



洲光源
CHAULIGHT

产品规格书 SPECIFICATION

客户名称: _____

Customer Name

产品类型: 光电编码器模块

Product Name

产品型号: ZOE-T0802-XX-XX

Part No.

<input type="checkbox"/> 技术参考 Technical Reference		<input type="checkbox"/> 样品 Sample		<input type="checkbox"/> 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	
<input type="checkbox"/> 接收 Qualified		<input type="checkbox"/> 不接收 Disqualified		日期 Date:	

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.

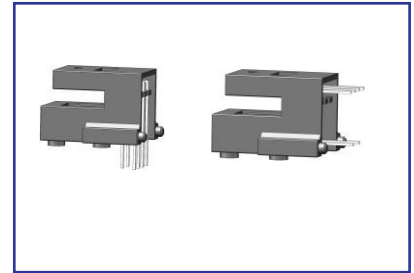
本规格书仅用于双方交流用需经双方签订后方可生效,自签订后有效期为两年,期满后需以书面形式续签。最终解释权为洲光源所有。

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.

ZOE-T0802 系列是高性能，低成本，光学二通道增量编码器模块。内部集成了精密光栅相位矩阵接受芯片和光源，配合码盘，模块就能传感出转动的位置信息和速度信息

ZOE-T0802 The series is high performance, low cost, optical two-channel incremental encoder modules. Internal integration of the precision grating phase matrix acceptance chip and light source, combined with the code plate, the module can sense the rotating position information and speed information



ZOE-T0802 系列按直线分，有以下 LPI:20, 45, 90, 150, 180, 300, 360.

光半径 11mm 的选项有: 100CPR, 600CPR

ZOE-T0802 series divided by straight line with the following LPI: 20,45,90,150,180,300,360

Light radius of 11mm options are: 100CPR,600CPR

特性 Feature

- 采用光电矩阵排列技术
Using the photoelectric matrix arrangement technique
- 工作温度-20 °C-- +85 °C
Operating Temperature-20 C-- + 85 C
- 多种 CPR 选择
Multiple CPR options
- C 型结构，方便使用
C-type construction for easy use
- 输出 TTL 兼容
Output TTL is compatible
- 5V 供电
5V Power Supply

应用 Application

--典型应用包刮打印机，绘图仪，伺服电机，工厂自动化等

Typical application package scratch printer, plotter, servo motor, factory automation, etc

▶ 最大额定值 Absolute Maximum Ratings

测试项目 Parameter (Ta=25℃)	符 号 Symbol	范 围 Ratings	单 位 Unit
工作电压 working voltage	V _F	-0.5--7	V
反向电压 Reverse Voltage	V _R	3	V
工作温度 Operating Temperature	T _{opr}	-20~+85	℃
储存温度 Storage Temperature	T _{stg}	-40~+85	℃
焊接温度 Lead Soldering Temperature*2	T _{sol}	不超过 260℃ 5 秒	℃
工作频率 Service frequency	F	500	KHz
光源反向电压 Reverse voltage of light source	V _r	10	V
正向电流(650nm 光源) Forward current (650nm light source)	I _F	30	mA
正向电流(850nm 光源) Forward current (850nm light source)	I _F	70	mA

