



# ROITHNER LASERTECHNIK GmbH

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1040 VIENNA

AUSTRIA



## TS305-10C50 Thermopile Sensor



- Thermopile IR-Sensor
- For Contactless Temperature Measurement
- Single Element
- Flat Filter
- 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 forehead 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

### APPLICATIONS

- Industrial Pyrometers
- Climate Control
- Medical

### PERFORMANCE SPECS

Parameter	Unit	TS305-10C50	Condition
Package		TO-5	
Absorber	mm <sup>2</sup>	0.64	
TP Resistance	kΩ	70±25	+25°C ambient
TP TCR	%/K	-0.06±0.04	+25°C → +75°C ambient
TP Voltage	mV	6.5±1.9	+25°C, BB +100°C, DC, totally filled field of view
TC of sensitivity	%/K	-0.45±0.08	+25°C → +75°C ambient
NEV	nV/Hz <sup>1/2</sup>	45	+25°C ambient
Rise Time	ms	12±5	τ <sub>90%</sub>
Field of View		90°	at 50%
Filter Type		LWP	LWP = long wave pass
Wavelength	μm	≥5.0	transmission range
Temperature	°C	-20...+85	permanent operation
Temperature	°C	-20...+100	non permanent
ATS		NTC	ambient temperature sensor
Resistance		100kΩ±5% at 25°C	
ATS TCR	ppm/K		0°C → +100°C ambient
ATS β-Value	K	3955 ±0.3%	0°C → +50°C ambient
Connections			
Pin 1		TP +	
Pin 2		NTC	
Pin 3		TP -	
Pin 4		GND	



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## ELECTRICAL CONNECTIONS

ambient temperature sensor: NTC  
 TS305-10C50

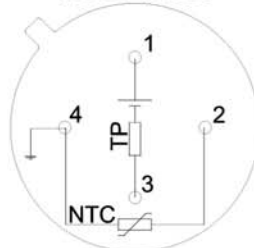


Figure 1: Electrical connections- bottom view of thermopile

## MECHANICAL DIMENSIONS

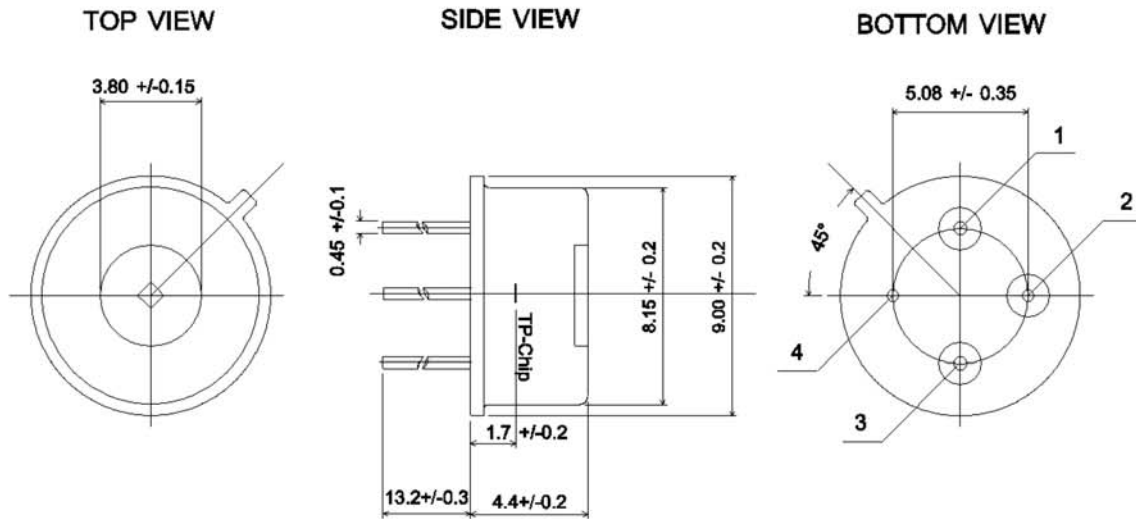


Figure 2: Mechanical dimensions of thermopile

## TYPICAL PERFORMANCE CURVES

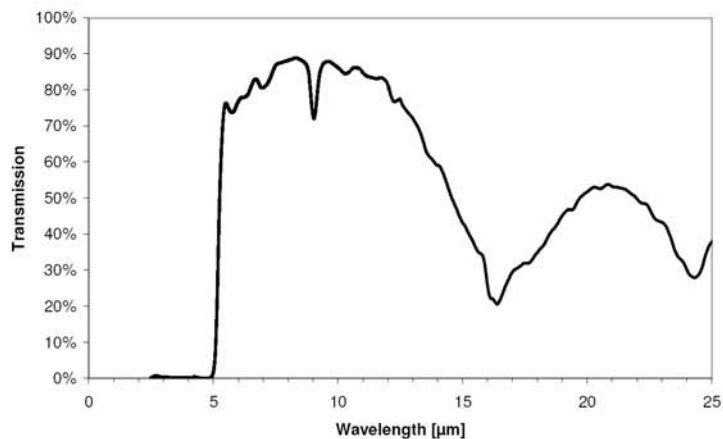


Figure 3: Filter transmission curve



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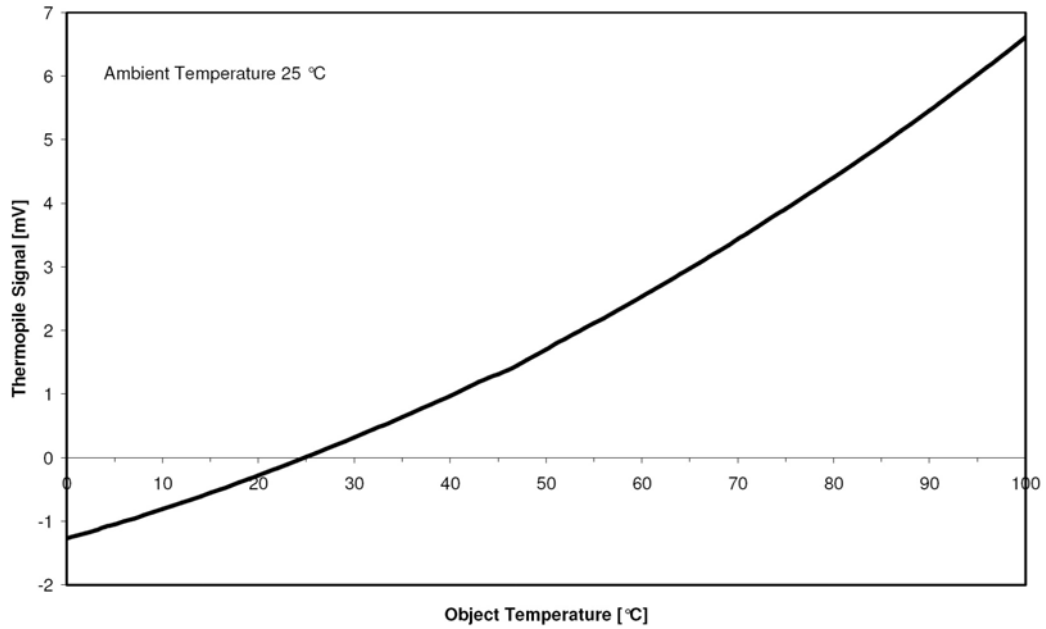


Figure 3: Thermopile signal versus object temperature at 25°C ambient temperature