

APPLICATIONS

Security & Wireless Devices

- Security sensors and cameras
- Wireless occupancy sensors driven by photovoltaic cells or battery to extend battery life.

Housing & Commercial equipment

- Lighting fixtures and wiring devices
- Video intercoms, HA control panels
- Vending machines etc.

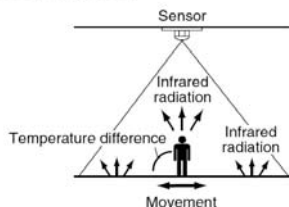
Home appliances (Energy savings)

- Television and PC monitors
- PC, Air-Conditioners
- Air Purifiers
- Wireless and Battery operated monitoring sensing devices

What is passive infrared type?

What is passive infrared type?
This sensor detects changes in infrared radiation which occur when there is movement by a person (or object) which is different in temperature from the surroundings.

- ① As this sensor detects temperature differences, it is well suited to detecting the motion of people by their body temperature.
- ② Wide sensing area.



Compliance with RoHS Directive

ORDERING INFORMATION

EKMA

Output: **1**: Digital

Current Consumption: **1:** 1μA **2:** 2μA **3:** 6μA

Detection Range: **01**: 5m **02**: 3m

Lens Color:
0: No Lens **1:** White **2:** Black

Lens Material: **1:** Polyethylene **2:** Silicon

Mounting: **1**: TO-5

FEATURES

1. Low profile achieved with fitted lens and embedded sensing circuit.

The low profile sensor (Polyethylene: 9.7mm, Silicon-lens: 6mm) is possible using Panasonic's proprietary and high-density electronic component mounting. This technology is achieved by simply embedding the sensing circuits inside the actual sensor. (See "Block Diagram" below)

With Silicon-lens sensor, the lens is incorporated in the outer package to become a pyroelectric sensor module. This makes it easy to mount the sensor on thin or compact products with limited space.

- ## 2. Motion detection with 3mm diameter miniature flat lens

A 3 mm diameter flat surface lens is possible using Panasonic's unique Lens Formation Technology for silicon substrates, making the lens operating substantially small compared to other conventional sensors.

3. 1μA low current consumption possible based on Panasonic's proprietary design

The development of a specialized circuit allows the reduction of current consumption to $1 \mu A$ (*). After motion is detected, the sensor will shift to "stand-by" mode.

Reduction of Current consumption allows battery life to be extended for battery driven products. These include wireless based or energy sensitive devices.

(Note: Product lineup includes: 1 μ A, 2 μ A, and 6 μ A sensors.)

- #### 4. Robust design against false starts

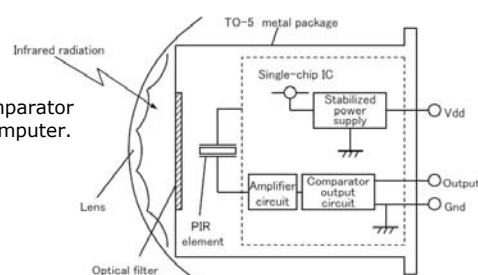
Panasonic PaPIRS sensing circuits are enclosed in a metallic case which helps minimize the adverse effects of external electro magnetic fields. (i.e.: radiated noise caused by cellular phones)

Since the sensors have a high S/N ratio, they are less sensitive to false starts when operated under different environmental surroundings.

Block Diagram

(digital output circuit)

Has a built-in amplifier and comparator connected directly to a microcomputer.



PRODUCT TYPES

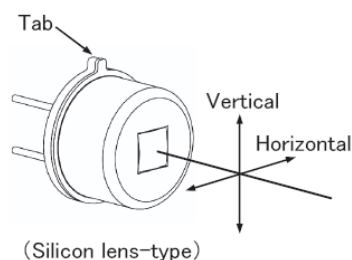
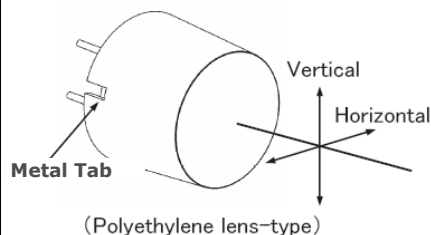
Lens type	Current Consumption	Lens color	Model No.	Inner Package	Outer Package
Si-lens type (Silicon)	1 μ A	—	EKMA1102120	50pcs.	1000pcs.
	2 μ A	—	EKMA1202120		
	6 μ A	—	EKMA1302120		
PE-lens type (Polyethylene)	1 μ A	White	EKMA1101111		
		Black	EKMA1101112		
	2 μ A	White	EKMA1201111		
		Black	EKMA1201112		
	6 μ A	White	EKMA1301111		
		Black	EKMA1301112		

PERFORMANCE**1. Detection Performance**

Items		PE-lens type	Si-lens type	Conditions concerning the target
Detection Range *1)		Max. 5m	Max. 3m	1. The temperature difference between the target and the surroundings should be superior to 4°C.(7.2°F) 2. Movement speed: 1.0m/s 3. Target concept is human body (Size: Around 700 × 250mm)
Detection Area	Horizontal *2)	94° (±47°)	58° (±29°)	
	Vertical *2)	82° (±41°)	34° ($\begin{smallmatrix} +12^{\circ} \\ -22^{\circ} \end{smallmatrix}$)	
	Detection Zones *3)	64 zones	4 zones	

*1) Depending on the target's speed and its temperature difference with the surroundings, detection can occur at a range superior to the above value. However, please use this sensor according to the specifications.

*2) Definitions for "Horizontal" and "Vertical"



*3) Refer to the "detection area" diagram on P.4.

2. Maximum Rated Values (Common for both PE-lens type, and Si-lens type)

Items	Specified value
Power Supply Voltage	-0.3~7V DC
Usable Ambient Temperature	-20~+60°C (-4~+140°F) Do not use in a freezing or condensation environment
Storage Temperature	-20~+70°C (-4~+158°F)