

# Model TS418-1N426 Thermopile Sensor



- Thermopile IR-Sensor
- Filter for NDIR CO<sub>2</sub> Gas Detection
- Single Element
- Very High Signal
- Flat Filter
- Small Package
- Accurate Reference Sensor

## DESCRIPTION

Thermopiles are mainly used for contactless temperature or non-dispersive infrared measurement in many applications. Their function is to transfer the heat radiation emitted from the objects or other infrared sources into a voltage output.

## FEATURES

- Very High Signal
- Accurate Reference Sensor
- 4.26μm Narrow Band Pass
- Small TO-18 package

## APPLICATIONS

- NDIR CO<sub>2</sub> Gas Detection

## ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typical	Max	Unit	Description
Storage Temperature	T <sub>S</sub>	-20	+20	+85	°C	permanent
Storage Temperature	T <sub>S</sub>	-20	+20	+100	°C	non permanent

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### PERFORMANCE SPECS

Parameter	Symbol	Value	Unit	Condition
Operating Ambient Temperature	$T_{Amb}$	-20 to +85	°C	permanent
Operating Ambient Temperature	$T_{Amb}$	-20 to +100	°C	non permanent
Package		TO-18		
Absorber Area	A	$1.4 \times 1.4$	mm <sup>2</sup>	
Thermopile Resistance	$R_{TP}$	$180 \pm 60$	k $\Omega$	$T_{Amb} = +25^{\circ}\text{C}$
Temperature Coefficient of Thermopile Resistance	$TCR_{TP}$	$-0.06 \pm 0.04$	%/K	$T_{Amb} = +25^{\circ}\text{C}$ to $+75^{\circ}\text{C}$
Voltage Response	$V_{TP}$	depends on light source	mV	
Temperature Coefficient of Voltage Response	$TCV_{TP}$	$-0.45 \pm 0.08$	%/K	$T_{Amb} = +25^{\circ}\text{C}$ to $+75^{\circ}\text{C}$
Noise Equivalent Voltage	NEV	130	nV/Hz <sup>1/2</sup>	$T_{Amb} = +25^{\circ}\text{C}$
Rise Time	$\tau_{63}$	$22 \pm 5$	ms	
Ambient Temperature Sensor		Ni-RTD		
Ambient Temperature Sensor Resistance	$R_{Ni-RTD}$	$1000 \pm 4$	$\Omega$	$T_{Amb} = 0^{\circ}\text{C}$
Temperature Coefficient of Ni-RTD	$TC_{Ni-RTD}$	$6178 \pm 150$	ppm/K	$T_{Amb} = 0^{\circ}\text{C}$ to $+100^{\circ}\text{C}$

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## OPTICAL CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Field of View	FOV	110	deg	at 50% of maximum signal

