refer to IR and PT.



特性 Feature

- 可靠性高、辐射强度高、低电压驱动
High reliability、High radiant intensity、Low forward voltage
- 感应速度快、感光度强
Fast response time、High photo sensitivity
- 截止感应波长 940nm
Cut-off visible wavelength $\lambda_p=940\text{nm}$
- 无铅材料、Rosh 认证
Pb.Free、RoHS compliant version

应用 Application

- 儿童卡片机、非接触开关、打印机
TWS、Non-contact Switching
- 智能电子产品
Intelligent Electronic Products

最大额定值 Absolute Maximum Ratings

测试项目 Parameter（Ta=25℃）		符合 Symbol	范围 Ratings	单位 Unit
输入端发射极 Input Emitter	最大功率 Power Dissipation *1	Pd	75	mW
	最大反向电压 Reverse Voltage	V _R	5	V
	最大持续正向电流 Forward Current	I _F	50	mA
	最大脉冲正向电流 Peak Forward Current *2	I _{FP}	1	A
输出端接收极 Output Detector	最大功率 Power Dissipation *1	Pd	75	mW
	集电极-发射极电压 Collector-Emitter Voltage	V _{CEO}	30	V
	发射极-集电极电压 Emitter-Collector Voltage	V _{ECO}	5	V
	集电极电流 Collector Current	I _{C(ON)}	10	mA
工作温度 Operating Temperature		Topr	-25~+85	℃
储存温度 Storage Temperature		Tstg	-40~+85	℃
焊接温度 Lead Soldering Temperature*3		Tsol	260	℃

*1、在 25 摄氏度的环境中测试 below 25 Free Air Temperature

*2、脉宽少于等于 100us，占空比 1% Pulse width ≤ 100μs, Duty cycle= 1%

*3、离胶体 2mm 以上焊接 5s 内 2mm form body for 5 seconds

光电特性 Electro-Optical Characteristics

电性参数 (温度=25℃) Parameter (Ta=25℃)		符号 Symbol	条件 Condition	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Units
输入端 Input	正向电压 Forward Voltage	V _F	I _F =20mA	--	1.2	1.6	V
	峰值波长 Peak Wavelength	λ _p	I _F =20mA	--	940	--	nm
	反向电流 Reverse Current	I _R	V _R =5V	--	--	10	μA
输出端 Output	暗电流 Dark Current	I _{CEO}	Ee=0mW/cm ² V _{CE} =20V	--	--	10	uA
	集电极-发射极的工作电压 C-E Saturation Voltage	V _{CE(SAT)}	I _C =2mA Ee=1mW/cm ²	--	--	0.4	V
转换特性 Transfer Characteristics	上升时间 Rise Time	t _r	V _{CE} =5V I _C =1mA	--	400	--	μS
	下降时间 Fall Time	t _f	R _L =1000Ω	--	400	--	
	光电流 Collector Current	I _{C(ON)(B)}	I _F =10mA V _{CE} =5V	0.18	--	0.3	mA
		I _{C(ON)(C)}		0.25	--	0.44	

