

# Model TS105-10 Thermopile Sensor



- Thermopile IR-Sensor
- For contactless Temperature Measurement
- High Signal
- Uncooled
- Accurate NTC Reference Sensor
- 5 $\mu$ m Long Wave Pass Filter

## 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 NTC reference sensor
- 5 $\mu$ m long wave pass filter

## APPLICATIONS

- Pyrometers for distances shorter 0.5 m
- Climate Control
- Printer / Copier
- Forehead Thermometer

## PERFORMANCE SPECS

Parameter	Typical	Condition
Package	TO-5	
Absorber Area	0.7×0.7 mm <sup>2</sup>	
Resistance of Thermopile	43±8 k $\Omega$	+25 °C
TC of Resistance	-0.06±0.04 %/K	+25°C → +75°C
Thermopile Voltage	6.0±1.7 mV	+25°C, BB +100°C,DC, totally filled field of view
TC of sensitivity	-0.45±0.08 %/K	+25°C → +75°C
Noise Equivalent Voltage	30 nV/Hz <sup>1/2</sup>	+25°C
Rise Time	20±5 ms	$\tau_{63}$
Field of View	90°	at 50%
Filter	5.0 $\mu$ m	cut on wavelength
Operation Temperature	-20 ... +85°C	
Operation Temperature	-20 ... +100°C	non permanent
Ambient Temperature Sensor	NTC	
Resistance	100 k $\Omega$ ±5%	+25°C
$\beta$ -Value	3955 K ±0.3%	0°C → +50°C
Connections		
Pin 1	TP +	
Pin 2	NTC	
Pin 3	TP -	
Pin 4	GND	

