



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-R4023-20

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	
		刘峰斌	郝三强	黄愉舒	
☐ 接收 Qualified		☐ 不接收 Disqualified		日期 Date: 2021/11/18	

联系电话(Tel): 0760-88504720

传真(Fax): 0760-88504721

地址(Add): 广东省中山市东升镇联胜南路 3 号洲光源科技园

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。

This product specification is only used for technical communication. Only after the signature or seal, the specifications have the force of law. Since the signing of the validity period of two years, after the expiration of the written renewal. The final interpretation right is owned by the CHAULIGHT.

广东洲光源红外半导体有限公司
Guangdong Chaulight Infrared Semiconductor Co., Ltd.

ZOS-R4023-20 是一种紧密的封装，光电晶体管输出，反射光中断器，发射器和探测器面对相同方向的成型，提供非接触传感。紧凑的包装系列是独特技术的结果，结合转移和注塑成型，也阻止可见光，以减少错误检测。该设备具有一个焦距很长，并有一个无铅（T&R）封装，适用于回流焊接。

The ZOS-R4023-20 is a compact-package, phototransistor output, reflective photo interrupter, with emitter and detector facing the same direction in a molding that provides non-contact sensing. The compact package series is a result of unique technology, combining transfer and injection molding,

that also blocks visible light to minimize false detection. This device has a long focal distance for this family of devices and has a leadless (T&R) package, suitable for reflow soldering.



》 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、感光度高

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、Rohs 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)}	25	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℃) Paramete (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	1.4	V
	峰值波长 Peak Wavelength	λ _p	I _F =10mA	--	940	--	nm
	反向电流 Reverse Current	I _R	V _R =6V	--	--	10	μA
输出端 Output	暗电流 Dark Current	I _{CEO}	Ee=0mW/cm ² V _{CE} =20V	--	--	100	nA
	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	mW/sr
转换特性 Transfer Characteristics	上升时间 Rise Time	t _r	V _{CE} =2V I _C =100uA	--	20	100	μS
	下降时间 Fall Time	t _f	R _L =1000Ω	--	20	100	

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

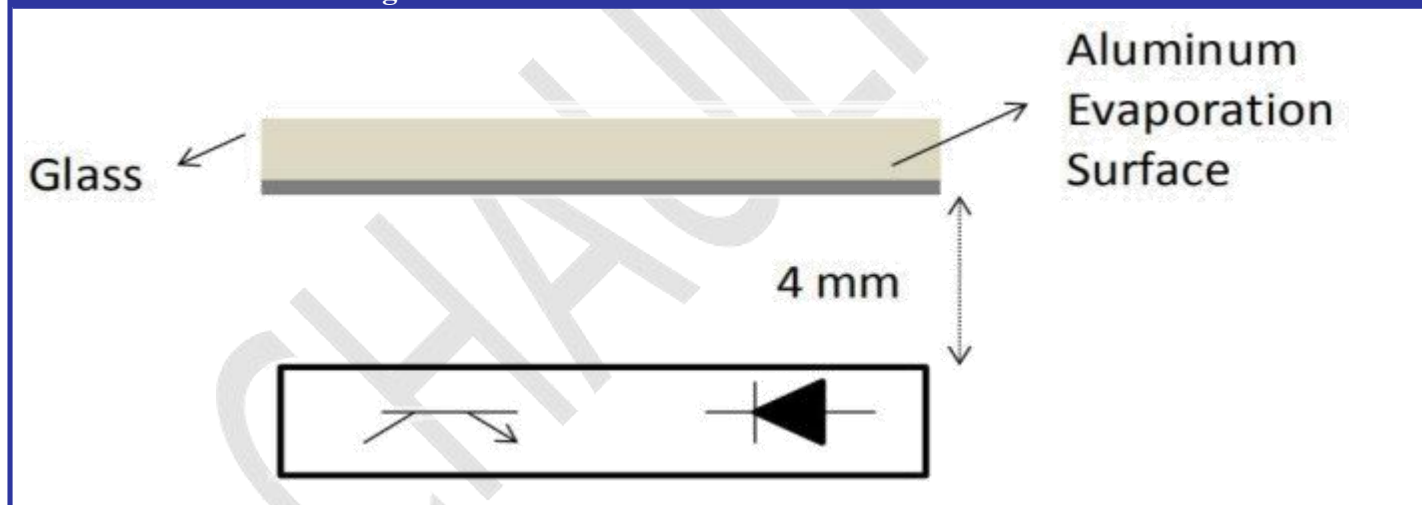
》等级档位 Rank

档位 BIN	符合 Symbol	范围 Ratings	单位 Unit
A	60	120	uA
B	100	220	uA
C	180	350	uA
D	310	450	uA