*2、脉宽少于等于 100us，占空比 1% Pulse width ≤ 100μs, Duty cycle= 1%

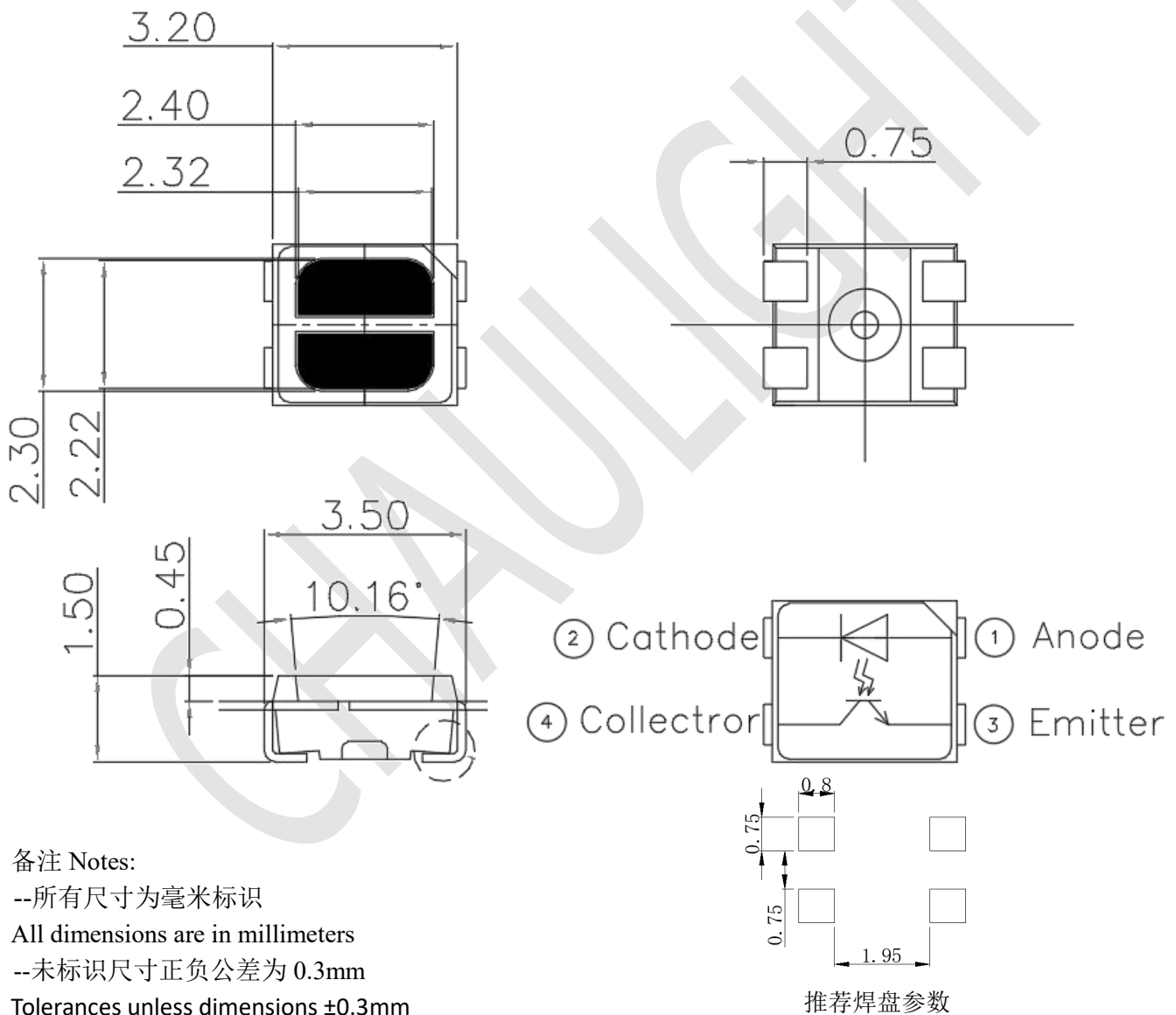
等级档位 Rank

档位 BIN	符号 Symbol	条件 Condition	符合 Symbol	范围 Ratings	单位 Unit
BIN2	Ic (on)	$V_{CE}=5V$, $I_F=20mA$	0.1	0.32	mA
BIN3	Ic (on)	$V_{CE}=5V$, $I_F=20mA$	0.32	0.55	mA
BIN4	Ic (on)	$V_{CE}=5V$, $I_F=20mA$	0.55	0.78	mA

备注 Notes:

--正向电压的测量公差是 $\pm 0.1V$ Measurement Uncertainty of Forward Voltage: $\pm 0.1V$ --发光强度的测量公差是 $\pm 10\%$ Measurement Uncertainty of Luminous Intensity: $\pm 10\%$ --峰值波长的测量公差是 $\pm 1.0nm$ Measurement Uncertainty of Dominant Wavelength $\pm 1.0nm$

