

# 製品仕様書

Specification

Comply With RoHS

品名: 防尘遮断型光控开关

Products Name: photo sensor (interrupter - Dust proof type)

型名 : HSO-IC-0028

Product Number: HSO-IC-0028

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| Approved            | Checked | Prepared          |
|---------------------|---------|-------------------|
| QianXY<br>2012-8-27 | —       | HuQM<br>2012-8-27 |

### 1. 适用范围 Scope of Applications

本仕様适合于防尘遮断型光控开关HSO-IC-0028。

This specification covers photo sensor(interrupter-dust proof type) of HSO-IC-0028 。

### 2. 绝对最大定格 Absolute Maximum Ratings (Ta=+25°C)

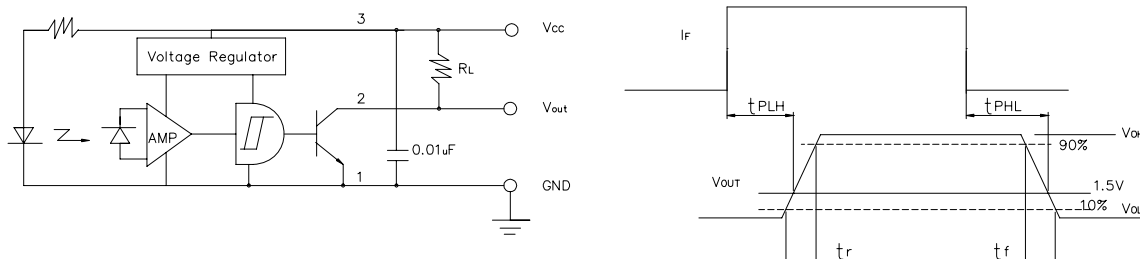
| 项 目<br>Parameter                  | 符 号<br>Symbol    | 定 格<br>Ratings | 单 位<br>Units | 备 注<br>REMARKS                                |
|-----------------------------------|------------------|----------------|--------------|---|
| 电源电压<br>Forward Current           | V <sub>cc</sub>  | DC7            | V            |   |
| 输出电压<br>Reverse Voltage           | V <sub>o</sub>   | 15             | V            | Output transistor Collentor -Emitter Voltage  |
| 输出电流<br>Power Dissipation         | I <sub>out</sub> | 16             | mA           | Output transistor Collentor Current           |
| 输出允许损失功率<br>Power Dissipation     | P <sub>o</sub>   | 250            | mW           | Output transistor Collector Power Dissipation |
| 动作温度<br>Emitter-Collector Voltage | T <sub>opr</sub> | -20~+75        | °C           |   |
| 保存温度<br>Collector Current         | T <sub>stg</sub> | -40~+80        | °C           |   |

### 3. 电气的・光学的特性

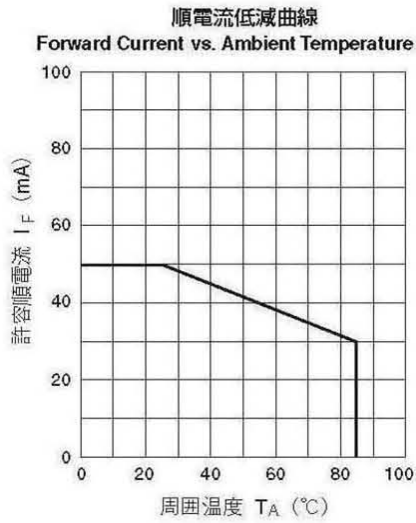
Electrical Optical characteristics Ta=+25°C

