

SN-RE200B: Double Elements Pyroelectric Infrared Sensor

The RE200B is a passive infrared sensor designed to pick up heat radiation of wave lengths in a band around 10 microns. It contains two active elements configured as balanced differential series opposed type. If the active elements of the PIR sensor are exposed to a change in the surrounding temperature field, electrical charges are separated within the sensor elements. The voltage across the sensors controls a J-FET source follower impedance converter and thus modulates the output current of the PIR detector. The spectral sensitivity of the sensor is controlled by the optical transfer characteristics of the window in the case and has been optimized to pick up radiation of the human body.

Technical Specifications

Sensitive element area: $2.0 \times 1.0\text{mm}$ (2 elements)

Substrate thickness: 0.5mm

Wavelength: 7–14 μm

Average transmittance: > 75%

Output signal: > 2.5V (420 ° k blackbody modulation frequency 0.3-3.0Hz 1Hz bandwidth of 72.5db gain)

Balance: <20%

Operating voltage: 2.2–15V

Operating Current: 8.5–24 μA (VD = 10V, Rs = 47k Ω , 25 °C)

Source voltage: 0.4–1.1V (VD = 10V, Rs = 47k Ω , 25 °C)

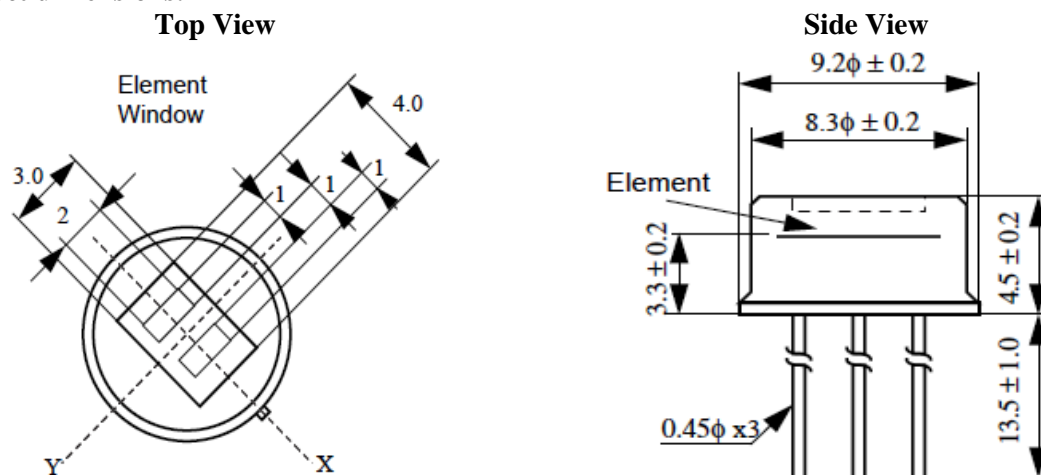
Operating temperature: -30 °C to +70 °C

Storage temperature: -35 °C to +80 °C

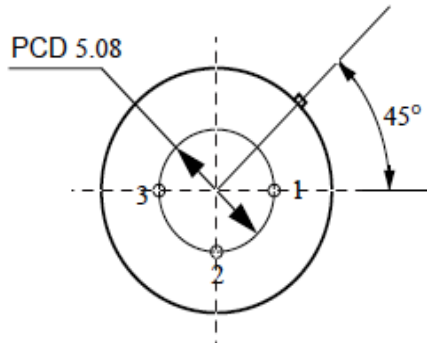
Field of view: 138 ° × 126 °

Dimensions, Configuration and Pin-out

Product dimensions:

