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		6.0 V DC (3.0 V DC)	
Rated consumption current (Standby) Note)	Typical	lw	170 μΑ (46 μΑ)	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V) lout = 0
	Maximum		300 μΑ (60 μΑ)	
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	Twu	7 s	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V)
	Maximum		30 s	

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

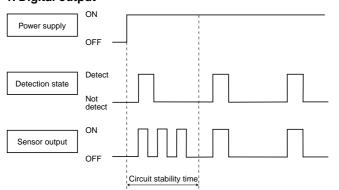
2) Analog output

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°C 77°F
	Maximum		300 μΑ	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		2.3 V	Ambient temperature = 25°C 77°F
	Typical	Voff	2.5 V	Operating voltage = 5V (3V)
	Maximum		2.7 V	Steady-state output voltage when not detecting
Steady-state noise	Typical	Vn	155 m Vp-p	Ambient temperature = 25°C 77°F Operating voltage = 5V (3V)
	Maximum		300 m Vp-p	
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

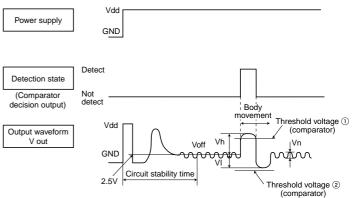
1. Digital output



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.

2. Analog output

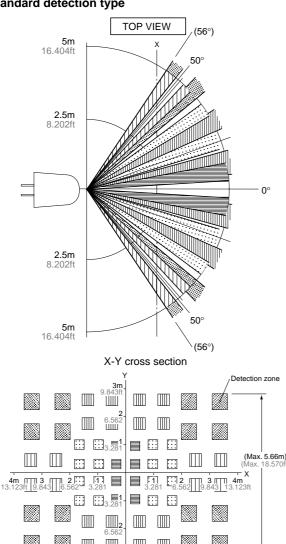


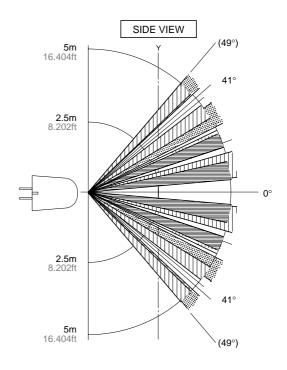
Note: Circuit stability time: 45s max.

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

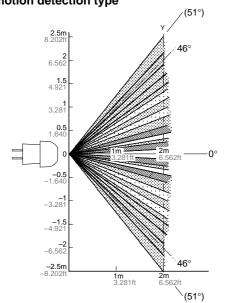




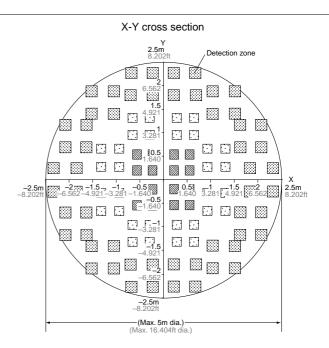
Notes: 1. The X-Y cross-sectional diagram shows the detection area.

2. 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.

2. Slight motion detection type



(Max. 7.42m) (Max. 24.344f)



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.