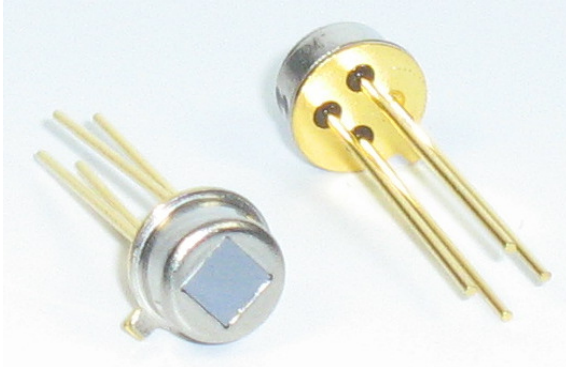


TS318-3B0814 Thermopile Sensor



✓RoHS

- Thermopile IR-Sensor
- For Contactless Temperature Measurement
- Single Element
- 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.

Major applications are appliances like microwave oven, clothes dryer, automatic cooking, medical devices like ear and fore head thermometer, automotive applications like car climate control, seat occupancy, blind spot alert, black ice detection, consumer products like printer, copier, mobile phone and many industry applications like paper web, plastic parts etc.

FEATURES

- High Signal
- Accurate Reference Sensor
- 8-14 μ m Band Pass Filter for measurement distances >0.5m
- Small TO-18 package

APPLICATIONS

- Pyrometers (general)
- Industrial Pyrometers

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typical	Max	Unit	Description
Storage Temperature	T _s	-20		+85	°C	permanent
Storage Temperature	T _s	-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	0.8 × 0.8	mm ²	
Thermopile Resistance	R_{TP}	70 ± 30	kΩ	$T_{Amb} = +25\text{°C}$
Temperature Coefficient of Thermopile Resistance	TCR_{TP}	-0.06 ± 0.04	%/K	$T_{Amb} = +25\text{°C}$ to +75°C
Voltage Response	V_{TP}	5.2 ± 1.3	mV	$T_{Amb} = +25\text{°C}$, $T_{Obj} = +100\text{°C}$, DC, totally filled field of view
Temperature Coefficient of Voltage Response	TCV_{TP}	-0.45 ± 0.08	%/K	$T_{Amb} = +25\text{°C}$ to +75°C
Noise Equivalent Voltage	NEV	35	nV/Hz ^{1/2}	$T_{Amb} = +25\text{°C}$
Rise Time	τ_{63}	12 ± 5	ms	
Ambient Temperature Sensor		Ni-RTD		
Ambient Temperature Sensor Resistance	R_{Ni-RTD}	1000 ± 4	Ω	$T_{Amb} = 0\text{°C}$
Temperature Coefficient of Ni-RTD	TC_{Ni-RTD}	6178 ± 150	ppm/K	$T_{Amb} = 0\text{°C}$ to +100°C