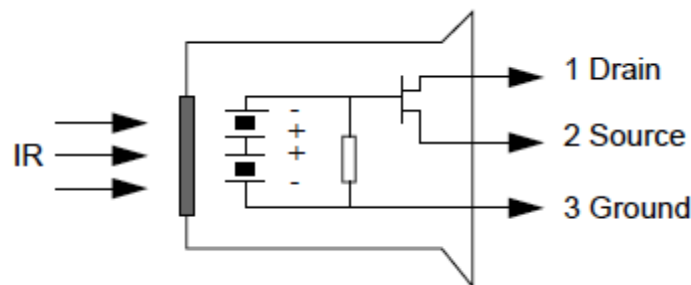


Base View

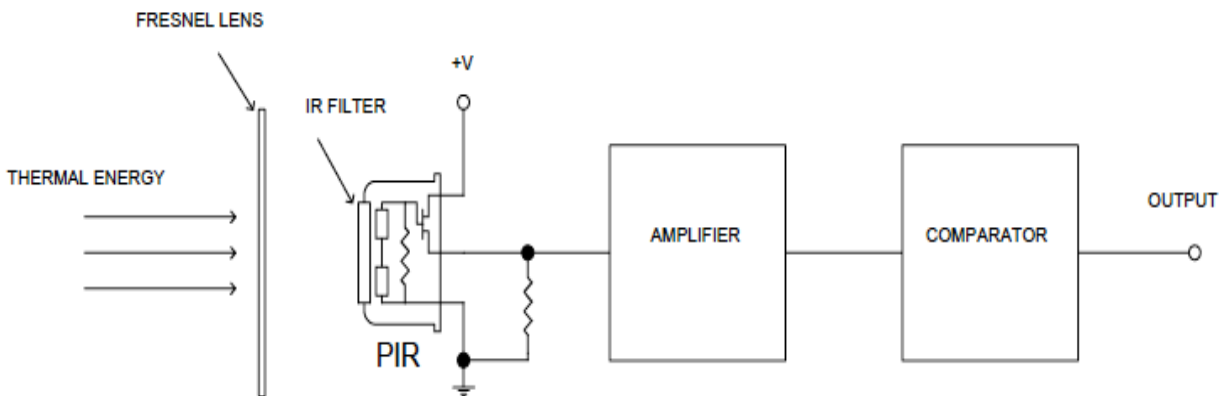


- 1: Drain
- 2: Source
- 3: Ground

Circuit Configuration:



Typical Configuration:



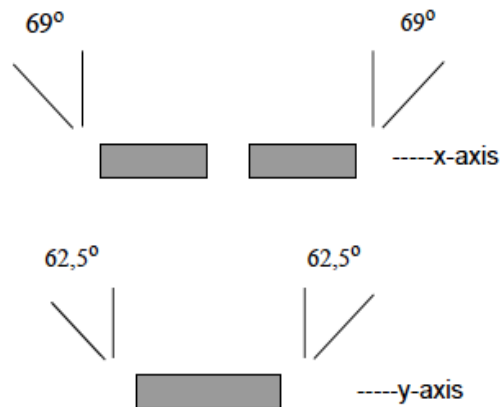
FET source terminal pin 2 connects through a pull down resistor of about 100 K to ground and feeds into a two stage amplifier having signal conditioning circuits. Each of the two cascaded stages has a gain of 100 for a total gain of about 10,000. The amplifier is typically bandwidth limited to below 10Hz to reject high frequency noise and is followed by a window comparator that responds to both the positive and negative transitions of the sensor output signal. A well filtered power source of from 3 to 15 volts should be connected to the FET drain terminal pin 1. The PIR325 sensor has two sensing elements connected in a voltage bucking configuration. This arrangement cancels signals caused by vibration, temperature changes and sunlight.



SYNACORP TRADING & SERVICES

No.9, 1st Floor, Lorong 1/SS2, Bandar Tasek Mutiara, 14120 Simpang Ampat, S.Prai (S), Penang
Tel : +604.502.1726 Hunting Line : 012.403.3474 Fax : +604.502.1726
(Website) <http://www.synacorp.my> (Email) sales@synacorp.com.my

Field of View:



Pin definitions and ratings:

Pin	Name	Function
1	Drain	Connects to Vcc
2	Source	Connects through an external pull down resistor to ground and to an amplifier
3	Ground	Connects to Ground

Applications

- 1) Alarm systems
- 2) Consumer electronics
- 3) Human body detection
- 4) Automatic switches
- 5) Passive infrared motion detector