|                        | 项 目<br>PARAMETER                | 記 号<br>SYMBOL    | 测定条件<br>Test Conditions                      | 最小                   | 标准   | 最大  | 单位    |
|------------------------|---------------------------------|------------------|--|----------------------|------|-----|-------|
|                        |                                 |                  |  | Min                  | Typ  | Max | Units |
| 发光侧 Input              | 顺电压 Forward Voltage             | V <sub>F</sub>   | I <sub>f</sub> =20mA                         | —                    | 1.2  | 1.4 | V     |
|                        | 逆电流 Reverse Current             | I <sub>R</sub>   | V <sub>R</sub> =5V                           | —                    | —    | 10  | uA    |
|                        | 发光波长 Peak Wavelength            | λ <sub>p</sub>   | I <sub>f</sub> =20mA                         | —                    | 940  | —   | nm    |
| 受光侧 Output             | 动作电源电压 Supply Voltage           | V <sub>CC</sub>  | —  | 4.5                  | —    | 5.5 | V     |
|                        | 输出高电压 High level Output Voltage | V <sub>OH</sub>  | Without Shutter, R <sub>L</sub> =47KΩ        | V <sub>CC</sub> X0.9 | —    | —   | V     |
|                        | 输出低电压 Low Level Output Voltage  | V <sub>OL</sub>  | Shutter In, I <sub>oL</sub> =16mA            | —                    | —    | 0.4 | V     |
|                        | 感度波长 Peak Wavelength            | λ <sub>p</sub>   | —  | —                    | 910  | —   | nm    |
| 应答时间<br>Switching Time | L-H运转时间 Propagation Delay Time  | t <sub>PLH</sub> | I <sub>F</sub> =20mA<br>R <sub>L</sub> =47KΩ | —                    | 3    | —   | us    |
|                        | H-L运转时间 Propagation Delay Time  | t <sub>PLH</sub> |  | —                    | 5    | —   |       |
|                        | 上升时间                            | t <sub>r</sub>   |  | —                    | 0.1  | —   |       |
|                        | 下降时间                            | t <sub>p</sub>   |  | —                    | 0.05 | —   |       |