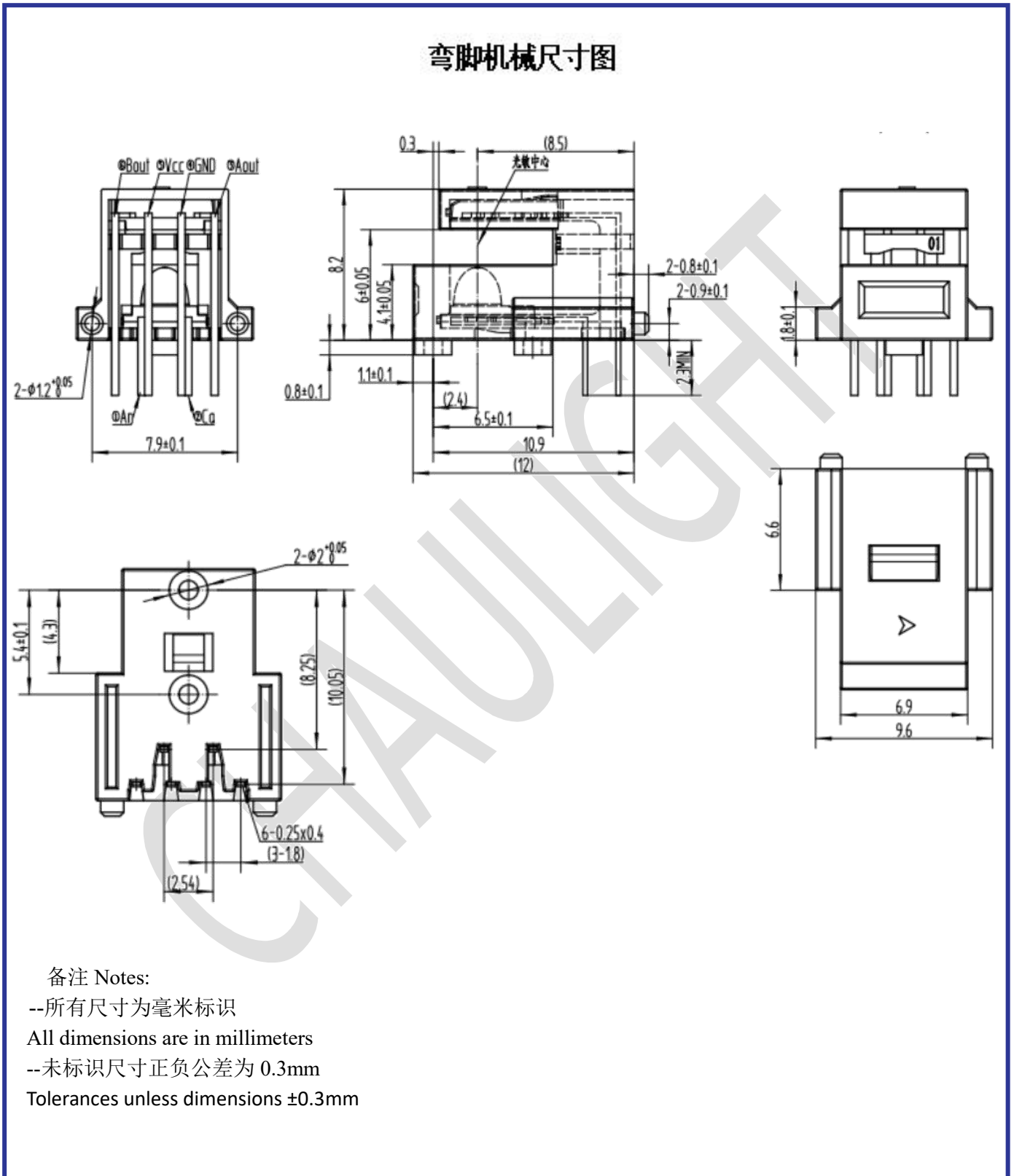
*1、在 25 摄氏度的环境中测试 below 25 Free Air Temperature

