



Pyroelectric Infrared Sensor (Model: RD-623)

User's Manual

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Zhengzhou Winsen Electronics Technology CO., LTD.

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RD-623 Pyroelectric Infrared Sensor

Pyroelectric Infrared Sensor detects the infrared radiation by using the temperature-dependent feature. It suppresses the interference caused by temperature change adopts the method of dual sensing elements complementary which improves the stability of the sensor. This PIR sensor can be widely used in safety device, burglar alarm, automatic door, auto light control and intelligent toys.



Features:

- * High sensitivity and excellent signal to noise ratio
- * High temperature-dependent stability
- * Strong anti-jamming ability (e.g. vibration, radio-frequency interference etc.)
- * High value with competitive price

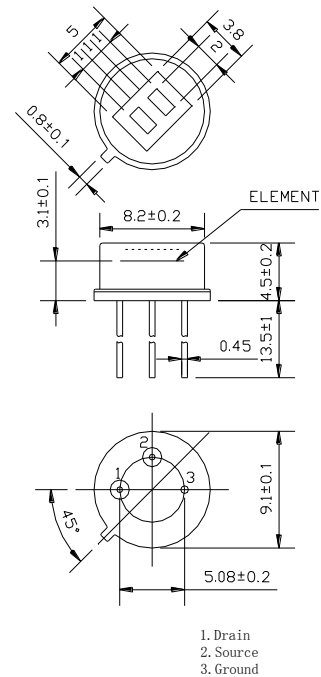
Applications

Safety Alarm
Electricity Lighting
House-hold and other fields

Parameters

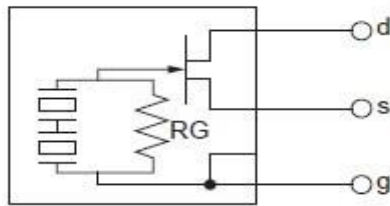
Table 1

| | |
|------------------------------|-----------------------------------------------|
| Model No. | RD-623 |
| Standard Encapsulation: | TO-5 |
| Infrared receiving Electrode | 2×1mm, 2 sensitive elements |
| Window Size: | 3.8×5mm |
| Receiving Wavelength: | 7~14μm |
| Transmittance | >75% |
| Output signal peak[Vp-p] | 3500mV |
| Sensitivity | 3200V/W |
| Detection Rate (D*): | $1.4 \times 10^8 \text{ cmHz}^{1/2}/\text{W}$ |
| Noise peak[Vp-p]: | <70mV |
| Output balance degree: | <10% |
| Source Voltage: | 0.2~1.5V |
| Working Voltage: | 2~15V |
| Working temperature: | -30~70°C |
| Storage temperature: | -40~80°C |
| Incidence angle map: | |

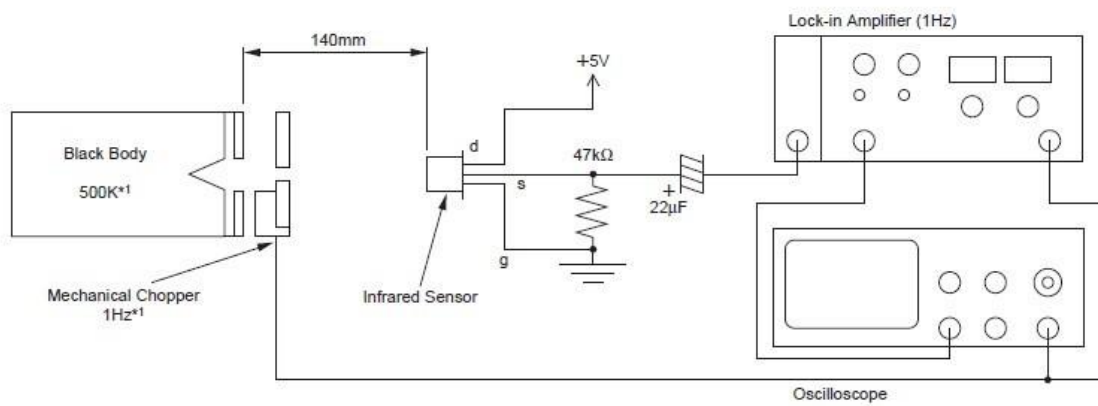


Component Structure

Basic Testing Circuits

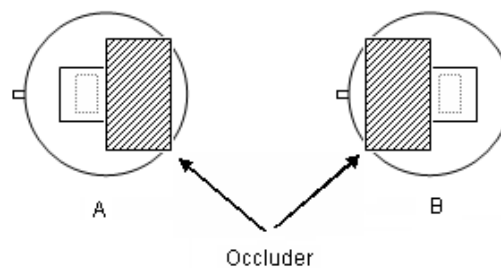


Test Method:



Testing Conditions:

- ◆ Environment Temperature: 25°C
- ◆ Blackbody temperature: 420K
- ◆ Modulation frequency 1HZ, 0.3 ~ 3.5HZ Δf
- ◆ Magnification: 72.5 dB



