



Pyroelectric Infrared Radial Sensor

TYPE: BM612



Digital Smart Pyroelectric Detector BM612

BM612 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.

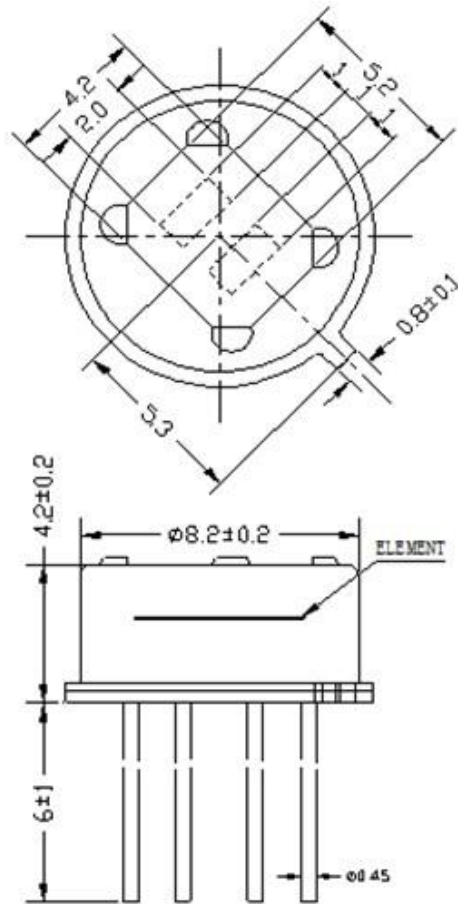
n Features and Benefits

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

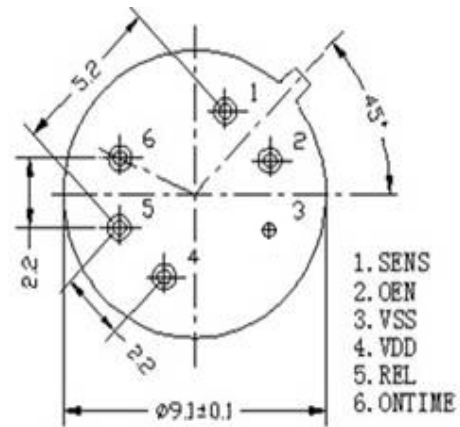
n Applications

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



PIR Dimension (A)



Fresnel Lens Dimension (B)

Notes: Dimension A can be used with Dimension B.



n Technical Data

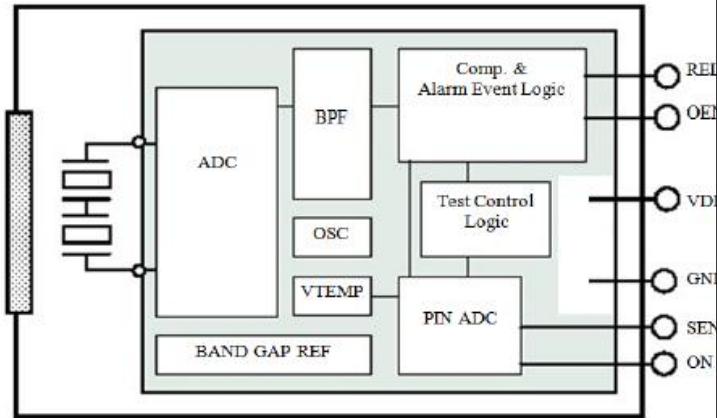
1. Maximum Ratings

Characteristics	Symbol	Min. Value	Max. Value	Unit	Remarks
Supply Voltage	V _{DD}	-0.3	3.6	V	
Working Temperature	T _{ST}	-20	85	°C	
Max.current	I _{nto}	-100	100	mA	
Storage Temperature	T _{ST}	-40	125	°C	

2. Working Conditions (T=25°C, V_{dd}=3V, Except other requirements)

Characteristics	Symb ol	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}			0.2V _{dd}	V	OEN Threshold Value From High Voltage to Low Voltage
Input High Voltage	V _{IH}	0.4V _{dd}			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	

