MP Motion Sensor (AMN2, 3, 4)

2. Absolute maximum ratings (Measuring condition: ambient temperature = 25°C 77°F) (Common to All types)

| Items | Absolute maximum ratings | | | |
|----------------------------|---|--|--|--|
| Power supply voltage | -0.3 to 7 V DC | | | |
| Usable ambient temperature | −20 to 60°C −4 to +140°F (No freezing and condensing at low temperature.) | | | |
| Storage temperature | −20 to 70°C −4 to +158°F | | | |

3. Electrical characteristics (Common to All types)

1) Digital output

| Items | | Symbol | Electrical characteristics *() is low current consumption type | Measured conditions *() is low current consumption type |
|--|---------|--------|--|---|
| Rated operating voltage | Minimum | Vdd | 3.0 V DC (2.2 V DC) | |
| | Maximum | vuu | 6.0 V DC (3.0 V DC) | |
| Rated consumption current (Standby) Note) | Typical | h | 170 μA (46 μA) | Ambient temperature = $25^{\circ}C$ 77°F |
| | Maximum | IW | 300 μA (60 μA) | lout = 0 |
| Output current (when detecting) | Maximum | lout | 100 μΑ | Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Vout ≧ Vdd–0.5 |
| Output voltage (when detecting) | Minimum | Vout | Vdd -0.5 | Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Open when not detecting |
| Circuit stability time | Typical | Twee | 7 s | Ambient temperature = 25°C 77°F |
| | Maximum | IWU | 30 s | Operating voltage = 5V (3V) |

Note: The current which is consumed during detection consists of the standby consumed current plus the output current.

2) Analog output

| Items | | Symbol | Specified value | Measured conditions |
|-------------------------------|---------|----------|-----------------|--|
| Operating voltage | Minimum | Vdd | 4.5 V DC | |
| | Maximum | | 5.5 V DC | |
| Consumption current | Typical | lw | 170 μΑ | Ambient temperature = $25^{\circ}C$ 77°F |
| | Maximum | | 300 µA | Operating voltage = 5V (3V) lout = 0 |
| Output current | Maximum | lout | 50 μΑ | Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) |
| Output voltage renge | Minimum | Vout | 0 V | Ambient temperature = 25°C 77°F |
| | Maximum | | Vdd | Operating voltage = 5V (3V) |
| Output offset average voltage | Minimum | Voff | 2.3 V | Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Steady-state output voltage when not detecting |
| | Typical | | 2.5 V | |
| | Maximum | | 2.7 V | |
| Steady-state noise | Typical | Vn | 155 m Vp-p | Ambient temperature = 25°C 77°F |
| | Maximum | | 300 m Vp-p | Operating voltage = 5V (3V) |
| Detection sensitivity | Minimum | Vh or VI | 0.45 V | Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) Temperature difference with background: 4°C 39.2°F Please refer to conditions of other detection objects. |
| Circuit stability time | Maximum | Twu | 45 s | Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) |

Note: To set to the same detection performance as the digital output type, set the output voltage to the offset voltage (2.5V) ±0.45V (i.e. 2.95V or more and 2.05V or less).

TIMING CHART



2. Analog output



Note: Circuit stability time: 30s max.

While the circuitry is stabilizing after the power is turned on, the sensor output is not fixed in the "on" state or "off" state. This is true regardless of whether or not the sensor has detected anything.

Note: Circuit stability time: 45s max.

While the circuitry is stabilizing after the power is turned on, the sensor output is not fixed in the "on" state or "off" state. This is true regardless of whether or not the sensor has detected anything.

DETECTION PERFORMANCE

1. Standard detection type





Notes: 1. The X-Y cross-sectional diagram shows the detection area.

 The differences in the detection zone patterns are indicative of the projections of the 16 lenses with single focal point and with five optical axes.
An object whose temperature differs from the background temperature and which crosses inside the detection zone will be detected.



Notes: 1. The X-Y cross-sectional diagram shows the detection area.

2. The differences in the detection zone patterns are indicative of the projections of the 26 lenses with single focal point and with three optical axes. An object whose temperature differs from the background temperature and which crosses inside the detection zone will be detected.