Pyroelectric Infrared Radial Sensor

TYPE: Am612

NANYANG SENBA OPTICAL AND ELECTRONIC CO.，LTD.

Digital Smart Pyroelectric Detector AM612

AM612 is a newest smart digital motion detector. This Smart digital detector offers a complete motion detector solution,with all electronic circuitry built into the detector housing. Only a power supply and power-switching components need to be added to make the entire motion switch, a timer is included. The series has versions which can include ambient light level and sensitivity adjustments.

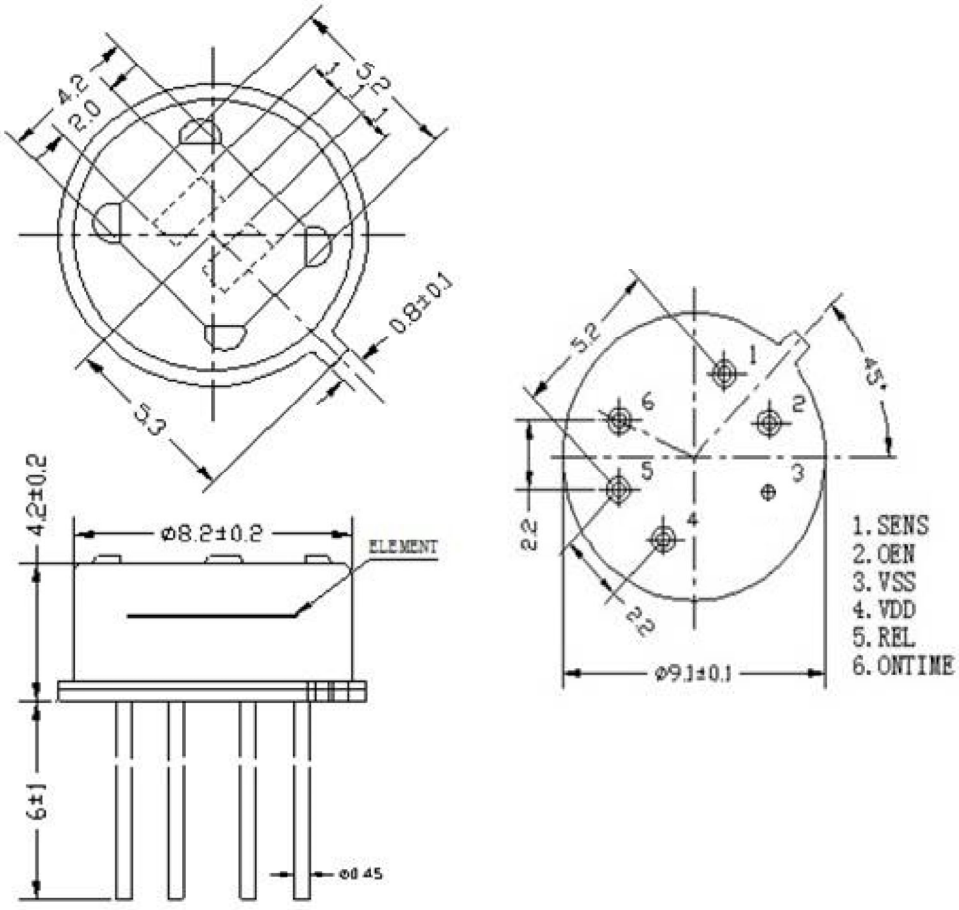
■ Features and Benefits

- Digital signal processing（DSP）
- Power adjustable, save more energy
- Two-way differential high impedance sensor input
- Built-in filter, screen the interference by other frequency
- Excellent power supply rejection, Insensitive to RF interference
- Schmidt REL output
- Low voltage, low power consumption, instantaneous settling after power up

■ Applications

- Toys
- Digital photo frame
- TV, Refrigerator, Air-conditioner
- USB Alarms
- PIR motion detection
- Intruder detection
- Occupancy detection
- Motion sensor lights
- Computer monitor
- Security system
- Automatic control
- Corridor
- Stairs Lights etc.

■ Dimension



PIR Dimension（A）　　Fresnel Lens Dimension（B）

Notes：Dimension A can be used with Dimension B.

