

Model TS418-3N426 Thermopile Sensor



Thermopile IR-Sensor
Filter for NDIR CO₂ Gas Detection
Single Element
Very High Signal
Flat Filter
Small Package
Accurate Reference Sensor



DESCRIPTION

Thermopiles are mainly used for contactless temperature measurement in many applications. Their function is to transfer the heat radiation emitted from the objects into a voltage output.

FEATURES

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

APPLICATIONS

- NDIR CO₂ Gas Detection

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typical	Max	Unit	Description
Storage Temperature	T _s	-20	+20	+85	°C	permanent
Storage Temperature	T _s	-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	1.4×1.4	mm ²	
Thermopile Resistance	R_{TP}	180 ± 60	k Ω	$T_{Amb} = +25^{\circ}\text{C}$
Temperature Coefficient of Thermopile Resistance	TCR_{TP}	-0.06 ± 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 ± 0.08	%/K	$T_{Amb} = +25^{\circ}\text{C}$ to $+75^{\circ}\text{C}$
Noise Equivalent Voltage	NEV	130	nV/Hz ^{1/2}	$T_{Amb} = +25^{\circ}\text{C}$
Rise Time	τ_{63}	22 ± 5	ms	
Ambient Temperature Sensor		Ni-RTD		
Ambient Temperature Sensor Resistance	R_{Ni-RTD}	1000 ± 4	Ω	$T_{Amb} = 0^{\circ}\text{C}$
Temperature Coefficient of Ni-RTD	TC_{Ni-RTD}	6178 ± 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	120	deg	at 50% of maximum signal

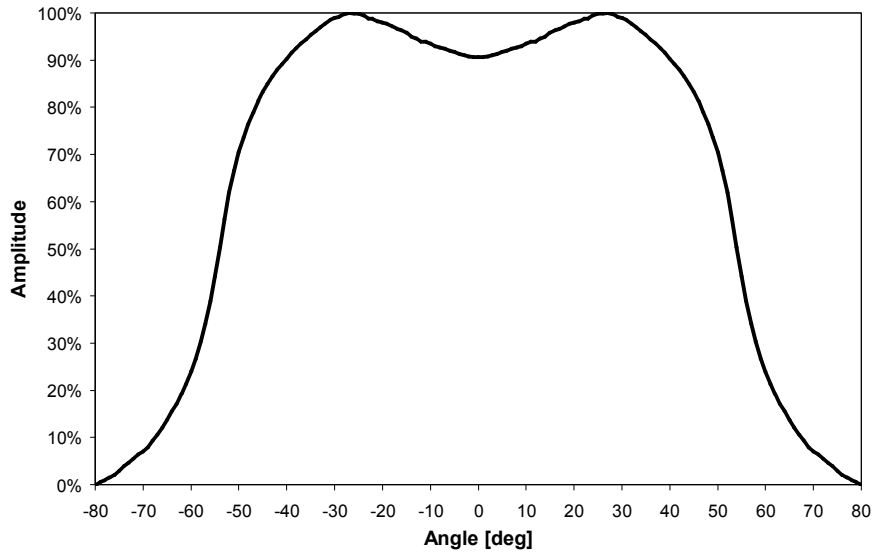


Figure 2: Field of View Curve

FILTER CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Filter Type	NBP	4.26 ±0.18	μm	Narrow Band Pass

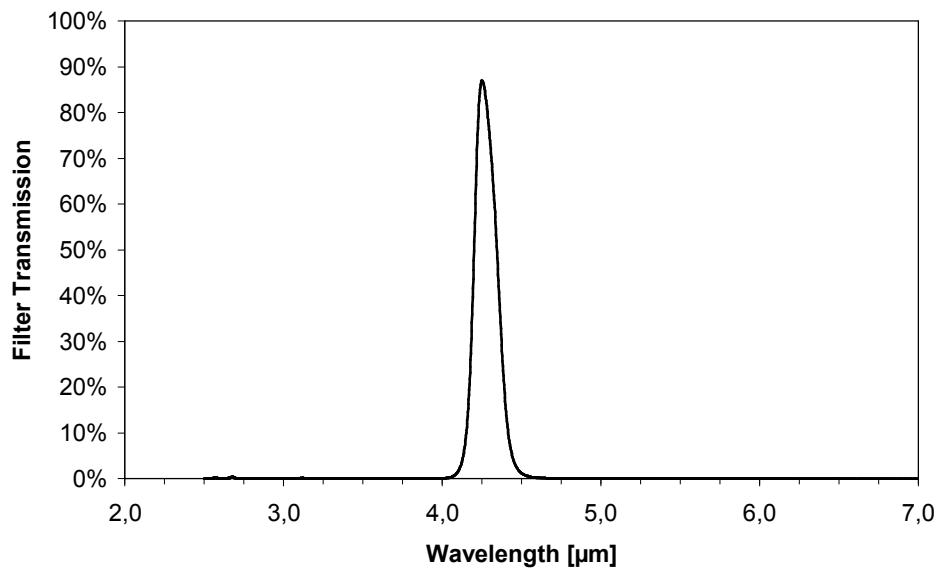


Figure 3: Filter transmission curve

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ELECTRICAL CONNECTIONS

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

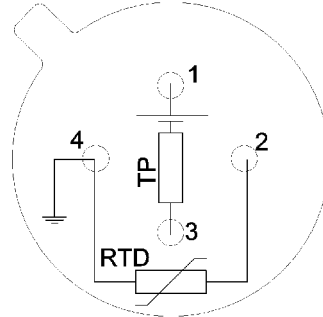


Figure 4: Electrical connections - bottom view of thermopile

MECHANICAL DIMENSIONS

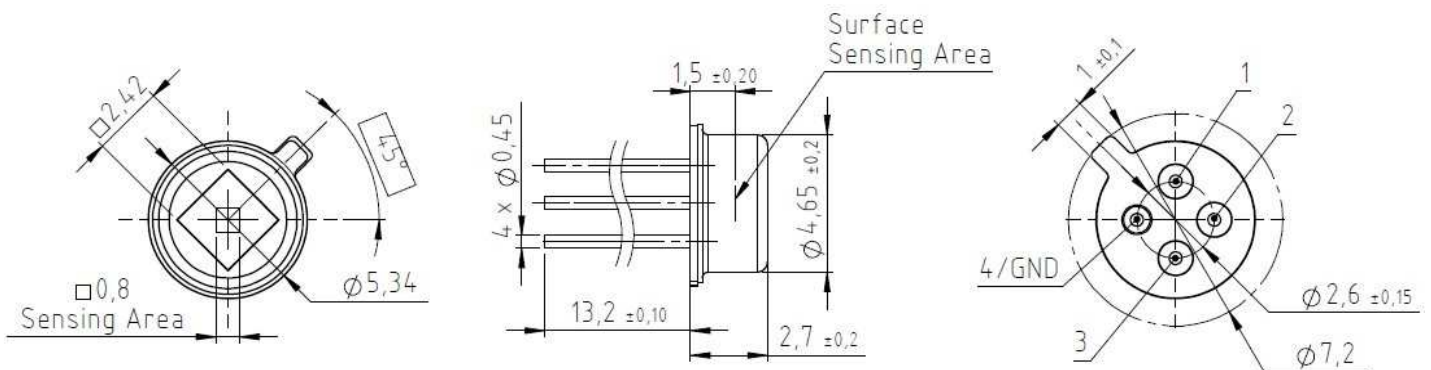


Figure 5: Mechanical dimensions of thermopile

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ORDERING INFORMATION

Part Description TS418-3N426
Part No. G-TPCO-024

TECHNICAL CONTACT INFORMATION

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