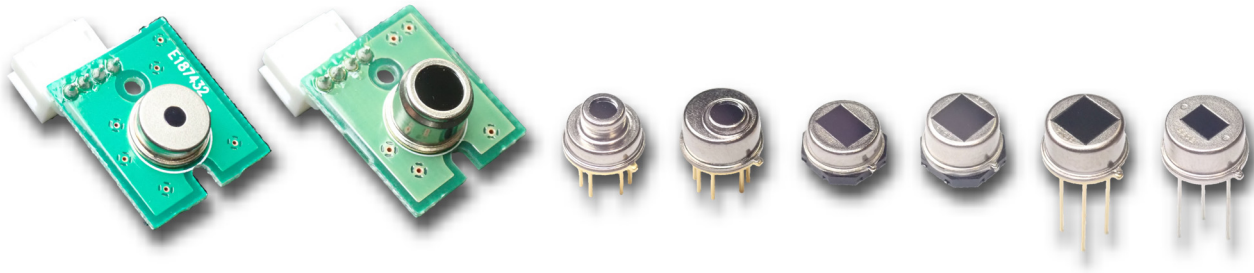


PYROELECTRIC IR SENSOR THERMOPILE SENSOR



We Make Good World with Sensor



Application Guide

Pyroelectric IR sensor

The pyroelectric infrared sensor is an infrared sensor that applies the pyroelectric effect of ferroelectric ceramic. It can detect human body movement and so on with sensing temperature changes.



Lighting

Automatic switch control.
Energy saving, Comfort & Convenience.



Security

Security & Safety.



Air-conditioner

Comfort & Energy saving.



IP camera IoT

Camera control. Energy saving & battery life extension. Security, Surveillance & Pet monitor.



Toilet

Automatic toilet lid open and close. Comfort, Convenience & Cleanliness.



TV

Automatic display control.
Energy saving & comfort.

Thermopile sensor Thermopile sensor unit

Thermopile sensor is an infrared sensor that applies the Seebeck effect. With detecting absolute thermal amount of the object, it measures temperature without contact.



Printer

Temperature monitor of inside parts. Printing quality and efficiency improvement.



Automotive

Temperature measurement of seat space, passenger, heat generation parts and etc..
Comfort and safety improvement.



Microwave oven

Food temperature measurement. Heat control to preset temperature.



Air-conditioner

Temperature monitor of floor and human body. Comfortability control & energy saving control.



IH cooker

Temperature monitor of pot bottom. Automatic control of cooking temperature.



Ear thermometer

Quick measure of body temperature.

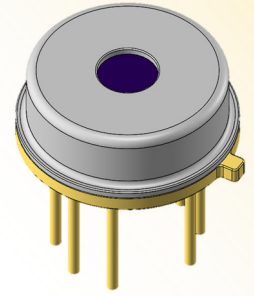
Thermopile sensor / Thermopile sensor unit

Application						Object (Target temperature)	Part number	Number of element	FOV [°]		Shape	Output method	Feature	Data sheet
Air-conditioner	Microwave oven	IH cooker	Printer	Ear thermometer	Non-contact thermometer				X-axis	Y-axis				
						Floor temperature (-20~60°C)	A3D01S-FB-50-60	1	90	90	TO-5 detector	I2C	* Wide-angle detection	30
						Floor temperature (-20~60°C)	A3A01S-FB-33-60	1	90	90	TO-5 detector	analog	* Wide-angle detection	31
						Floor temperature (-20~60°C)	A1D08A-BU-50-60	8 (8x1)	44	5	TO-5 detector	I2C		32
						Floor temperature (-20~60°C)	A1D16B-AU-50-60	16 (4x4)	88	88	TO-5 detector	I2C		33
						Floor temperature (-20~60°C)	TSUP-A3D01S-FB-50-60	1	90	90	Unit with connector	I2C	* Wide-angle detection	34
						Floor temperature (-20~60°C)	TSUP-A3A01S-FB-33-60	1	90	90	Unit with connector	analog	* Wide-angle detection	35
						Floor temperature (-20~60°C)	TSUP-A1D08A-BU-50-60	8 (8x1)	44	5	Unit with connector	I2C		36
						Floor temperature (-20~60°C)	TSUP-A1D16B-AU-50-60	16 (4x4)	88	88	Unit with connector	I2C		37
						Food (-20~120°C)	A3D01S-AU-50-120	1	22	22	TO-5 detector	I2C		38
						Food (-20~120°C)	A3A01S-AU-33-120	1	22	22	TO-5 detector	analog		39
						Food (-20~120°C)	A1D08A-BU-50-120	8 (8x1)	44	5	TO-5 detector	I2C		40
						Food (-20~120°C)	A1D16B-AU-50-120	16 (4x4)	88	88	TO-5 detector	I2C		41
						Food (-20~120°C)	TSUP-A3D01S-AU-50-120	1	22	22	Unit with connector	I2C		42
						Food (-20~120°C)	TSUP-A3A01S-AU-33-120	1	22	22	Unit with connector	analog		43
						Food (-20~120°C)	TSUP-A1D08A-BU-50-120	8 (8x1)	44	5	Unit with connector	I2C		44
						Food (-20~120°C)	TSUP-A1D16B-AU-50-120	16 (4x4)	88	88	Unit with connector	I2C		45
						Pot surface (-20~300°C)	A3D01S-CU-50-300	1	12	12	TO-5 detector	I2C	* Focused detection	46
						Pot surface (-20~300°C)	A3A01S-CU-33-300	1	12	12	TO-5 detector	analog	* Focused detection	47
						Pot surface (-20~300°C)	TSUP-A3D01S-CU-50-300	1	12	12	Unit with connector	I2C	* Focused detection	48
						Pot surface (-20~300°C)	TSUP-A3A01S-CU-33-300	1	12	12	Unit with connector	analog	* Focused detection	49
						Thermal roller	A3D01S-CU-50-300	1	12	12	TO-5 detector	I2C	* Focused detection	50
						Thermal roller	A3A01S-CU-33-300	1	12	12	TO-5 detector	analog	* Focused detection	51
						Thermal roller	TSUP-A3D01S-CU-50-300	1	12	12	Unit with connector	I2C	* Focused detection	52
						Thermal roller	TSUP-A3A01S-CU-33-300	1	12	12	Unit with connector	analog	* Focused detection	53
						Human Body temperature	TS-S2NMB-2R	1	90	90	TO-18 detector	2-channel	* Tab-less model	54
						Human Body temperature	TS-S2NMB-2RT	1	90	90	TO-18 detector	2-channel		55
						Multi purpose	TS-S2NAB-2R	1	90	90	TO-5 detector	2-channel		56
						Multi purpose	TS-S2NAU-2C	1	12	12	TO-5 detector	2-channel		57

Thermopile sensor

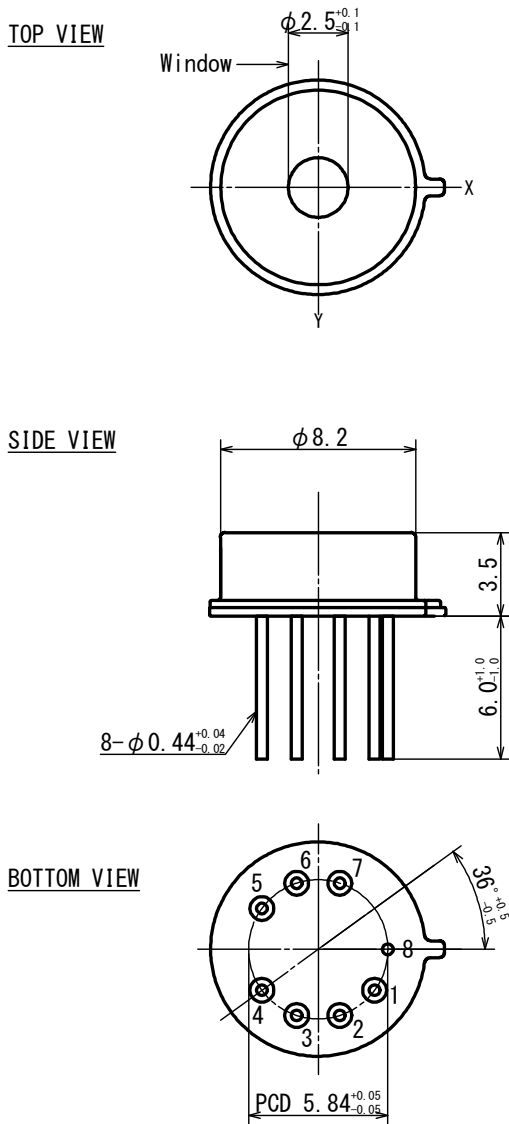
A3D01S-FB-50-60

- Applications **Air-conditioner**
(Floor temperature monitor)
Target temperature -20~60°C
- Feature **ASIC built-in thermopile (I2C output)**
Wide-angle detection (Single element)



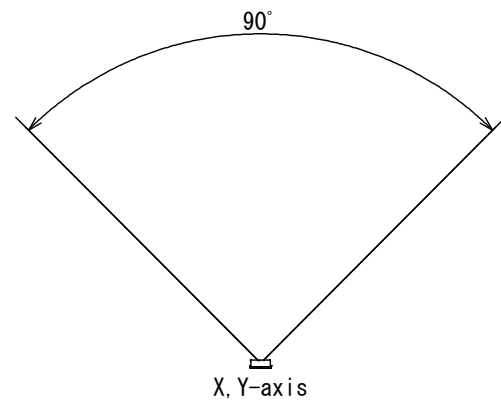
TO-5

Dimensions

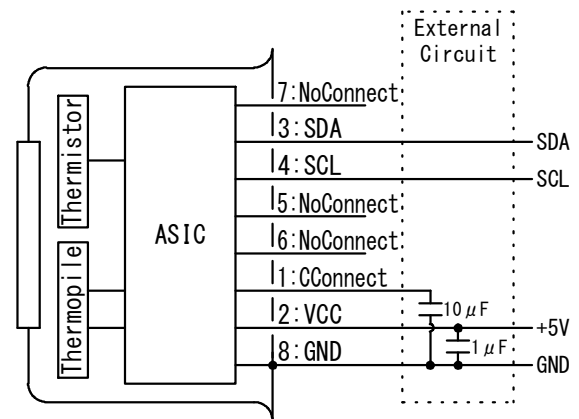


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		400	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Analog

Amp built-in
ASIC built-in

SMD

Air-conditioner

Microwave
oven

Ih cooker

Printer

Ear
thermometer

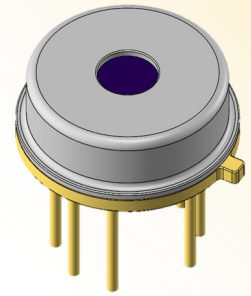
Non-contact
thermometer

Thermopile sensor

A3A01S-FB-33-60

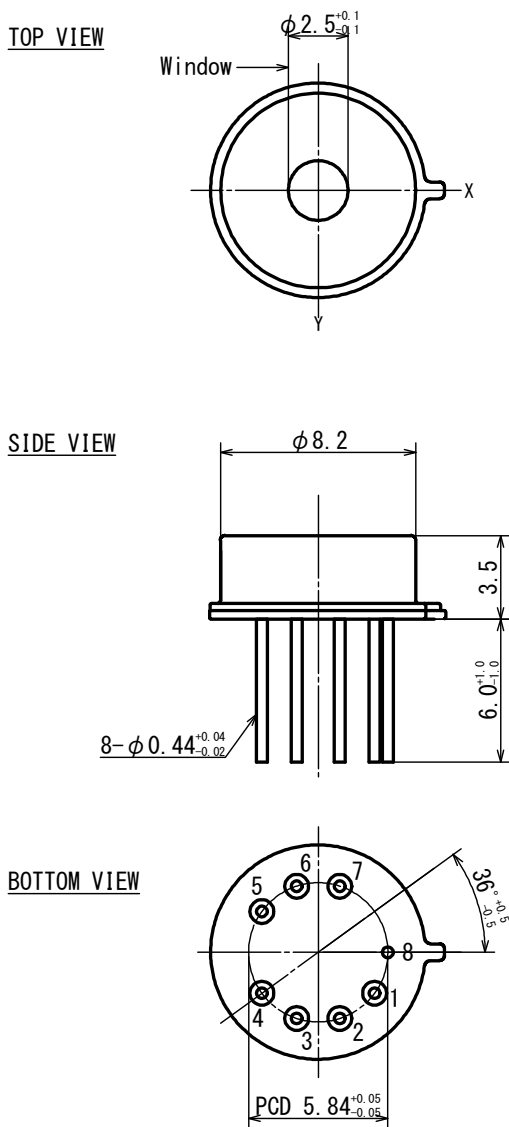
- Applications **Air-conditioner**
(Floor temperature monitor)
Target temperature -20~60°C

- Feature **ASIC built-in thermopile (Analog output)**
Wide-angle detection (Single element)



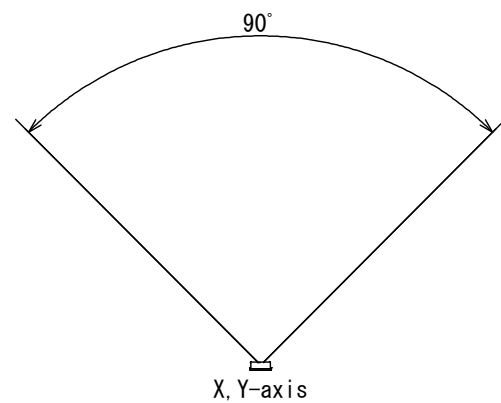
TO-5

Dimensions

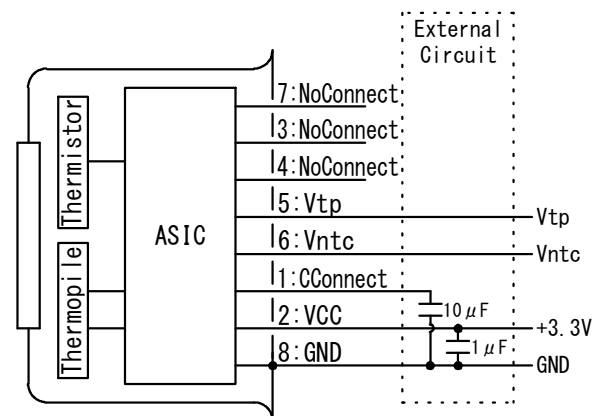


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram

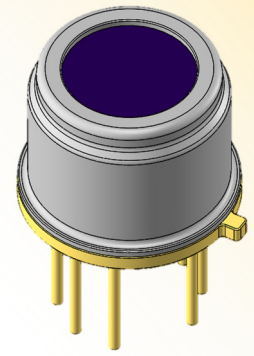


■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		3	3.3	3.6	V
Detection Temperature		-20		60	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor