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## ELECTRICAL CONNECTIONS

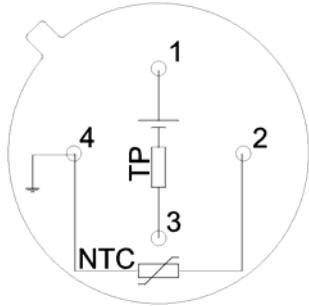


Figure 1: Electrical connections- bottom view of thermopile

## MECHANICAL DIMENSIONS

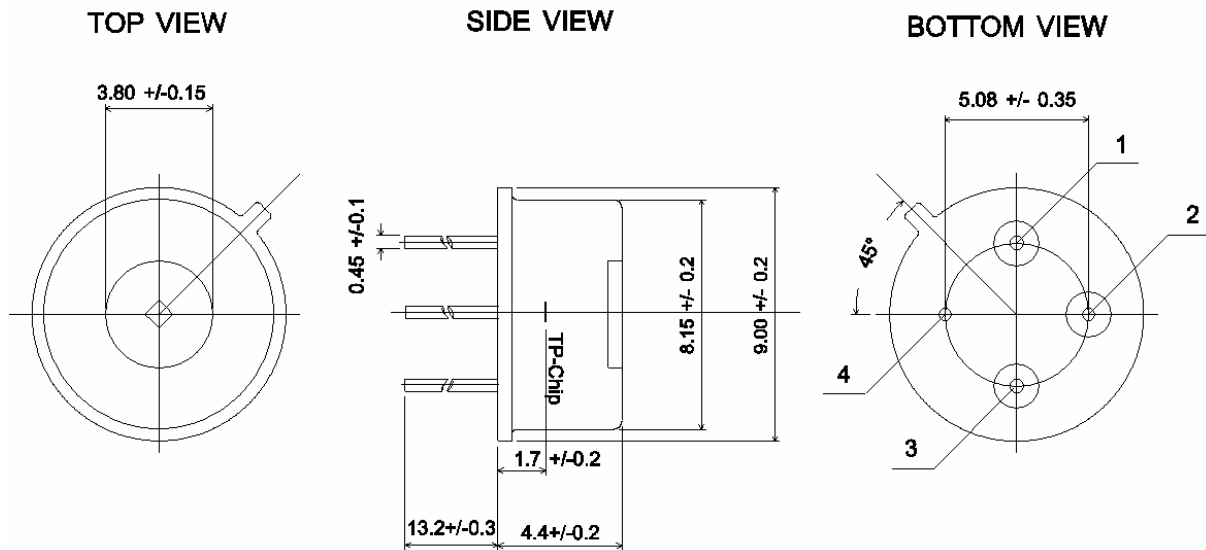


Figure 2: Mechanical dimensions of thermopile

## TYPICAL PERFORMANCE CURVES

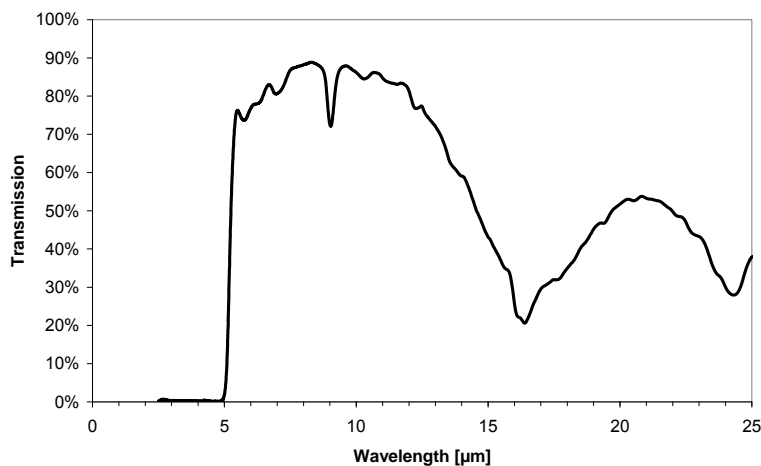


Figure 3: Filter transmission curve

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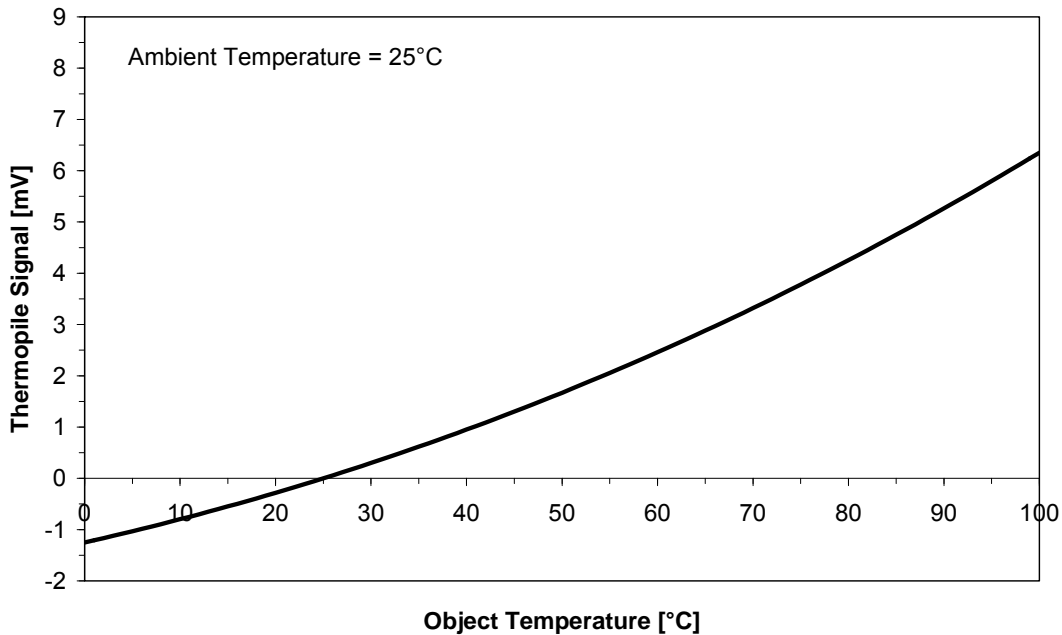


Figure 3: Thermopile signal versus object temperature at 25°C ambient temperature

## ORDERING INFORMATION

Please order this product using following:

Part Number	Part Description
G-TPCO-013	TS 105-10 5.5 MM NTC 100K BETA

### NORTH AMERICA

Measurement Specialties, Inc.  
910 Turnpike Road  
Shrewsbury, MA 01545  
Tel: 1-508-842-0516  
Fax: 1-508-842-0342

Sales email:  
[temperature.sales.amer@meas-spec.com](mailto:temperature.sales.amer@meas-spec.com)

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Sales email:  
[info.de@meas-spec.com](mailto:info.de@meas-spec.com)

### ASIA

Measurement Specialties (China) Ltd.  
No. 26 Langshan Road  
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Nanshan District, Shenzhen 51807  
China

Tel: +86 (0) 755 33305088  
Fax: +86 (0) 755 33305099

Sales email:  
[temperature.sales.asia@meas-spec.com](mailto:temperature.sales.asia@meas-spec.com)

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