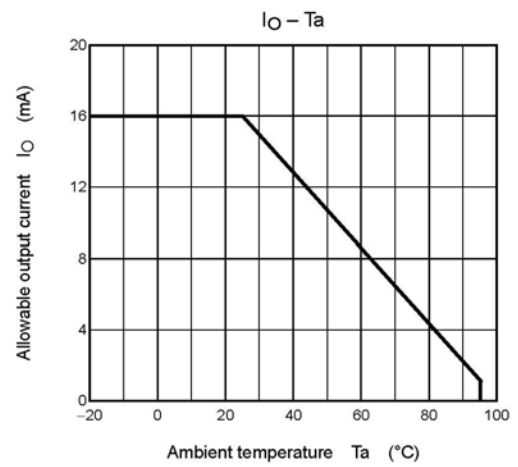
#### Swichng Time Test Circuit



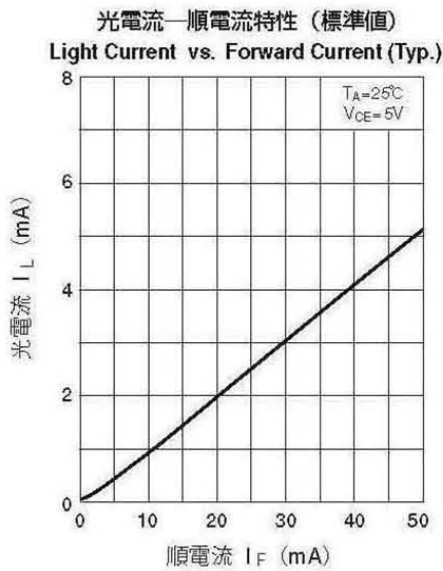
顺电流失-周围温度特性



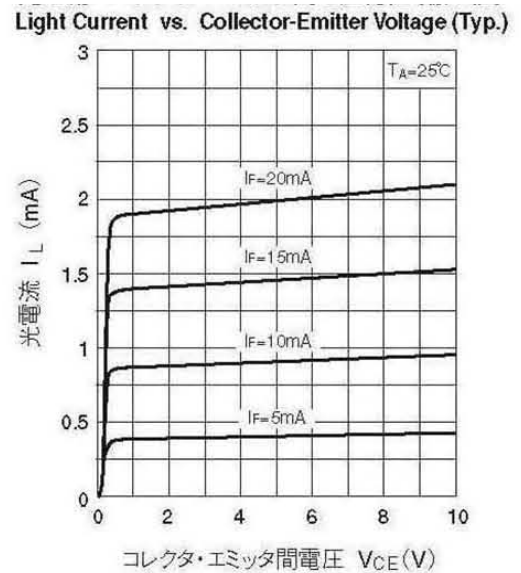
输出电流-周围温度特性



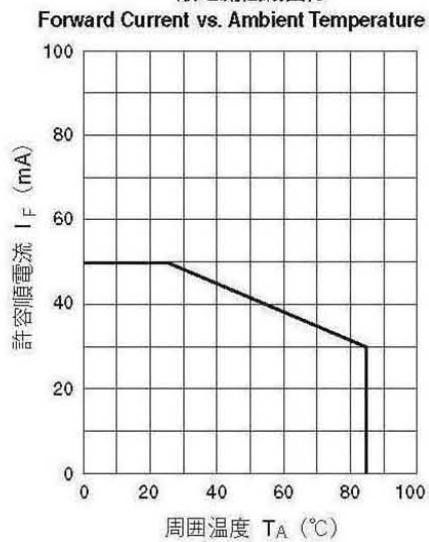
光电流-顺电流特性



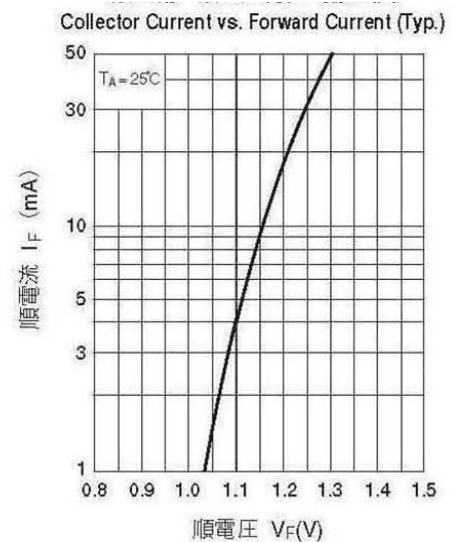
光电流-V<sub>CE</sub>特性



顺电流-周围温度特性



顺电流-电压特性



4. 机械的特性 Mechanical Characteristic.

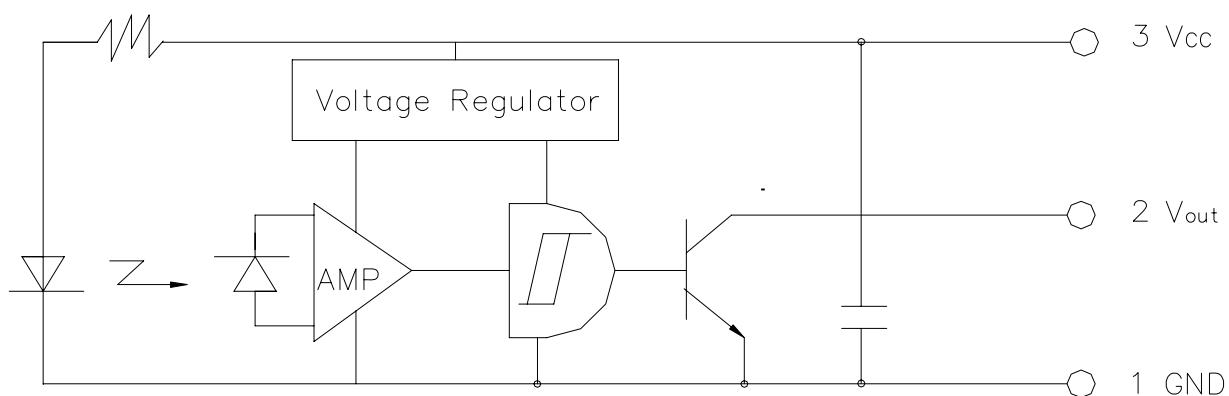
4-1. 耐振动性 全振幅1.5mm、振動频率10~55~10Hz 振动1分钟  
X, Y, Z各方向振动2分钟,无异常。

Vibration Resistance To withstand 10~55~10Hz,1.5mm amplitude and 1 minute sweep time in X,Y and Z directions, each for 2 hours.