A1D08A-BU-50-60

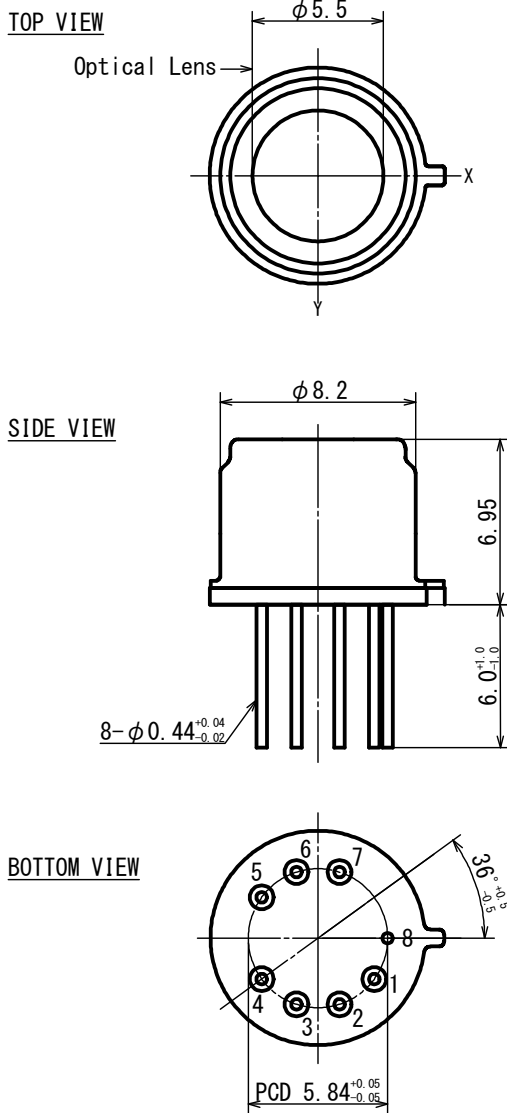


TO-5

- Applications **Air-conditioner**
(Floor temperature monitor)
Target temperature -20~60°C

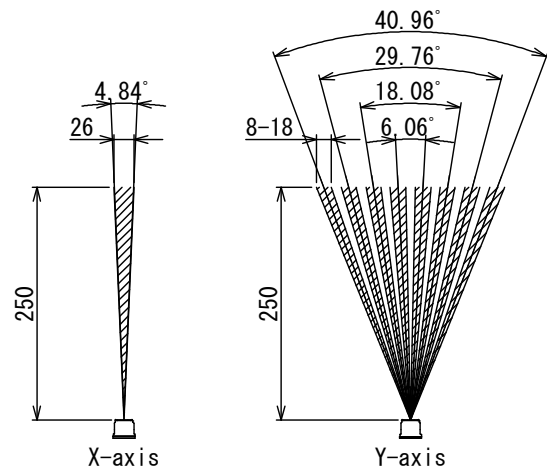
- Feature **ASIC built-in thermopile (I2C output)**
8 array element

Dimensions

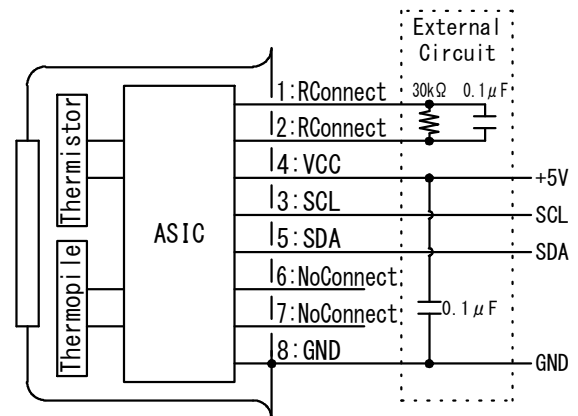


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		60	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Analog

Amp built-in
ASIC built-in

SMD

Air-conditioner

Microwave
oven

Ih cooker

Printer

Ear
thermometer

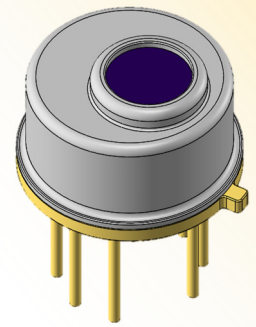
Non-contact
thermometer

Thermopile sensor

A1D16B-AU-50-60

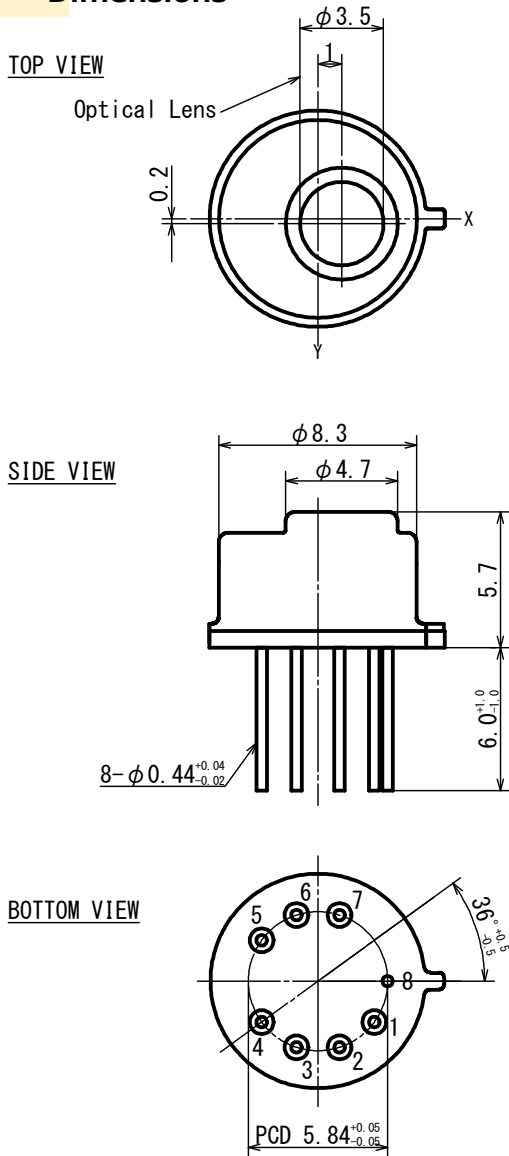
- Applications Air-conditioner
(Floor temperature monitor)
Target temperature -20~60°C

- Feature ASIC built-in thermopile (I2C output)
4 x 4 square element



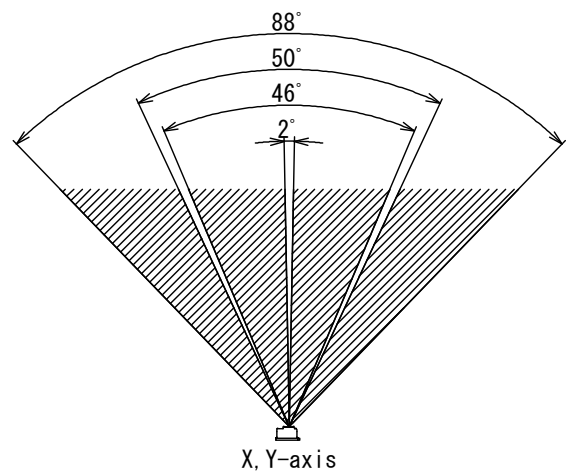
TO-5

Dimensions

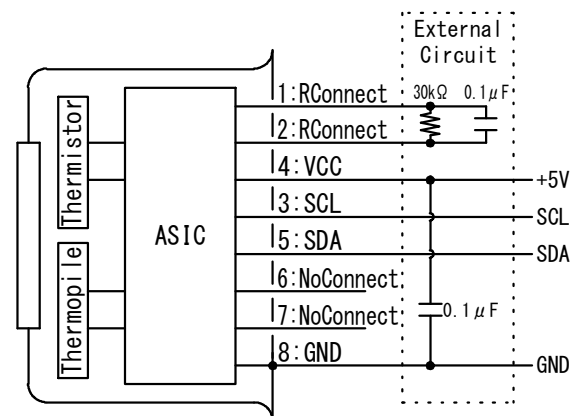


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

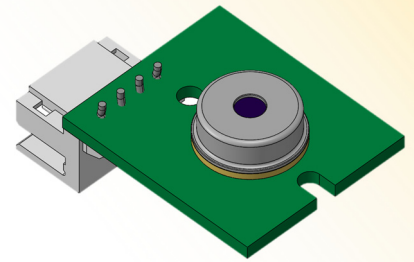
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		60	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor unit

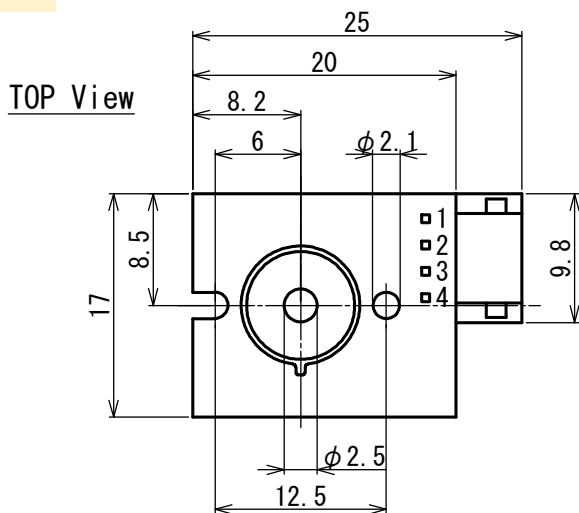
TSUP-A3D01S-FB-50-60

- Applications Air-conditioner
(Floor temperature monitor)
Target temperature -20~60°C

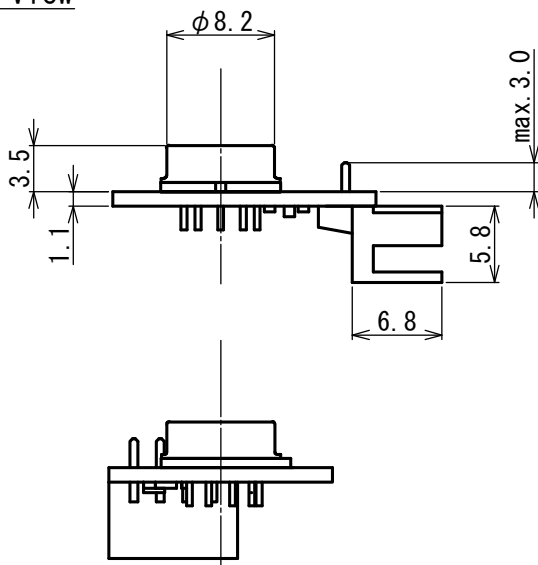
- Feature Thermopile sensor Unit (I2C output)
Wide-angle detection
(Single element)



Dimensions

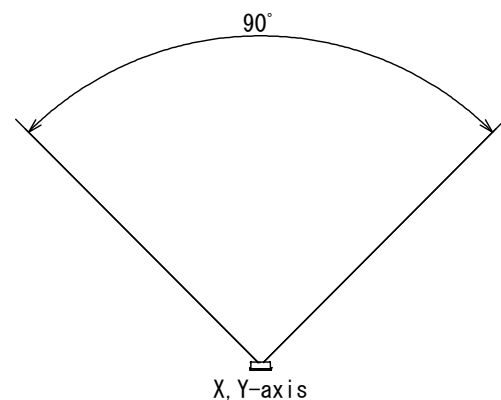


SIDE View

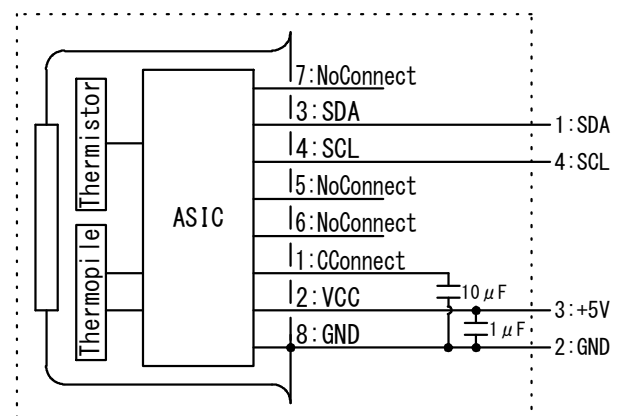


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		400	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Analog

Amp build-in
ASIC build-in

SMD

Air-conditioner

Microwave
oven

Ih cooker

Printer

Ear
thermometer

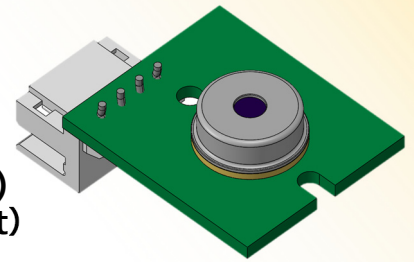
Non-contact
thermometer

Thermopile sensor unit

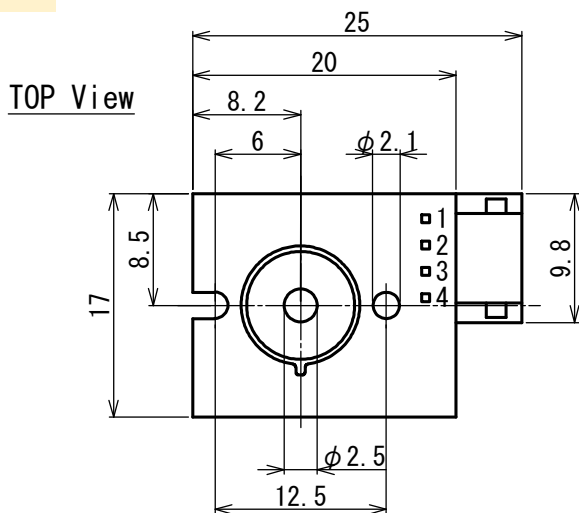
TSUP-A3A01S-FB-33-60

- Applications Air-conditioner
(Floor temperature monitor)
Target temperature -20~60°C

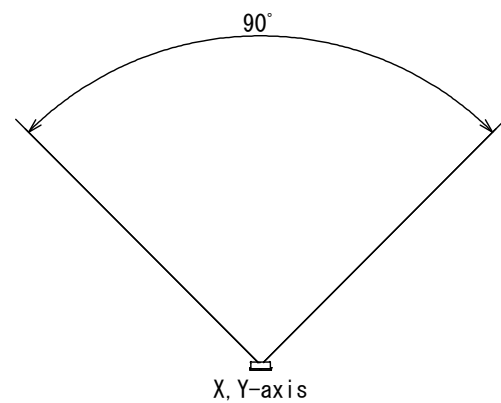
- Feature Thermopile sensor Unit (Analog output)
Wide-angle detection (Single element)