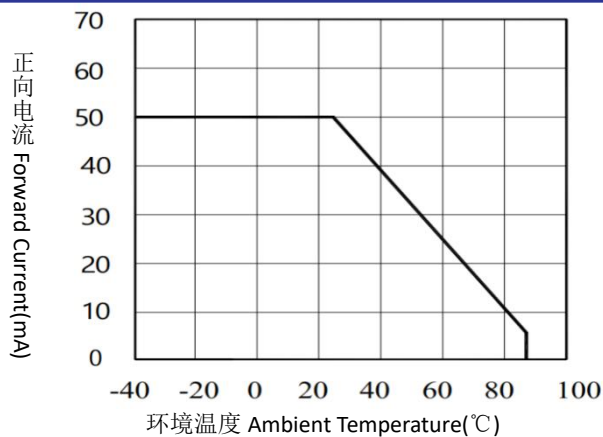
产品尺寸 Package Dimension



发射管特性曲线图 Typical Electro-Optical Characteristics Curves-IR

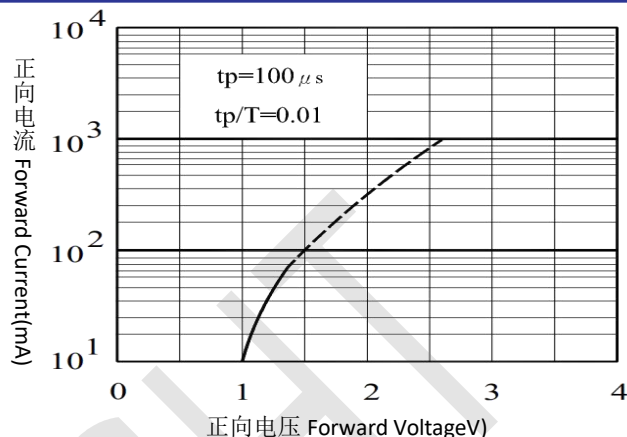
正向电流与环境温度的关系

Forward Current vs. Ambient Temperature



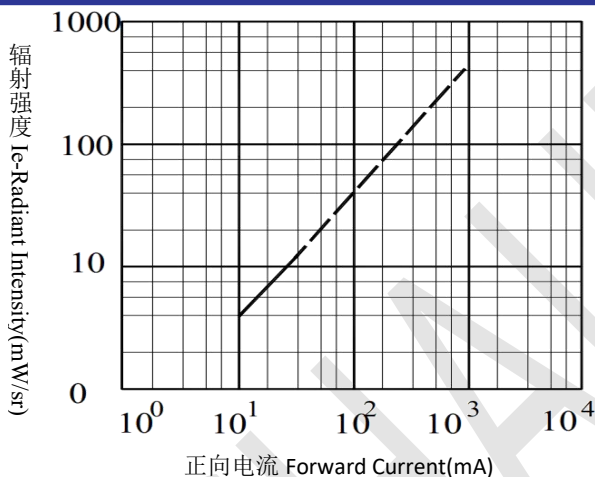
正向电流与正向电压的关系

Forward Current vs. Forward Voltage



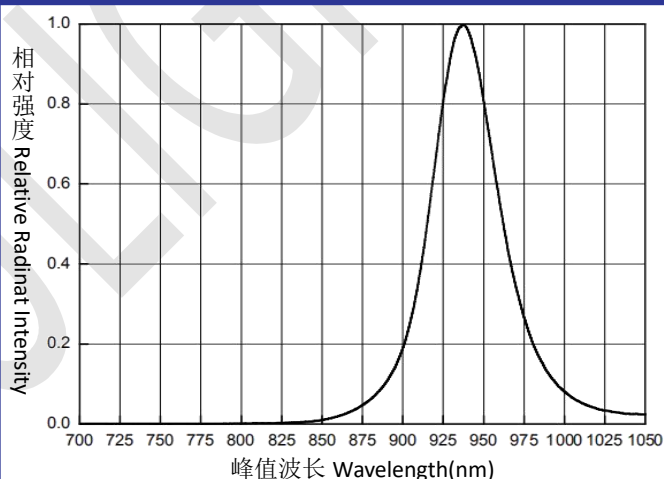
