


MESSRS. : _____

AGENT : _____

**SPECIFICATION
of
PYROELECTRIC PASSIVE
INFRARED SENSOR**

MODEL NO. : P624M

APPROVED BY	CHECKED BY	DRAWN BY

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1. SCOPE

This specification describes a Pyroelectric Passive Infrared Sensor supplied by SHANGHAI NICERA SENSOR CO.,LTD. for passive infrared sensor device.

2. TYPE of SENSOR

2.1. TYPE NAME

Pyroelectric Passive Infrared Sensor

2.2. MODEL NO.

P624M

3. PHYSICAL CONFIGURATION AND DIMENSIONS

3.1. APPEARANCE

There are not remarkable wounds, spots, rust and etc.

3.2. DIMENSIONS

TO-5 Package : See Fig.1.

3.3. MARKING

Lot number and model number are marked on top surface of detector. (Figure.1)


【Model number】

“ P624M” is marked.

4. GENERAL CHARACTERISTICS

Table.1

PARAMETER		SPECIFICATION
4.1.	Pyroelectric Passive Infrared Sensor	Balanced differential type (Series opposed type)
4.2.	Block Diagram	See Fig.3


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5. ELECTRICAL CHARACTERISTICS
(ENVIRONMENT TEMPERATURE = 25 (+/-) 5 deg. C.)

V_{dd} = 3.3 V, unless specified.

Table.2

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
Maximum Supply Voltage	V _{dd}	-0.3		3.6	V	
Operating Voltage	V _{dd}	2.5	3.3	3.6	V	
Fluctuation in Supply Voltage		-3		3	%	Single Power Supply
Current Consumption	I _{dd}		3		μ A	V _{dd} = 3.0V PIR Power OFF, no load
Warm-up Time				30	Sec.	See Fig.5
Serial_In						
Input low voltage	V _{IL}			0.2	V _{dd}	
Input high voltage	V _{IH}	0.8			V _{dd}	
Input current	I _I	-1		1	μ A	V _{SS} <V _{IN} <V _{DD}
Data clock low time	t _L	200			ns	
Data clock high time	t _H	200			ns	
Data bit write time	t _{BW}	2/F _{CLK}			μ s	
Write timeout	t _{wL}	16/F _{CLK}			μ s	
INT/Dout						
Input low voltage	V _{IL}			0.2	V _{dd}	
Input high voltage	V _{IH}	0.8			V _{dd}	
Output current high	I _{OH}			-200	μ A	V _{OH} >(V _{DD} -1V)
Output current low	I _{OL}	200			μ A	V _{OL} <1V
Force read setup time	t _{FR}	2/F _{CLK}			μ s	
Data clock low time	t _L	200			ns	
Data clock high time	t _H	200			ns	
Data bit settling time, Dout	t _{BIT}	1			μ s	CLOAD=10 pF
Read timeout	t _{RA}	4/F _{CLK}			μ s	
PIR Measurement						
Resolution		5.9	6.5	7.2	μ V/count	
ADC output range		511		2 ¹⁴ -511	counts	
ADC offset		7000	8000	9000	counts	
Supply Voltage Measurement						
Resolution		590	650	720	μ V/count	
ADC output range		2 ¹³		2 ¹⁴ -511	counts	
Temperature Measurement						
Resolution			80		Counts/K	
ADC output range		511		2 ¹⁴ -511	counts	
Value at 300K		6700	8200	9900	counts	
Filter and Oscillator						
LPF cutoff frequency			7		Hz	
HPF cutoff frequency			0.44		Hz	
System Clock	F _{CLK}		32		KHz	

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6. OPTICAL CHARACTERISTICS

Table.3

PARAMETER		SPECIFICATION
6.1.	Field of view	X-axis : 134 deg. Y-axis : 120 deg.
6.2.	Filter substrate	Silicon
6.3.	Cut on (5 %T ABS)	5 (+/-) 1 micron
6.4.	Transmission	≥ 70 % average 8 to 13 micron

7. ENVIROMENTAL REQUIREMENTS

Table.4

PARAMETER		SPECIFICATION
7.1.	Operating Temperature	-20 to +70 deg. C
7.2.	Storage Temperature	-30 to +80 deg. C
7.3.	Relative Humidity	The Sensor shall operate without increase in Noise Output when exposed to 90 to 95 % RH at 30 deg. C continuously
7.4.	Hermeticity	The Sensor shall be sealed to withstand a vacuum level of 21.28 kPa.

8. RoHS COMPLIANCE

This product conforms to the RoHS Directive in force at the date of issuance of this Specification Sheet.

9. REVISION

Any revision of this specification should be made in writing by discussion.

10. NOTES

10.1. Design restrictions/precautions


If used for outdoor applications, be sure to apply suitable supplementary optical filter, drip-proof and anti-dew construction. This sensor is designed for indoor use.

In cases where secondary accidents due to operation failure or malfunctions can be anticipated, add a fail safe function to the design.

