洲光源
CHAULIGHT

产品规格书
SPECIFICATION

客户名称：_____
Customer Name

产品类型：对射式光电开关
Product Name

产品型号：ZSOS-T0603-F
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
		郝三强	王乐	付世雄
☐ 接收 Qualified ☐ 不接收 Disqualified 日期 Date：				

联系电话(Tel)：13828819291
E-mail：tony@zgy-led.com
地址(Add)：深圳市宝安区航城街道航空路36号华盛泰科技大厦D栋502
No.502, Building D, Huashengtai Science and Technology Building, No. 36, Hangcheng Street, Bao'an District, Shenzhen.

ZSOS-T0603-F

贴片型对射式光电开关
SMD Optical Senor Transmissive

ZSOS-T0603-F 由红外发射二极管和NPN 硅光晶体管组成，它们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，n请参阅 IR 和 PT。

The ZSOS-T0603-F consist of an infrared emitting diode and an NPN silicon phototransistor, encased side-by-side on converging optical axis in a black thermoplastic housing.The phototrasistor receives radiation from the IR only .This is the normal situation. But when an object is in between , phototransistor could not receives 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 λp=940nm
--无铅材料、Rosh 认证
Pb.Free、RoHS compliant version

应用 Application

--打印机、非接触开关
Printer、Non-contact Switching
--智能电子产品
Intelligent Electronic Products
--工业机械设备
Industrial Intelligent Equipment
--安防防护应用
Safety Application Products

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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	功率Power Dissipation *1	Pd	75	mW
	反向电压Reverse Voltage	V_R	5	V
	持续正向电流Forward Current	I_F	50	mA
	脉冲正向电流Peak Forward Current *2	I_{FP}	1	A
输出端接收极 Output Detector	功率Power Dissipation *1	Pd	75	mW
	集电极-发射极电压Collector-Emitter Voltage	V_{CEO}	35	V
	发射极-集电极电压Emitter-Collector Voltage	V_{ECO}	5	V
	集电极电流Collector Current	$I_{C(ON)}$	20	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	℃
湿敏等级 Wet sensitivity level		MSL	4	

*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	1.5	V
			IF=100mA*2	--	1.4	1.85	
			IF=1A *2	--	2.6	4.0	
	峰值波长Peak Wavelength	λp	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/cm² 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/cm²	--	--	0.4	V
转换特性 Transfer Characteristics	上升时间Rise Time	t_r	V_{CE}=5V I_C=1mA R_L=1000Ω	--	15	--	μS
	下降时间Fall Time	t_f		--	15	--	
	光电流 Collector Current	$I_{C(ON)}$	IF=20mA V_{CE}=5V	0.2	1	3	mA