4-2. 耐冲击性 294m/S<sup>2</sup> (30G) 以上

Shock Resistance 294m/S<sup>2</sup> (30G) or more

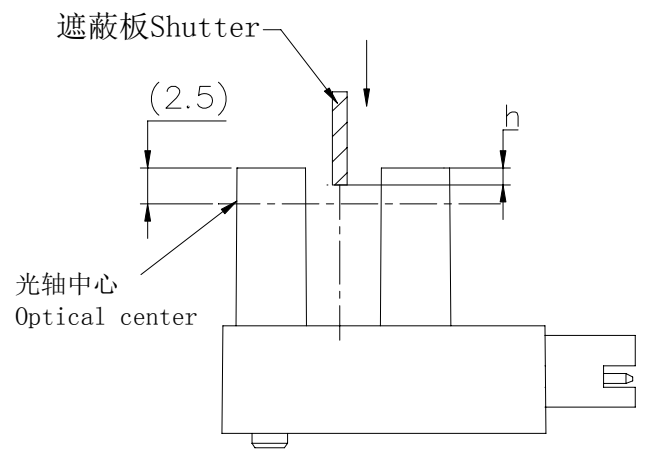
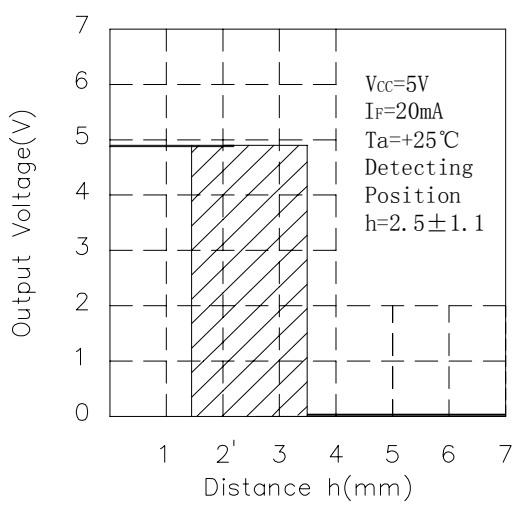
5. 内部接线图 Connection Diagram.



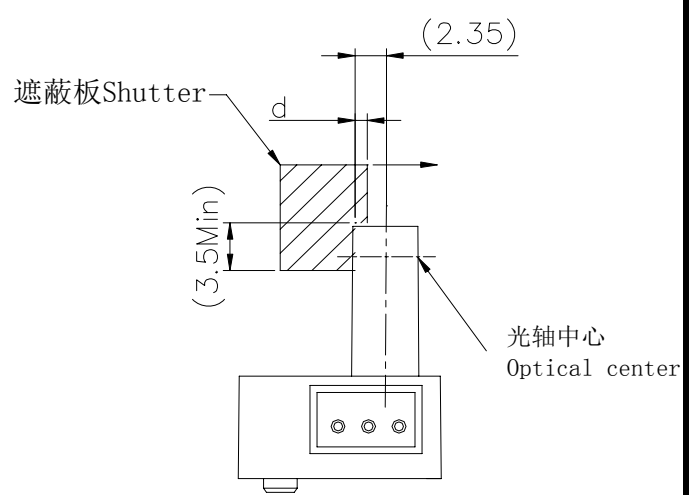
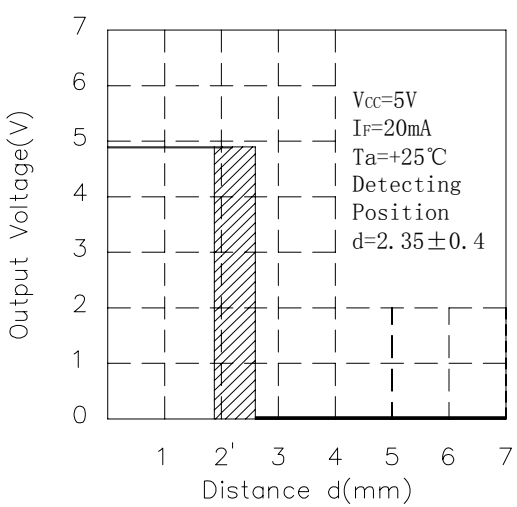
6. 检出位置特性(参考)  
 Detecting Position Characteristics (Reference)