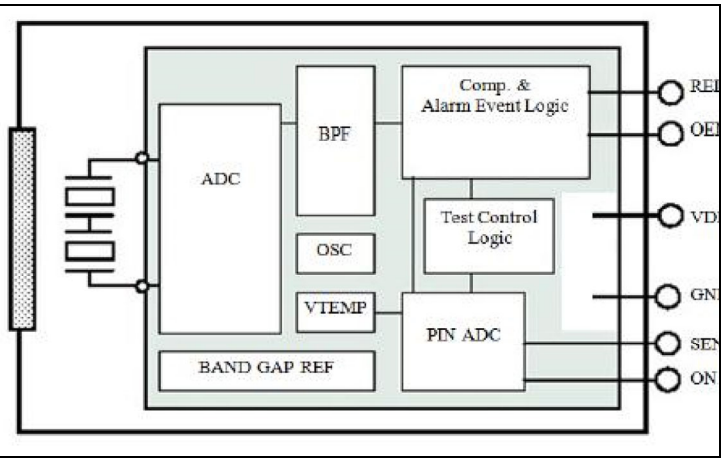
■ Technical Data

1. Maximum Ratings

Characteristics	Symbol	Min. Value	Max. Value	Unit	Remarks
Supply Voltage	V_{DD}	-0.3	3.6	V	
Working Temperature	T_{ST}	-20	85	℃	
Max.current	Into	-100	100	mA	
Storage Temperature	T_{ST}	-40	125	℃	

2.Working Conditions (T=25°C, Vdd=3V，Except other requirements)

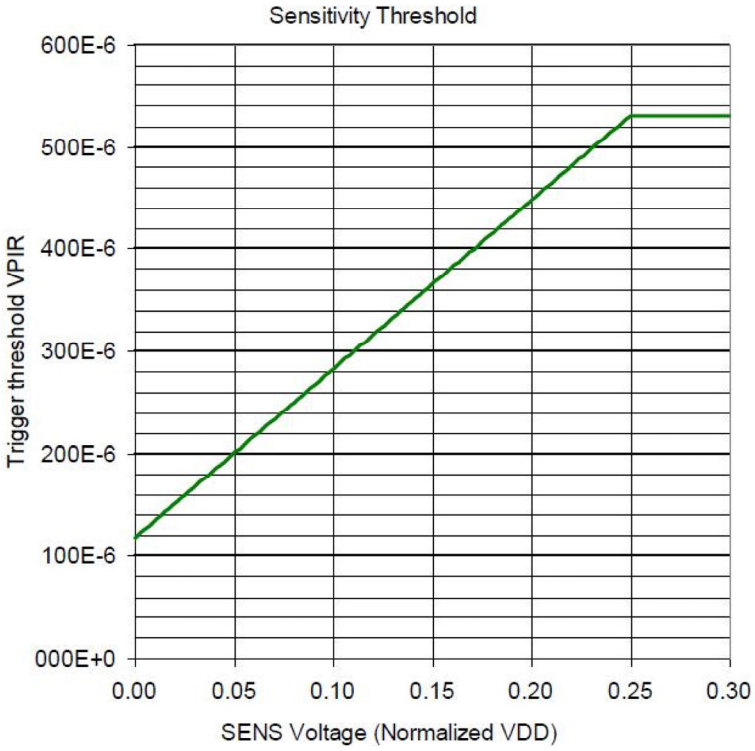
Characteristics	Symbol	Min.	Type	Max.	Unit	Remarks
Supply Voltage	V_{DD}	2.7	3	3.3	V	I_R=0.5mA
Working Current	I_{DD}	12	15	20	μA	
Sensitivity threshold value	V_{SENS}	120		530	μV	
Output REL						
Output Low Current	I_{OL}	10			mA	V_{OL}<1V
Output High Current	I_{OH}			-10	mA	V_{OL}>(V_{DD}-1V)
Output Low current Lock time	T_{OL}		2.3		s	Non-adjustable
Output High current Lock time	T_{OH}	2.3		4793	s	
Input SENS/ONTIME						
Voltage Input Range		0		V_{DD}	V	0V to ¼ V_{DD}
Input Bias Current		-1		1	μA	
OEN						
Input Low Voltage	V_{IL}			0.2Vdd	V	OEN Threshold Value From High Voltage to Low Voltage
Input High Voltage	V_{IH}	0.4Vdd			V	OEN Threshold Value From High Voltage to Low Voltage
Input Current	I_I	-1		1	μA	V_{SS}<V_{IN}<V_{DD}
Oscillator & Filter						
Low pass filter cut-off frequency				7	Hz	
High pass filter cut-off frequency				0.44	Hz	
Oscillator frequency on Chip	F_{CLK}			64	kHz	