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

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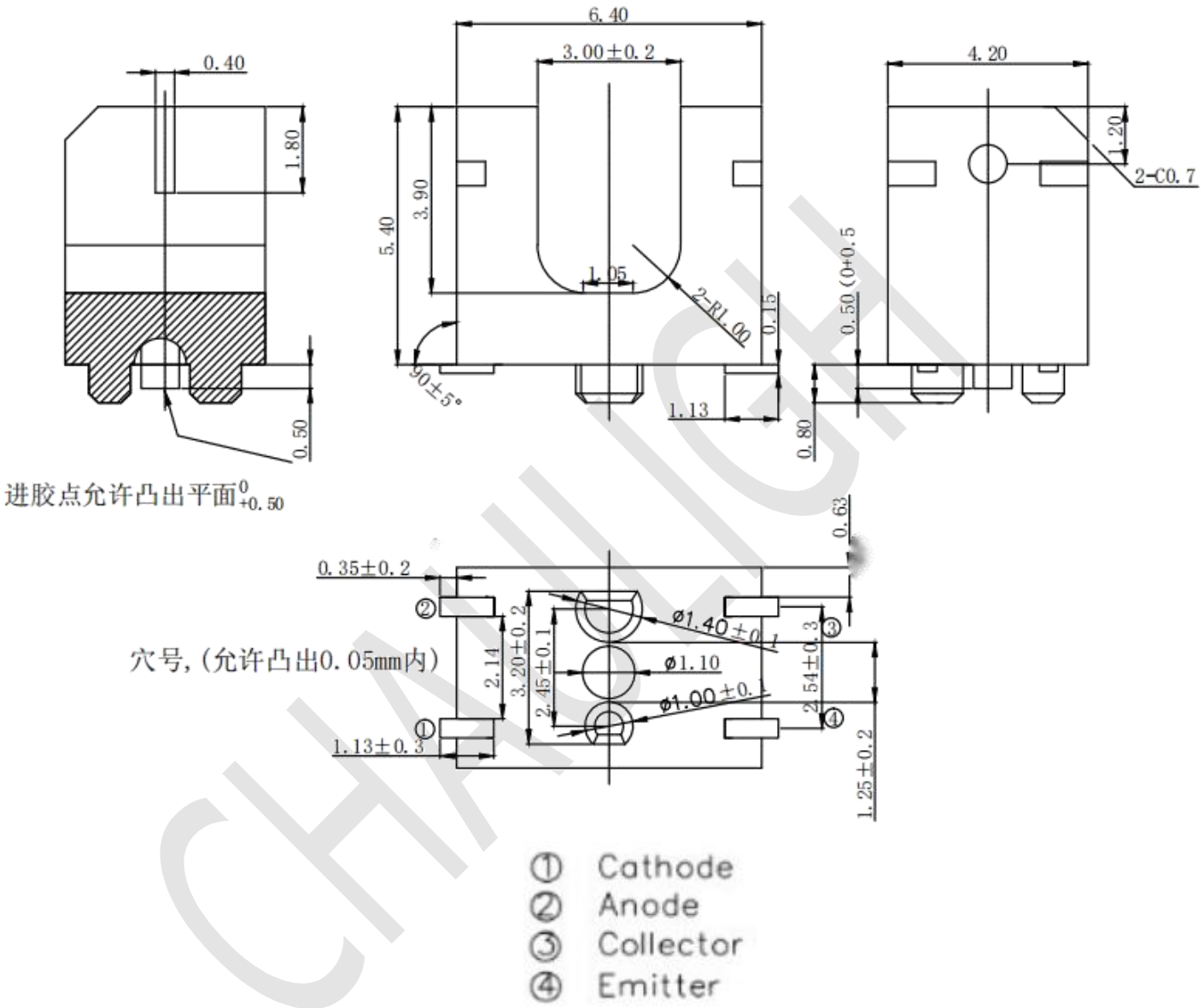
产品尺寸 Package Dimension



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 ±0.3mm

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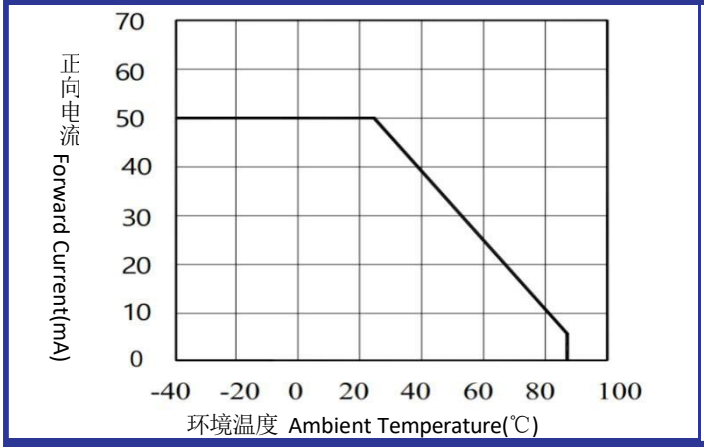
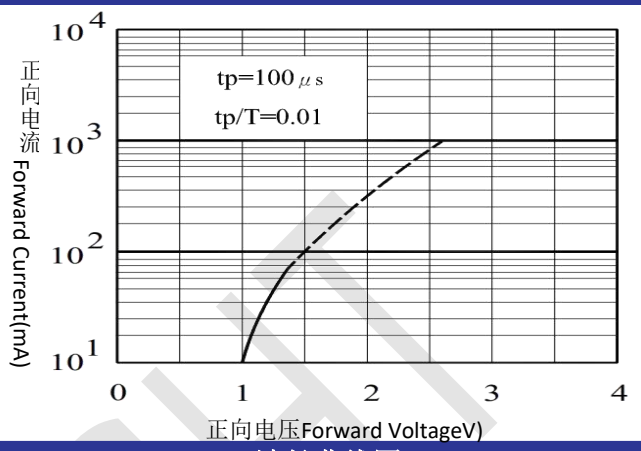
发射管特性曲线图 Typical Electro-Optical Characteristics Curves-IR

