



洲光源  
CHAULIGHT

# 产品规格书 SPECIFICATION

客户名称: \_\_\_\_\_

Customer Name

产品类型: 反射式光电开关

Product Name

产品型号: ZOS-R0705-B08

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)<br>Client approval (Stamp)            |            | 洲光源审核<br>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                                        |  |
| <input type="checkbox"/> 接收 Qualified             |            | <input type="checkbox"/> 不接收 Disqualified |            | 日期 Date: 2020-12-31                        |  |

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

ZOS-R0705-B08 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，请参阅 IR 和 PT。

The ZOS-R0705-B08 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 phototransistor 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  $\lambda_p=940\text{nm}$
- 无铅材料、RoHS 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

## 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<br>Input Emitter           | 功率 Power Dissipation *1             | Pd                 | 75         | mW      |
|                                   | 反向电压 Reverse Voltage                | V <sub>R</sub>     | 5          | V       |
|                                   | 持续正向电流 Forward Current              | I <sub>F</sub>     | 50         | mA      |
|                                   | 脉冲正向电流 Peak Forward Current *2      | I <sub>FP</sub>    | 1          | A       |
| 输出端接收极<br>Output Detector         | 功率 Power Dissipation *1             | Pd                 | 75         | mW      |
|                                   | 集电极-发射极电压 Collector-Emitter Voltage | V <sub>CEO</sub>   | 30         | V       |
|                                   | 发射极-集电极电压 Emitter-Collector Voltage | V <sub>ECO</sub>   | 5          | V       |
|                                   | 集电极电流 Collector Current             | I <sub>C(ON)</sub> | 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        | ℃       |

\*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℃)<br>Parameter (Ta=25℃) |                                        | 符号<br>Symbol         | 条件<br>Condition                                | 最小值<br>Min. | 典型值<br>Typ. | 最大值<br>Max. | 单位<br>Units |
|-------------------------------------|----------------------------------------|----------------------|------------------------------------------------|-------------|-------------|-------------|-------------|
| 输入端<br>Input                        | 正向电压 Forward Voltage                   | V <sub>F</sub>       | I <sub>F</sub> =20mA                           | --          | 1.2         | 1.5         | V           |
|                                     |                                        |                      | I <sub>F</sub> =100mA*2                        | --          | 1.4         | 1.85        |             |
|                                     |                                        |                      | I <sub>F</sub> =1A *2                          | --          | 2.6         | 4.0         |             |
|                                     | 峰值波长 Peak Wavelength                   | λ <sub>p</sub>       | I <sub>F</sub> =20mA                           | --          | 940         | --          | nm          |
|                                     | 反向电流 Reverse Current                   | I <sub>R</sub>       | V <sub>R</sub> =5V                             | --          | --          | 10          | μA          |
| 输出端<br>Output                       | 暗电流 Dark Current                       | I <sub>CEO</sub>     | Ee=0mW/cm <sup>2</sup><br>V <sub>CE</sub> =20V | --          | --          | 100         | nA          |
|                                     | 集电极-发射极的工作电压<br>C-E Saturation Voltage | V <sub>CE(SAT)</sub> | I <sub>C</sub> =2mA<br>Ee=1mW/cm <sup>2</sup>  | --          | --          | 0.4         | V           |
| 转换特性<br>Transfer<br>Characteristics | 上升时间 Rise Time                         | t <sub>r</sub>       | V <sub>CE</sub> =5V<br>I <sub>C</sub> =1mA     | --          | 25          | --          | μS          |
|                                     | 下降时间 Fall Time                         | t <sub>f</sub>       | R <sub>L</sub> =1000Ω                          | --          | 25          | --          |             |
|                                     | 光电流 Collector Current                  | I <sub>C(ON)</sub>   | V <sub>CE</sub> =2V<br>I <sub>F</sub> =10mA    | 0.6         | --          | --          | mA          |