[ VCC=5V, IF=20mA , RL=47kΩ , Ta=+25°C ]

检出位置特性(1)  
 Detecting Posetion  
 Characteristics (1)



检出位置特性(2)  
 Detecting Posetion  
 Characteristics (2)

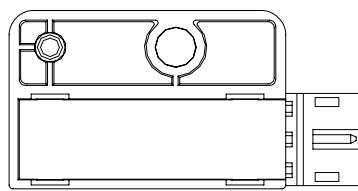
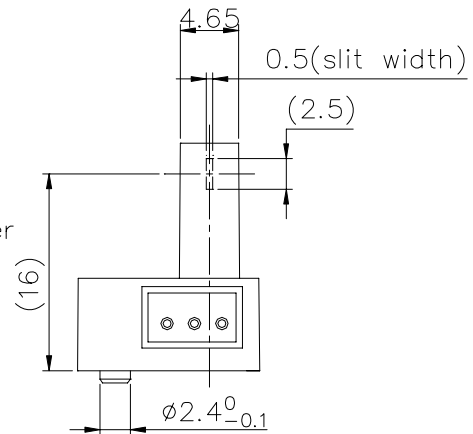
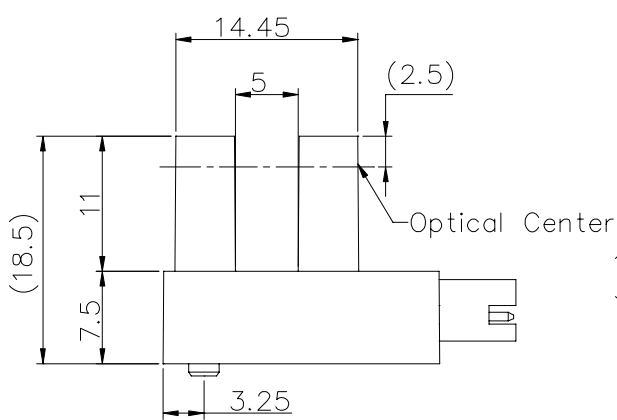
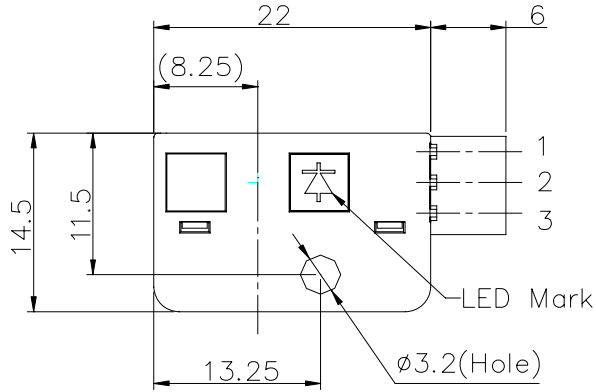


7.外形寸法图 Outline Dimensions

Gap:5mm,Slit width:0.5mm

单位: mm  
Unit: mm

一般公差: ±0.3  
Standard Tolerance: ±0.3



8.部品构成 Parts List

| NO. | Part Name            | Qty Used | Spec/Materials | Remarks                  |
|-----|----------------------|----------|----------------|--------------------------|
| 1   | Case                 | 1        | PC             | Blue(transparent)        |
| 2   | Cover                | 1        | PC             | Black                    |
| 3   | Light Emitting Diode | 1        | —              | TOSHIBA(INFRARED LED)    |
| 4   | Detector             | 1        | —              | TOSHIBA ( Photo IC)      |
| 5   | Metal Shade          | 2        | SUS304 t=0.1mm | Optical Slit width:0.5mm |
| 6   | Resistor             | 1        | 300 Ω          |                          |
| 7   | Capacitance          | 1        | 10nF           |                          |
| 8   | Connector            | 1        | B3B-PH-K-S     | JST                      |
| 9   | PCB                  | 1        | CEM-3,t=1.0mm  |                          |