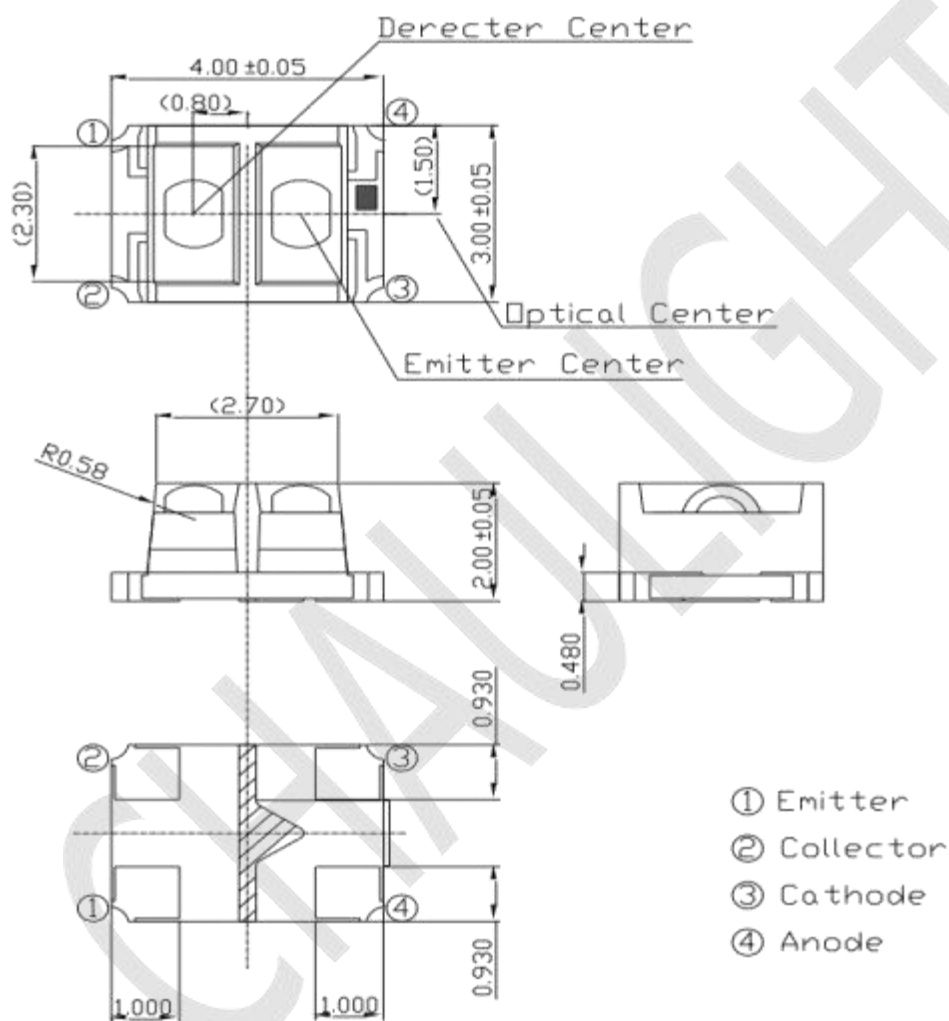
备注 Notes:

--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 $\pm 1.0nm$

Test Condition and Arrangement for Collector Current



》 产品尺寸 Package Dimension



备注 Notes:

