ASCHIP 深圳市全智芯科技有限公司
SHENZHEN ASCHIP TECH CO., LTD.

| PIRsensor |
| D210AX |

Human body pyroelectric infrared sensor (PyroelectricInfraredSensor)

--Function description

D210AX human body pyroelectric infrared sensor has the characteristics of high sensitivity, small size and light weight. Its shell is made of high-quality steel and has a solid structure. The introduction device adopts a rubber sealing ring device structure. The control circuit board is sealed in the shell. It is safe and reliable, and is easy to wire and maintain. It is one of the simplest and easiest-to-use sensors at home and abroad. one.

--Features

High sensitivity and superior signal-to-noise ratio.

Strong anti-interference ability (such as vibration, radio frequency interference, etc.).

High stability to temperature changes.
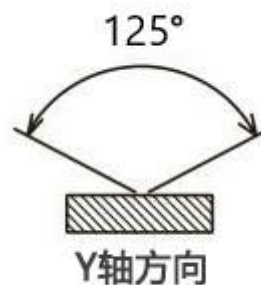
Excellent value for money.

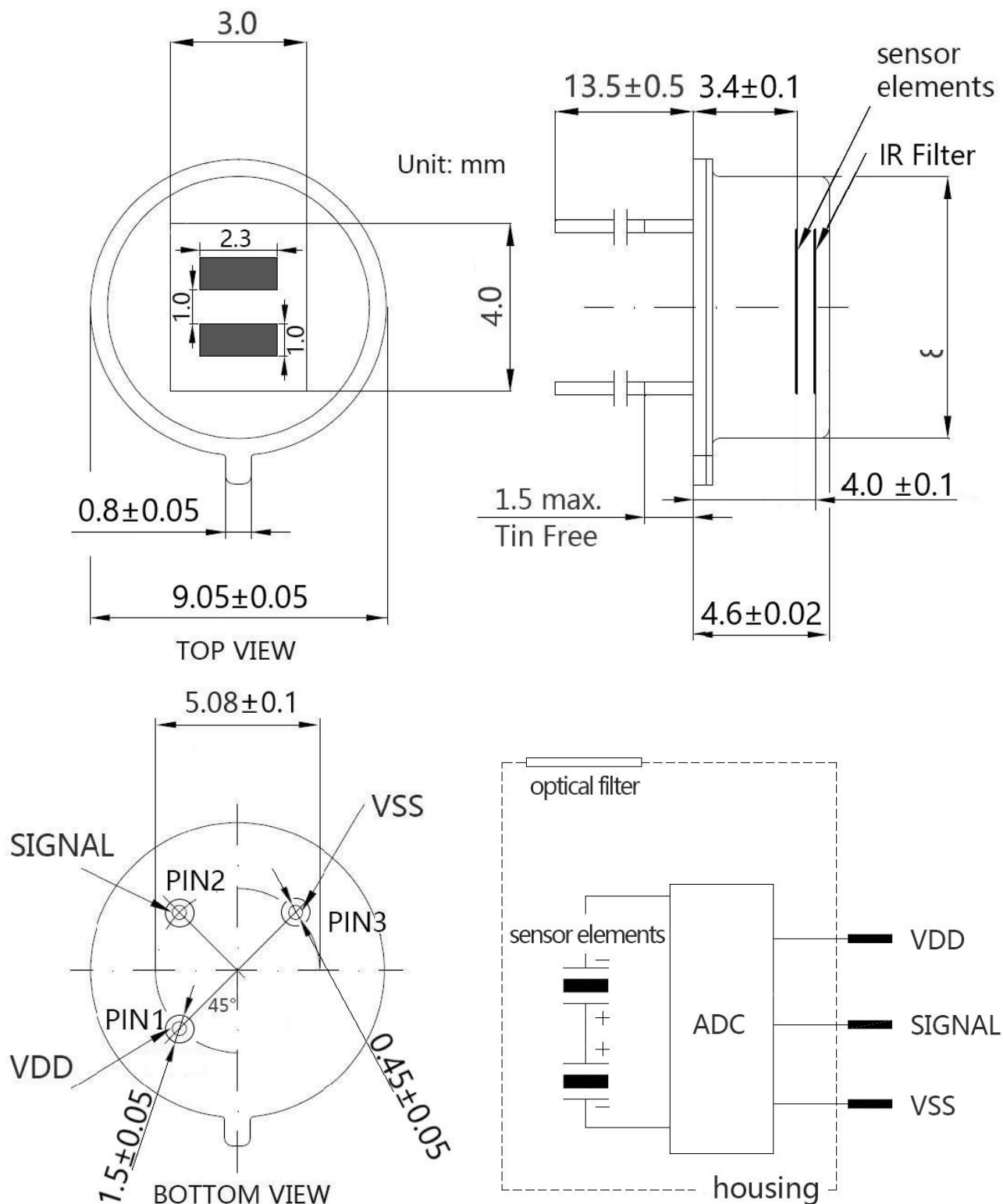Low power consumption, high reliability.