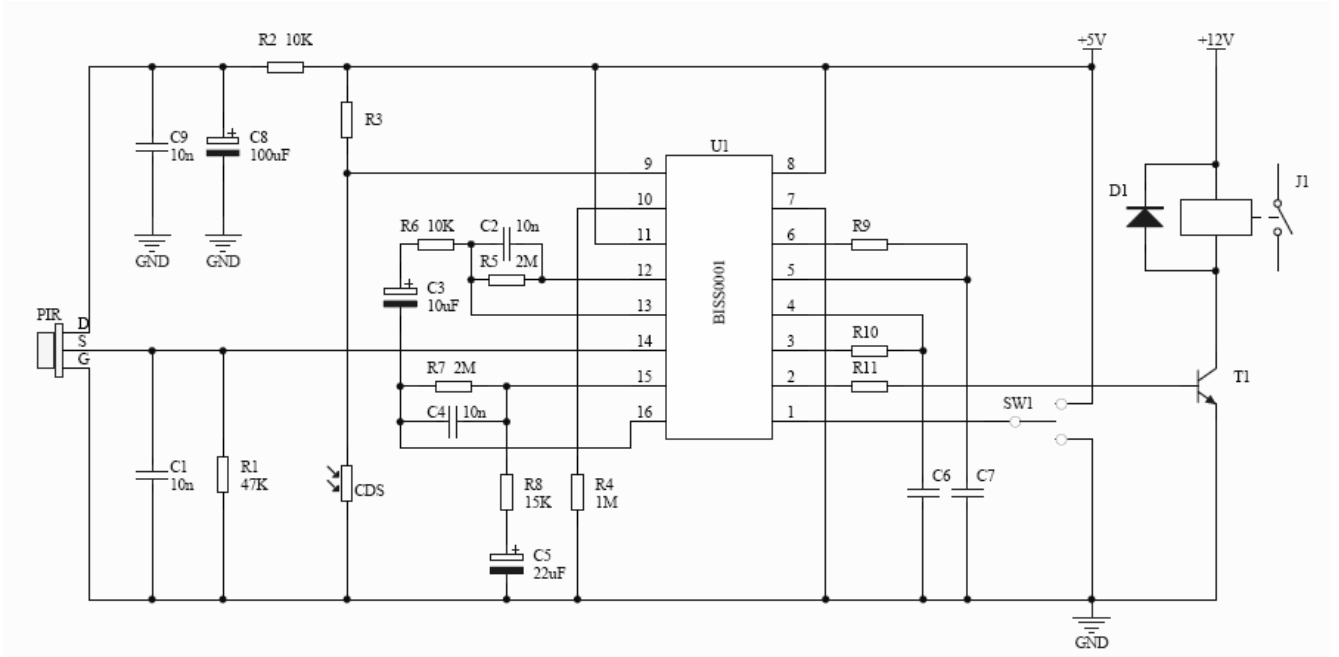
Dual sensor sensitivity can be got by detecting each cell's sensitivity and calculate in following formula:

$$\text{Balance degree} = |V_A - V_B| / (V_A + V_B) \times 100\%$$

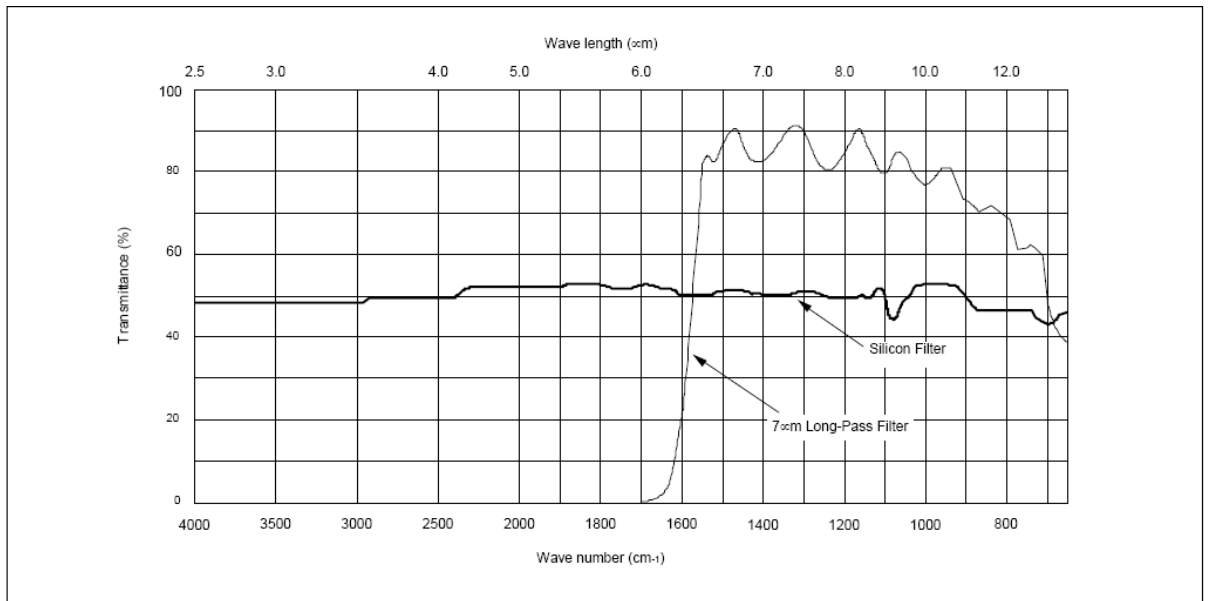
V_A = Surface A sensitivity (mVp-p)

V_B = Surface B sensitivity (mVp-p)

Typical application circuit:



The receiving wavelength of the window material:



Cautions:

1. The sensor's parameter is obtained by standard testing condition after 1 minute's settling time.
2. Please pay attention on Sensor's window direction, must combine with Fresnel lens to get a perfect detecting angle.
3. Sensors detecting distance is affected by ambient temperature, moving objects' temperature ,Fresnel lens, Amplifier amplification factor, The comparator threshold voltage setting...etc. please take a comprehensive consideration of various parameters when using the sensors.
4. Please do not touch the window area to avoid damaging to the optical filter.
5. Please handle the sensor with care when using it.
6. Please add Rc filter circuit to the sensor's power supply side when design the circuits.(please take typical application circuits for R2,C8 and C9 as reference)
7. Please try to use hand soldering and make the soldering time as short as possible.
8. Please get electrostatic protective measures when using this product.

Note: To keep continual product development, we reserve the right to change design features without prior notice.

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