

Model TS305-11C55 Thermopile Sensor



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

FEATURES

- High Signal
- Accurate NTC Reference Sensor
- 5.5 μm Long Wave Pass Filter

APPLICATIONS

- Industrial Pyrometers
- Climate Control
- Medical

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Typical	Max	Unit	Description
Storage Temperature	T_s	-20	+20	+85	$^{\circ}\text{C}$	permanent
Storage Temperature	T_s	-20	+20	+100	$^{\circ}\text{C}$	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-5		
Absorber Area	A	0.8 × 0.8	mm ²	
Thermopile Resistance	R_{TP}	70 ± 30	kΩ	$T_{Amb} = +25^{\circ}\text{C}$
Temperature Coefficient of Thermopile Resistance	TCR_{TP}	-0.06 ± 0.04	%/K	$T_{Amb} = +25^{\circ}\text{C}$ to $+75^{\circ}\text{C}$
Voltage Response	V_{TP}	7.0 ± 2.1	mV	$T_{Amb} = +25^{\circ}\text{C}$, $T_{Obj} = +100^{\circ}\text{C}$, DC, totally filled field of view
Temperature Coefficient of Voltage Response	TCV_{TP}	-0.45 ± 0.08	%/K	$T_{Amb} = +25^{\circ}\text{C}$ to $+75^{\circ}\text{C}$
Noise Equivalent Voltage	NEV	45	nV/Hz ^{1/2}	$T_{Amb} = +25^{\circ}\text{C}$
Rise Time	τ_{63}	12 ± 5	ms	
Ambient Temperature Sensor		NTC		
Ambient Temperature Sensor Resistance	R_{NTC}	100 ± 5	kΩ	$T_{Amb} = +25^{\circ}\text{C}$
Beta Value of NTC	β -Value	3955 ± 0.3%	K	$T_{Amb} = 0^{\circ}\text{C}$ to $+50^{\circ}\text{C}$

TYPICAL PERFORMANCE CURVES

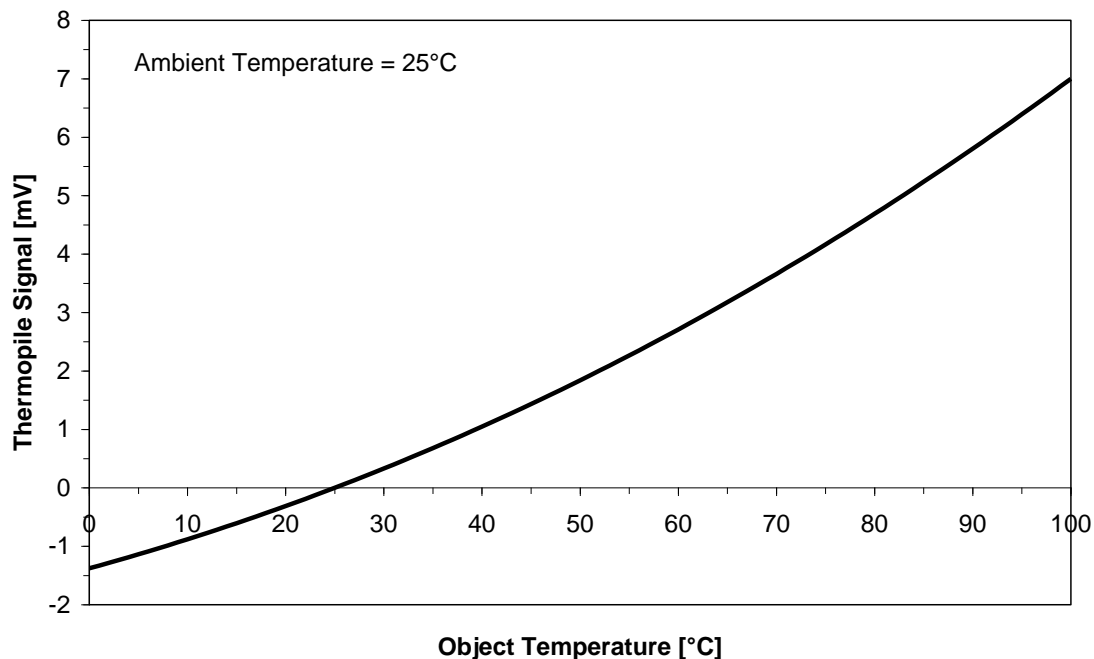


Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

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OPTICAL CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Field of View	FOV	88	deg	at 50% of maximum signal