辐射强度与正向电流的关系

Radiant Intensity vs. Forward Current



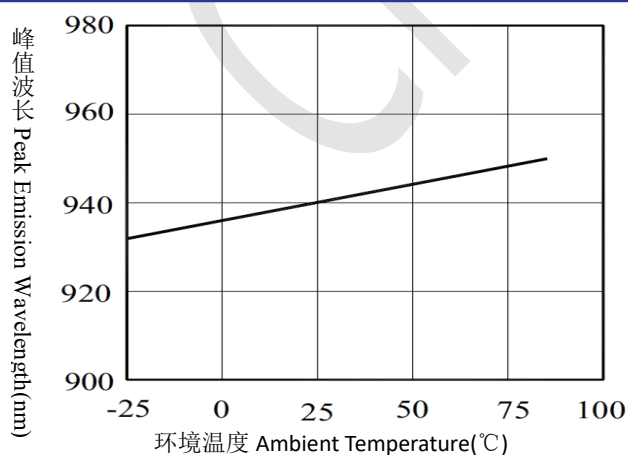
波长曲线图

Spectral Distribution



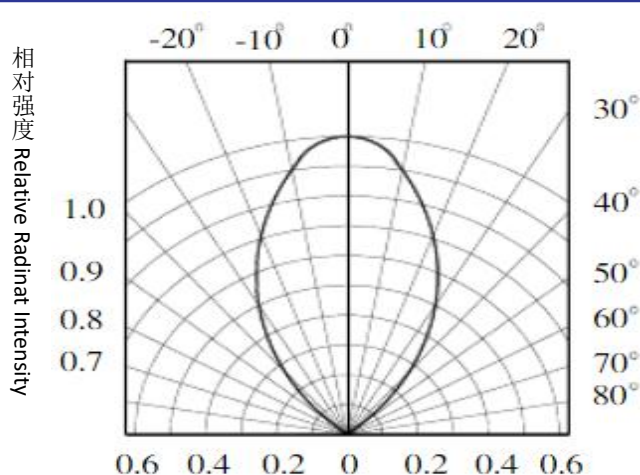
峰值波长与环境温度的关系

Peak Emission Wavelength vs. Ambient Temperature



相对辐射强度与角位移的关系

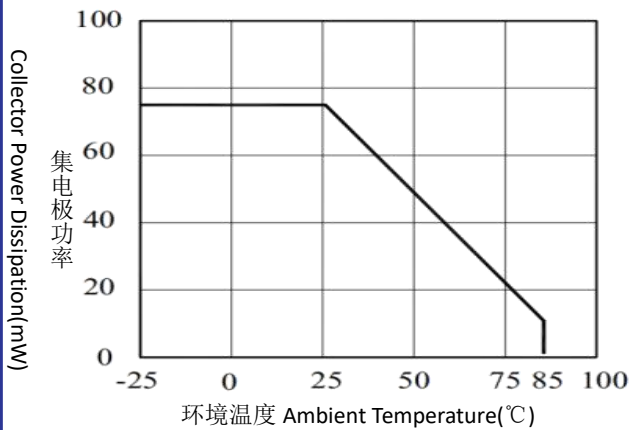
Relative Radiant Intensity vs. Angular Displacement