Interior Block Diagram	

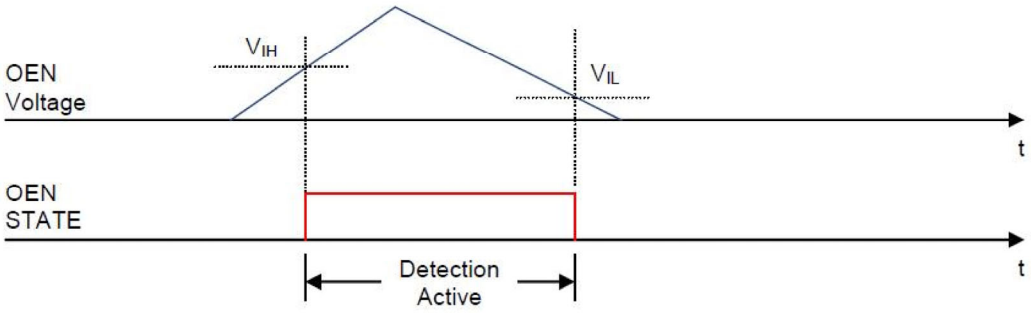
■ Adjustable Relay Time

Step	ONTIME Central Voltage (V)	ONTIME(s)	Voltage(V)	Resistor Value for ONTIME PIN (±1%)	
	(V_{DD}*(Step*2)+3)/128	Typical	(VDD=3V)	Pull-Up Resistor	Pull-Down Resistor
0	3/128 or Lower	2.3	0	Non	0R
1	(VDD*2+3)/128	4.7	0.07	1M	24K
2	(VDD*4+3)/128	7	0.117	1M	39K
3	(VDD*6+3)/128	9.4	0.164	1M	56K
4	(VDD*8+3)/128	18.7	0.21	1M	75K
5	(VDD*10+3)/128	37	0.257	1M	91K
6	(VDD*12+3)/128	56	0.304	1M	110K
7	(VDD*14+3)/128	1min 15 sec	0.351	1M	130K
8	(VDD*16+3)/128	2min 30 sec	0.398	1M	150K
9	(VDD*18+3)/128	5min	0.445	1M	174K
10	(VDD*20+3)/128	7min 29 sec	0.492	1M	200K
11	(VDD*22+3)/128	9min59 sec	0.539	1M	220K
12	(VDD*24+3)/128	19min 58 sec	0.585	1M	240K
13	(VDD*26+3)/128	39min 56sec	0.632	1M	270K
14	(VDD*28+3)/128	59min25 sec	0.679	1M	294K
15	(VDD*30+3)/128 or Higher	1hour20min	3	0R	Non