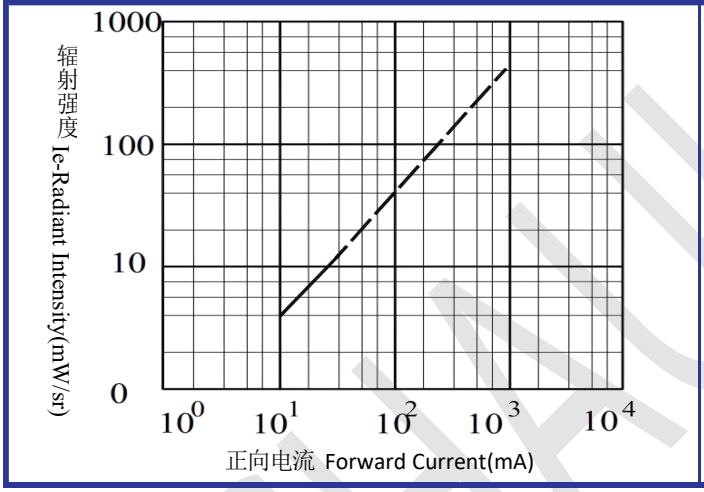
正向电流与环境温度的关系
Forward Current vs. Ambient Temperature



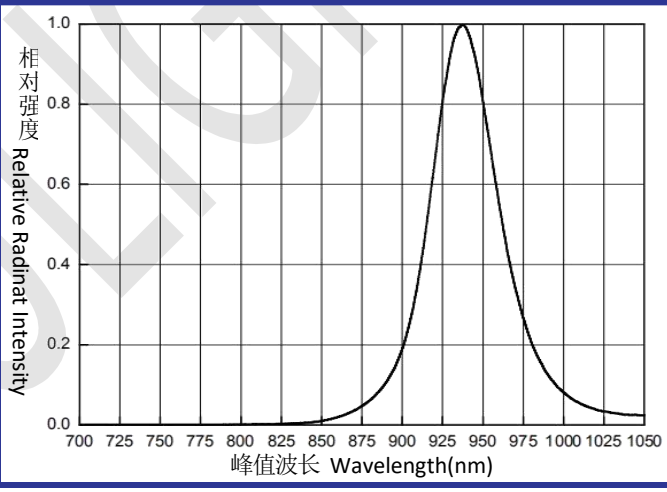
正向电流与正向电压的关系
Forward Current vs. Forward Voltage



辐射强度与正向电流的关系
Radiant Intensity vs. Forward Current



波长曲线图
Spectral Distribution



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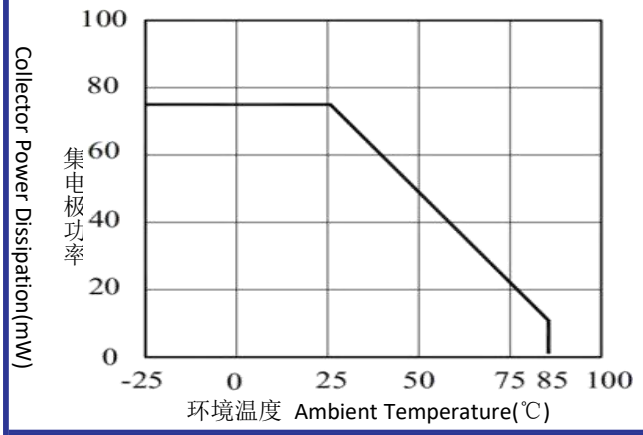
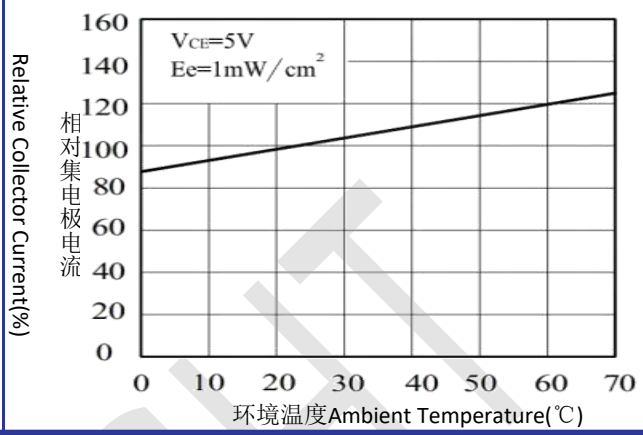
接收管特性曲线图 Typical Electro-Optical Characteristics Curves-PT