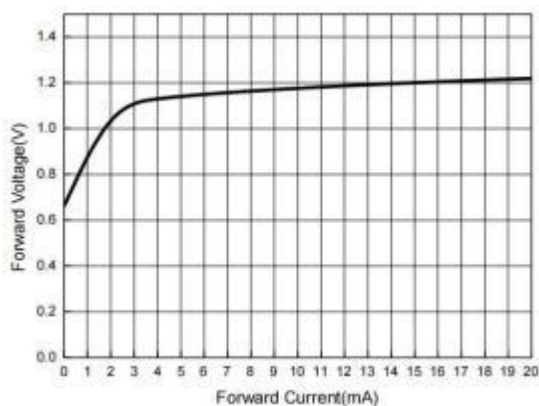
--所有尺寸为毫米标识

All dimensions are in millimeters

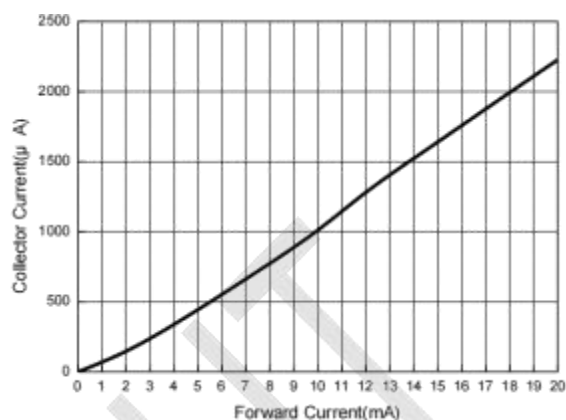
--未标识尺寸正负公差为 0.3mm Tolerances unless dimensions $\pm 0.3\text{mm}$

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

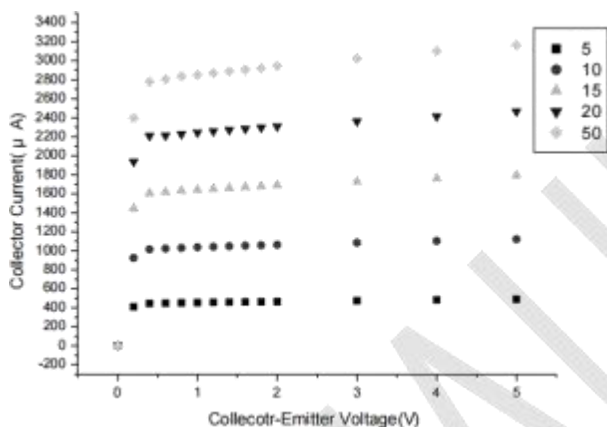
Forward Current VS. Forward Voltage



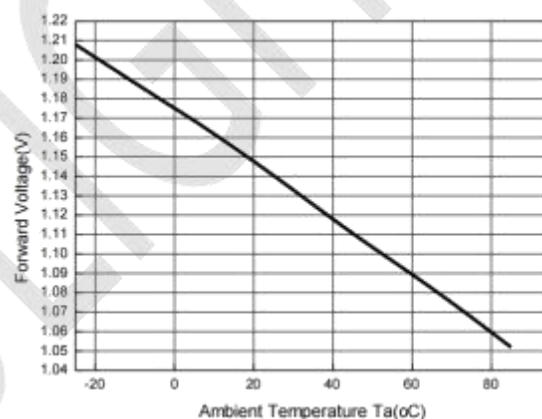
Forward Current V.S Collector Current



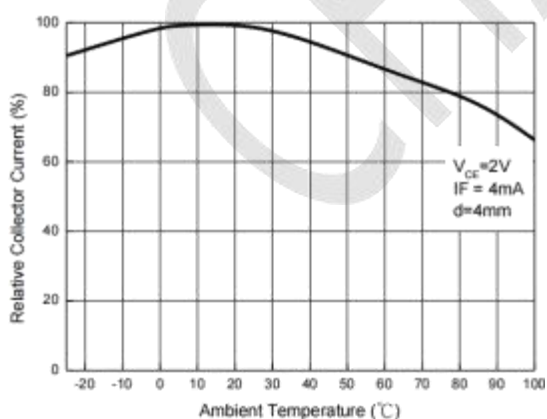
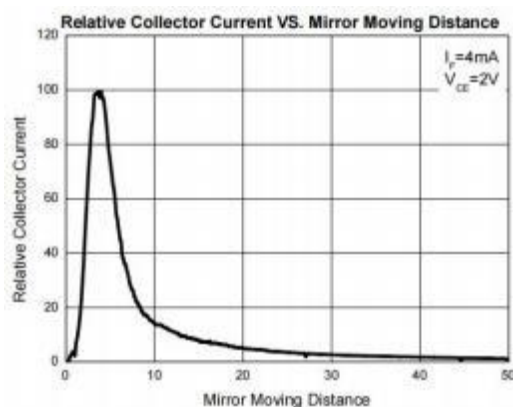
Collector Current V.S Collector-Emitter Voltage