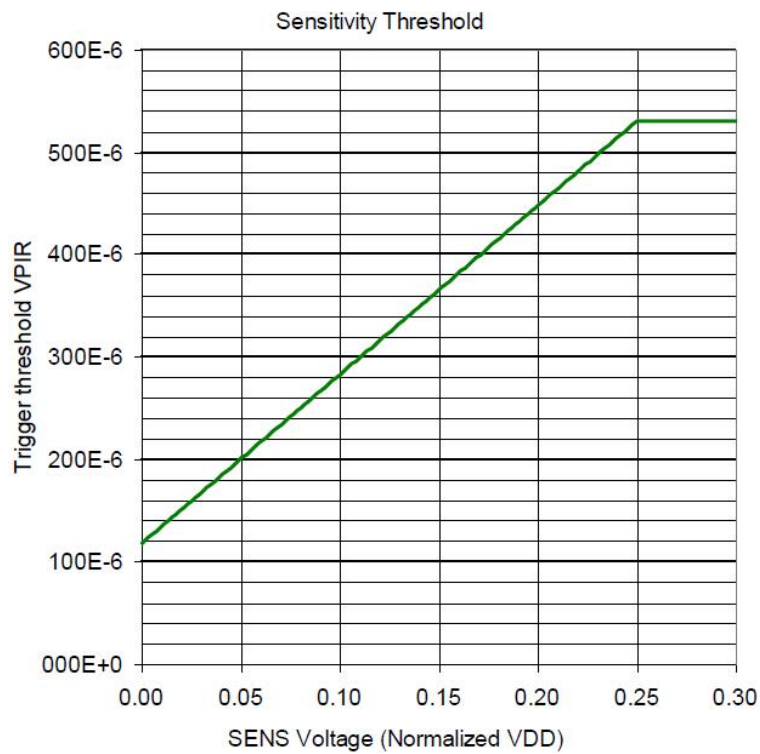
Interior Block Diagram



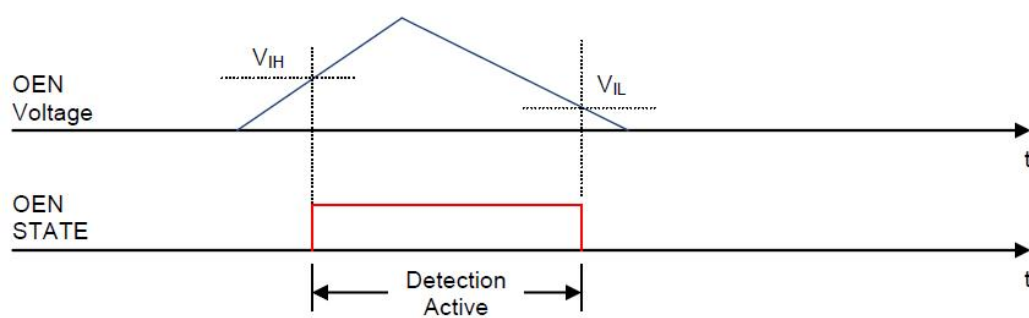
n Adjustable Relay Time

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

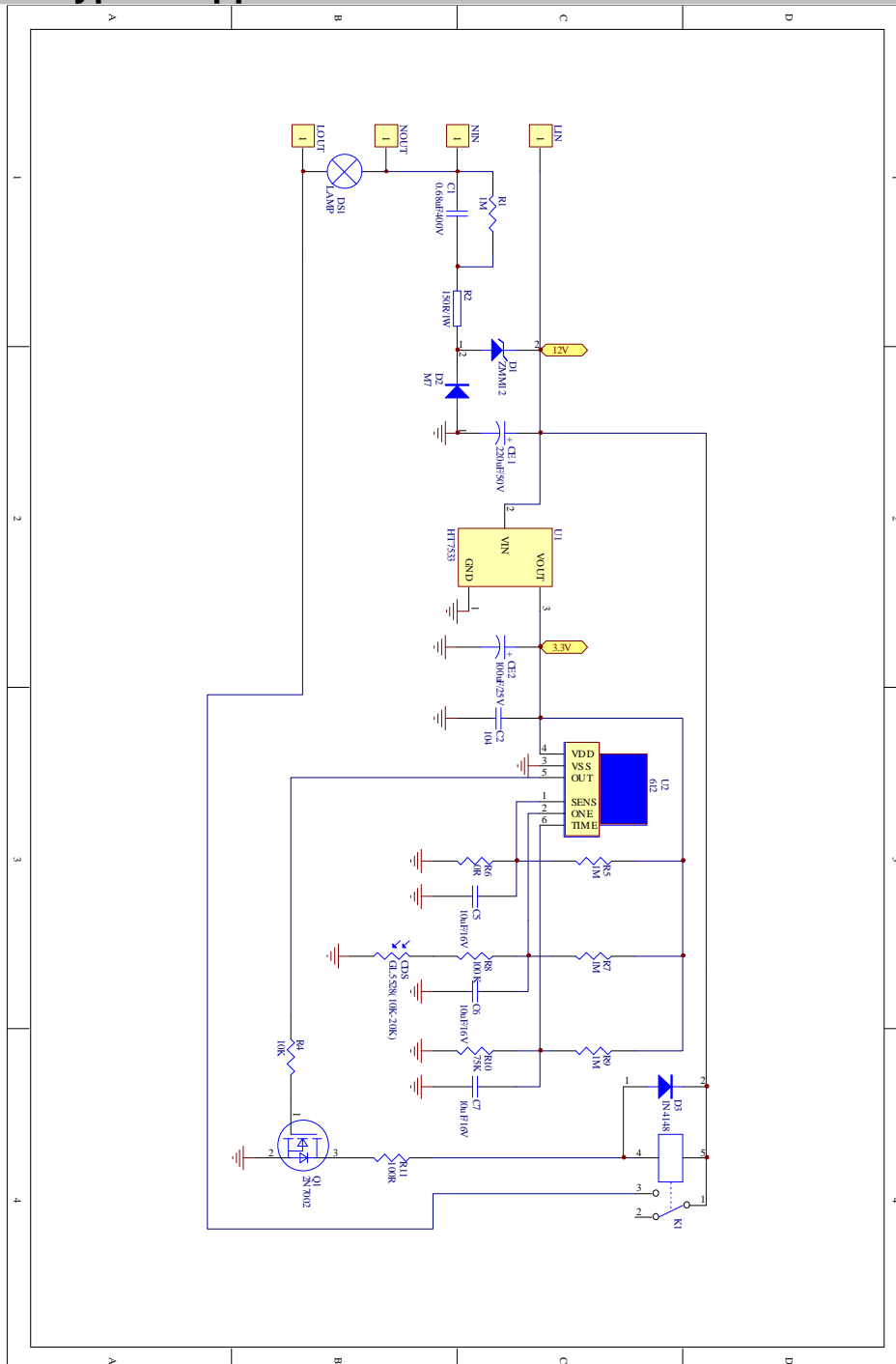
n Adjustable Sensitivity



OEN PIN Hysteresis Level

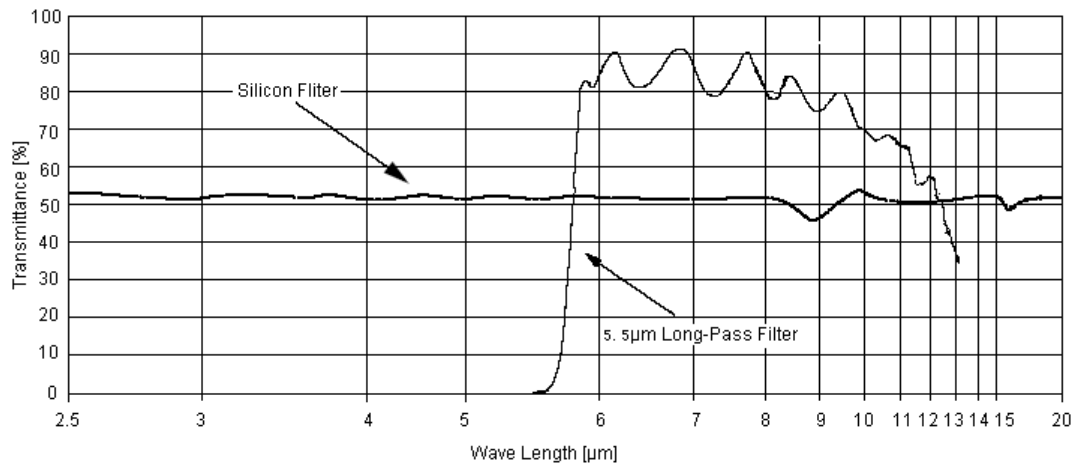