接收管特性曲线图 Typical Electro-Optical Characteristics Curves-PT

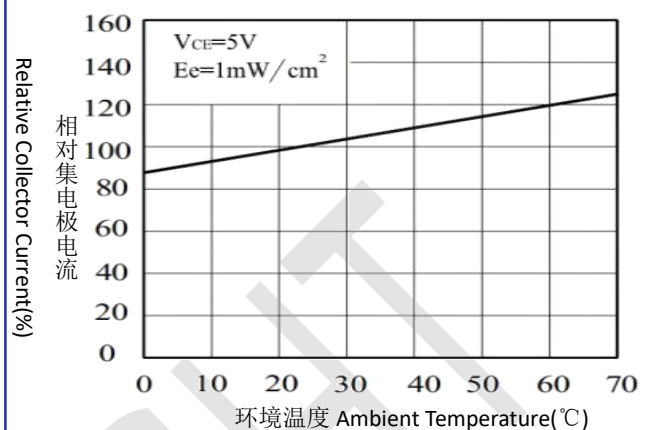
集电极功率与环境温度的关系

Collector Power Dissipation vs. Ambient Temperature



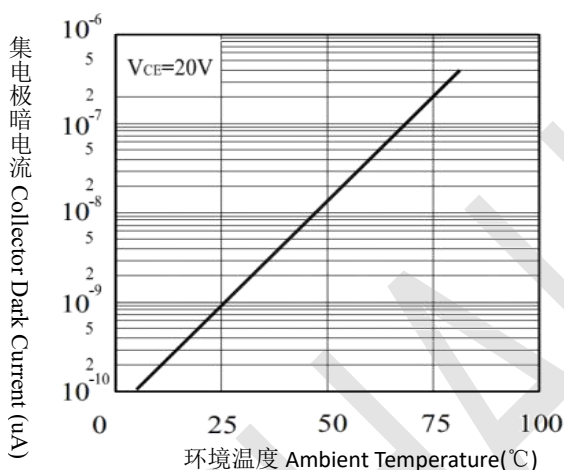
相对集电极电流与环境温度的关系

Relative Collector Current vs. Ambient Temperature



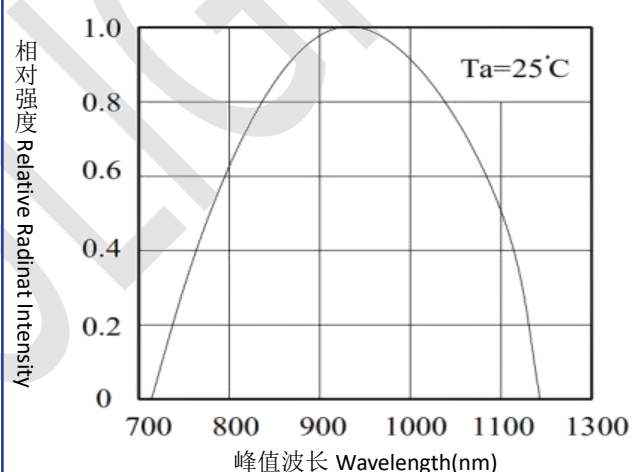
集电极暗电流与环境温度的关系

Collector Dark Current vs. Ambient Temperature



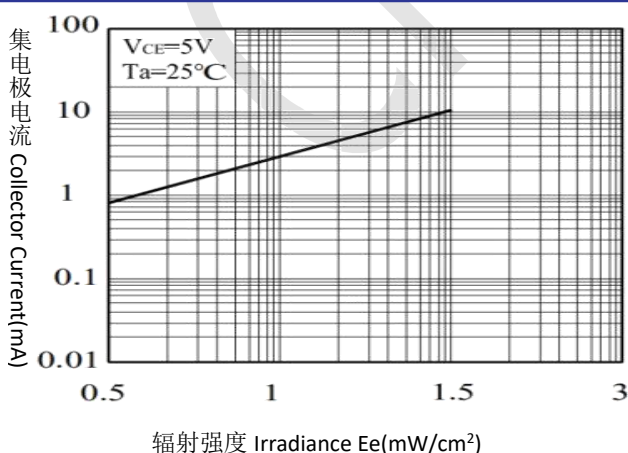
感应波长曲线图

Spectral Sensitivity



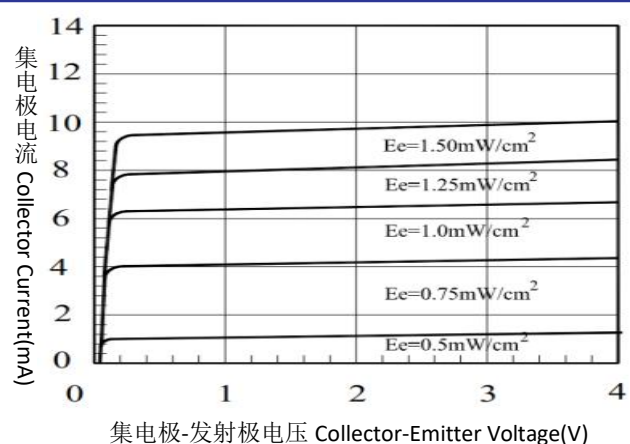
集电极电流与辐射强度的关系

Collector Current vs. Irradiance



集电极电流与集电极-发射极电压的关系

Collector Current vs. Collector-Emitter Voltage



光电开关特性曲线图 Typical Electro-Optical Characteristics Curves-ITR

光电流与感应距离之间的关系 Relative Collector Current vs Distance Between Sensor

Fig.1 Relative Collector Current vs. Distance between Sensor and Al Evaporation Galss