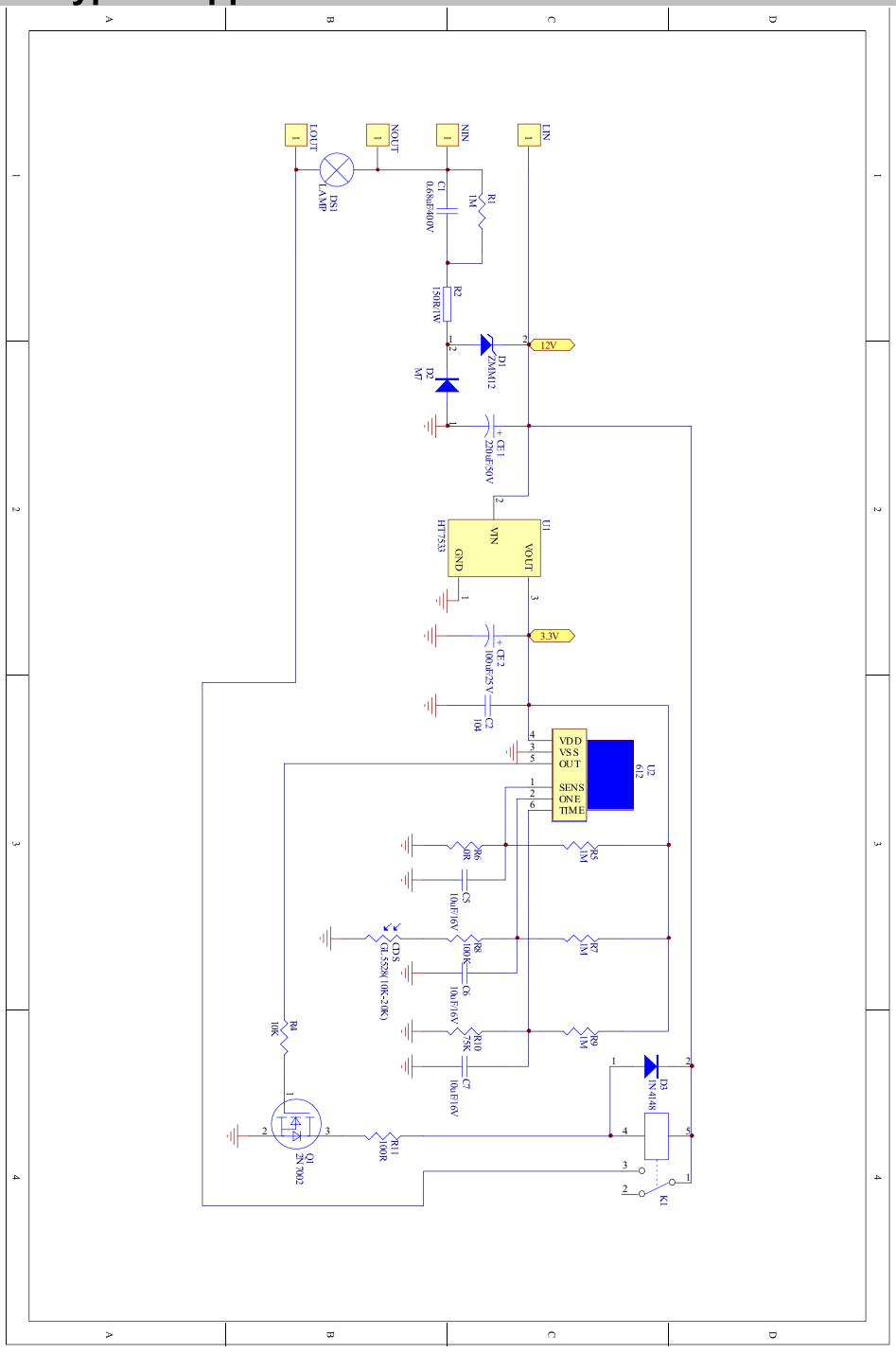
■ Adjustable Sensitivity



OEN PIN Hysteresis Level

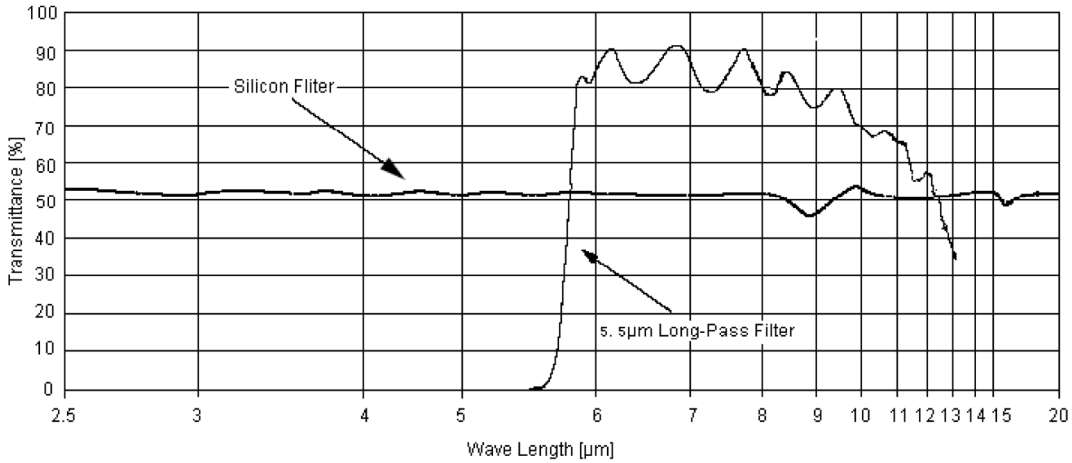


■ Typical Application



Notes：This is only for reference circuit of Am612 PIR Sensor for simple intrusion detector for wired alarm systems.