10.2. Usage restrictions/precautions

To prevent sensor malfunctions, operational failure or any deterioration of its characteristics, do not use this sensor in the following, or similar, conditions.

- A. In rapid environmental temperature changes.
- B. In strong shock or vibration.
- C. In a place where there are obstructing materials (Glass, Fog, etc.) through which infrared rays cannot pass within detection area.
- D. In fluid, corrosive gases and sea breeze.
- E. Continual use in high humidity atmosphere.
- F. Exposed to direct sun light or headlights of automobiles.
- G. Exposed to direct wind from a heater or air conditioner.

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10.3. Assembly restrictions/precautions

Soldering

- A. Use soldering irons when soldering.
- B. Avoid keeping pins of this sensor hot for a long time as excessive heat may cause deterioration of its quality. (Ex. Within 5 sec. at 350 deg.C)

Washing

- A. Be sure to wash out all flux after soldering as remainder may cause malfunctions.
- B. Use a brush when washing. Washing with an ultrasonic cleaner may cause operational failure.

10.4. Handling and storage restrictions/precautions


To prevent sensor malfunctions, operational failure, appearance damage or any deterioration of its characteristics, do not expose this sensor to the following or similar, handling and storage conditions.

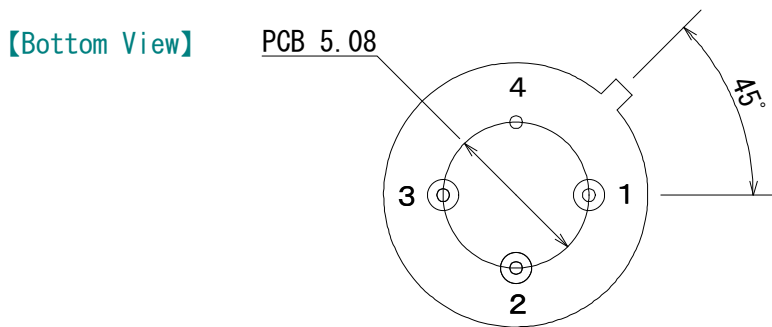
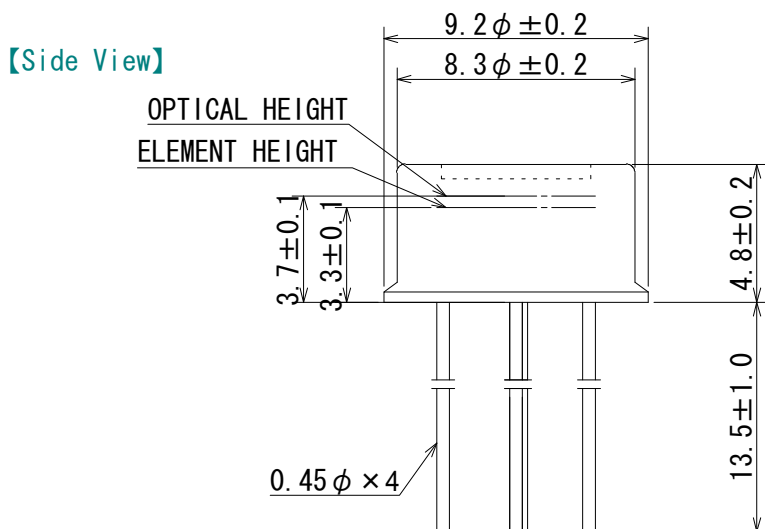
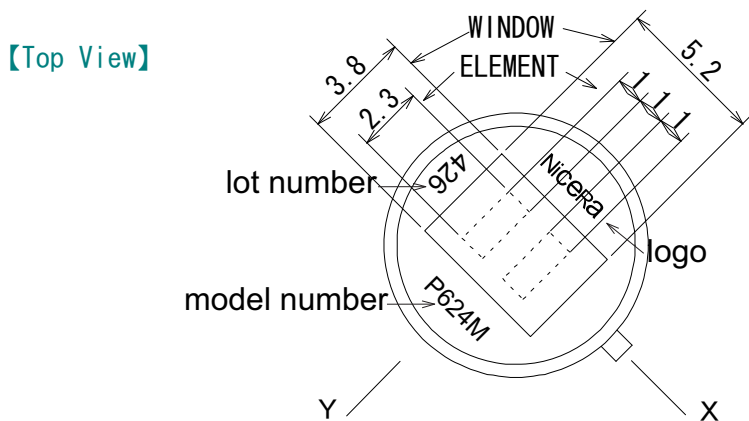
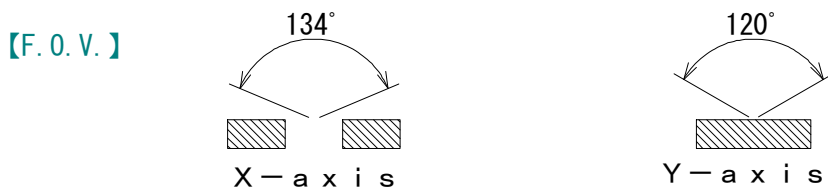
- A. Vibration for a long time.
- B. Strong shock.
- C. Static electricity or strong electromagnetic waves.
- D. High or Low temperature and humidity for a long time.
- E. Corrosive gases or sea breeze.
- F. Dirty and dusty environments that may contaminate the optical lens.