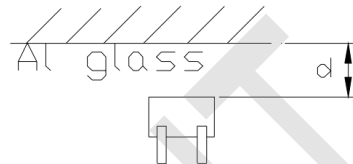
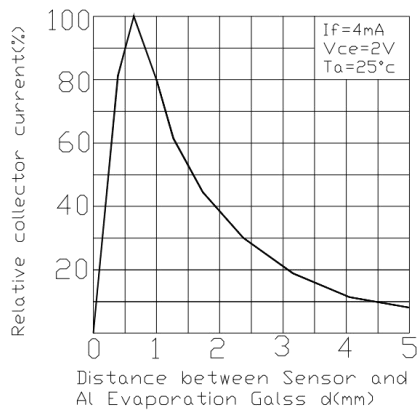


Fig.2 Relative Collector Current vs. Card Moving Distance (1)

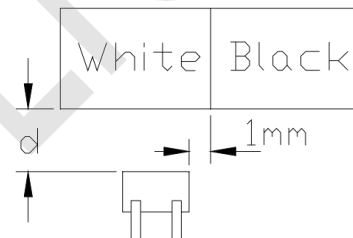
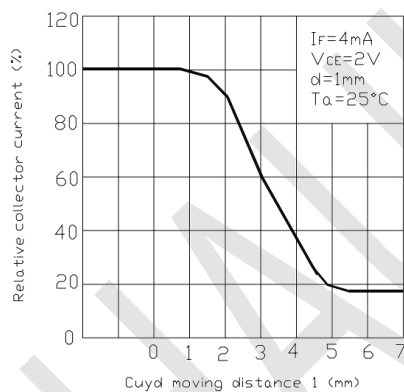
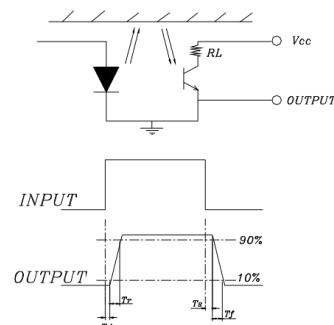
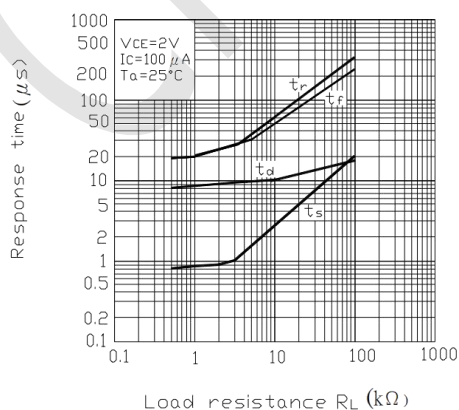
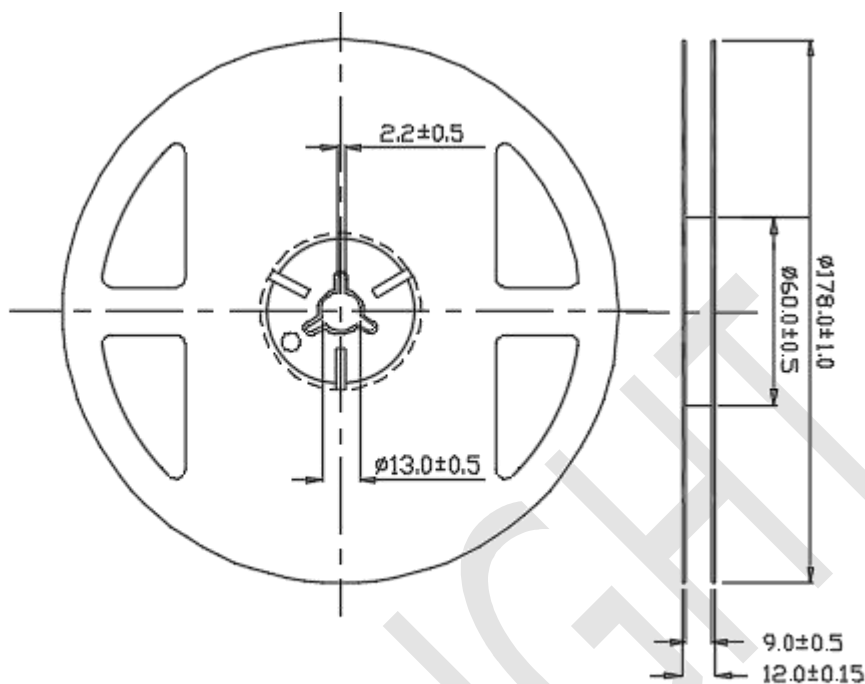