--Applications

Automatic energy-saving lighting for gardens, garages, corridors, stairs and more. Security systems for homes, shops, offices, factories and other places. Automatic switch system for exhaust fans and ceiling fans. Energy-saving and control systems for digital products such as electronic photo albums, monitors, digital cameras, and hunting cameras. Control of smart toys.

--Viewing angle·Overall dimensions·Equivalent circuit

viewing angle

138°
X轴方向

125°
Y轴方向

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Dimensions and equivalent circuit

Unit: mm

3.0

2.3

1.0

1.0

0.8±0.05

9.05±0.05

TOP VIEW

13.5±0.5 3.4±0.1

sensor elements

IR Filter

4.0

3

1.5 max. Tin Free

4.0 ±0.1

4.6±0.02

5.08±0.1

SIGNAL

VSS

PIN2

PIN3

PIN1

45°

VDD

1.5±0.05

0.45±0.05

BOTTOM VIEW

optical filter

sensor elements

ADC

VDD

SIGNAL

VSS

housing

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--Pin function

Pin number	Pin name	Pin description
1	VDD	Positive pole of power supply
2	SIGNAL	Signal pin
3	VSS	Negative pole of power supply

--Electrical parameters

parameter	minimum value	Typical value	maximum value	unit	illustrate
Operating Voltage	2.4	3.0	3.6	V	-
Working current		10		µA	VDD=3.0V, without load
noise	20		80	µVp-p	25℃, 0.3~3Hz
Operating temperature	- 20		85	℃	-
storage temperature	- 40		85	℃	-

## --Typical response and frequency (frequency response in0.4Hz~7.0HzSignificantly)
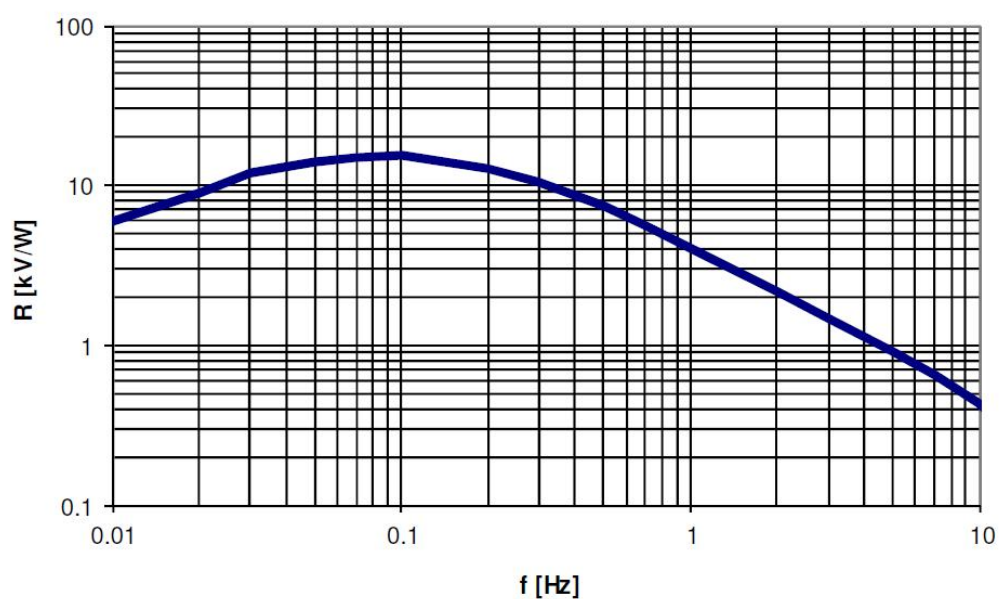
Human body pyroelectric infrared sensor (PyroelectricInfraredSensor)

