Pyroelectric Infrared

Radial Sensor

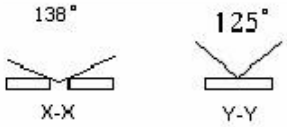
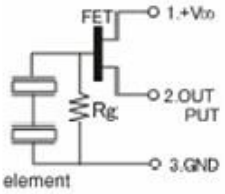
Type::D203S

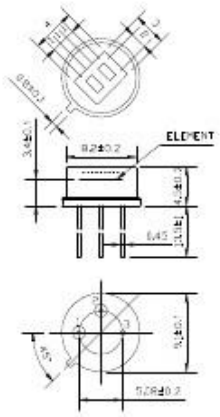
SHENZHEN SENBAN OPTICAL & ELECTRONIC CO., LTD.

All-Purpose Dual Element Pyroelectric Infrared Radial Sensor

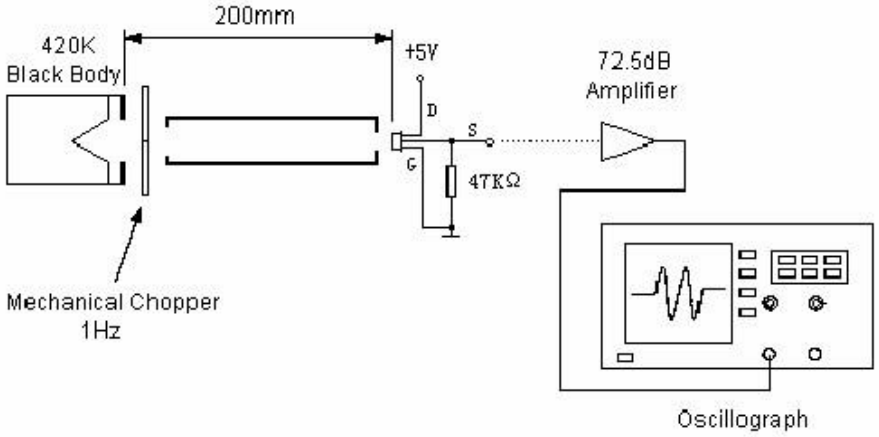
The pyroelectric infrared sensor detects infrared radiation on the basis of the characteristics that the polarization of pyroelectric material changes with temperature. Dual compensated sensing elements are applied to suppress the interference resulting from temperature variation. As a result, the operating stability of the sensor is greatly improved. Our products can be used in many applications. Such as in security systems, burglar alarms, visitor acknowledgement, light switch control and intellectualized toy, etc.

Standard Specifications and Dimensions

Recommended Model	D203S small window
Encapsulation Type	TO-5
IR Receiving Electrode	2×1mm, 2 elements
Window Size	4×3mm
Spectral Response	5— 14μm
Transmittance	≥ 75%
Output Signal[Vp-p]	≥ 3500mV
Sensitivity	> 3300V/W
Detectivity (D*)	1.4 × 8 cmHz1/2/W10
Noise[Vp-p]	<70mV
Output Balance	<10%
Offset Voltage	0.3～1.2V
Supply Voltage	3— 15V
Operating Temp	-30— 70ºC
Storage Temp	-40— 80ºC
Field of View	
Equivalent Circuit	



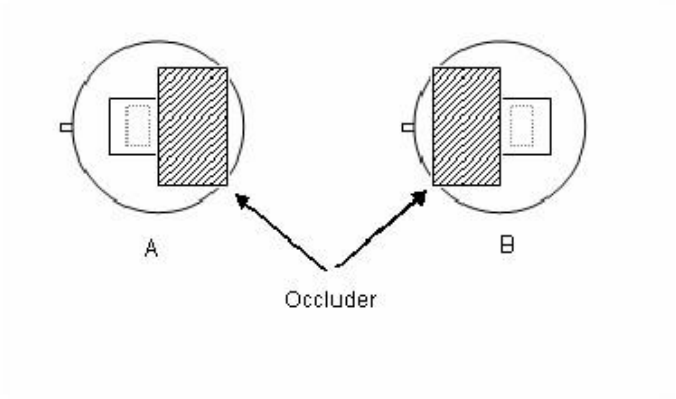
Test Method



Measurement conditions

Circumstance situation temperature 25ºC
Black-body temperature 420K (@147˚C)
Chopping frequency 1 Hz, 0.3～3.5Hz ∆f,

