



## TS105-10L5.5MM

### Thermopile Sensor

#### SPECIFICATIONS

- **Thermopile IR-Sensor**
- **For Contactless Temperature Measurement**
- **Single Element**
- **For Industrial Pyrometers**
- **Silicon Lens**
- **Accurate Reference Sensor**

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

Small Field of View

Accurate NTC Reference Sensor

## APPLICATIONS

Industrial Pyrometers

## 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

## PERFORMANCE SPECS

Parameter	Symbol	Value	Unit	Condition
Operating Ambient Temperature	T <sub>Amb</sub>	-20 to +85	°C	permanent
Operating Ambient Temperature	T <sub>Amb</sub>	-20 to +100	°C	non permanent
Package		TO-5		
Absorber Area	A	0.7 × 0.7	mm <sup>2</sup>	
Thermopile Resistance	R <sub>TP</sub>	43 ± 8	kΩ	T <sub>Amb</sub> = +25°C
Temperature Coefficient of Thermopile Resistance	TCR <sub>TP</sub>	-0.06 ± 0.04	%/K	T <sub>Amb</sub> = +25°C to +75°C
Voltage Response	V <sub>TP</sub>	0.9 ± 0.25	mV	T <sub>Amb</sub> = +25°C, T <sub>Obj</sub> = +100°C, DC, totally filled field of view
Temperature Coefficient of Voltage Response	TCV <sub>TP</sub>	-0.45 ± 0.08	%/K	T <sub>Amb</sub> = +25°C to +75°C
Noise Equivalent Voltage	NEV	30	nV/Hz <sup>1/2</sup>	T <sub>Amb</sub> = +25°C
Rise Time	τ <sub>63</sub>	20 ± 5	ms	
Ambient Temperature Sensor		NTC		
Ambient Temperature Sensor Resistance	R <sub>NTC</sub>	100 ± 5	kΩ	T <sub>Amb</sub> = +25°C
Beta Value of NTC	β-Value	3955 ± 0.3%	K	T <sub>Amb</sub> = 0°C to +50°C