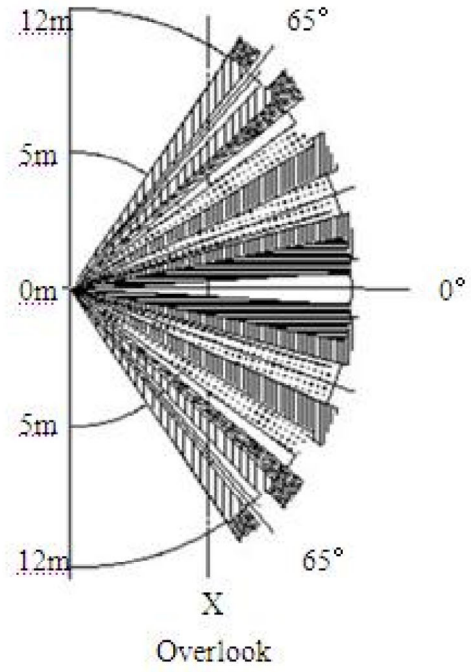
■ Spectral Response of Window Materials



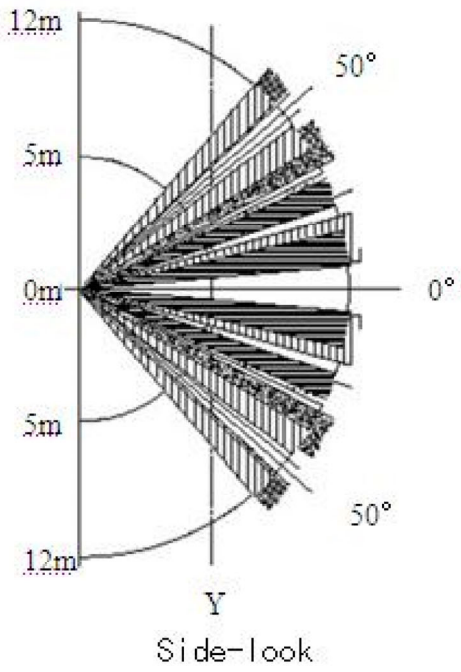
Notice:

The typical average transmissivity curve of 5.5μm pass IR filter is figured, which is vacuumed on silicon filter.

■ View of Field

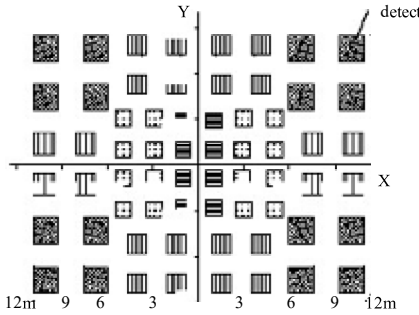


Overlook



Side-look

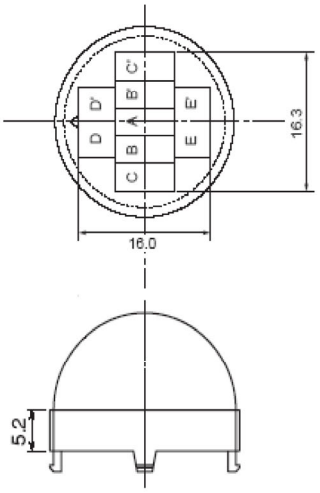
X-Y sectional view

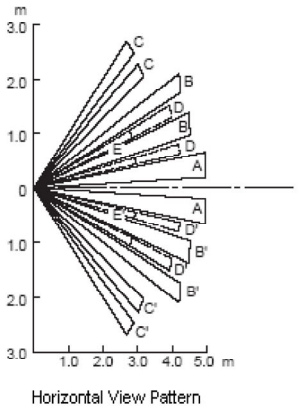


Notes：1.X-Y sectional view represent the detecting area。

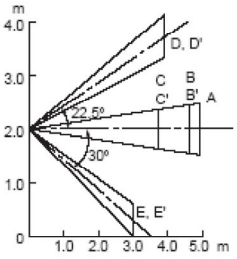
2.0bjects with temperature difference can be Detected in the vertical level.

■ Fresnel Lens for Human Body Detection





Horizontal View Pattern



Vertical View Pattern

NANYANG SENBA OPTICAL AND ELECTRONIC CO. LTD. SHENZHEN BRANCH

Add : 2nd Floor, No.4 Building,Huawan Industry Zone, Gushu, Xixiang Street ,
Bao'an Dist.,ShenZhen City China

Website: www.nysenba.com

E-mail : ady@sbcds.com.cn

Tel : 86-755- 82591786, **Fax :** 86-755-82594762