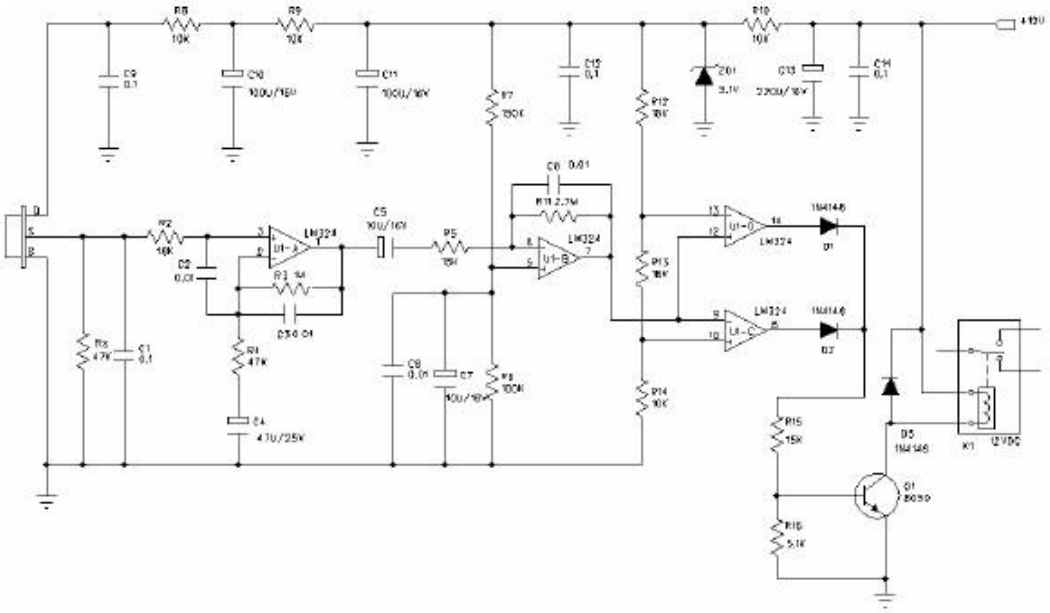
72.5 dB Amplifier



The sensitivity balance of dual elements sensor is calculated by measuring the sensitivity (signal output voltage) of each element and uses the formula as below:

Balance = $|V_A-V_B|/(V_A+V_B) \times 100\%$
V_A = Sensitivity of side A (mVp-p)
V_B = Sensitivity of side B (mVp-p)

Typical Application



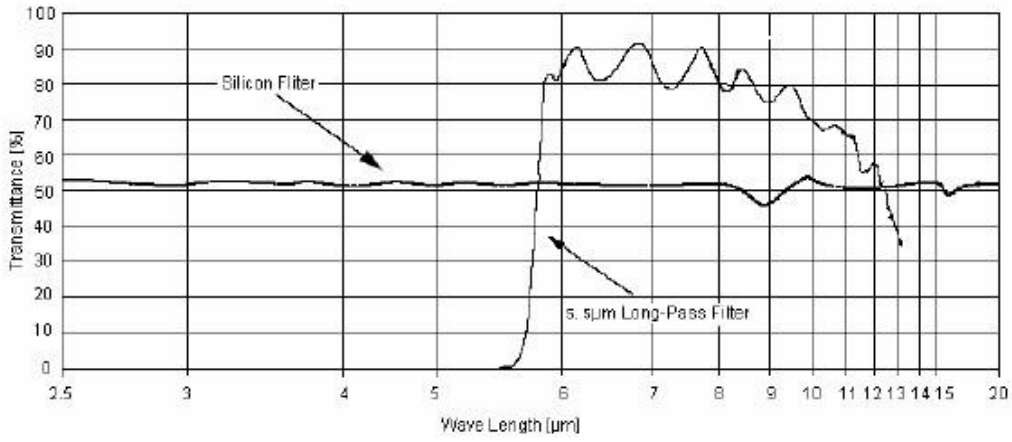
Notice:

U1A-D:LM324

Vdd:12V DC

Rs=47KΩ @ on an offset voltage

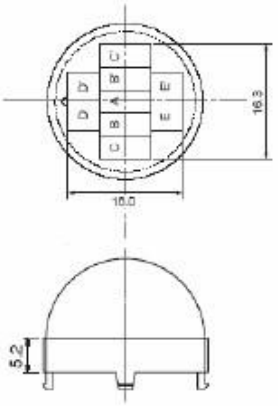
Spectral Response of Window Materials

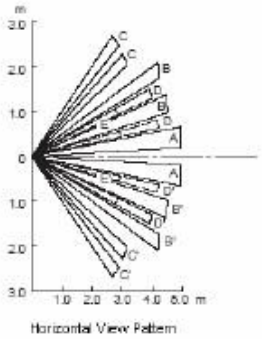


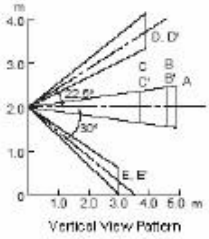
Notice:

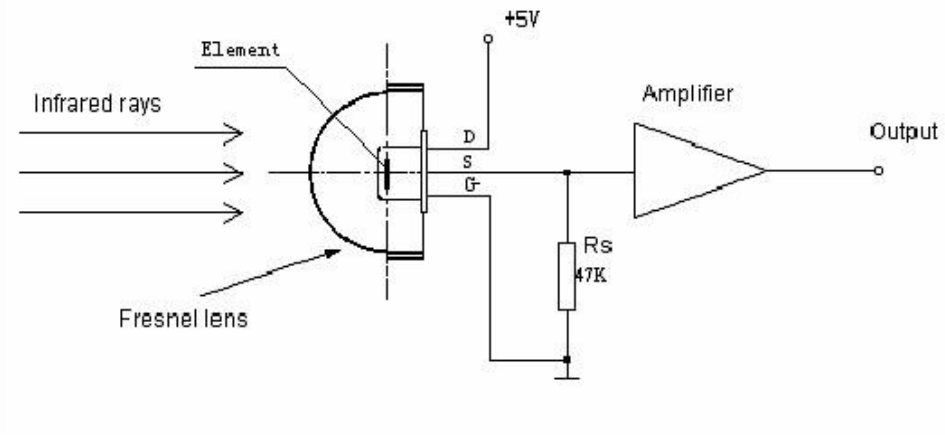
The typical average transmition curve of 5μm pass IR filter is figured, which is vacuumed on silicon filter.

Fresnel Lens for Human Body Detection









Directions for Use

Pay attention to the mounting direction of the sensor' element and the parts sizes in the ichnography. You can get a optimal optical design according to the focus of the Fresnel Lens.

The sensor parameter testing is operated in the condition of the standard Black Body and the interrelated circuit after one minute steadying-time.

The sensor detecting distance is a multidimensional function, which consists of ambient temperature ,moving target temperature, Fresnel Lens'target distance , environment humidity , amplifier gain and comparison voltage.

It is recommended that the welding length of the sensor' down-lead should nots be less than 4mm ,and the soldering time is as short as possible.

Do not touch the window by hand and the hard things.

Strong shake and electrostatics should be avoided.

This product is packed with the environmental protection material ,and the sensor' surface have been covered specially with the OHK anticorit material.s

Small package have 100PCS,and big package 3000PCS.

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