--Technical Parameters

| Data signal interface					
parameter	label	minimum value	Typical value	maximum value	unit
Pull high current	-		200		μA
pull current low	-		130		μA
Input low level	V_{IL}			20%	V_{DD}
Input high level	V_{IH}	80%			V_{DD}
ADC accuracy	-		16		Bit
Oscillator					
parameter	label	minimum value	Typical value	maximum value	unit
Internal oscillator frequency	F_{OSC}	28.8	32	35.2	KHz
Internal clock frequency	F_{CLK}		$F_{osc}/2$		KHz

--Functional block diagram
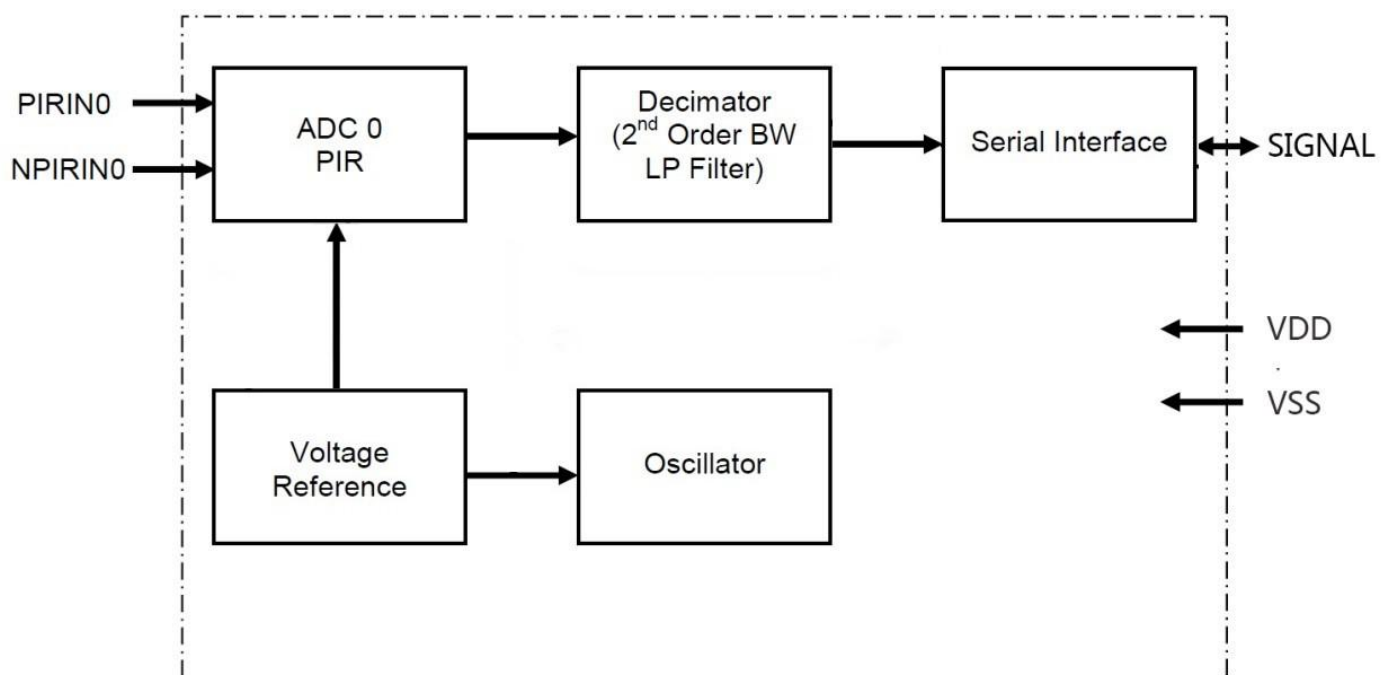
Human body pyroelectric infrared sensor (PyroelectricInfraredSensor)

--Precautions for the production and use of pyroelectric infrared sensors

The sensor contains a highly sensitive sensing piece, which is sensitive, thin, and fragile. Care must be taken to protect it during the production process. Improper use may damage the sensor.