n Typical Application



Notes: This is only for reference circuit of BM612 PIR Sensor for simple intrusion detector for wired alarm systems.

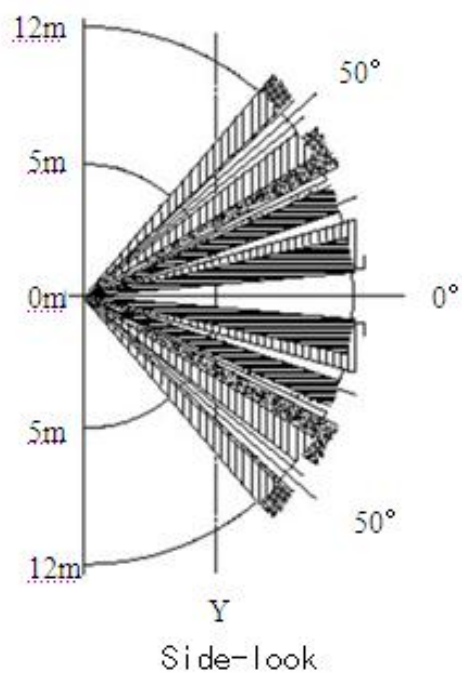
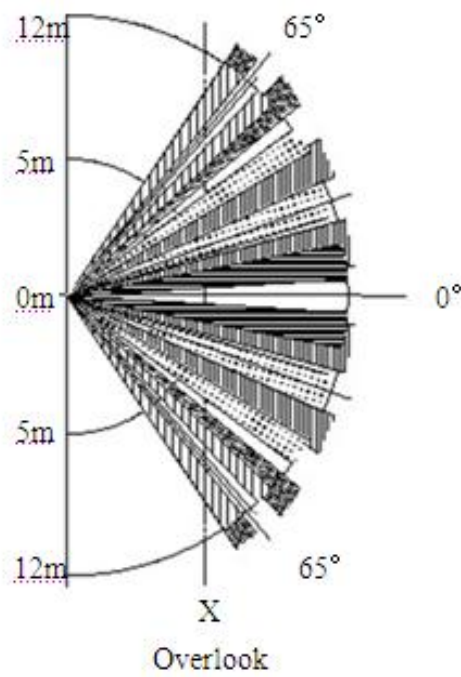
n Spectral Response of Window Materials



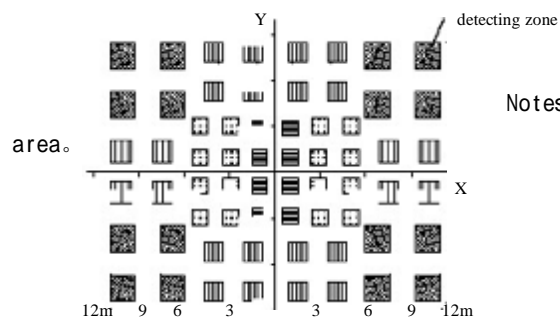
Notice:

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

n View of Field



X-Y sectional view



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

2.Objects with temperature difference can be Detected in the vertical level.

n Fresnel Lens for Human Body Detection