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

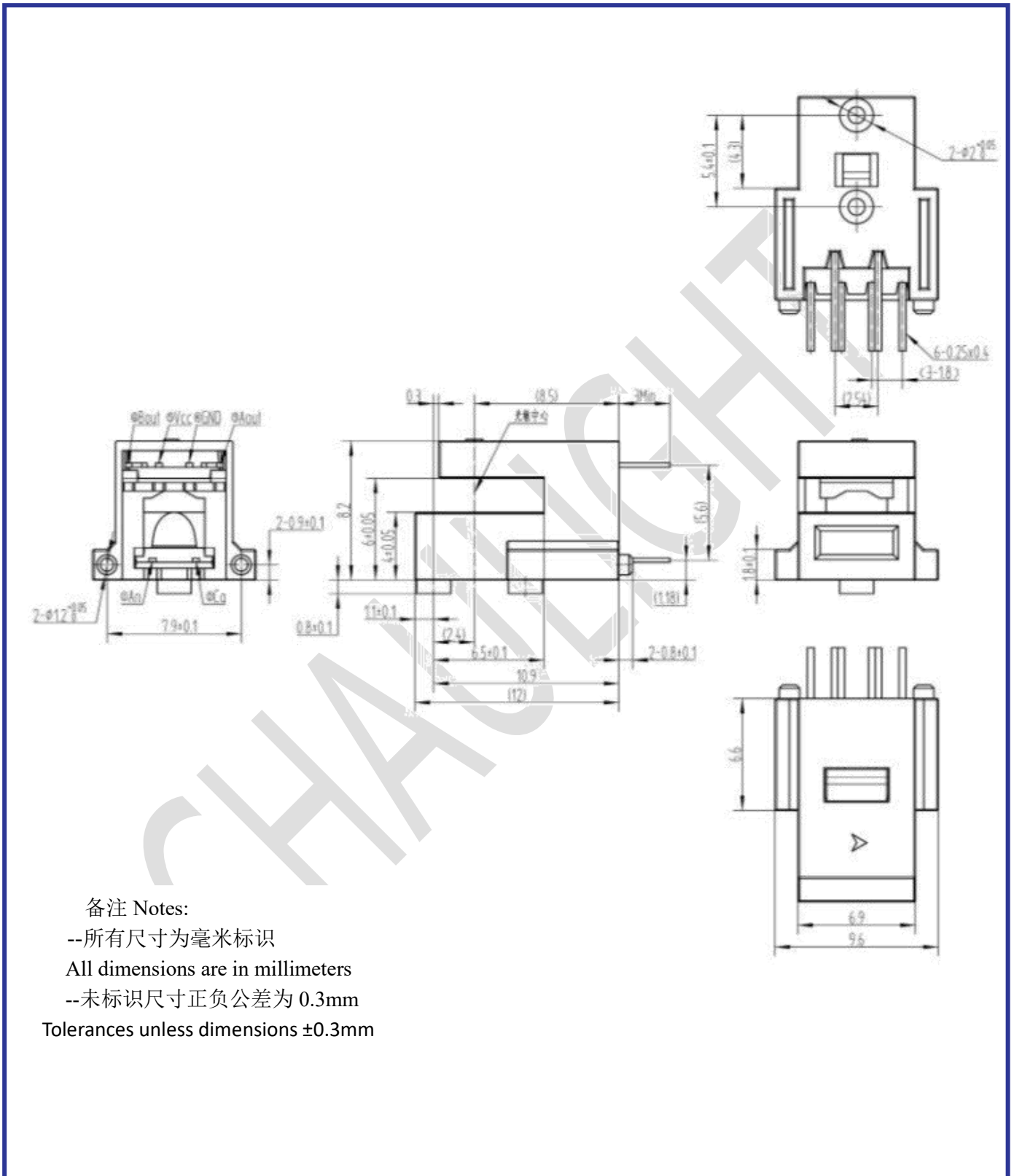
▶ 推荐使用环境

项目 Parameter	符 号 Symbol	范 围 Ratings	单 位 Unit
工作电压 working voltage	V _F	4.5-5 波纹电压小于 100mV	V
工作温度 Operating Temperature	T _{opr}	-20~+85	℃

产品尺寸 Package Dimension 弯脚机械尺寸图



直脚机械尺寸图



引脚定义

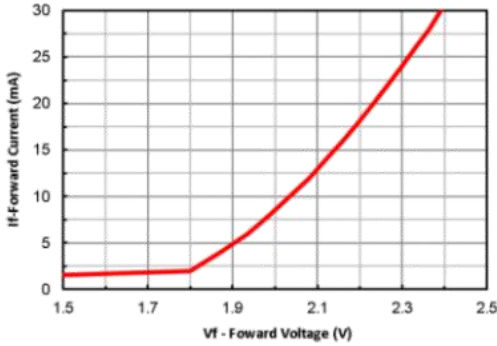
引脚名称	功能	输入/输出
An	光源正极 (建议加 240 欧姆限流电阻, +VCC=5V)	
Ca	光源负极	
Vcc	电源+, 5V	电源
Aout	A 通道输出, 内有上拉电阻 2K Ω	输出
Bout	B 通道输出, 内有上拉电阻 2K Ω	输出
Gnd	电源地	电源地

光电特性 Electro-Optical Characteristics

电性参数 (温度=25 $^{\circ}$ C)