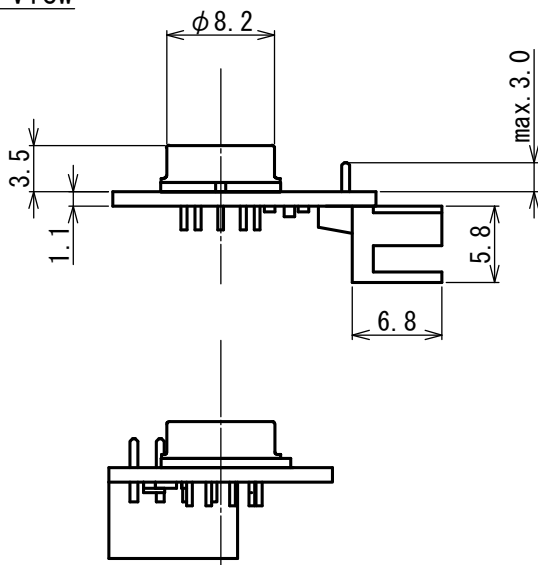
Dimensions



FOV

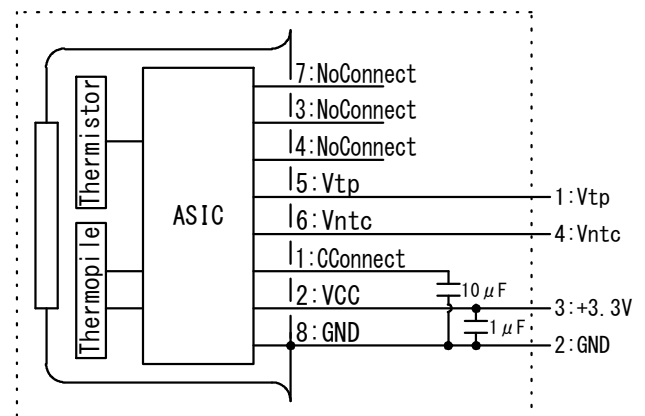


SIDE View



Tolerance with no specified : +/- 0.2

Circuit diagram



■ Main Parameter

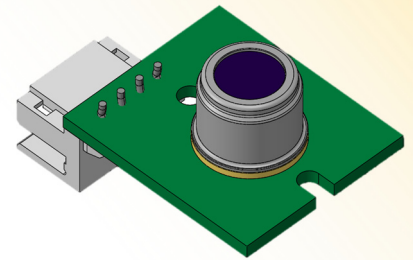
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		3	3.3	3.6	V
Detection Temperature		-20		60	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor unit

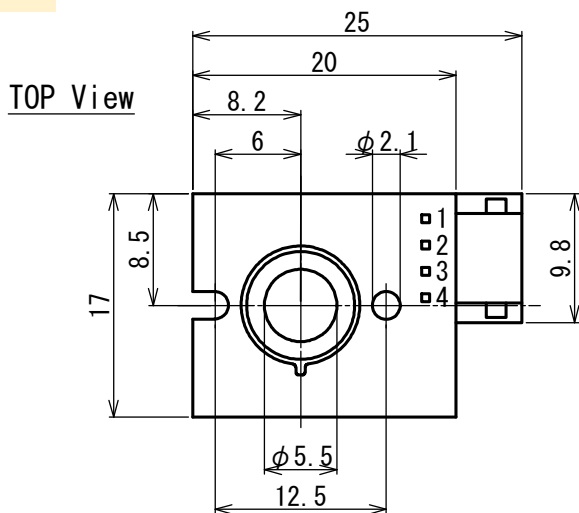
TSUP-A1D08A-BU-50-60

- Applications Air-conditioner
(Floor temperature monitor)
Target temperature -20~60°C

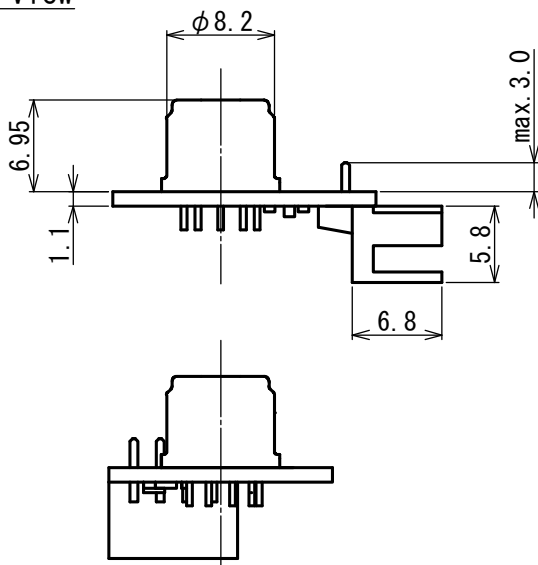
- Feature Thermopile sensor Unit (I2C output)
8 array element



Dimensions

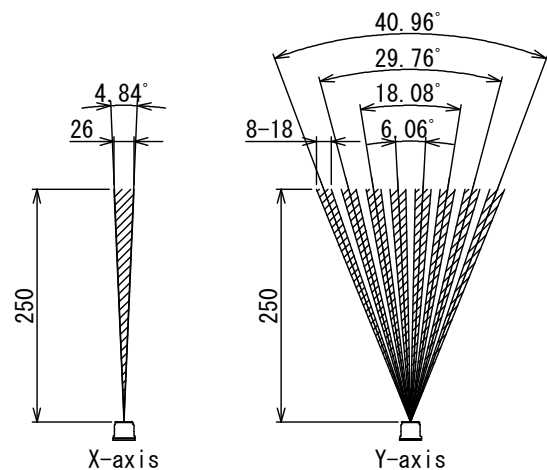


SIDE View

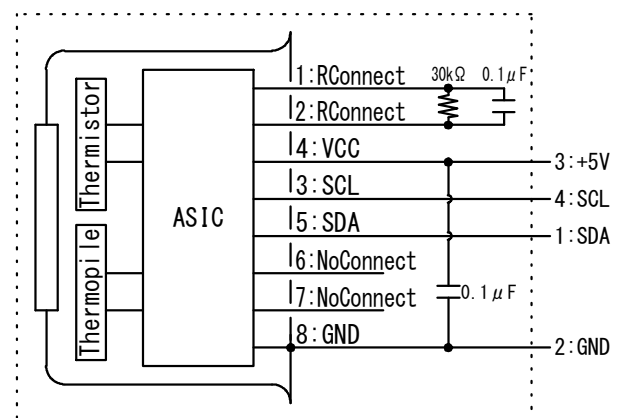


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		60	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Analog

Amp build-in
ASIC build-in

SMD

Air-conditioner

Microwave
oven

Ih cooker

Printer

Ear
thermometer

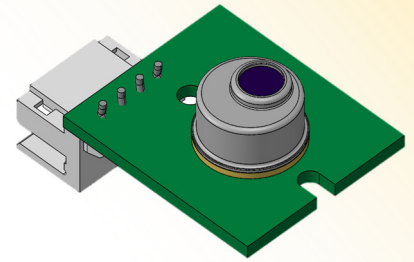
Non-contact
thermometer

Thermopile sensor unit

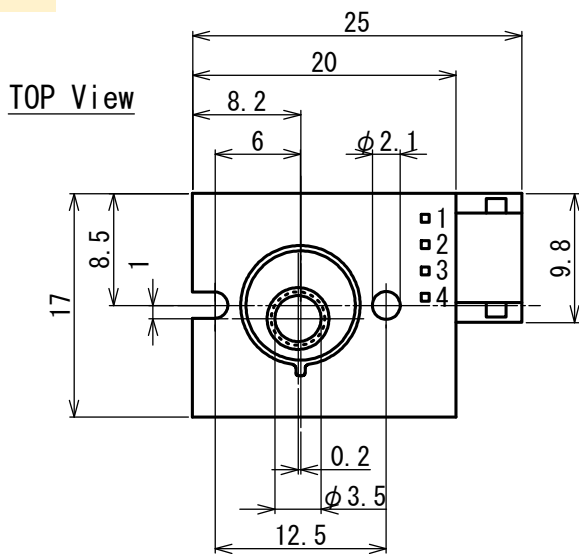
TSUP-A1D16B-AU-50-60

- Applications Air-conditioner
(Floor temperature monitor)
Target temperature -20~60°C

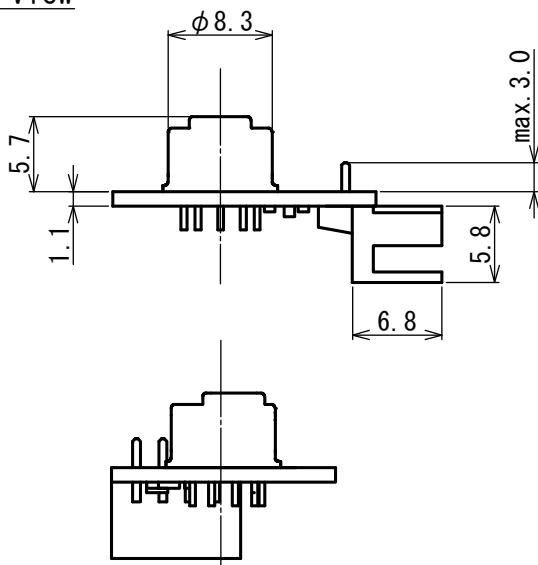
- Feature Thermopile sensor Unit (I2C output)
4 x 4 square element



Dimensions

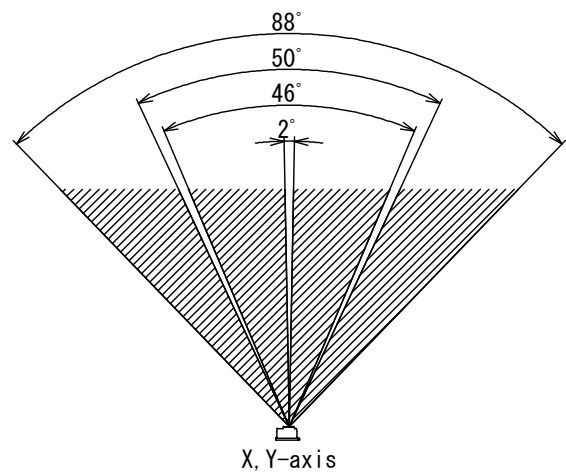


SIDE View

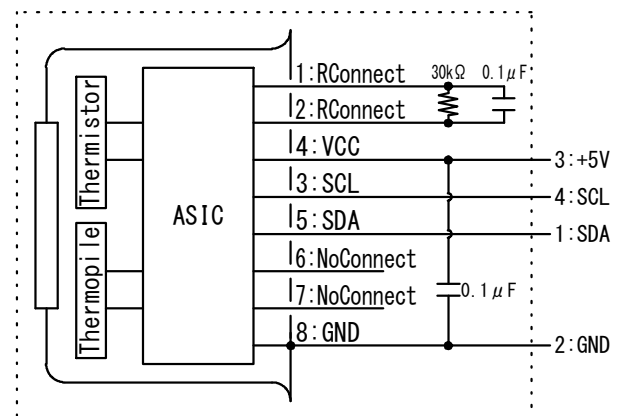


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

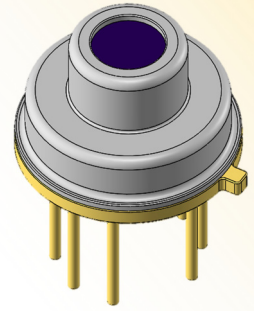
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		60	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor

A3D01S-AU-50-120

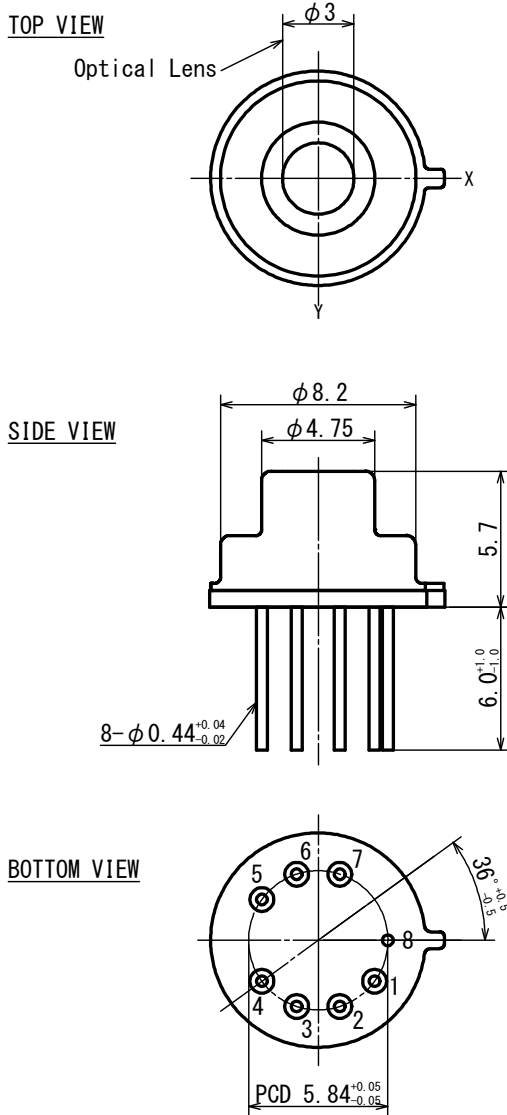
- Applications **Microwave oven**
(Food temperature detection)
Target temperature -20~120°C

- Feature **ASIC built-in thermopile (I2C output)**
Single element



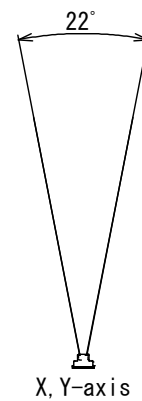
TO-5

Dimensions

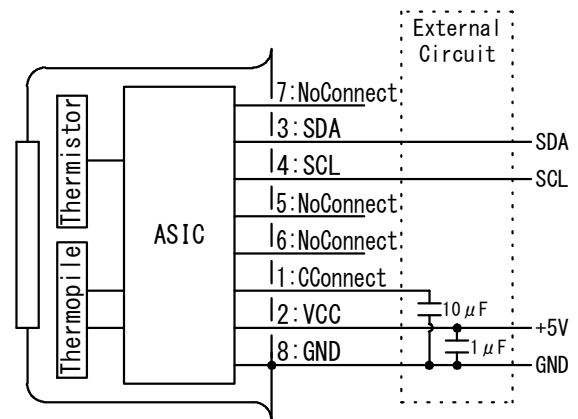


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

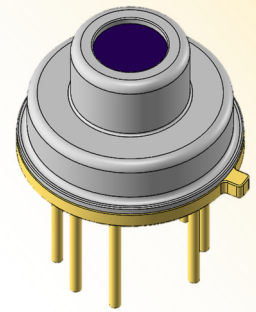
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		400	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor