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

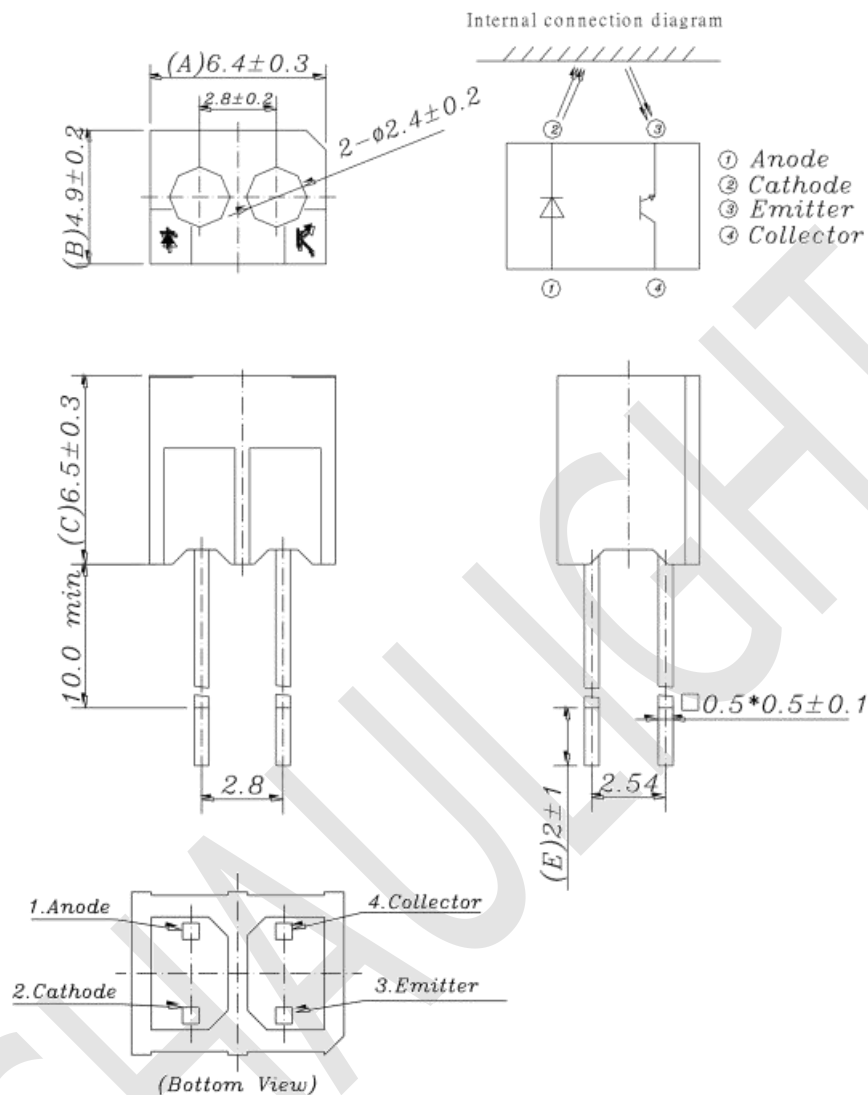
## 等级档位 Rank

| 档位 Bin | 符号 Symbol | 条件 Condition    | 最小值 Min. | 最大值 Max. | 单位 Unit |
|--------|-----------|-----------------|----------|----------|---------|
| L      | IC(on)    | IF=10mA, Vce=2V | 0.6      | 0.9      | mA      |
| K      | IC(on)    | IF=10mA, Vce=2V | 0.8      | 1.8      | mA      |
| J      | IC(on)    | IF=10mA, Vce=2V | 1.6      | 3.6      | mA      |
| H      | IC(on)    | IF=10mA, Vce=2V | 3.2      | --       | 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



备注 Notes:

--所有尺寸为毫米标识

All dimensions are in millimeters

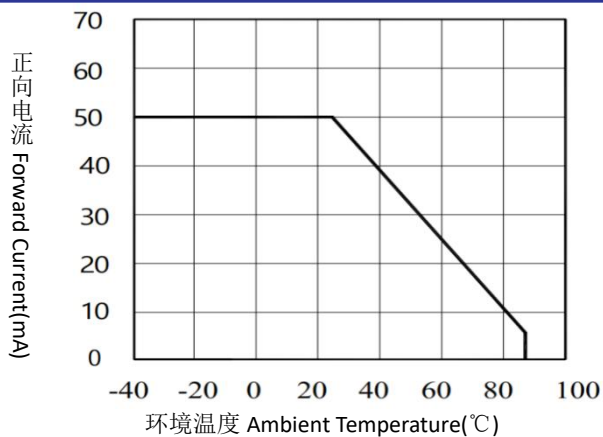
--未标识尺寸正负公差为 0.3mm

Tolerances unless dimensions  $\pm 0.3\text{mm}$

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

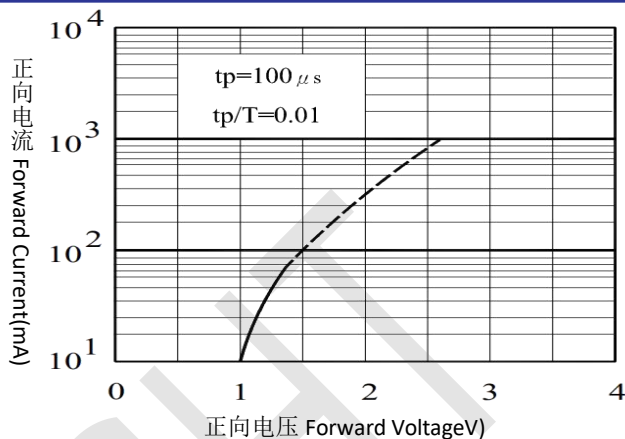
正向电流与环境温度的关系

Forward Current vs. Ambient Temperature



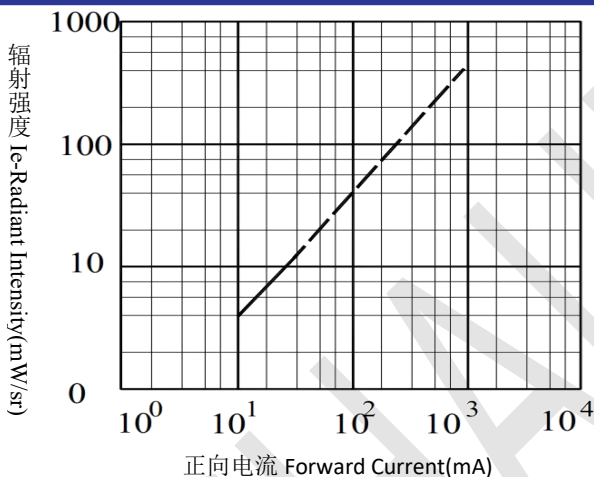
正向电流与正向电压的关系

Forward Current vs. Forward Voltage