Forward Voltage V.S Ambient Temperature

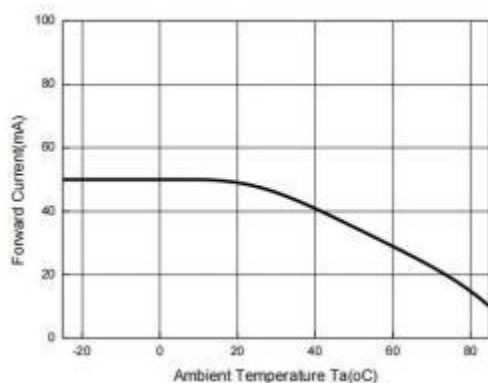


Relative Collector Current V.S Ambient Temperature

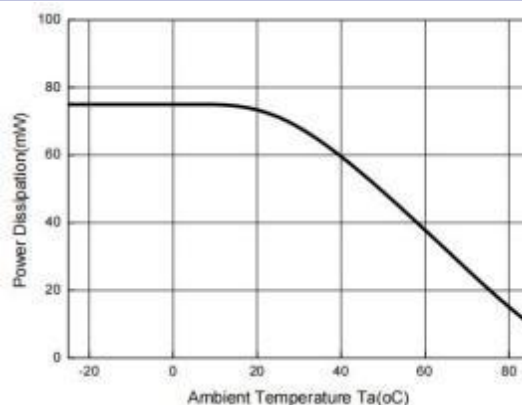
Relative Collector Current V.S Z-Moving Distance
Condition : LF=4 mA 、VCE=2 V

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

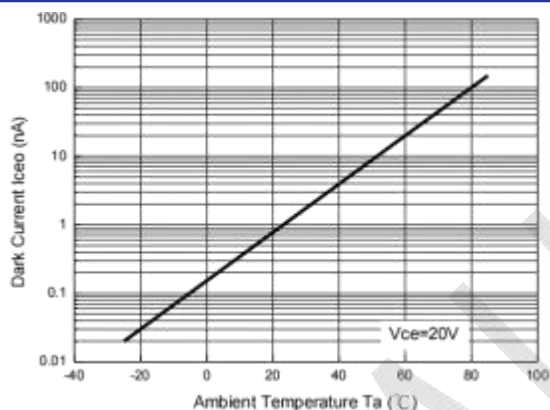
Forward Current V.S Ambient Temperature



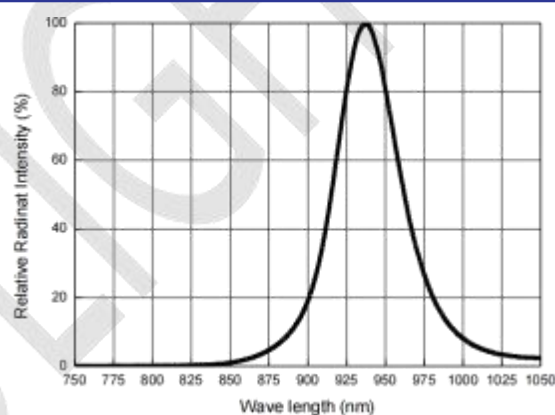
Power Dissipation vs. Ambient Temperature



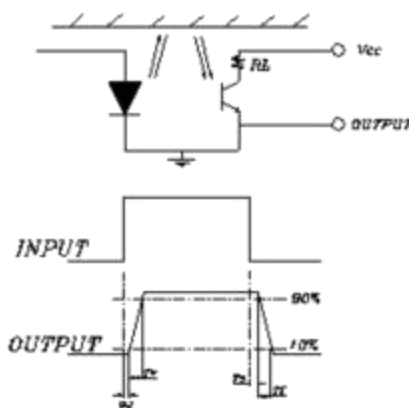
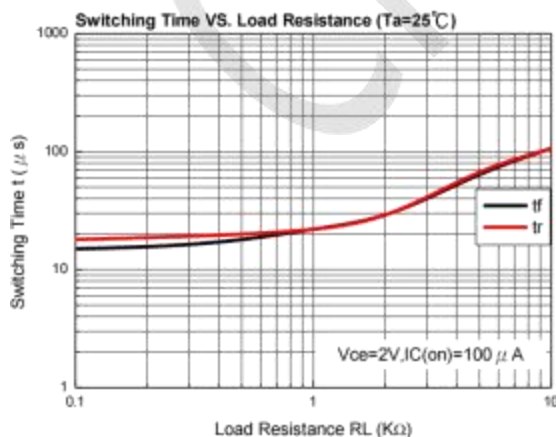
Collector Dark Current vs. Ambient Temperature