A3A01S-AU-33-120

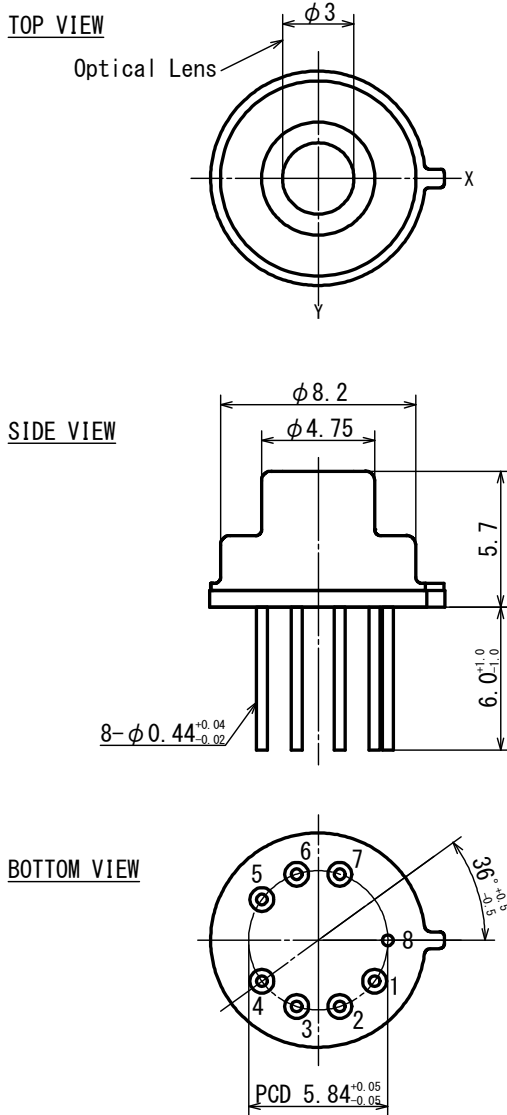
- Applications Microwave oven
(Food temperature detection)
Target temperature -20~120°C

- Feature ASIC built-in thermopile (Analog output)
Single element



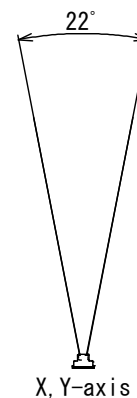
TO-5

Dimensions

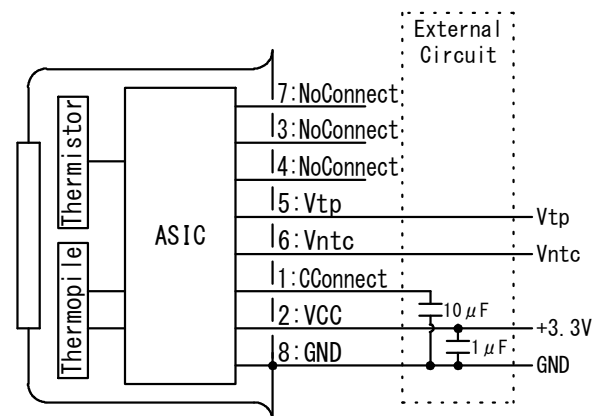


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram

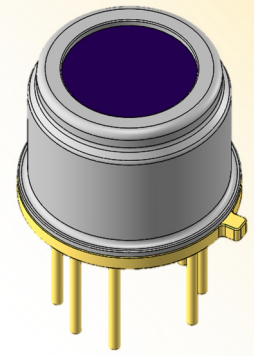


■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		3	3.3	3.6	V
Detection Temperature		-20		120	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor

A1D08A-BU-50-120

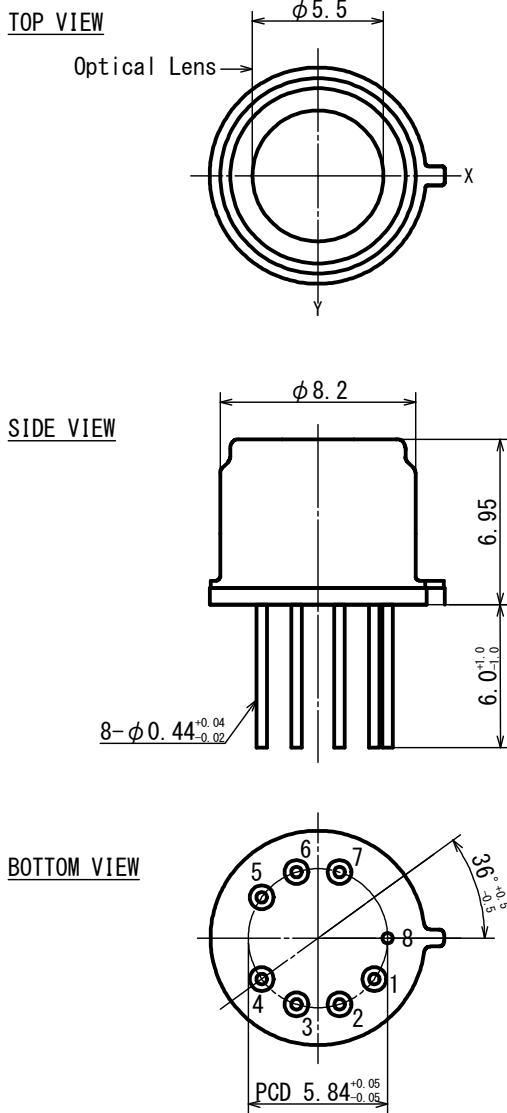


TO-5

- Applications **Microwave oven**
(Food temperature detection)
Target temperature -20~120°C

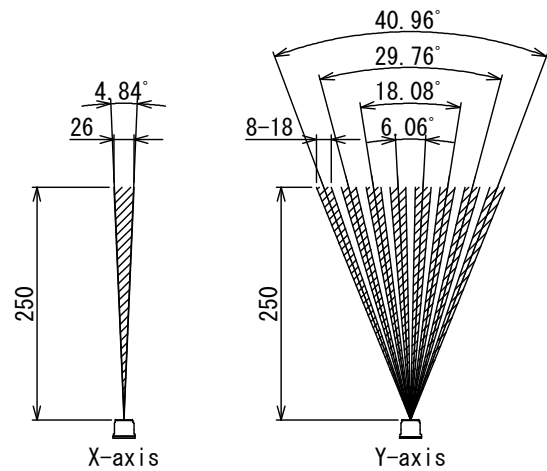
- Feature **ASIC built-in thermopile (I2C output)**
8 array element

Dimensions

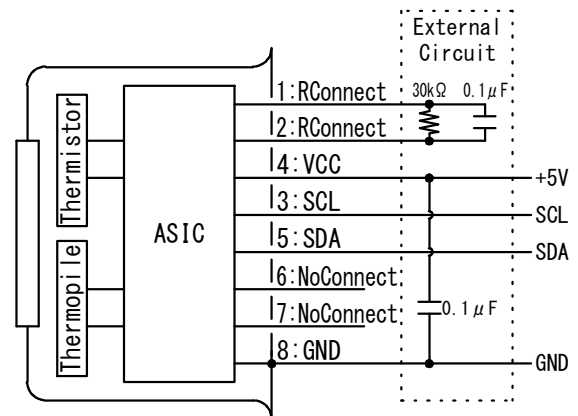


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

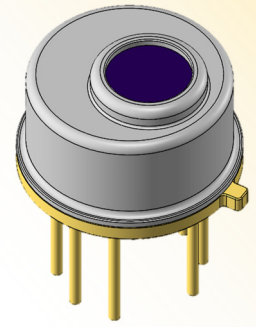
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		120	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor

A1D16B-AU-50-120

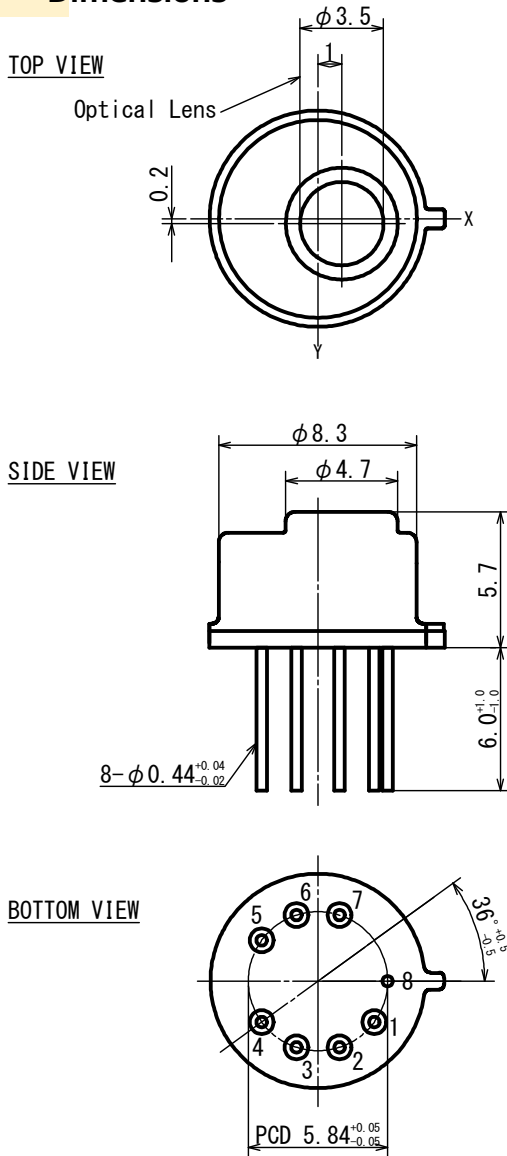
- Applications **Microwave oven**
(Food temperature detection)
Target temperature -20~120°C

- Feature **ASIC built-in thermopile (I2C output)**
4 x 4 square element



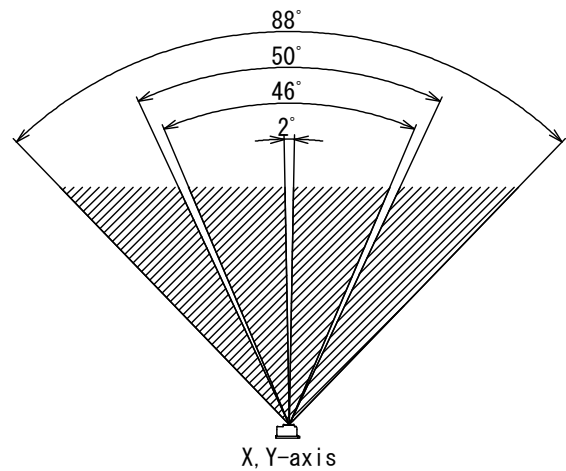
TO-5

Dimensions

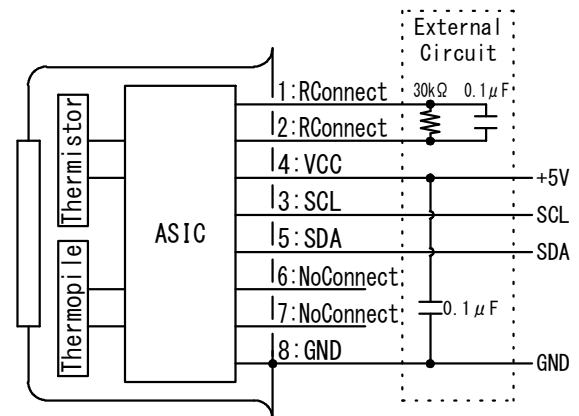


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

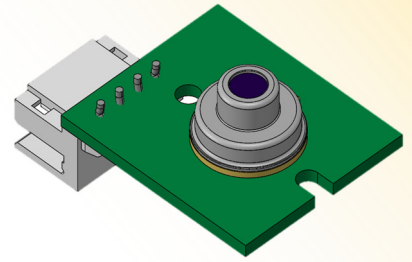
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		120	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor unit

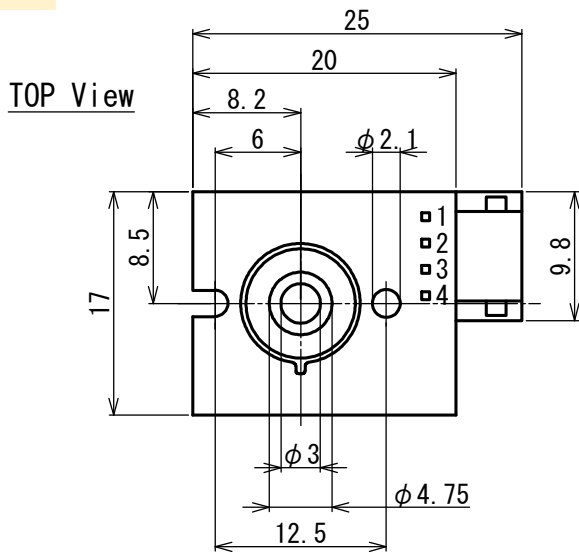
TSUP-A3D01S-AU-50-120

- Applications Microwave oven
(Food temperature detection)
Target temperature -20~120°C

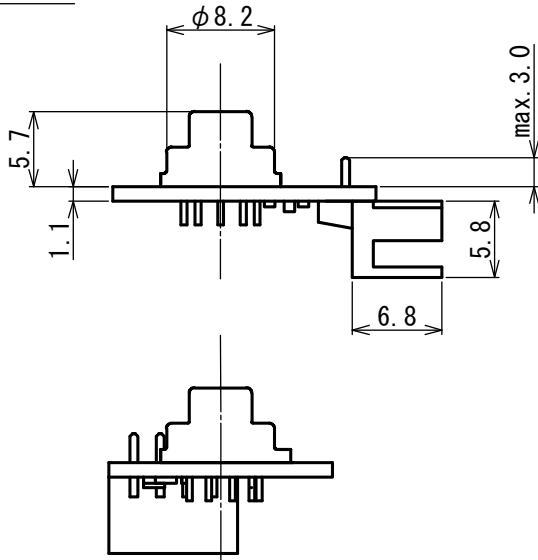
- Feature Thermopile sensor Unit (I2C output)
Single element



Dimensions

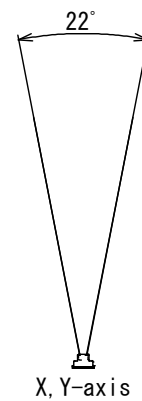


SIDE View

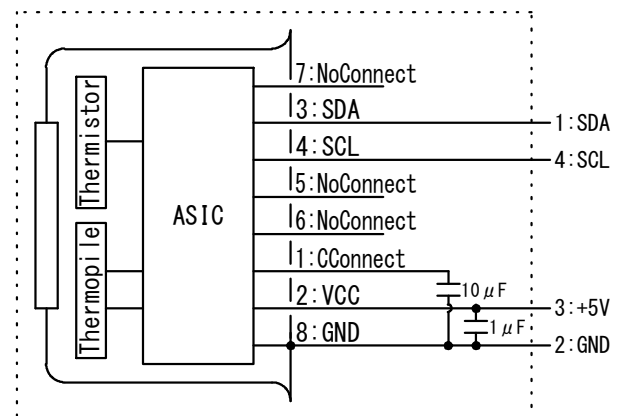


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

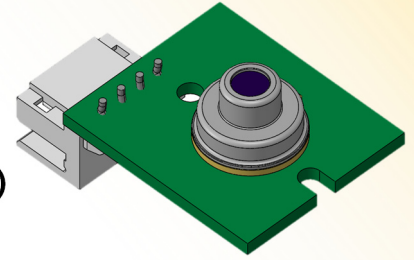
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		400	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor unit