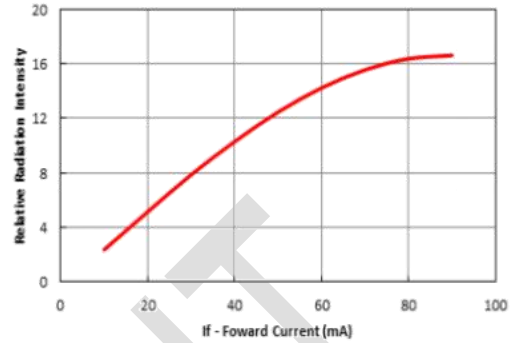
电性参数 (温度=25 $^{\circ}$ C) Parameter (Ta=25 $^{\circ}$ C)	符号	最小	典型	最大	单位	条件
光源正向电压 (650nm 光源)	Vf	1.8	2	2.3	V	If=20mA
光源波长 (650nm 光源)	λ	650		660	nm	If=20mA
光源正向电压 (850nm 光源)	Vf	1.4		1.9	V	If=20mA
光源波长 (850nm 光源)	λ	845		855	nm	If=20mA
接受芯片工作电流	I _{cc}		10	15	mA	
输出低电平	V _{OL}		0.4	0.5	V	内部 2k 欧姆上拉电阻
输出高电平	V _{OH}	4	4.5		V	内部 2k 欧姆上拉电阻
A/B 上升沿时间	t _r		100		ns	内部 2k 欧姆上拉电阻, CL=8PF
A/B 下降沿时间	t _f		50		ns	内部 2k 欧姆上拉电阻, CL=8PF
AB 占空比	Dt	40	50	60	%	
AB 相位差	θ	60	90	120	$^{\circ}$ e	
响应频率	f			200	KHz	