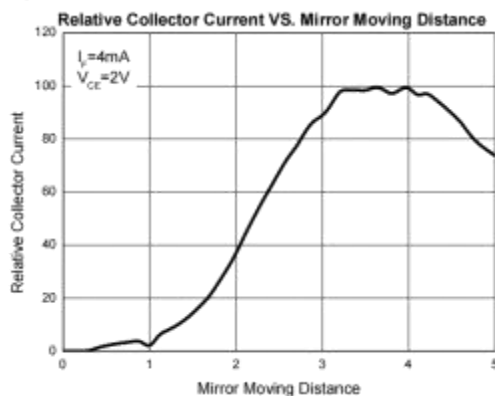
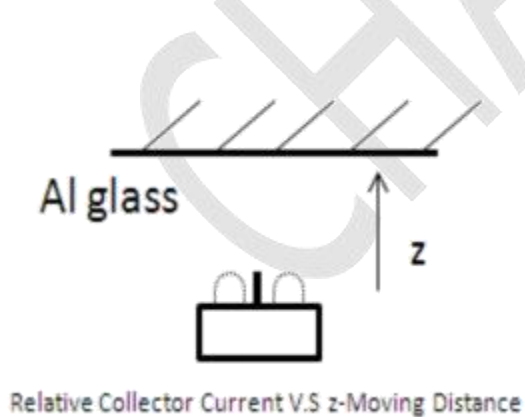
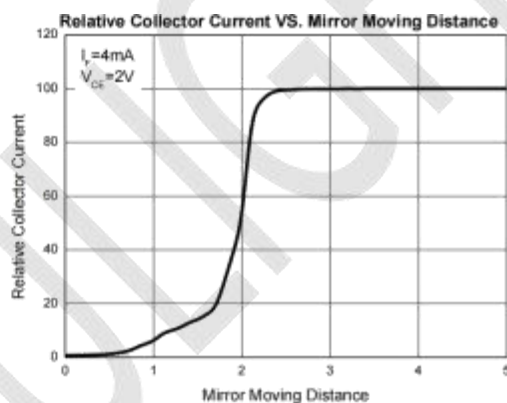
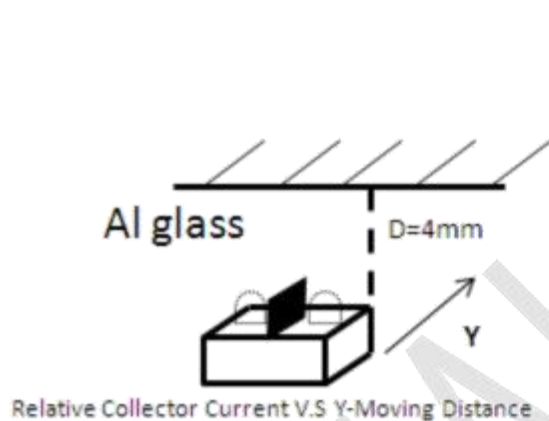
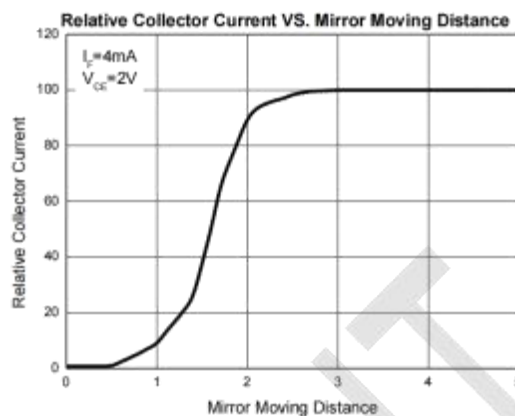
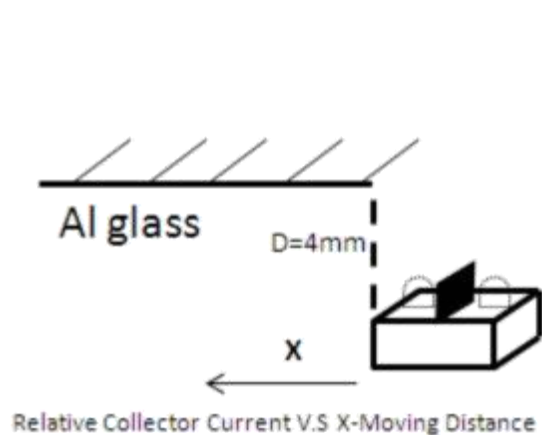
Wave length