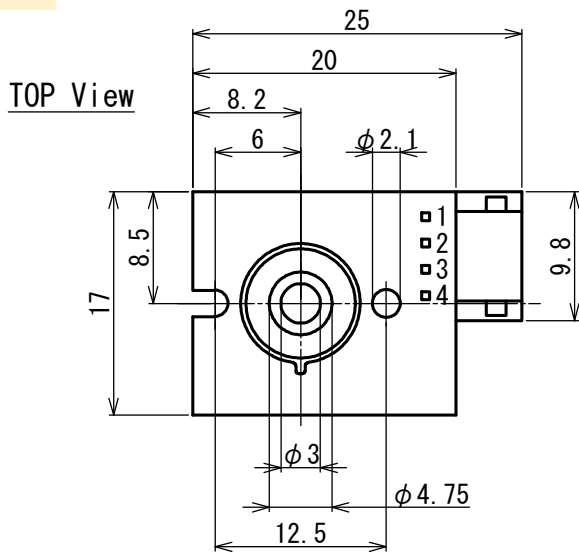
TSUP-A3A01S-AU-33-120

- Applications Microwave oven
(Food temperature detection)
Target temperature -20~120°C

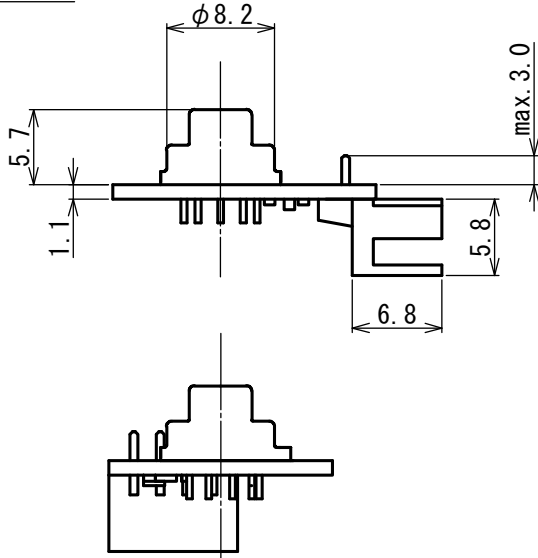
- Feature Thermopile sensor Unit (Analog output)
Single element



Dimensions

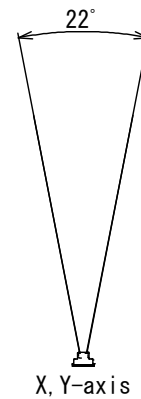


SIDE View

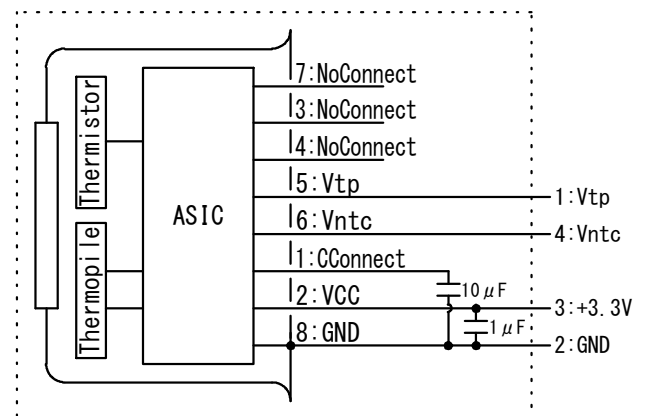


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

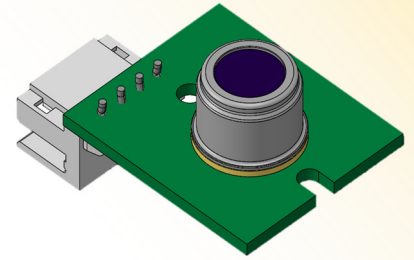
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		3	3.3	3.6	V
Detection Temperature		-20		120	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor unit

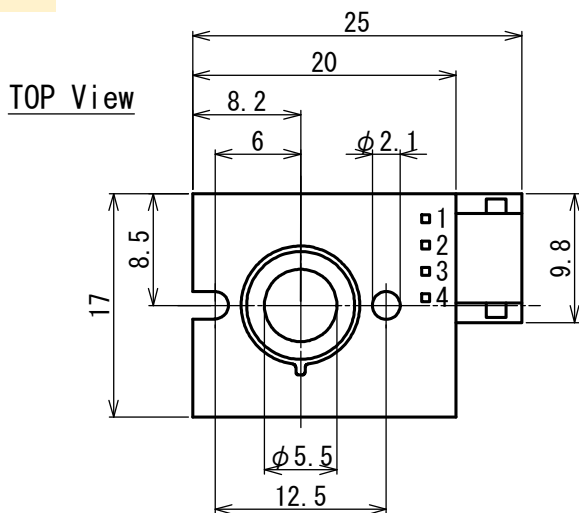
TSUP-A1D08A-BU-50-120

- Applications Microwave oven
(Food temperature detection)
Target temperature -20~120°C

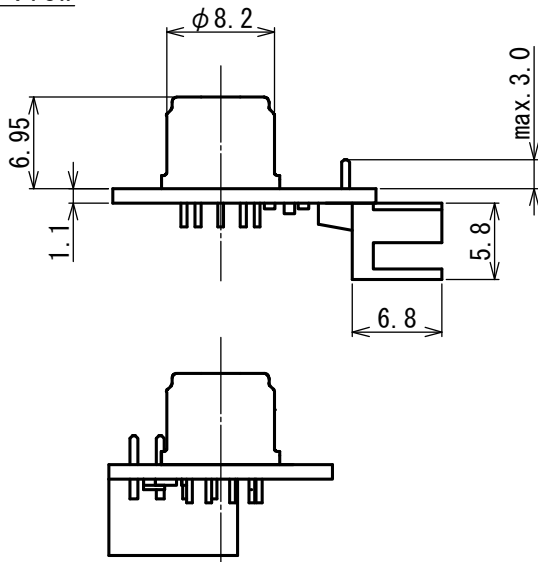
- Feature Thermopile sensor Unit (I2C output)
8 array element



Dimensions

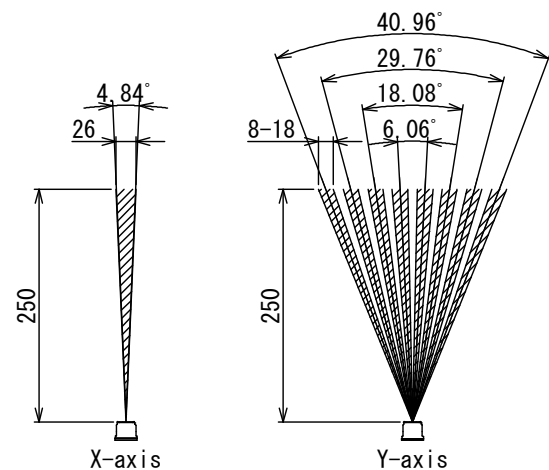


SIDE View

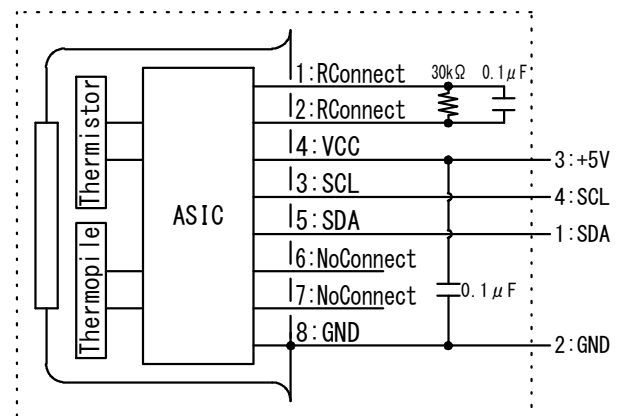


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		120	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Analog

Amp build-in
ASIC build-in

SMD

Air-conditioner

Microwave oven

Ih cooker

Printer

Ear thermometer

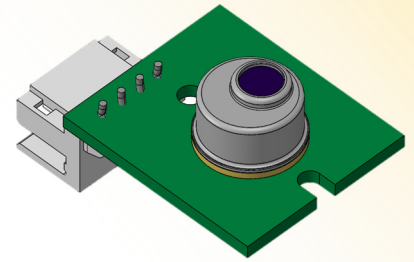
Non-contact thermometer

Thermopile sensor unit

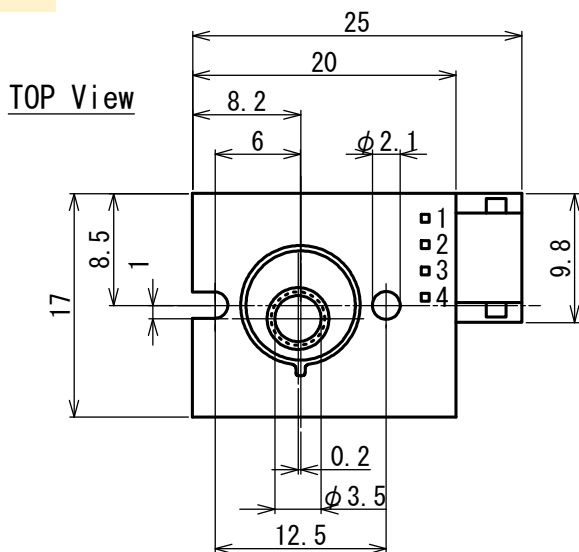
TSUP-A1D16B-AU-50-120

- Applications Microwave oven
(Food temperature detection)
Target temperature -20~120°C

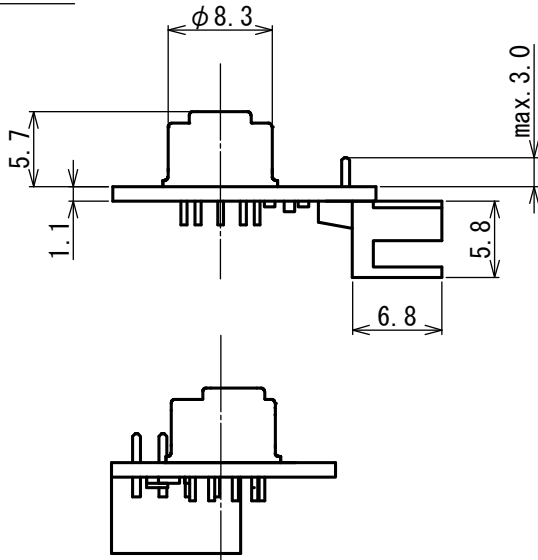
- Feature Thermopile sensor Unit (I2C output)
4 x 4 square element



Dimensions

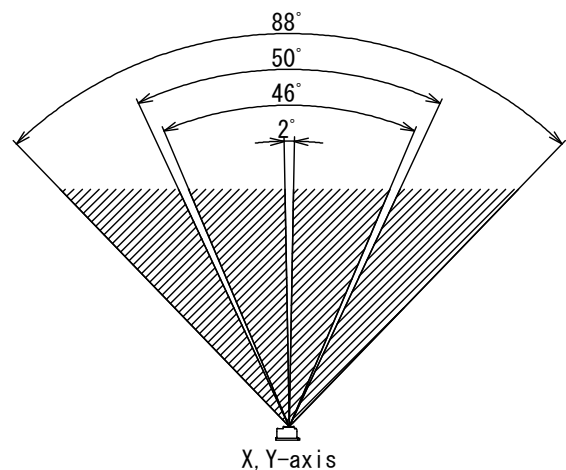


SIDE View

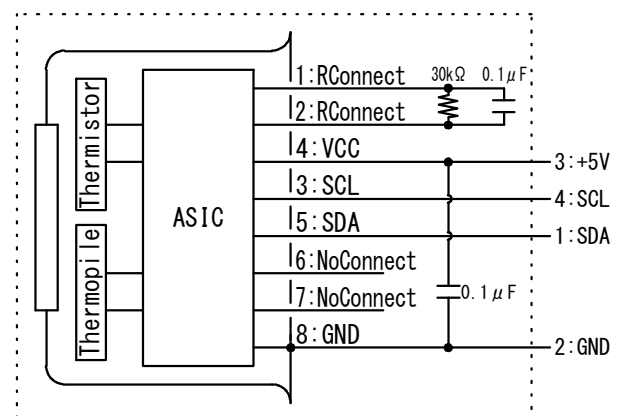


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram

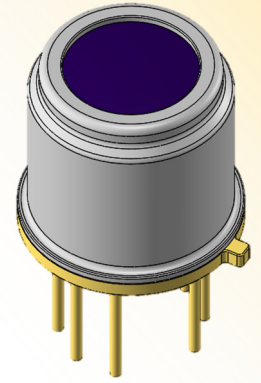


■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		120	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-2		+2	°C
Time Constant				200	msec.