光源特性曲线 Light source characteristic curve



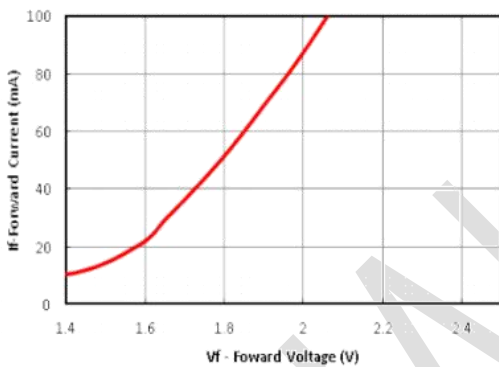
I-V 曲线

图 1 650nm 光源正向电压与正向电流



L-I 曲线

图 2 650nm 光源正向电流与相对发光强度



I-V 曲线

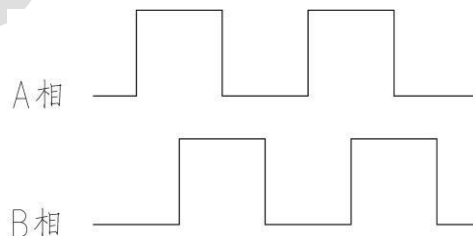
图 3 850nm 光源正向电压与正向电流



L-I 曲线

图 4 850nm 光源正向电流与相对发光强度

波形图

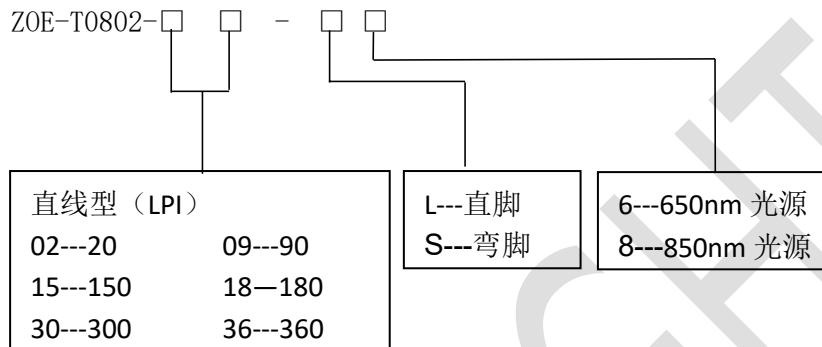


顺时针转动 A/B 输出波形

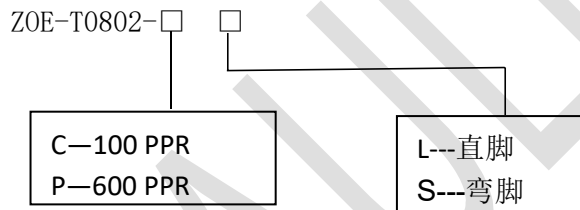
模块选型指南

ZOE-T0802 系列有多样选择，按直线型 LPI 和光学半径(ROP)=11mm 两种，具体见如下表格。

直线型 LPI 选型：



光学半径 ROP=11mm 的模块选型 (650nm 光源)：



选型举例：

如果要选一个 90LPI 的弯脚模块，型号则是：ZOE-T0802-09-S8

如果选 600 脉冲的 ROP=11 的直脚模块，型号则是：ZOE-T0802-PL

► 注意事项 Note

--过流保护 Over-current-proof

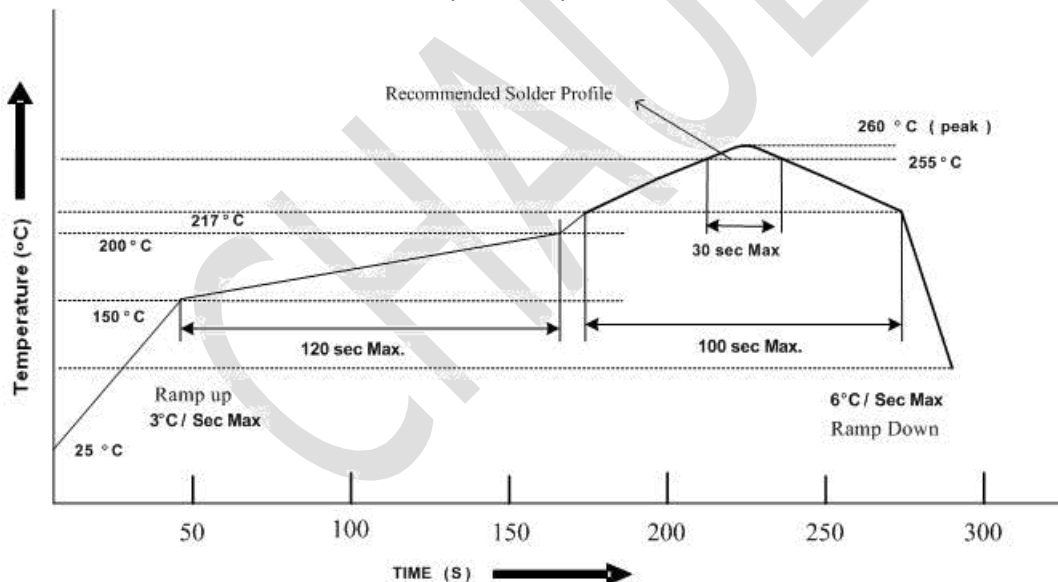
1、客户必须应用电阻进行保护，否则会造成轻微电压偏移大电流变化（烧毁将发生）。Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

--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，模块应保持在 10°C~30°C 和 90%RH 或以下。Before opening the package, the LED should be kept at 10°C~30°C and 90%RH or less.
- 3、模块建议在一年内使用。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 168 小时内使用（地板寿命）。如果未使用的模块仍然存在，它应储存在防潮包装中。After opening the package, the devices must be stored at 10°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 units)

--焊接条件 Soldering Condition

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



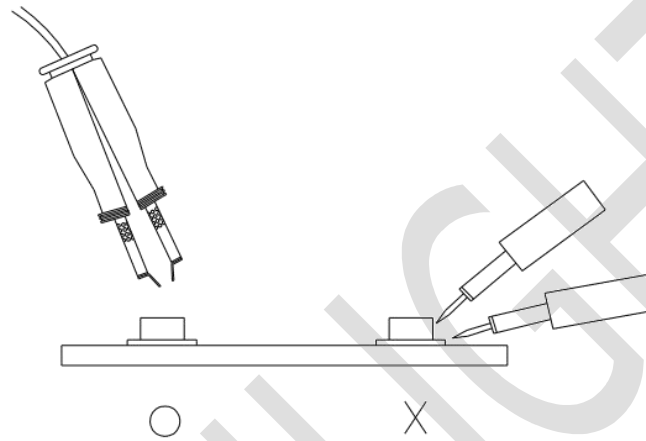
- 2、回流焊不应做两次以上。Reflow soldering should not be done more than two times.
- 3、焊接时，不要在加热过程中对 LED 施加压力。When soldering, do not put stress on the LEDs during heating.
- 4、焊接后，不要使电路板翘曲。After soldering, do not warp the circuit board.

--烙铁条件 Soldering Iron

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

- 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	2021-4-14	新版本发布 New Edition	王乐	郝三强
2.0	2022-2-18	新版本发布 New Edition	王乐	郝三强