



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 _S	-20	+20	+85	°C	permanent
Storage Temperature	T _S	-20	+20	+100	°C	non permanent

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

TYPICAL PERFORMANCE CURVES

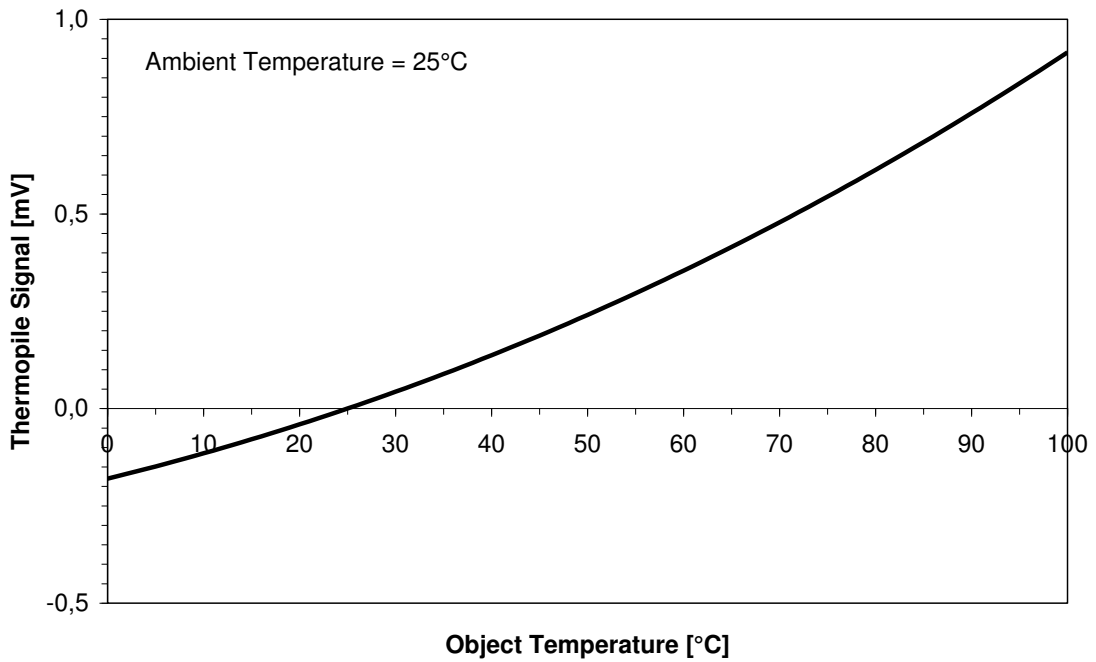


Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

OPTICAL CHARACTERISTICS

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

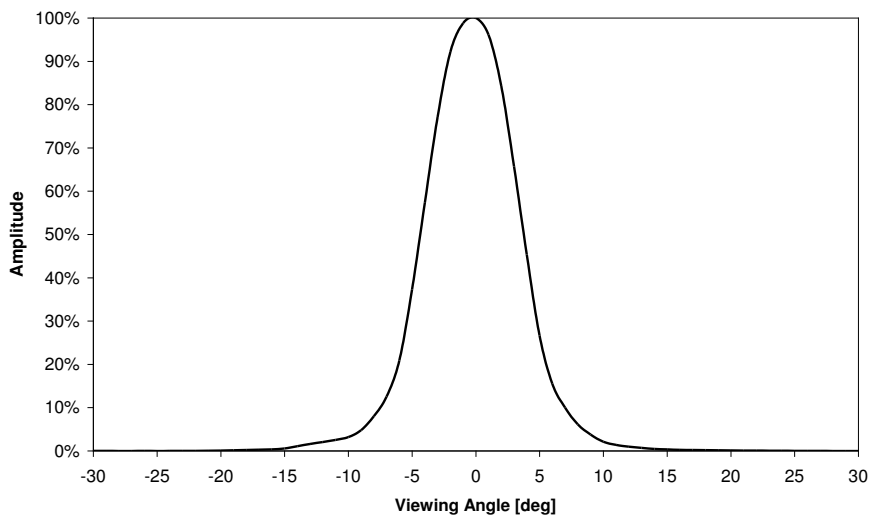


Figure 2: Field of View Curve

FILTER CHARACTERISTICS