Thermopile sensor

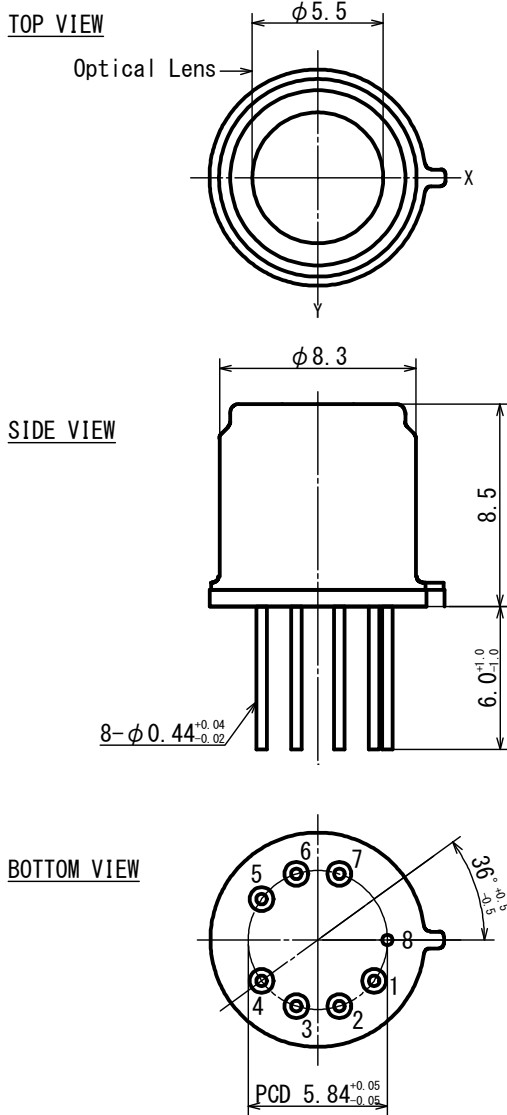
A3D01S-CU-50-300



TO-5

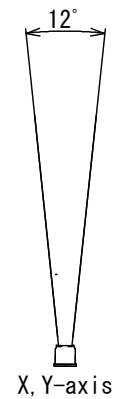
- Applications **IH Cooker**
(Pot surface temperature detection)
Target temperature -20~300°C
- Feature **ASIC built-in thermopile (I2C output)**
Focused detection (Single element)

Dimensions

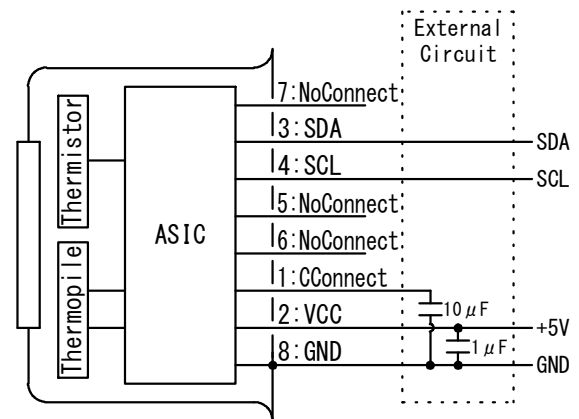


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		400	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-3		+3	°C
Time Constant				200	msec.

Analog

Amp built-in
ASIC built-in

SMD

Air-conditioner

Microwave oven

Ih cooker

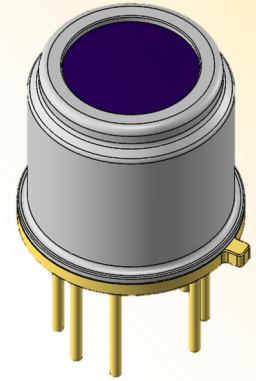
Printer

Ear thermometer

Non-contact thermometer

Thermopile sensor

A3A01S-CU-33-300

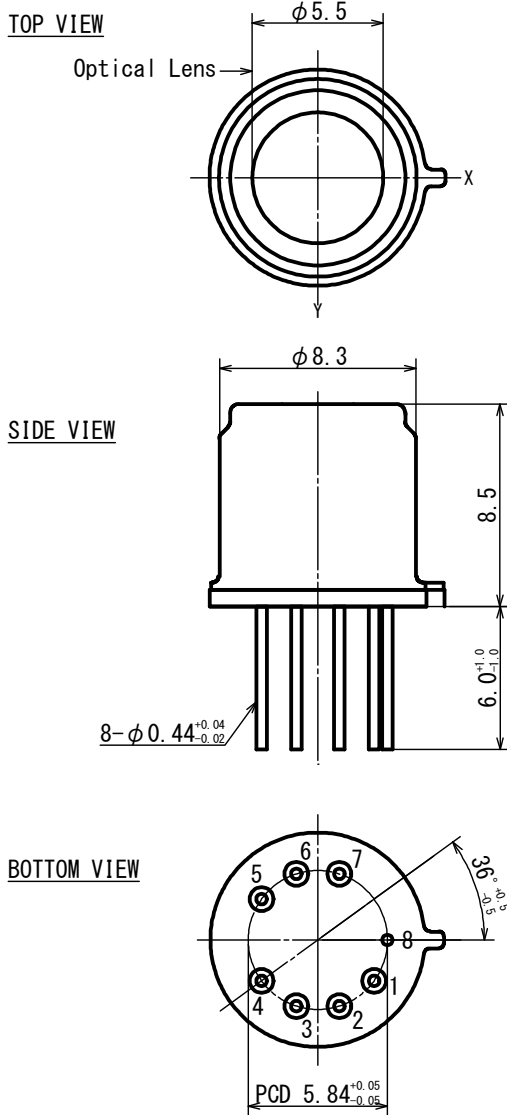


TO-5

- Applications **IH Cooker**
(Pot surface temperature detection)
Target temperature -20~300°C

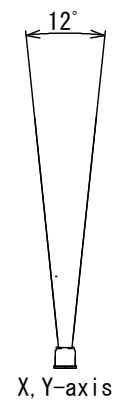
- Feature **ASIC built-in thermopile (Analog output)**
Focused detection (Single element)

Dimensions

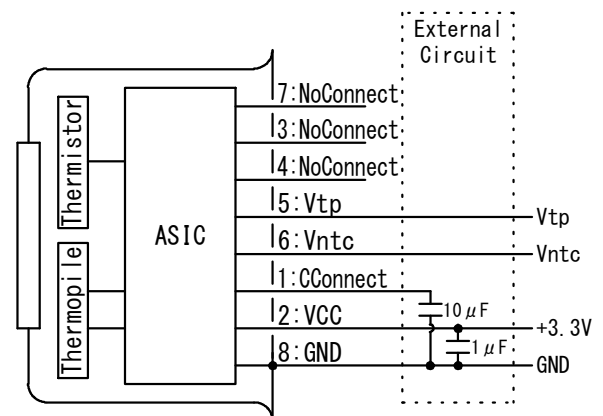


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

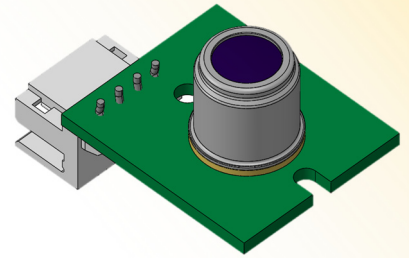
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		3	3.3	3.6	V
Detection Temperature		-20		300	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-3		+3	°C
Time Constant				200	msec.

Thermopile sensor unit

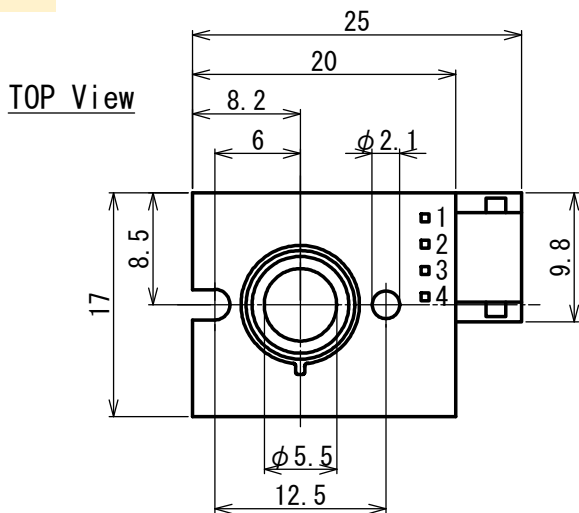
TSUP-A3D01S-CU-50-300

- Applications IH Cooker(Pot surface temperature detection)
Target temperature -20~300°C

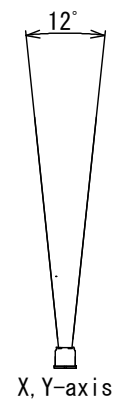
- Feature Thermopile sensor Unit (I2C output)
Focused detection (Single element)



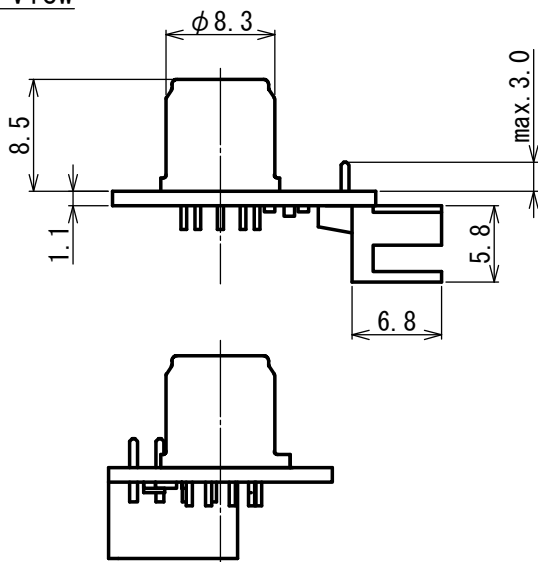
Dimensions



FOV

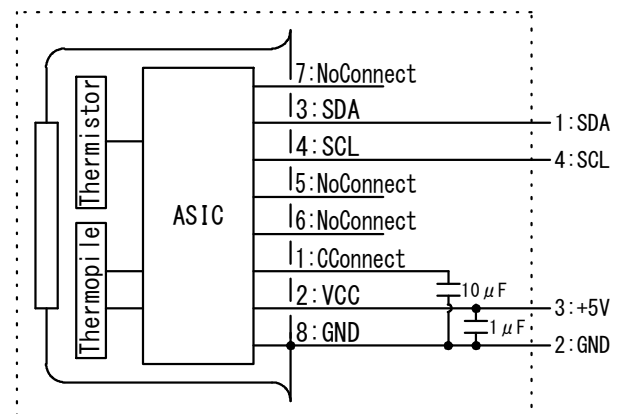


SIDE View



Tolerance with no specified : +/- 0.2

Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		400	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-3		+3	°C
Time Constant				200	msec.

Analog

Amp build-in
ASIC build-in

SMD

Air-conditioner

Microwave oven

Ih cooker

Printer

Ear thermometer

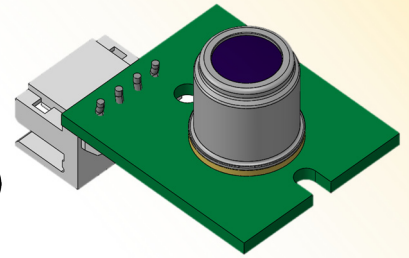
Non-contact thermometer

Thermopile sensor unit

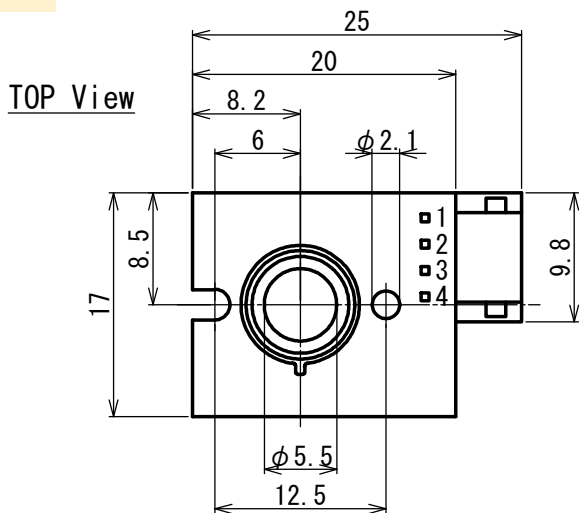
TSUP-A3A01S-CU-33-300

- Applications IH Cooker(Pot surface temperature detection)
Target temperature -20~300°C

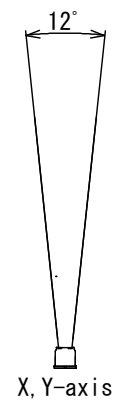
- Feature Thermopile sensor Unit (Analog output)
Focused detection (Single element)



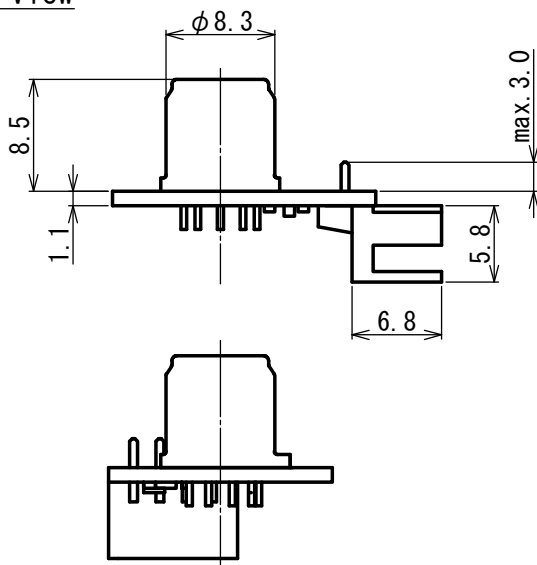
Dimensions



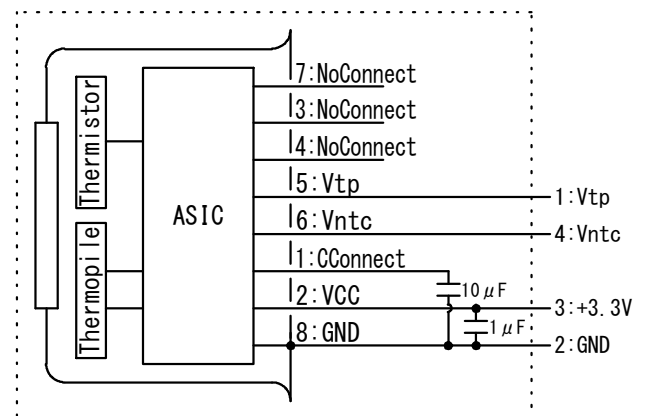
FOV



SIDE View



Circuit diagram



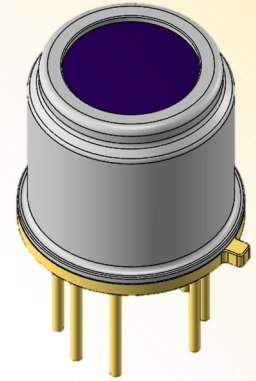
Tolerance with no specified : +/- 0.2

■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		3	3.3	3.6	V
Detection Temperature		-20		300	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-3		+3	°C
Time Constant				200	msec.