TYPICAL PERFORMANCE CURVE

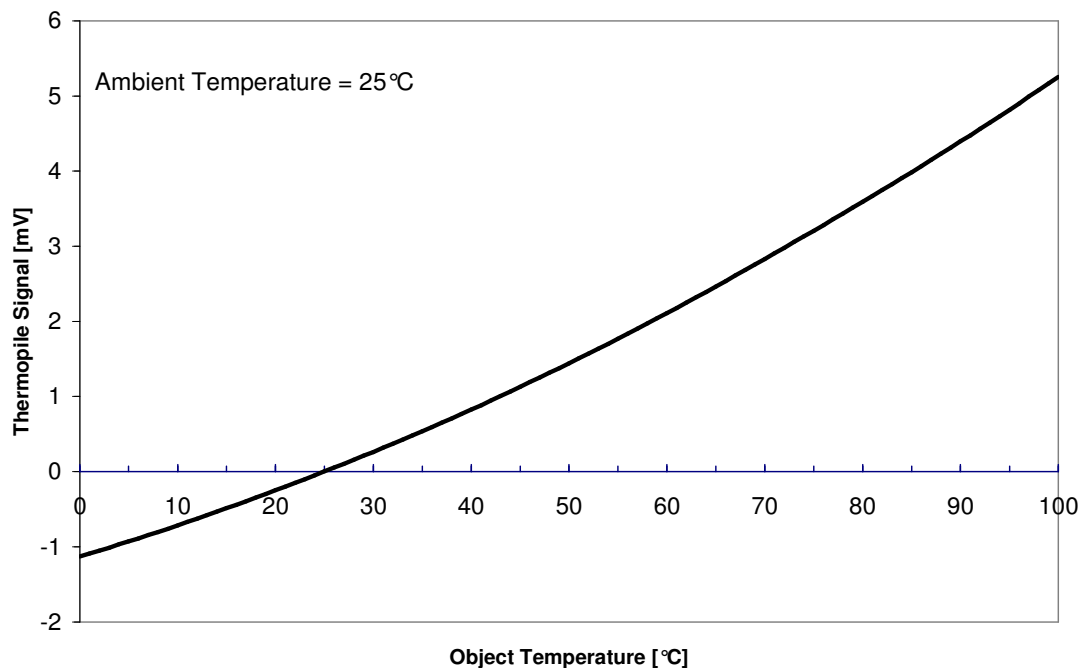


Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

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OPTICAL CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Field of View	FOV	120	deg	at 50% of maximum signal

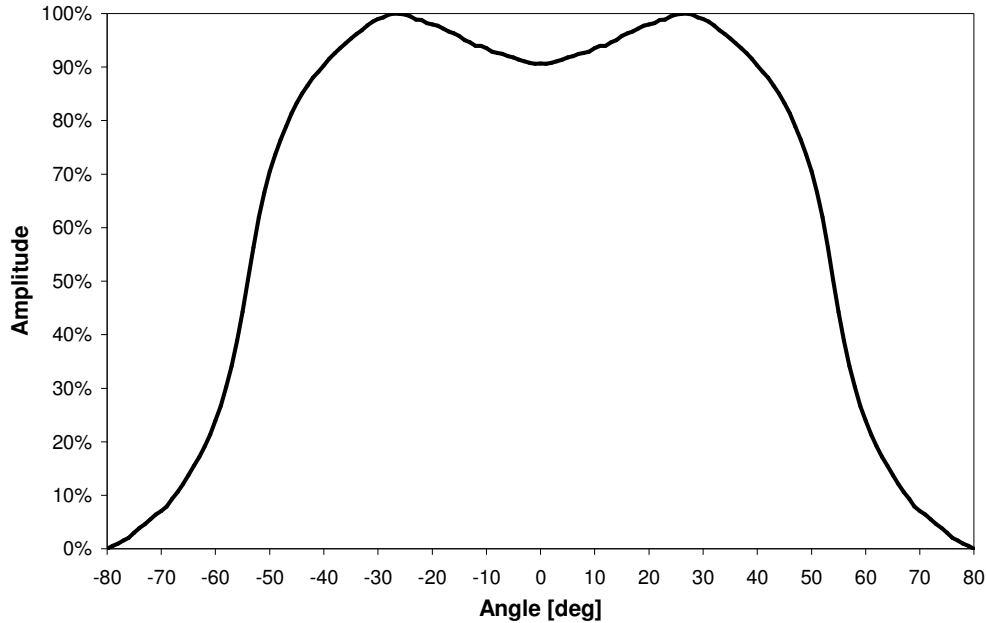


Figure 2: Field of View Curve

FILTER CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Filter Type	BBP	8-14	μm	Broad Band Pass