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

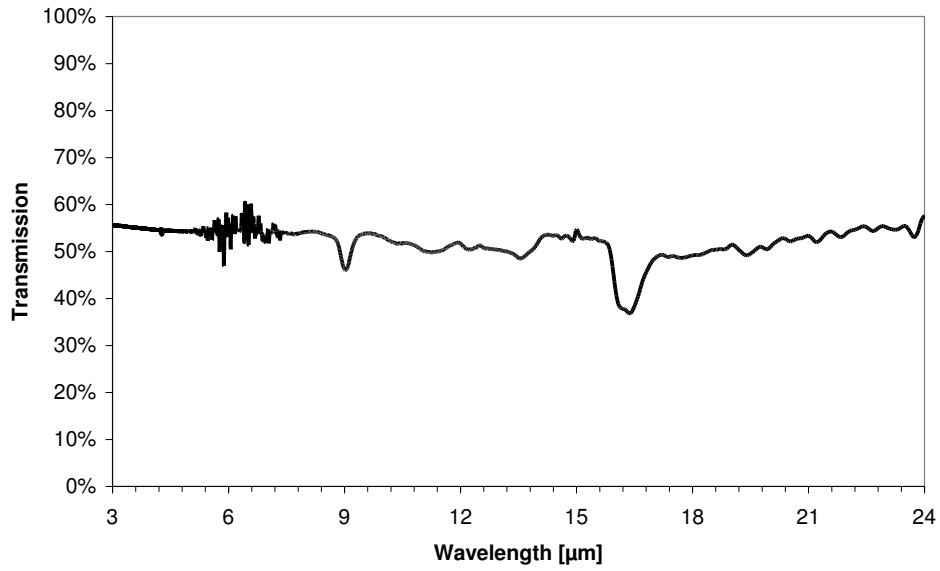


Figure 3: Lens transmission curve

ELECTRICAL CONNECTIONS

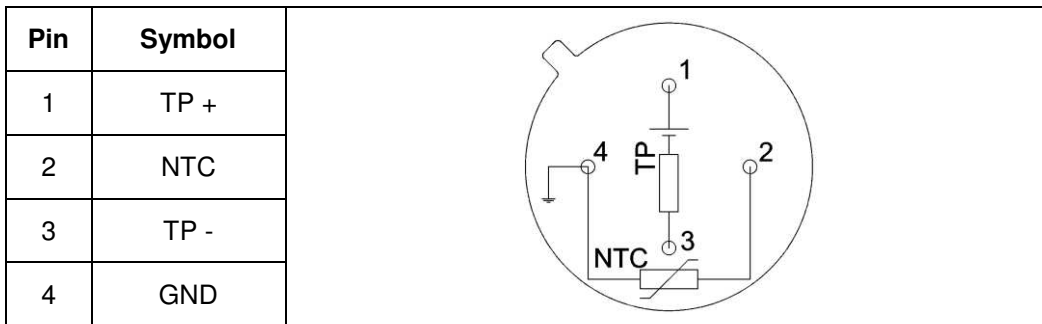


Figure 4: Electrical connections - bottom view of thermopile

MECHANICAL DIMENSIONS

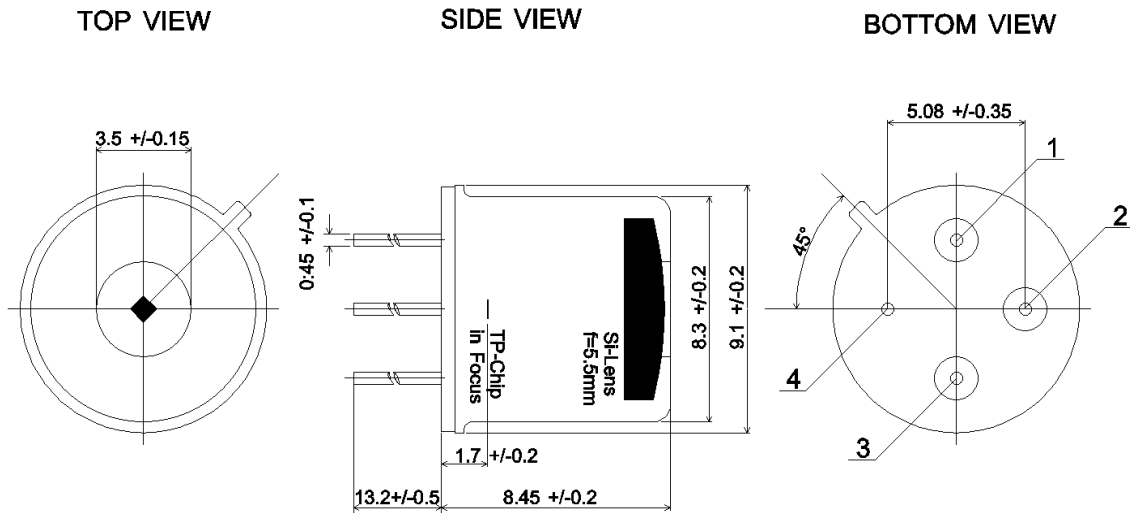


Figure 5: Mechanical dimensions of thermopile

ORDERING INFORMATION

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

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