Thermopile sensor

A3D01S-CU-50-300

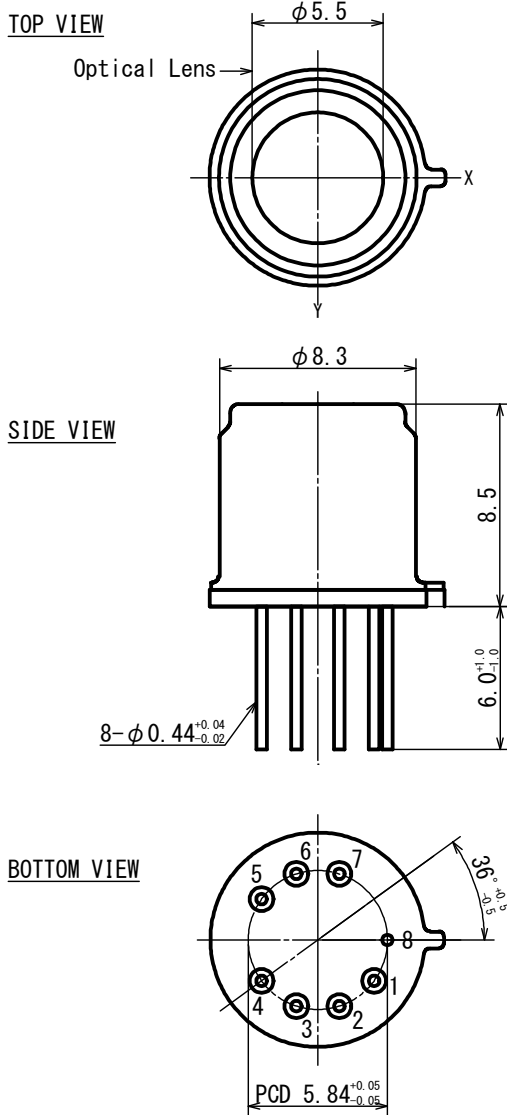


TO-5

■ Applications **Printer**
(Thermal roller temperature detection)

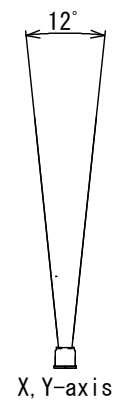
■ Feature **ASIC built-in thermopile (I2C output)**
Focused detection (Single element)

Dimensions

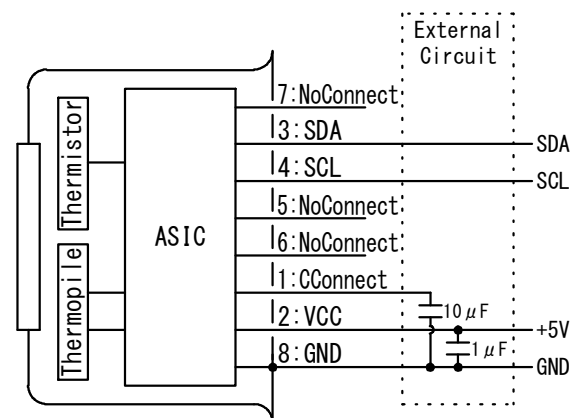


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram

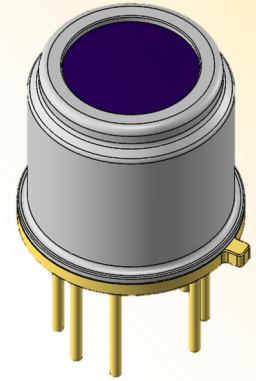


■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		400	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-3		+3	°C
Time Constant				200	msec.

Thermopile sensor

A3A01S-CU-33-300

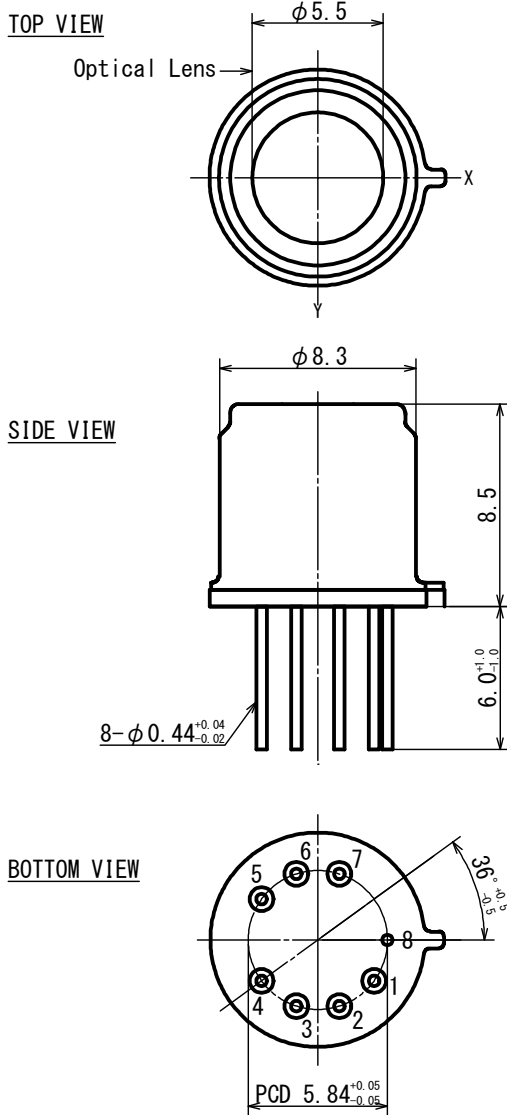


TO-5

■ Applications **Printer**
(Thermal roller temperature detection)

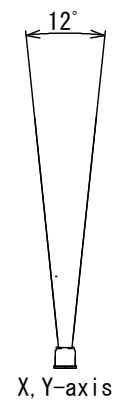
■ Feature **ASIC built-in thermopile (Analog output)**
Focused detection (Single element)

Dimensions

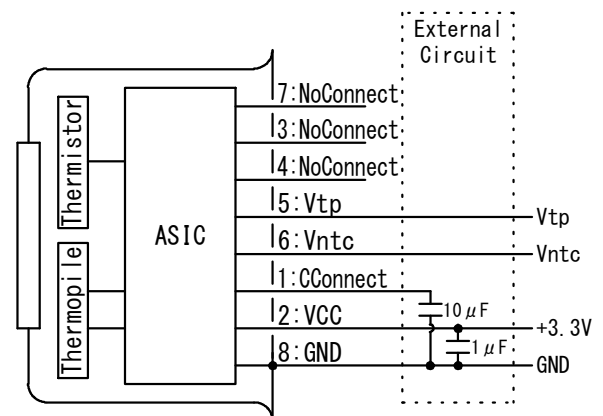


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

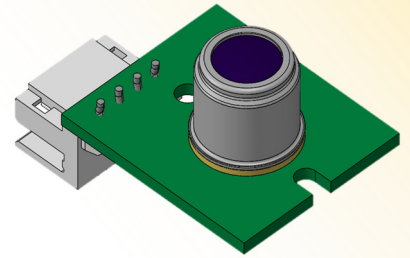
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		3	3.3	3.6	V
Detection Temperature		-20		300	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-3		+3	°C
Time Constant				200	msec.

Thermopile sensor unit

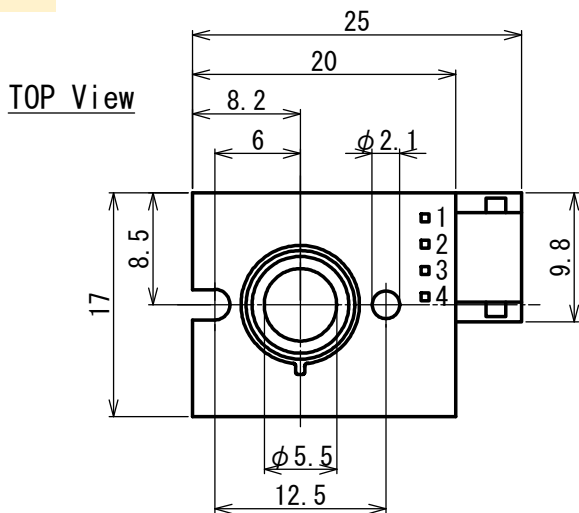
TSUP-A3D01S-CU-50-300

■ Applications **Printer**
(Thermal roller temperature detection)

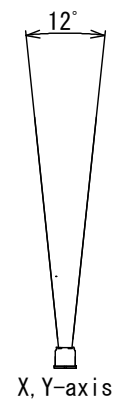
■ Feature **Thermopile sensor Unit (I2C output)**
Focused detection (Single element)



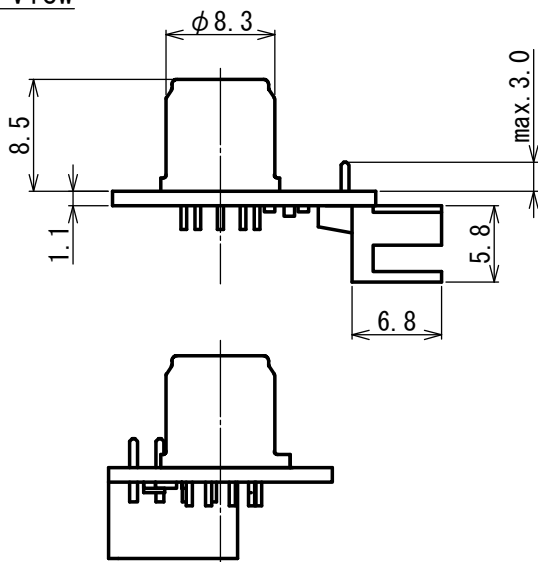
Dimensions



FOV

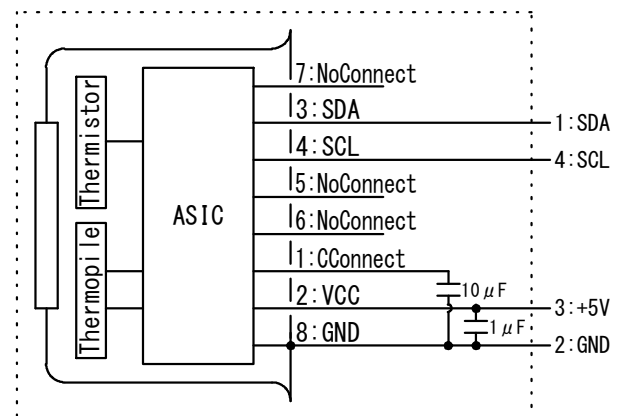


SIDE View



Tolerance with no specified : +/- 0.2

Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		4.5	5	5.5	V
Detection Temperature		-20		400	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-3		+3	°C
Time Constant				200	msec.

Analog

Amp build-in
ASIC build-in

SMD

Air-conditioner

Microwave oven

Ih cooker

Printer

Ear thermometer

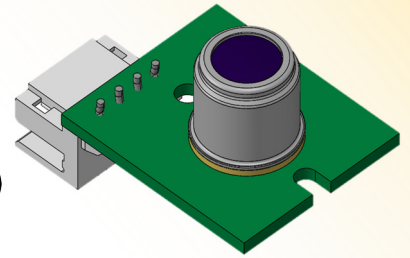
Non-contact thermometer

Thermopile sensor unit

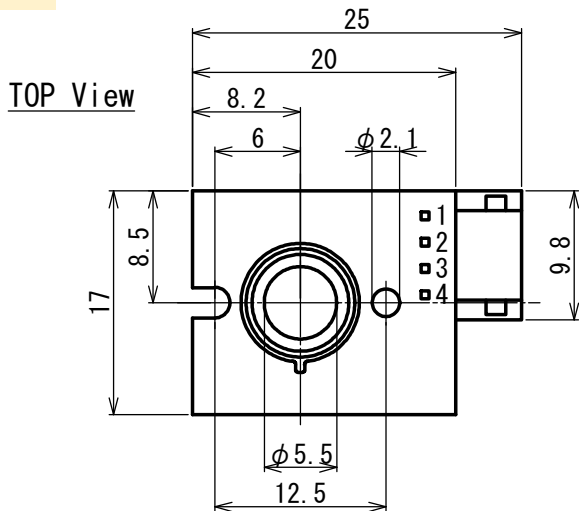
TSUP-A3A01S-CU-33-300

■ Applications **Printer**
(Thermal roller temperature detection)

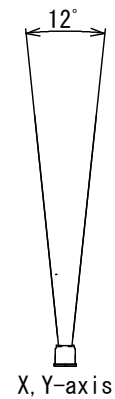
■ Feature **Thermopile sensor Unit (Analog output)**
Focused detection (Single element)



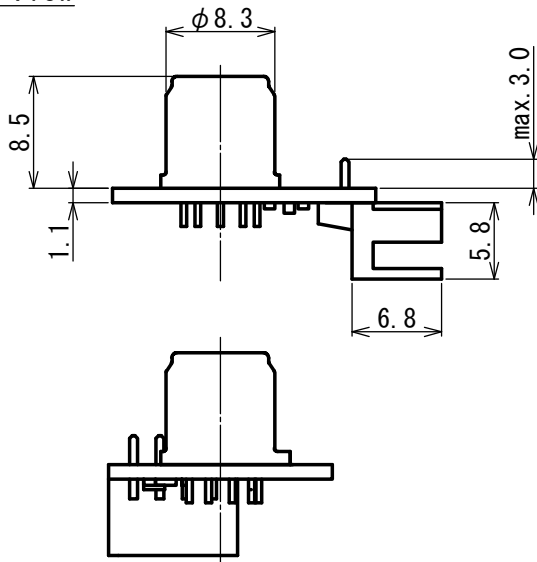
Dimensions



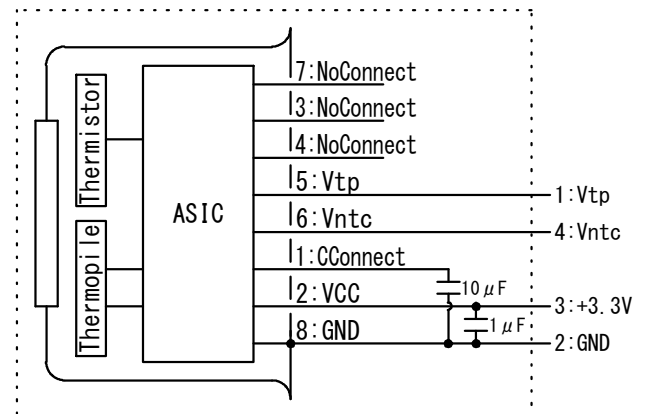
FOV



SIDE View



Circuit diagram



Tolerance with no specified : +/- 0.2

■ Main Parameter

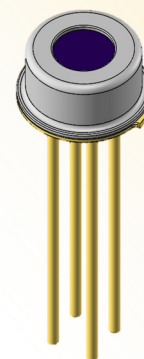
Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Operating Voltage		3	3.3	3.6	V
Detection Temperature		-20		300	°C
Operating Temperature		-20		100	°C
Storage Temperature		-30		105	°C
Accuracy		-3		+3	°C
Time Constant				200	msec.