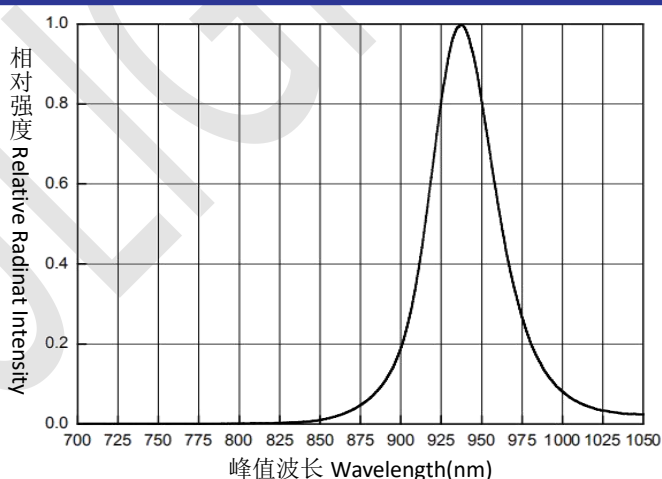
辐射强度与正向电流的关系

Radiant Intensity vs. Forward Current



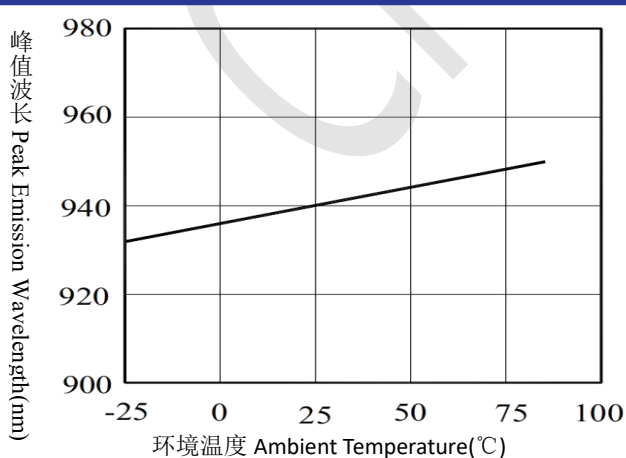
波长曲线图

Spectral Distribution



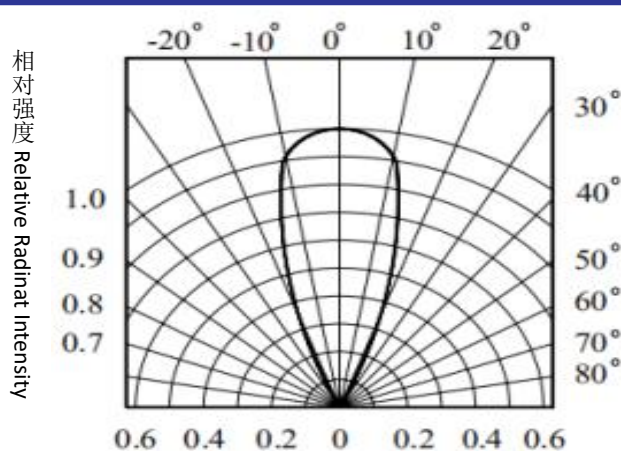
峰值波长与环境温度的关系

Peak Emission Wavelength vs. Ambient Temperature



相对辐射强度与角位移的关系

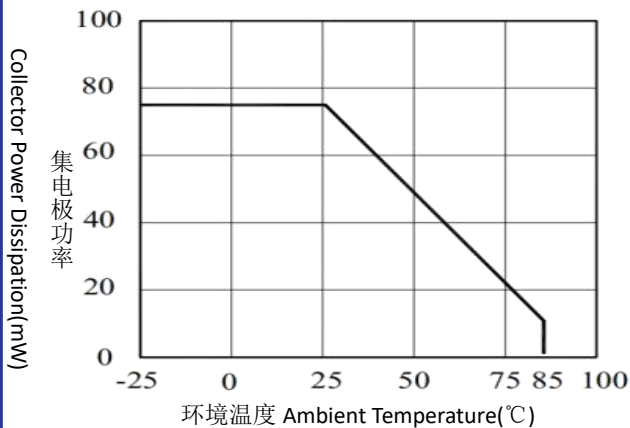
Relative Radiant Intensity vs. Angular Displacement