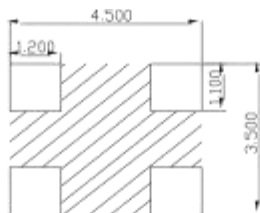
Measuring Circuit For Response Time



Test Condition and Arrangement for Collector Current



Recommended pattern

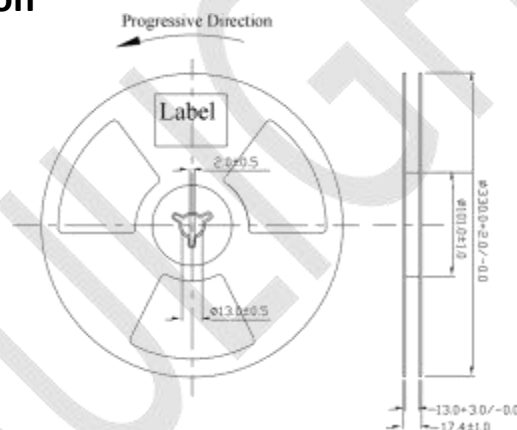


area : Please do not apply the pattern wiring to avoid the possibility of short circuit.

Regarding amount of solder, if there is solder leakage in terminal wiring pattern between PCB and housing main body, the reliability will be deteriorated. Please check the proper amount of solder in advance not to have solder leakage into terminal wiring pattern between PCB and housing main body.

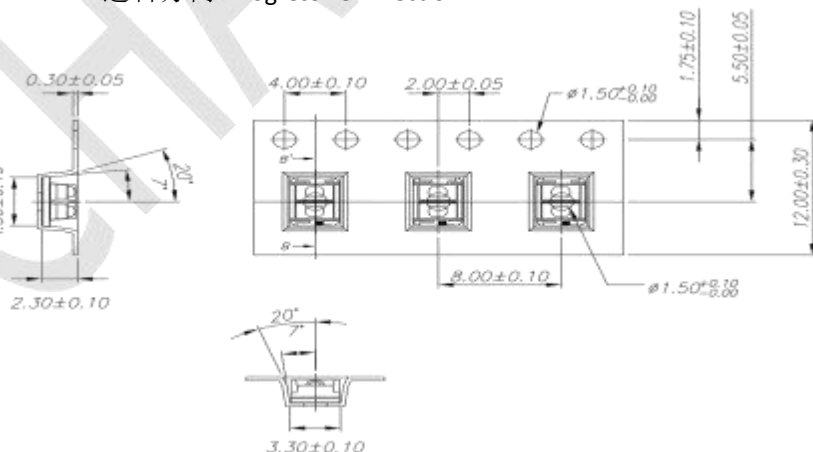
》 包装规格 Packing Specification

--卷轴包装尺寸 Package Dimensions



--载带编带的尺寸 Carrier Tape Dimensions

进料方向 Progressive Direction



--装载数量 Loaded Quantity

800 个/盘 pcs/reel

38 Reels / 1 Carton

广东洲光源红外半导体有限公司

CHAULIGHT

7

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

》 注意事项 Note

--其他 Other

- 1、以上规格可更改，恕不另行通知。洲光源将为上述规格的材料变更保留权力 Above specification may be changed without notice. CHAU LIGHT will reserve authority on material change for above specification.
- 2、当使用此产品时，请观察这些规格表中概述的绝对最大额定值和使用说明。洲光源不承担任何损坏结果的责任从不符合绝对最大额定值的产品的使用和这些规格表中包含的说明 When using this product, please observe the absolute maximum ratings and the instruction for using outlined in these specification sheets. CHAU LIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
- 3、此规格书版权属广东洲光源红外半导体有限公司。未经允许不得转载或复印。These specification sheets include materials protected under copyright of CHAU LIGHT corporation. Please don't reproduce or cause anyone to reproduce them without CHAU LIGHT's consent.

》 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
1.0	2021-11-18	新产品发布 New Production	黄愉舒	郝三强