Fig.3 Response Time vs. Load Resistance

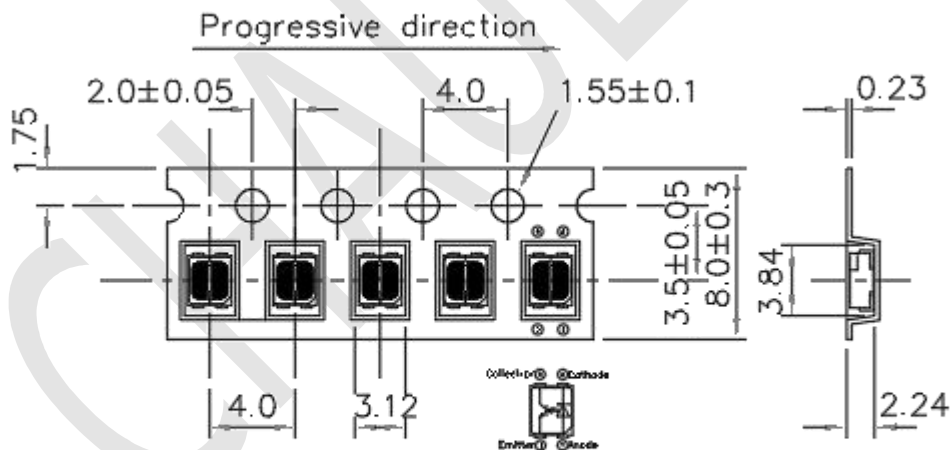


包装规格 Packing Specification



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

Carrier Tape Dimensions: (Quantity: 2000pcs/reel)



TOLERANCES UNLESS DIMENSION ± 0.1
ANGLE ± 0.5
UNIT: mm

Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm

注意事项 Note

--过流保护 Over-current-proof

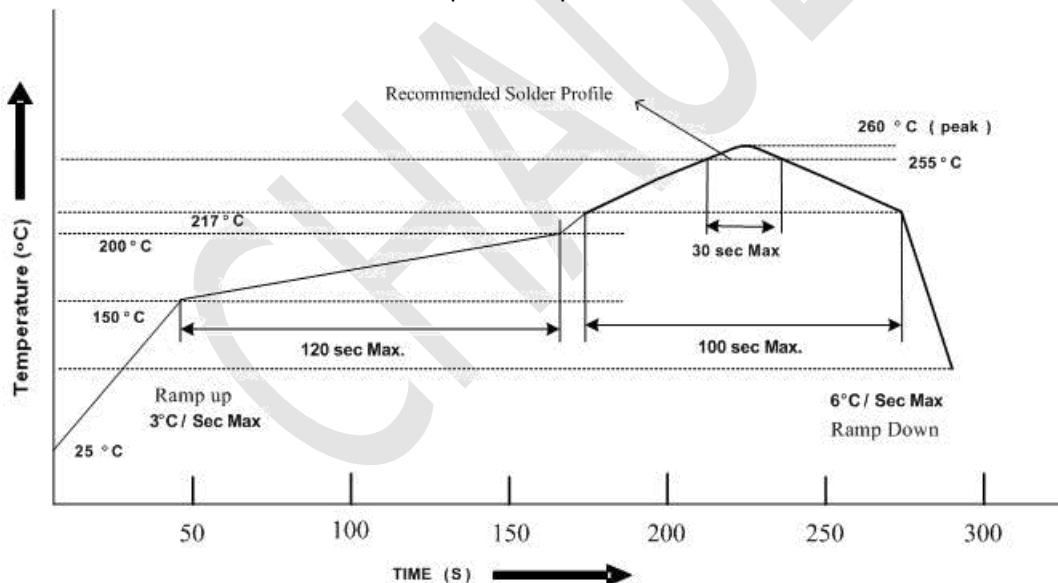
1、客户必须应用电阻进行保护，否则会造成轻微电压偏移大电流变化（烧毁将发生）。Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