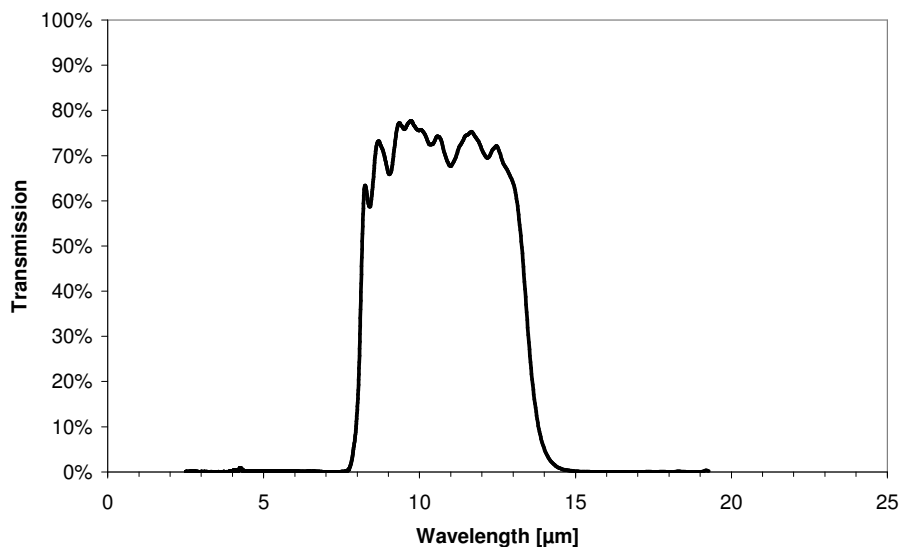


Figure 3: Optical Filter Transmission Curve

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ELECTRICAL CONNECTIONS

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

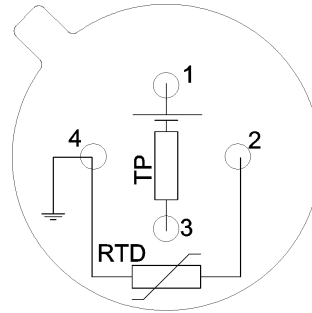


Figure 4: Electrical connections- bottom view of thermopile

MECHANICAL DIMENSIONS

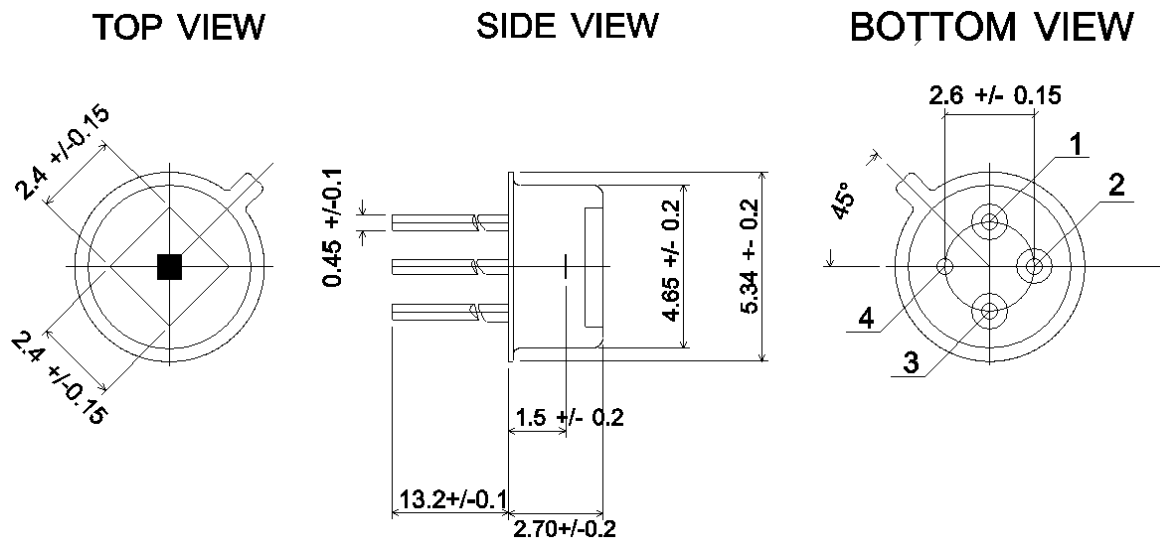


Figure 5: Mechanical dimensions of thermopile

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ORDERING INFORMATION

Product code and part number:

Product TS318-3B0814
Part# G-TPCO-027

TECHNICAL CONTACT INFORMATION

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