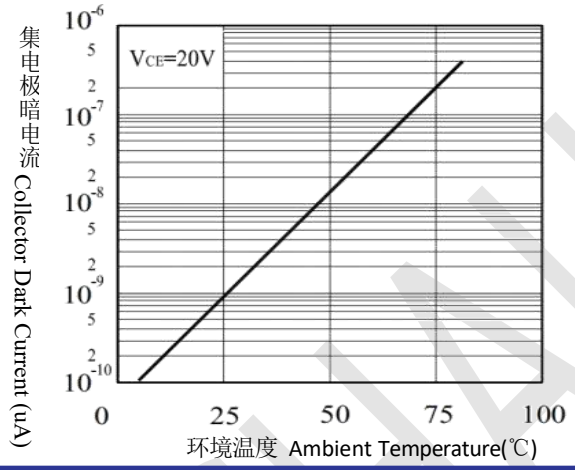
集电极功率与环境温度的关系
Collector Power Dissipation vs. Ambient Temperature



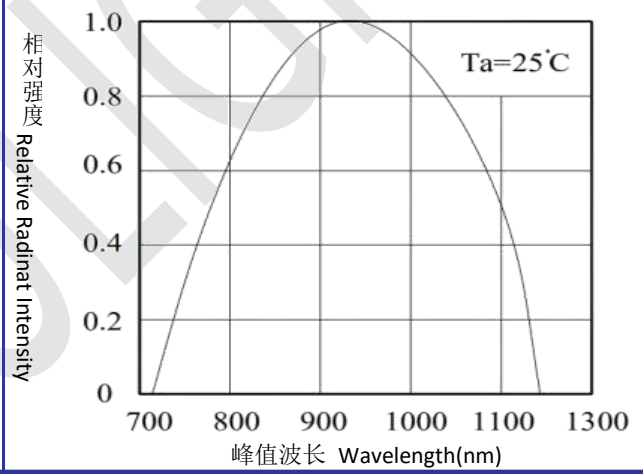
相对集电极电流与环境温度的关系
Relative Collector Current vs. Ambient Temperature



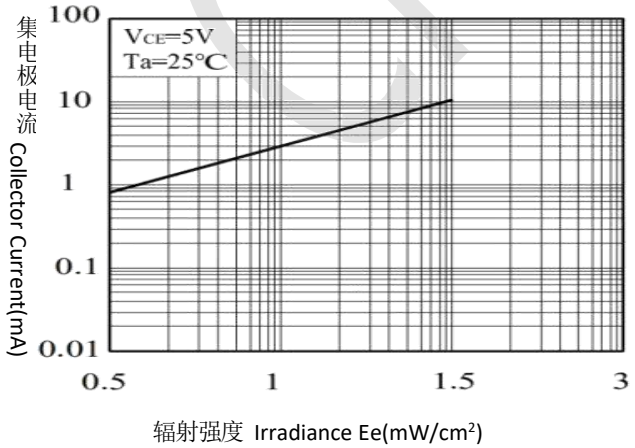
集电极暗电流与环境温度的关系
Collector Dark Current vs. Ambient Temperature