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

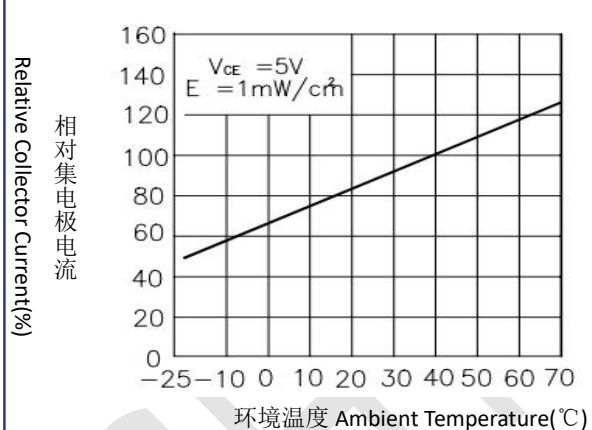
集电极功率与环境温度的关系

Collector Power Dissipation vs. Ambient Temperature



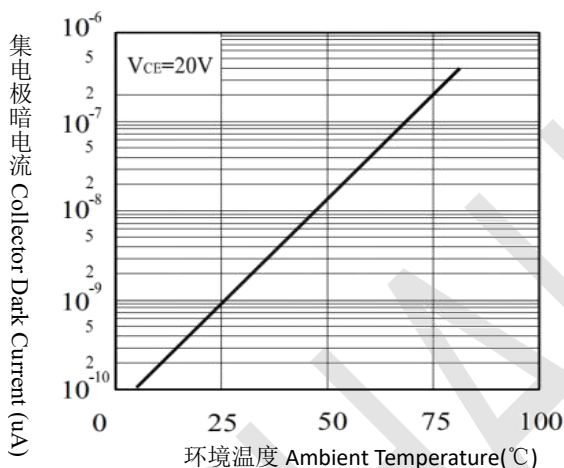
相对集电极电流与环境温度的关系

Relative Collector Current vs. Ambient Temperature



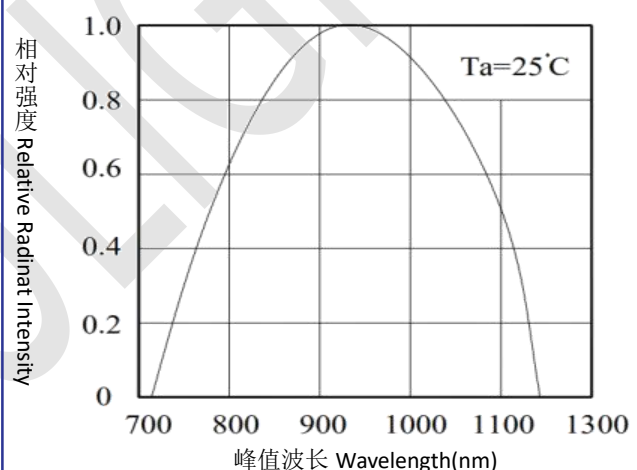
集电极暗电流与环境温度的关系

Collector Dark Current vs. Ambient Temperature



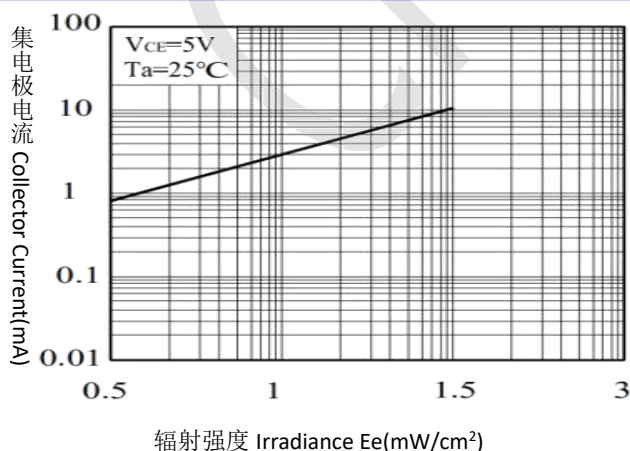
感应波长曲线图

Spectral Sensitivity



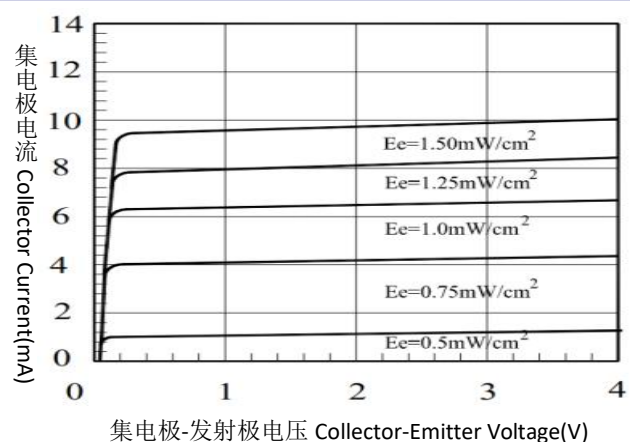
集电极电流与辐射强度的关系

Collector Current vs. Irradiance



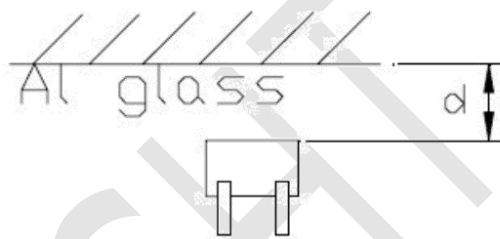
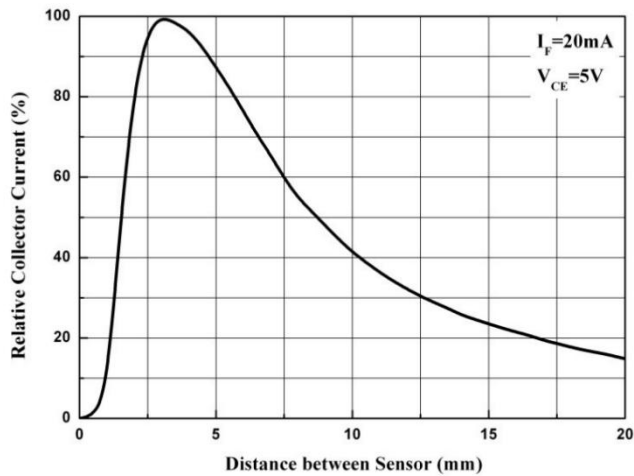
集电极电流与集电极-发射极电压的关系

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

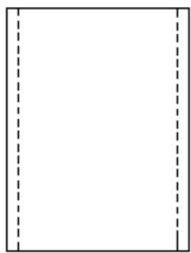


## 包装规格 Packing Specification

防静电袋 Anti-electrostatic bag

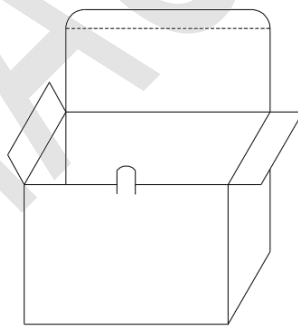
内包装盒 Inner Carton

