Pyroelectric Infrared
Radial Sensor

TYPE: Am412
NANYANG SENBA OPTICAL AND ELECTRONIC CO., LTD.
Digital Intelligent Passive Infrared Sensor AM412

AM412 is a new digital intelligent PIR sensor. 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.

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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Symbol</th>
<th>Min. Value</th>
<th>Max. Value</th>
<th>Unit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>VDD</td>
<td>2.7</td>
<td>3.3</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Working Temperature</td>
<td>TST</td>
<td>-20</td>
<td>85</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Current into any pin</td>
<td>Into</td>
<td>-100</td>
<td>100</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>TST</td>
<td>-40</td>
<td>125</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Symbol</th>
<th>Min. Value</th>
<th>Max. Value</th>
<th>Type</th>
<th>Unit</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>VDD</td>
<td>2.7</td>
<td>3.3</td>
<td>V</td>
<td></td>
<td>In=0.5mA</td>
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<tr>
<td>Working Current</td>
<td>IDD</td>
<td>12</td>
<td>15</td>
<td>µA</td>
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<td></td>
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<tr>
<td>Output REL</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Output Low Current</td>
<td>IOL</td>
<td>10</td>
<td></td>
<td>mA</td>
<td></td>
<td>V&lt;1V</td>
</tr>
<tr>
<td>Output High Current</td>
<td>IOH</td>
<td>-10</td>
<td></td>
<td>mA</td>
<td></td>
<td>V&gt;VDD-1V</td>
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<tr>
<td>Input ONTIME</td>
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<td></td>
<td>VDD</td>
<td>V</td>
<td>0 to ¼VDD</td>
<td></td>
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<tr>
<td>Input Bias Current</td>
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<td>-1</td>
<td>1</td>
<td>µA</td>
<td></td>
<td></td>
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<tr>
<td>Oscillator &amp; Filter</td>
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<tr>
<td>Low pass filter</td>
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<td>7</td>
<td>Hz</td>
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<tr>
<td>High pass filter</td>
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<td>0.44</td>
<td>Hz</td>
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<td>Oscillator frequency</td>
<td>F_CLK</td>
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<td>64</td>
<td>kHz</td>
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</tbody>
</table>

Interior Block Diagram
Notes: This is only for reference circuit of Am412 PIR Sensor.
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. Objects with temperature difference can be detected in the vertical level.

Fresnel Lens for Human Body Detection

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