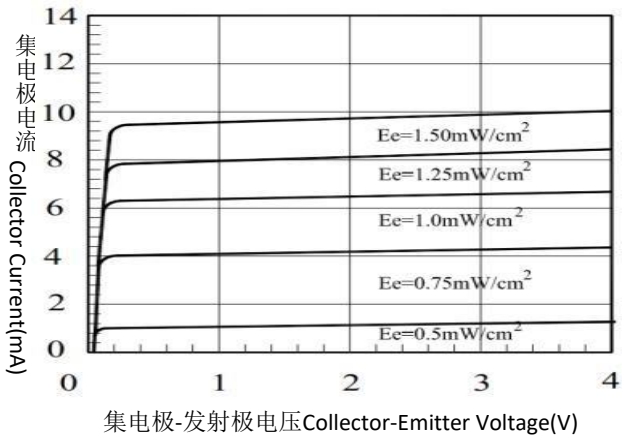
感应波长曲线图
Spectral Sensitivity



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



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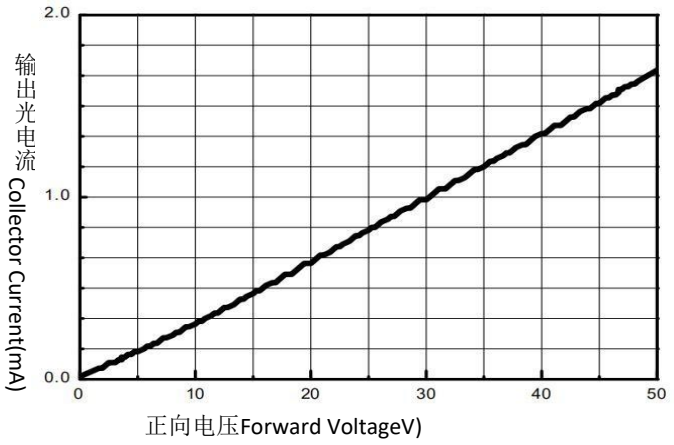
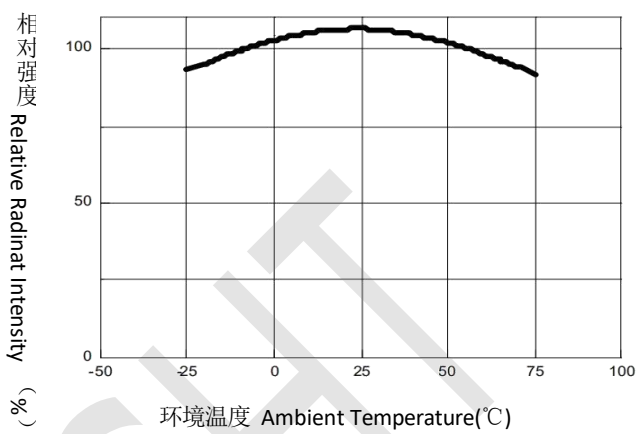
光电开关特性曲线图 Typical Electro-Optical Characteristics Curves-ITR

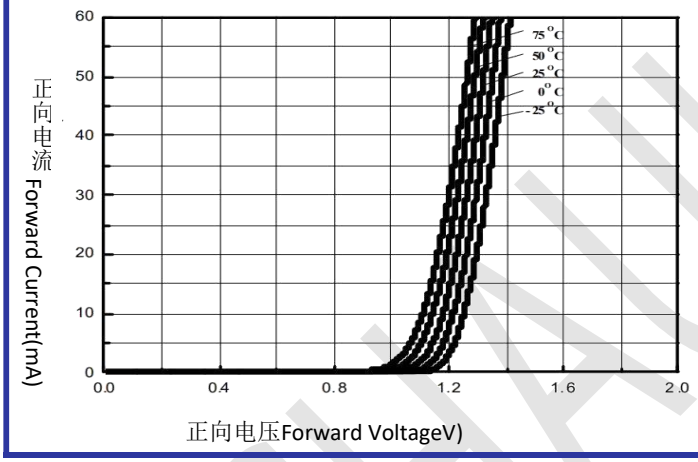
光电流与正向电压的关系
Collector Current vs. Forward Voltage



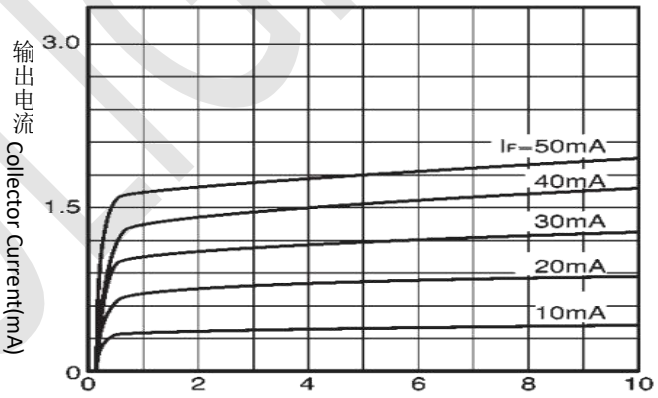
输出强度与环境温度的关系
Relative Output vs. Ambient Temperature