外箱 Outside Carton



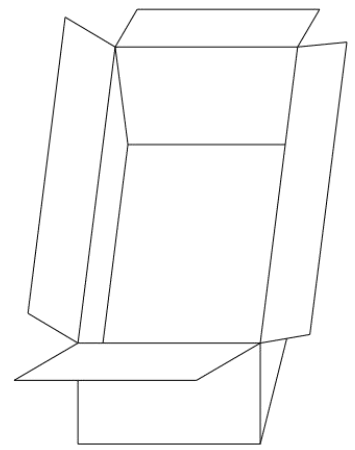
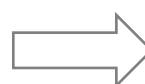
200 只/袋

200pcs/bag



6 袋/盒

6bags/Inner Carton



10 盒/箱

10 Inner Cartons/Outside Carton

## ► 注意事项 Note

### --其他 Other

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## ► 更改记录表 Engineering Change Notice-Record

| 版本<br>Edition | 更改日期<br>Date | 主要更改内容<br>Main Content | 拟 制<br>Prepared | 确 认<br>Checked |
|---------------|--------------|------------------------|-----------------|----------------|
| 1.1           | 2020-12-31   | 新版本发布 New Edition      | 王乐              | 郝三强            |
|               |              |                        |                 |                |
|               |              |                        |                 |                |
|               |              |                        |                 |                |