1. The infrared sensing material used in the sensor is relatively sensitive to heat. The sensitive material may crack and lose performance at high temperatures. After damage, the sensor will have many malfunctions or no action at all. When using wave soldering, the recommended soldering temperature is260°C, the residence time in the high temperature area should be less than5Second. If a preheater is used during welding, measures must be taken to prevent the sensor from being baked out. Except for the lead welding area, other parts of the sensor should not be subjected to100°Ctemperatures above.
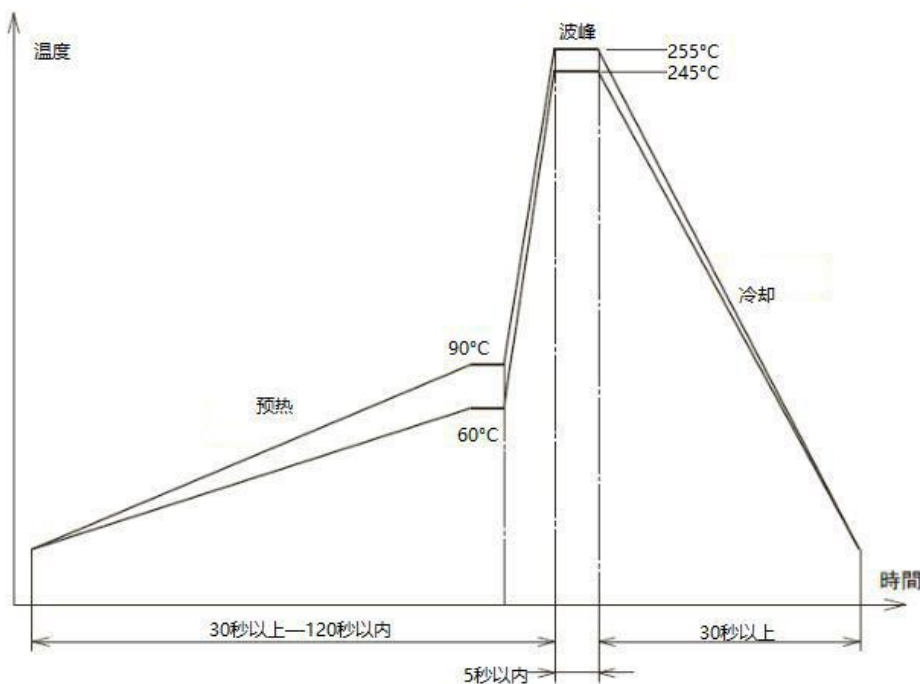
2. When using a soldering iron for manual soldering, the soldering iron temperature should be set at240-300°C, the welding time of each solder point should be controlled within1 seconds or so, welding exceeds3seconds will definitely damage the sensor. Recommended0.6mmThick solder wire, which can increase the welding speed, commonly used1mm Thick solder wire melts too slowly and is not conducive to operation.

3, No matter what welding method is used, it is recommended that the sensor base distancePCBmost1~3mm. For actual production, the sensor base is close toPCB board products, it is recommended that the sensor base andPCBAdd one between the boards1mmThe plastic gasket is beneficial to heat insulation during processing.

4. The sensor is sealed and welded by a shell with excellent airtightness, and is filled with dry nitrogen. In order to ensure the airtightness of the device, it is not recommended to bend the leads. Bending may destroy the airtightness of the glass-metal sealing part and cause air leakage in the device. If you really need to bend it, please use tools to assist and ensure that the root of the lead is not stressed during the bending process. Please ensure there is a gap between the bending point and the sensor base3mmabove distance. Do not twist the leads axially at any time.

5. Avoid mechanical impact on the sensor, especially the lead part, and avoid the sensor from falling directly to the ground.

6. The window filter of the sensor is coated with a precision anti-reflection coating to increase the transmittance of infrared rays. Please do not touch the sensor window directly with bare hands during the production process. During operation, it is also necessary to avoid contact and friction between the window and other objects to prevent the filter from being scratched. Scratching and damage to the film may cause malfunction. If there is dirt on the surface of the filter, you can use a flannel cloth with absolute ethanol to wipe it properly.

7. Pick and place sensors need to be treated as anti-static sensitive devices and protected from static damage, and work areas should be protected against static electricity. Personnel handling sensors need to wear anti-static protective gear.

8, To clean the window, only use cotton swabs if necessary. Do not expose the detector to corrosive detergents such as Freon, trichlorethylene, etc.