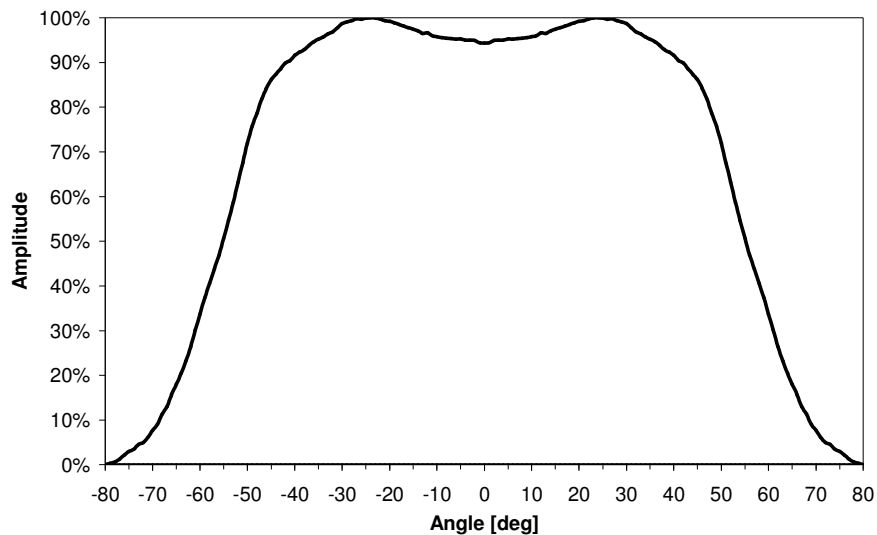


Figure 2: Field of View Curve

## FILTER CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Filter Type	NBP	4.26 $\pm$ 0.18	$\mu$ m	Narrow Band Pass

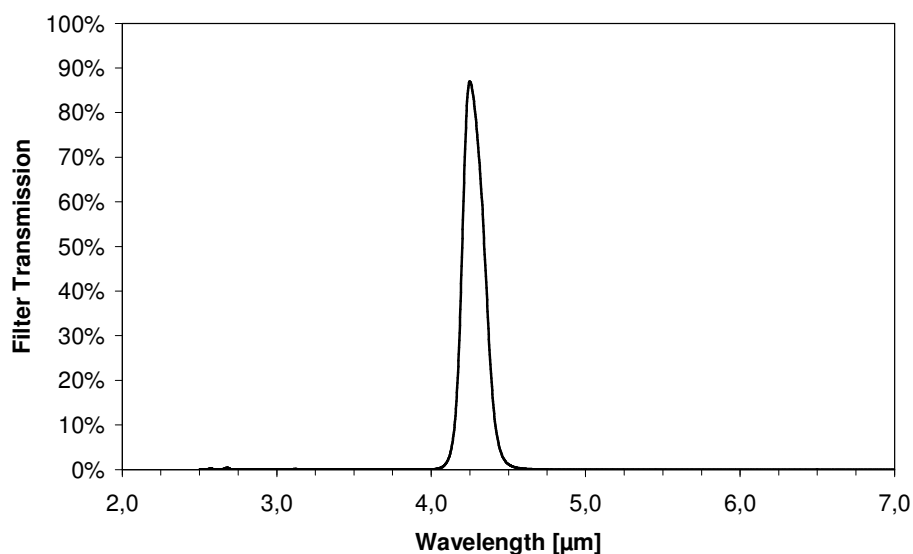


Figure 3: Filter transmission curve

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## ELECTRICAL CONNECTIONS

Pin	Symbol
1	TP +
2	Ni-RTD
3	TP -
4	GND

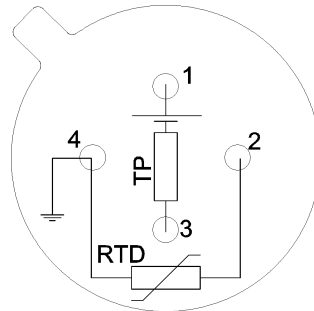


Figure 4: Electrical connections - bottom view of thermopile

## MECHANICAL DIMENSIONS

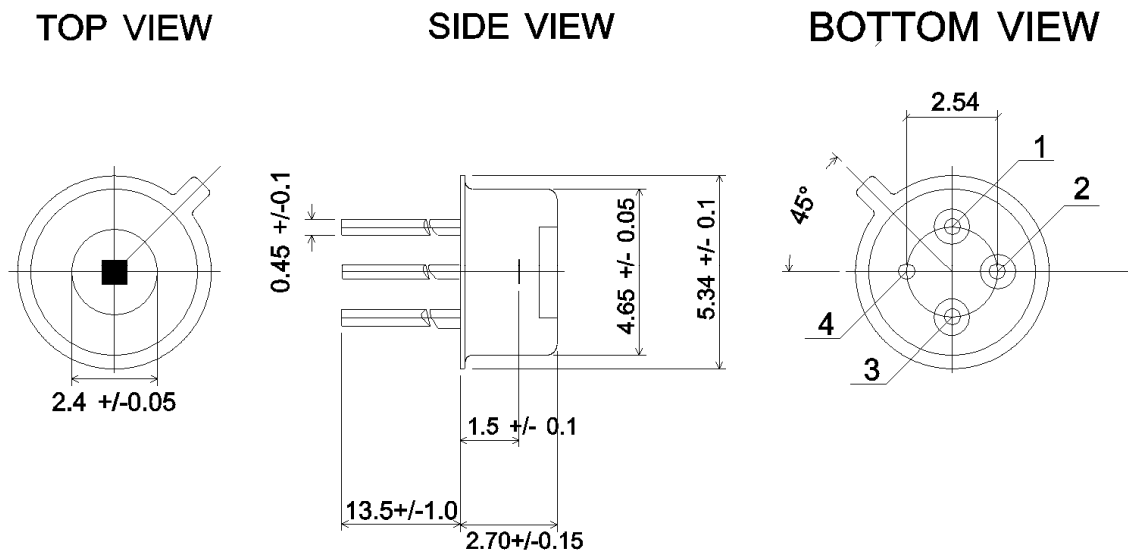


Figure 5: Mechanical dimensions of thermopile

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## ORDERING INFORMATION

**Part Description** TS418-1N426  
**Part No.** G-TPCO-035

## TECHNICAL CONTACT INFORMATION

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