正向电流和正向电压的关系
Forward Current vs. Forward Voltage



输出特性
Output Characteristics



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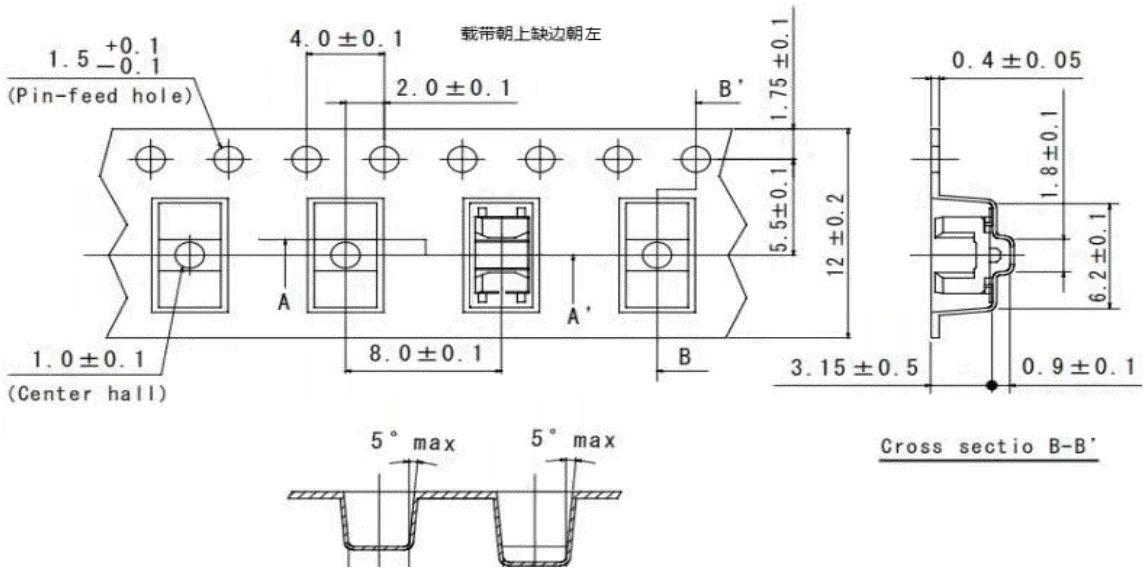
包装规格 Packing Specification

--卷轴包装尺寸Package Dimensions
--载带编带的尺寸 Carrier Tape Dimensions
--装载数量Loaded Quantity



注意事项 Note

--设计指南 Design Guide

1、避免检测失败 Prevention of detection error

为了防止外部光引起的光中断器故障操作，不要将检测面设置为外部光 To prevent photointerrupter from faulty operation caused by external light, do not set the detecting face to the external light.

2、检测板的位置Position of opaque board

检测板应安装在距元件顶部 1.6mm 或以上的地方Opaque board shall be installed at place 1.6mm or more from the top of elements.

(示例Example)

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--衰减状况 Degradation

一般情况下，光中断器中使用的 IRED 的发射会随着时间的推移而降低。 在长期运行的情况下，请将一般的发射管衰解（5 年内衰解 50%）纳入设计考虑。In general, the emission of the IRED used in photointerrupter will degrade over time.In the case of long term operation, please take the general IRED degradation (50% degradation over 5 years) into the design consideration.

--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℃~30℃和 90%RH 或以下。Before opening the package, the LED should be kept at 10℃~30℃ and 90%RH or less.