### TYPICAL PERFORMANCE CURVES

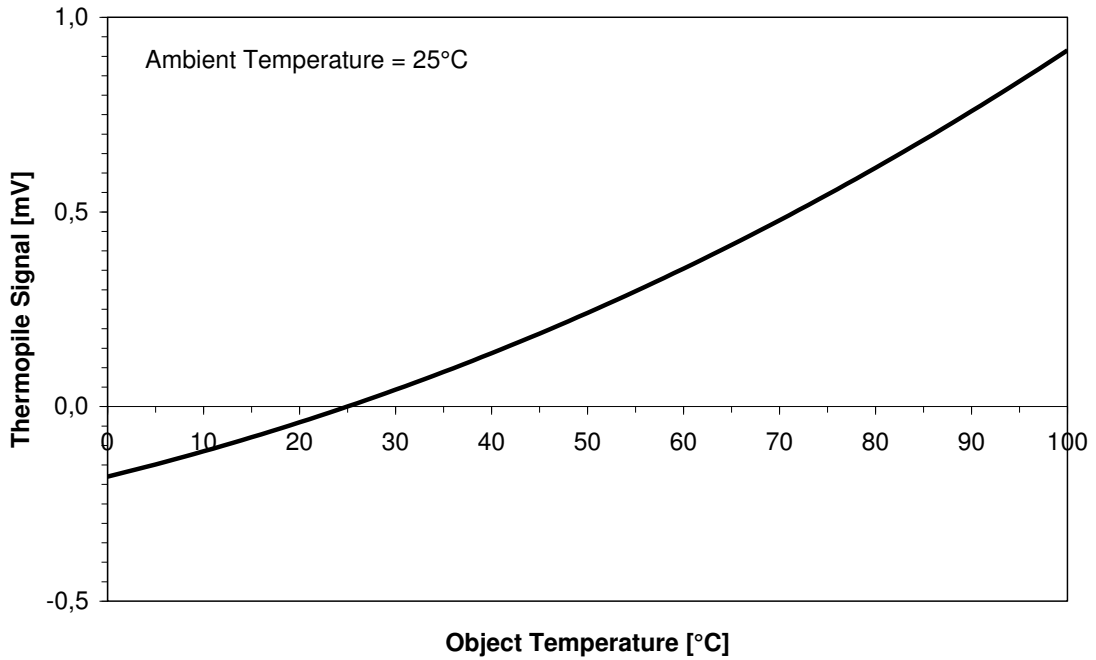


Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

### OPTICAL CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Field of View	FOV	10	deg	at 50% of maximum signal

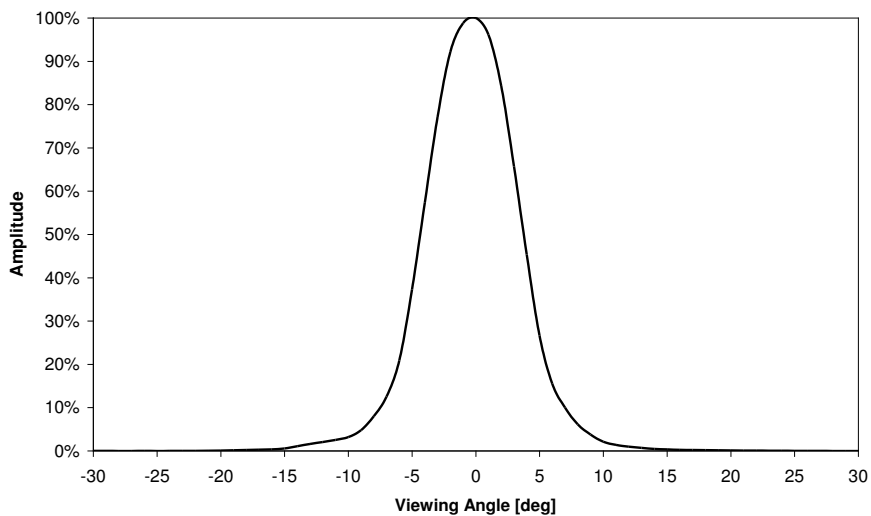


Figure 2: Field of View Curve

**FILTER CHARACTERISTICS**

Parameter	Symbol	Value	Unit	Description
Transmission Range	Si	≥ 1.1	μm	Silicon

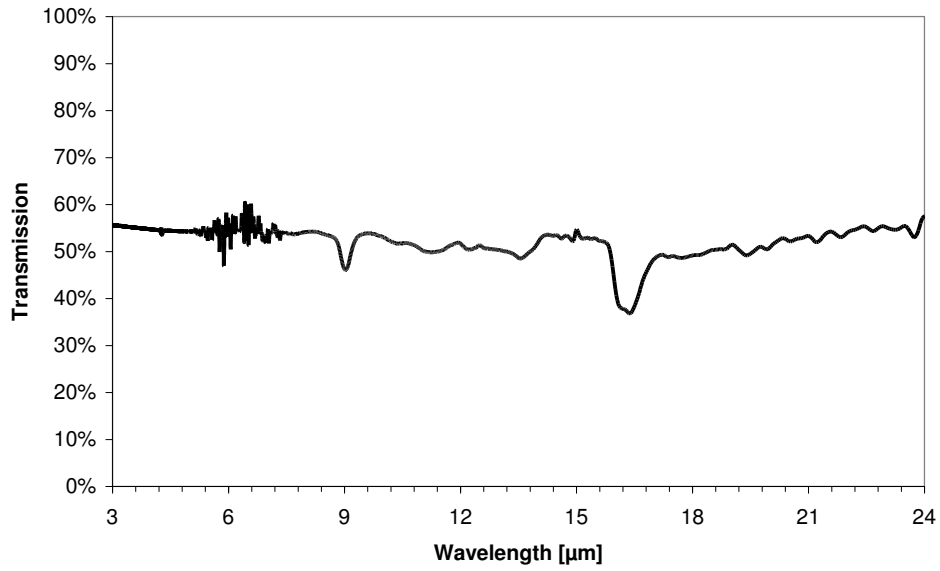