Thermopile sensor

TS-S2NMB-2R

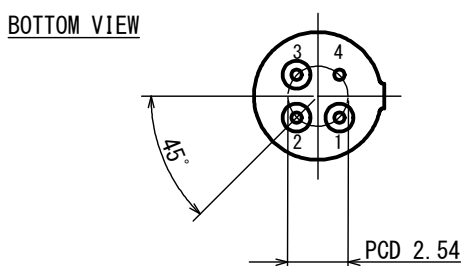
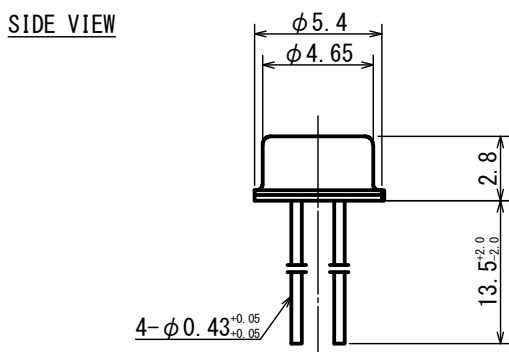
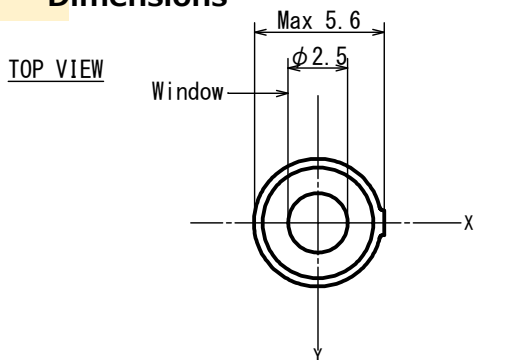
■ Applications Ear thermometer
(Human body temperature detection)

■ Feature Object-Sensor temperature detection
(2-channel)
Single element, Tab-less model



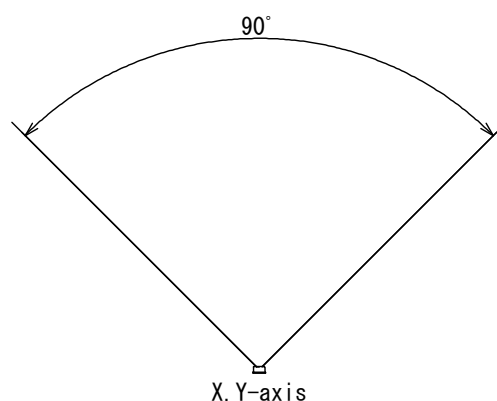
TO-18

Dimensions

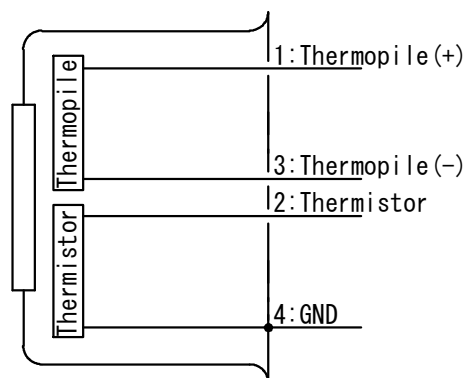


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Sensitivity Output	323K at shutter opening	1.82	2.43	3.03	mV
Resistance of thermopile		145	175	205	kΩ
Thermistor resistor	25°C	95	100	105	kΩ
Operating Temperature		-30		100	°C
Time Constant		25	50	80	msec.

Analog

Amp build-in
ASIC build-in

SMD

Air-conditioner

Microwave oven

Ih cooker

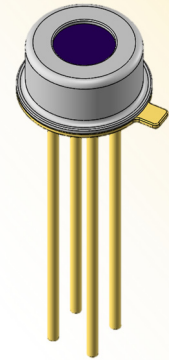
Printer

Ear thermometer

Non-contact thermometer

Thermopile sensor

TS-S2NMB-2RT

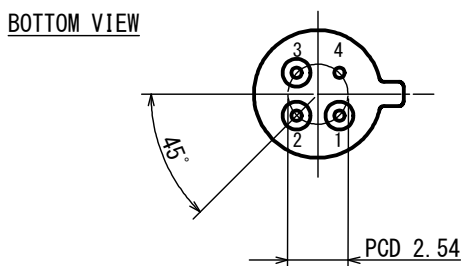
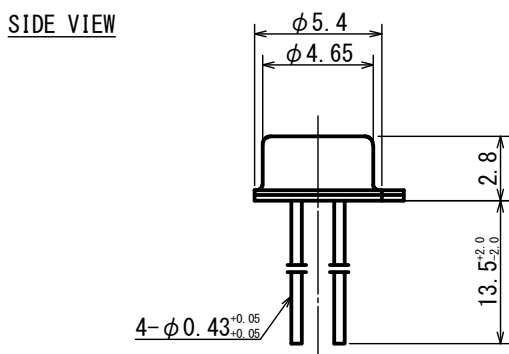
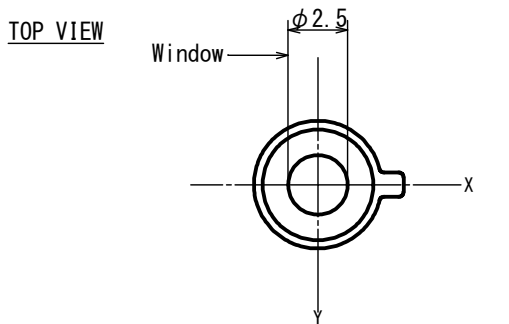


TO-18

■ Applications Ear thermometer
(Human body temperature detection)

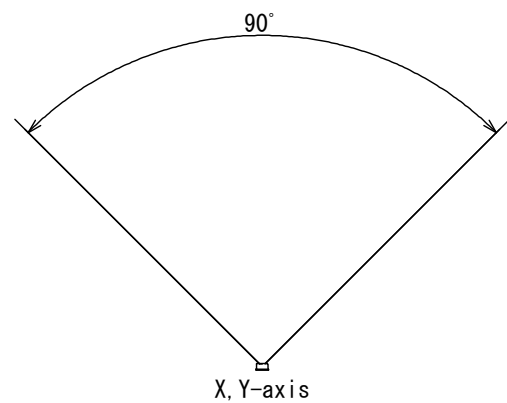
■ Feature Object-Sensor temperature detection
(2-channel)
Single element

Dimensions

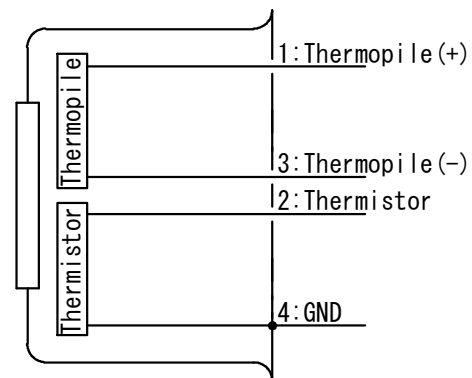


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



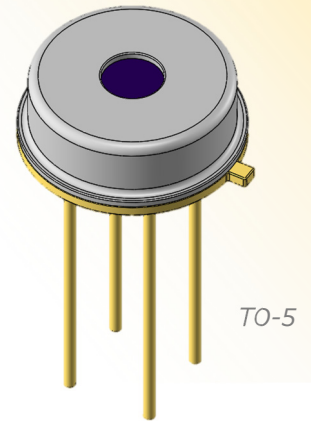
■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Sensitivity Output	323K at shutter opening	1.82	2.43	3.03	mV
Resistance of thermopile		145	175	205	kΩ
Thermistor resistor	25°C	95	100	105	kΩ
Operating Temperature		-30		100	°C
Time Constant		25	50	80	msec.

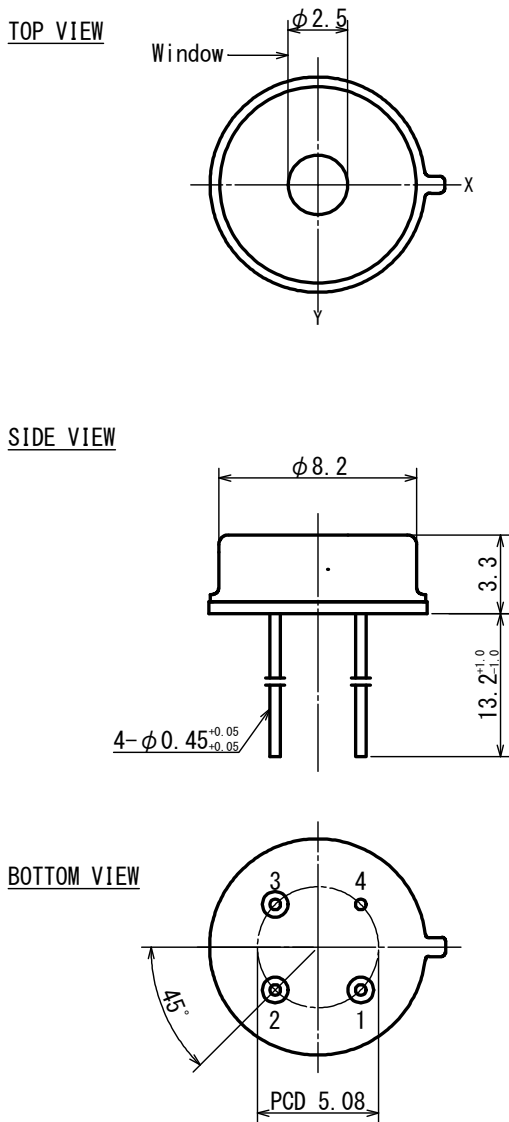
Thermopile sensor TS-S2NAB-2R

■ Applications Non-contact thermometer

■ Feature Object-Sensor temperature detection (2-channel)
Wide-angle detection (Single element)

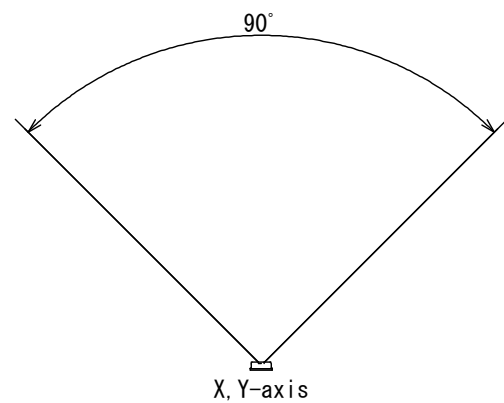


Dimensions

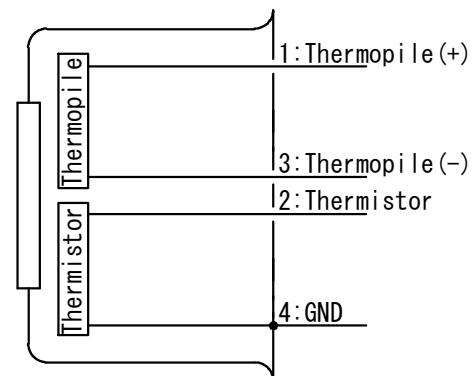


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Sensitivity Output	323K at shutter opening	1.5	2	2.5	mV
Resistance of thermopile		145	175	205	kΩ
Thermistor resistor	25°C	95	100	105	kΩ
Operating Temperature		-30		100	°C
Time Constant		25	50	80	msec.

Analog

Amp build-in
ASIC build-in

SMD

Air-conditioner

Microwave oven

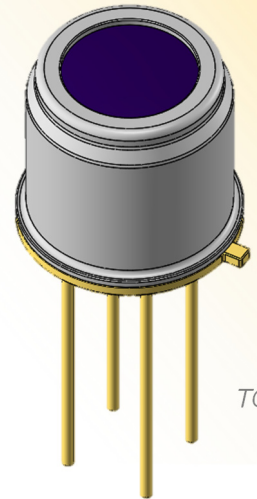
Ih cooker

Printer

Ear thermometer

Non-contact thermometer

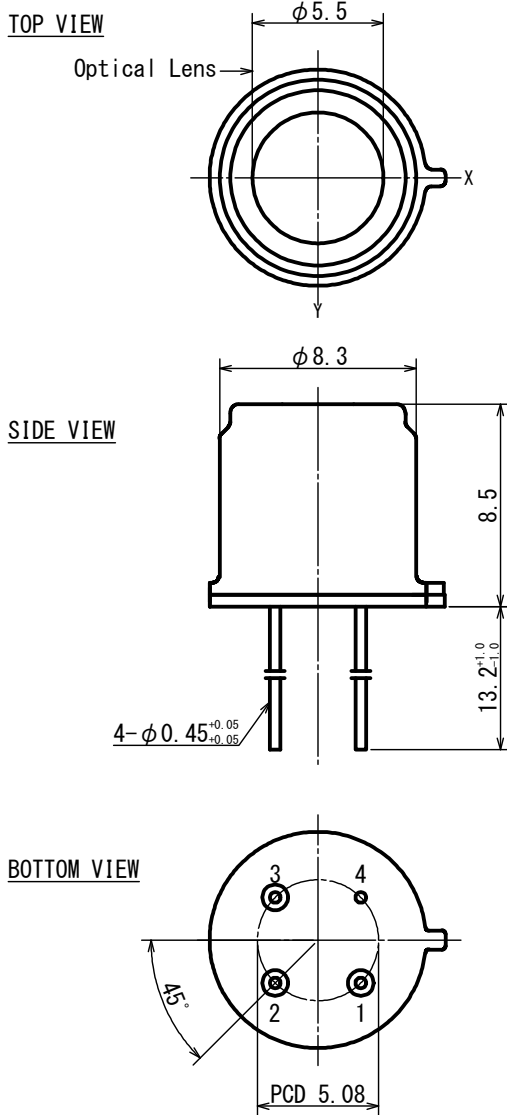
Thermopile sensor TS-S2NAU-2C



■ Applications Non-contact thermometer

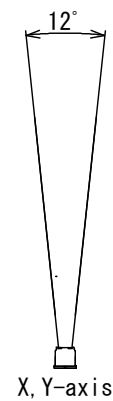
■ Feature Object-Sensor temperature detection (2-channel)
Focused detection (Single element)

Dimensions

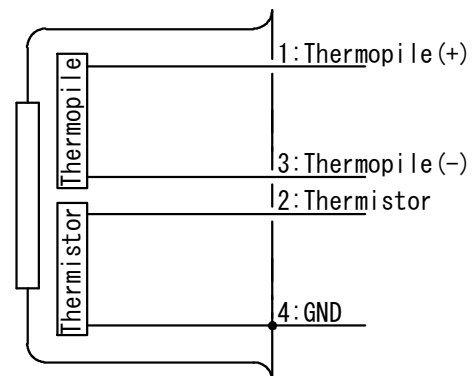


Tolerance with no specified : +/- 0.2

FOV



Circuit diagram



■ Main Parameter

Parameter	Condition	Spec.			Unit
		Min.	Typ.	Max.	
Sensitivity Output	323K at shutter opening	0.42	0.57	0.71	mV
Resistance of thermopile		145	175	205	kΩ
Thermistor resistor	25°C	95	100	105	kΩ
Operating Temperature		-30		100	°C
Time Constant		25	50	80	msec.

1. Design restrictions/precautions

These sensors are designed for indoor use. If used for outdoor applications, please be sure to apply proper supplementary optical filter, drip-proof and anti-dew construction.

In cases where secondary accidents caused by operation failure or malfunction of the sensor could be expected, please include a fail safe function into the design.

2. Remarks

These sensors are not suitable for applications that require extremely high reliability, such as related to human life (life supporting devices and etc.).

These sensors must not be used for products that are prohibited to manufacture, use and sell by Japanese domestic and foreign laws and orders.

The contents described in this catalog are as of January 2021.

The described contents may be changed or suspended without notice.

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