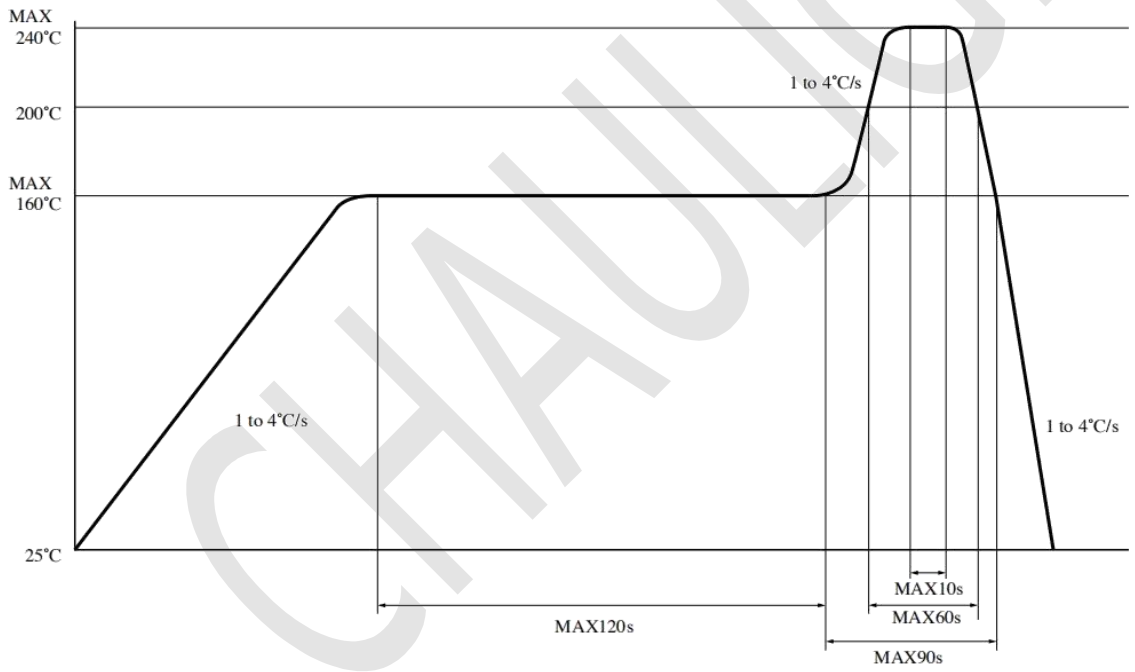
3、二极管建议在一年内使用。The LED suggested be used within one year.

4、 打开包装后，设备必须存储在 10°C~30°C 和 60%RH，并在 72 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，除湿条件烘烤60±5° 24小时。
After opening the package, the devices must be stored at 10°C~30°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° C±5° 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°C ± 5°C and < 5 % RH (reeled/tubed/loose uni--焊接方法 Soldering Method

1、回流焊接应遵循下面所示的温度剖面。 焊接不应超过温度剖面和时间的曲线。 请在一次内焊锡Reflow soldering should follow the temperature profile shown below.Soldering should not exceed the curve of temperature profile and time.Please solder within one time。



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2、当焊锡铁点低于 350 ℃时，手工焊接应在 3s 内完成请在一次内焊接。 请不要直接用烙铁触摸端子。 灭菌产品应在常温下处理。Hand soldering should be completed within 3 s when the point of solder iron is below 350℃Please solder within one time.Please don't touch the terminals directly by soldering iron.Soldered product shall treat at normal temperature.

3、请注意不要让任何外力施加在铅销上。请在实际情况下测试焊接方法，并确保焊接工作良好，因为对器件和PCB 之间的连接的影响取决于冷却和焊接条件。Please take care not to let any external force exert on lead pins. Please test the soldering method in actual condition and make sure the soldering works fine, since the impact on the junction between the device and PCB varies depending on the cooling and soldering conditions.

4、本产品的引线端子为镀锡铜合金。 在使用前，请评估确认可焊性的实际条件。并且没有指定引线端子的颜色均匀性。Lead terminals of this product are tin copper alloy plated. Before usage, please evaluate solderability with actual conditions and confirm. And the uniformity in color for the lead terminals are not specified.

--清洁说明 Cleaning instructions

1、溶剂温度应在 45° C 或以下。浸泡时间应在 3 分钟或以下。Solvent temperature should be 45° C or below. Immersion time should be 3 minutes or less.

2、不执行超声波清洗。Do not execute ultrasonic cleaning.

3、推荐溶剂材料：乙醇、甲醇和异丙醇 Recommended solvent materials :Ethyl alcohol, Methyl alcohol and Isopropyl alcohol.

--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.

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	2021-1-16	新产品发布New Production	王乐	郝三强

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