Figure 3: Lens transmission curve

**ELECTRICAL CONNECTIONS**

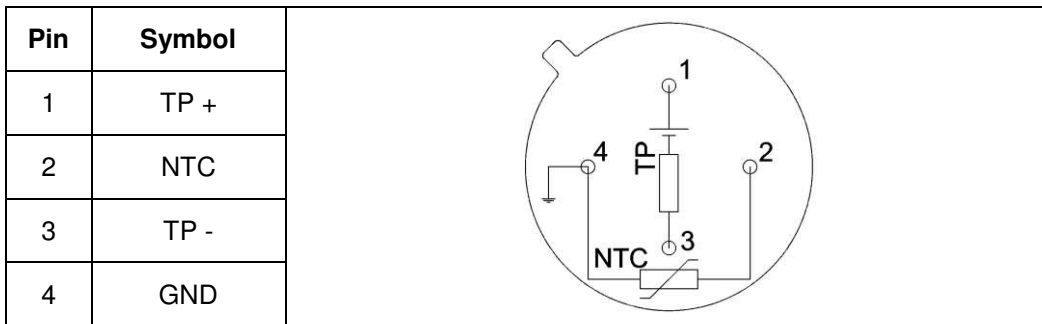


Figure 4: Electrical connections - bottom view of thermopile

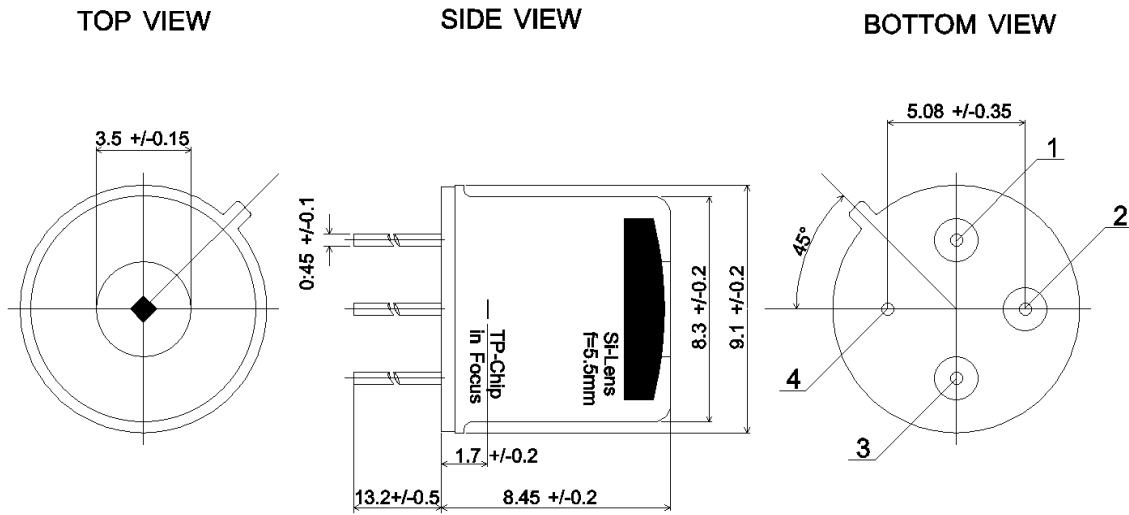
**MECHANICAL DIMENSIONS**

Figure 5: Mechanical dimensions of thermopile

**ORDERING INFORMATION**

<b>Part Description</b>	TS105-10 L5.5 NTC 100K BETA
<b>Part No.</b>	G-TPCO-019

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