--储存 Storage

- 1、产品准备使用前不要打开防潮袋。Do not open moisture proof bag before the products are ready to use.
- 2、在打开包装之前，二极管应保持在 $10^{\circ}\text{C}\sim 30^{\circ}\text{C}$ 和 90%RH 或以下。Before opening the package, the LED should be kept at $10^{\circ}\text{C}\sim 30^{\circ}\text{C}$ and 90%RH or less.
- 3、二极管建议在一年内使用。The LED suggested be used within one year.
- 4、打开包装后，设备必须存储在 $10^{\circ}\text{C}\sim 30^{\circ}\text{C}$ 和 60%RH，并在 168 小时内使用（地板寿命）。如果未使用的二极管仍然存在，它应储存在防潮包装中。After opening the package, the devices must be stored at $10^{\circ}\text{C}\sim 30^{\circ}\text{C}$ and 60%RH, and used within 168 hours (floor life). If unused LED remain, it should be stored in moisture proof packages.
- 5、如果吸湿材料（干燥剂材料）已褪色或未打开的袋子已超过保质期或设备（袋外）已超过地板寿命，需要烘焙处理。If the moisture absorbent material (desiccant material) has faded or unopened bag has exceeded the shelf life or devices (out of bag) have exceeded the floor life, baking treatment is required.
- 6、如果需要烘焙，请参阅 IPC/JEDECJ-STD-033 进行烘焙程序或建议以下条件：在 $60^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 和 5%RH<96 小时（筛/管/套单位）If baking is required, refer to IPC/JEDEC J-STD-033 for bake procedure or recommend the following conditions: 96 hours at $60^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and < 5 % RH (reeled/tubed/loose units)

--焊接条件 Soldering Condition

- 1、铅焊料温度剖面 Lead solder temperature profile



- 2、回流焊不应做两次以上。Reflow soldering should not be done more than two times.
- 3、焊接时，不要在加热过程中对 LED 施加压力。When soldering, do not put stress on the LEDs during heating.
- 4、焊接后，不要使电路板翘曲。After soldering, do not warp the circuit board.

--烙铁条件 Soldering Iron

广东洲光源红外半导体有限公司

CHAULIGHT

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地址(Add): 中山市东升镇联胜南路 3 号

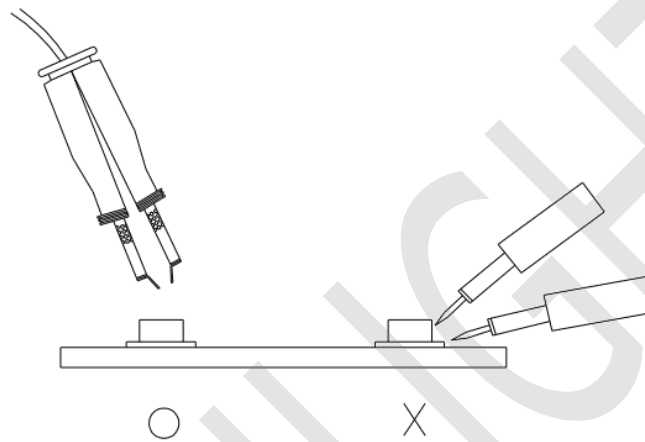
电话(Tel): 0760-88504720 传真(Fax): 0760-88504721

网站(Web): www.zgy-led.com

每个端子都要去烙铁尖端温度低于 350℃为 3 秒内一次少于烙铁容量 25W。离开两秒钟然后更多的间隔，并做焊接每个终端。手工焊料通常在开始的时候容易损坏产品。Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

--手工补数 Repairing

修理不应在 LED 焊接后进行。当修理是不可避免的是，应该使用双头烙铁（如下图所示）。应该是事先确认 LED 的特性是否会或不会损坏通过修理。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 beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



--其他 Other

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更改记录表 Engineering Change Notice-Record

版本 Edition	更改日期 Date	主要更改内容 Main Content	拟 制 Prepared	确 认 Checked
A/0	2021-11-18	新产品发布 New Production	谢育国	郝三强
A/1	2021-12-7	增加焊盘尺寸 Increase the size of the welding disc	郝三强	黄瑞良
A/2	2022-01-18	修正版 Modified Version	谢育国	郝三强