|   |  |                         |                    |                 |
|---|--|-------------------------|--------------------|-----------------|
| <p>製品名<br/>MODEL NAME</p>   | <p>防尘遮断型光控开关<br/>Photo interrupter-Dust proof type</p> | <p>型名<br/>MODEL NO.</p> | <p>HSO-IC-0028</p> | <p>Page:6/6</p> |
| <p>8.使用时注意事项:<br/>HANDLING NOTES</p> <p>1.制品在使用时要小心不能负重,避免变形变质.<br/>CAREFUL ATTENTION SHOULD BE MADE TO AVOID DEFORMATION OF COMPONENTS.</p> <p>2.保存和使用要在通风良好的环境,防有腐蚀或硫化物及潮湿空气中。<br/>ENVIRONMENTAL AIR MUST BE FREE FROM CORROSIVE GASSES SUCH AS HYDROGEN SULFIDE OR SALT WATER AIR.</p> <p>3.使用时避免阳光直射和强光直射。<br/>MOUNT SENSOR AWAY FROM DIRECT SUN-LIGHT AND INCANDESCENT.</p> <p>4.光发射和接收部分的表面应保护好。<br/>THE SIDE WITH EMITTING &amp; RECEIVING ELEMENTS SHOULD BE HANDLED VERY CAREFULLY.</p> <p>5.插头插入或拔出要在常温下进行。<br/>INSERT &amp; REMOVE CONNECTORS AT ROOM TEMPERATURE ONLY.</p> <p>6.长时间使用的情况下,请要考虑发光素子功能的下降。<br/>DEGRADING LED RADIANT POWER SHOULD BE ADDRESSED IF SENSOR IS USED REPEATEDLY OVER LONG PERIOD OF TIME.</p> <p>7.本製品不能自动装配和焊接。<br/>THIS PRODUCT CAN NOT AUTOMATIC MOUNTING AND AUTOMATIC SOLDERING.</p> <p>8.本制品应用在以如下机械及设备之中。<br/>OA机器、AV机器、家電製品、通信机器(端末)、计测机器、電算机器<br/>THIS PRODUCT WAS DESIGNED FOR USE IN THE FOLLOWING APPLICATIONS.<br/>OA EQUIPMENT, VIDEO EQUIPMENT, CONSUMER ELECTRONICS, COMMUNICATION EQUIPMENT, MEASURING EQUIPMENT AND CONTROL EQUIPMENT.</p> <p>9.保証期間の保証范围<br/>GUARANTEE TERM AND GUARANTEE LIMITS</p> <p>1.保証期間<br/>GUARANTEE TERM<br/>交付后保证期为1年。<br/>THE GUARANTEE PERIOD IS ONE YEAR AFTER THE DELIVERY DATE.</p> <p>2.保証范围<br/>GUARANTEE LIMITS<br/>保证期内若本制品发生故障,我们将会更换一个产品,但不负责交货后产品组合以后发生的不良。<br/>WE WILL REPLACE A PRODUCT IF THE FAILURE IS DUE TO OUR MANUFACTURING PROCESS WITHIN THE WARRANTY TERM. WE DON'T GUARANTEE RESPONSIBILITY OF DAMAGE BY TROUBLE OF A PRODUCT AFTER THE DELIVERY.</p> <p>3.本制品在使用时请注意其相关最大规格值,若因超出其参数规格值使用发生的不良,敝司不负责。<br/>WE WILL NOT REPLACE A PRODUCT IF DAMAGE IS DUE TO DISREGARD OF MAXIMUM RATING, HANDLING NOTES AND OTHER SPECIFICATION.</p> |  |                         |                    |                 |