10.5. Restrictions on product use

The product described in this document shall not be used or embedded to any downstream products of which manufacture, use and / or sales are prohibited under any applicable laws and regulations.

Sensor troubles resulting from misuse, inappropriate handling or storage are not the manufacturer's responsibility.

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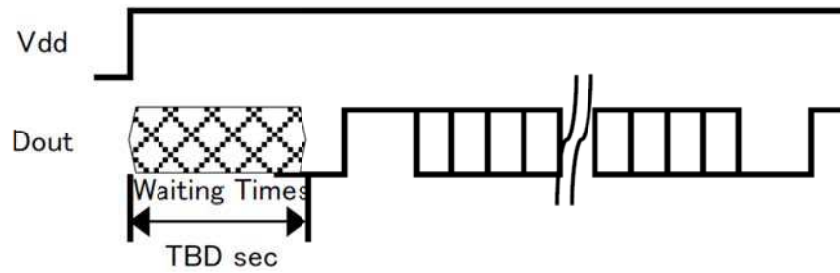
- 1 : INT/Dout
- 2 : Vdd
- 3 : Serial_In
- 4 : GND

Tolerance without instruction: (+ / -) 0.2
Unit : [mm]

(*)The sensor conforms to the standard for RoHS.

Fig.1 : Dimensions

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Cautions) Waiting (stability) Time: Max. 30 sec.
Regarding of detection or non-detection during the waiting time, ON signal may be made due to Instability of circuit

Fig.2 : Warm-up Time

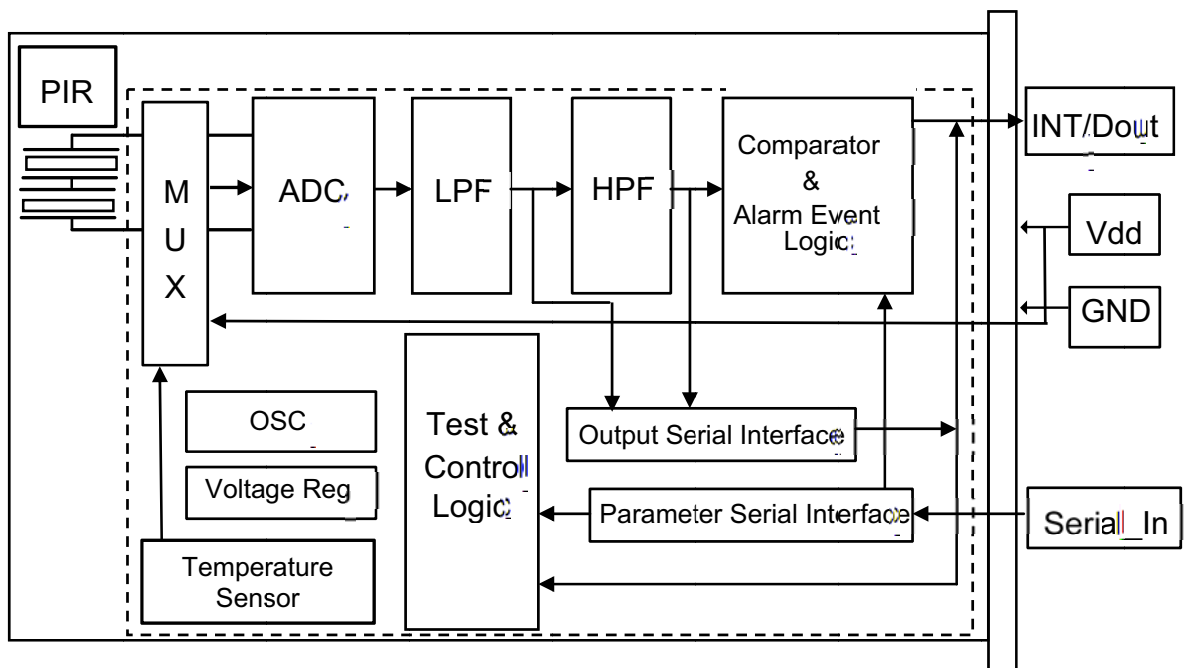


Fig.3 : Block Diagram

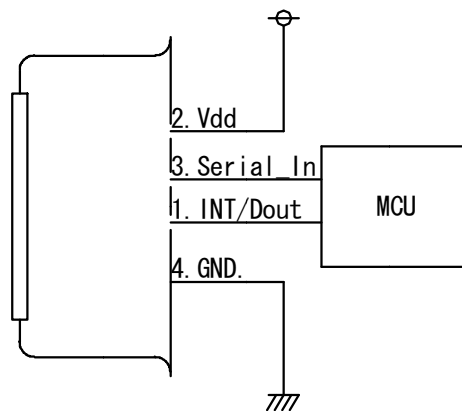



Fig.4 : Connection Diagram

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