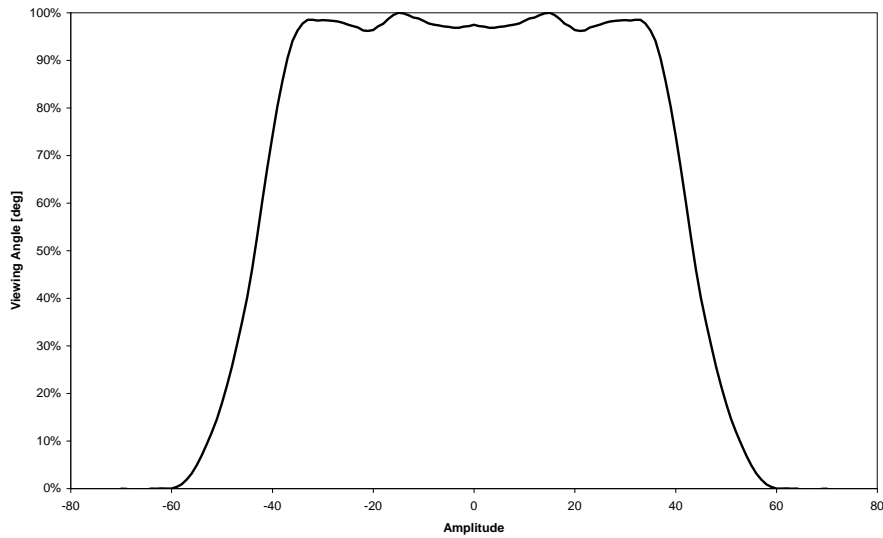


Figure 2: Field of View Curve

FILTER CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Transmission Range	LWP	≥ 5.5	μm	Long Wave Pass

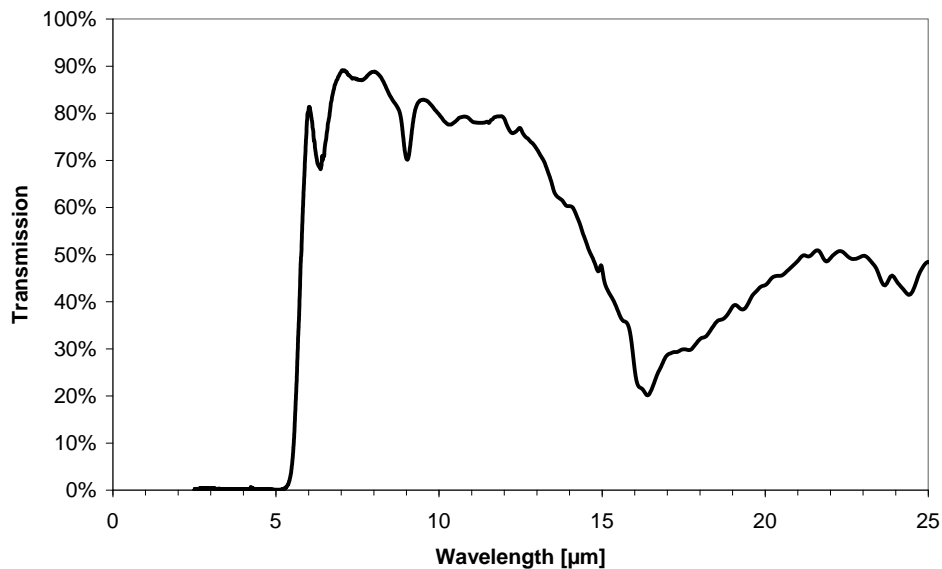


Figure 3: Filter transmission curve

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ELECTRICAL CONNECTIONS

Pin	Symbol
1	TP +
2	NTC
3	TP -
4	GND

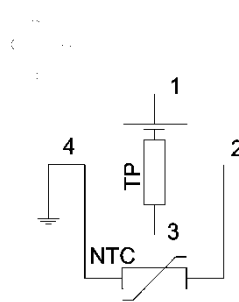


Figure 4: Electrical connections - bottom view of thermopile

MECHANICAL DIMENSIONS

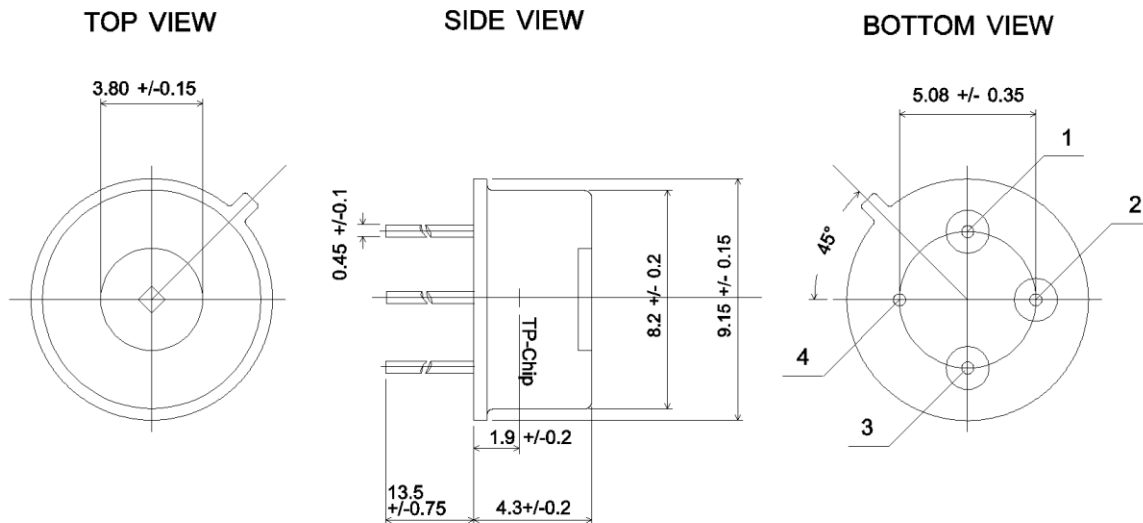


Figure 5: Mechanical dimensions of thermopile

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ORDERING INFORMATION

Part Description TS305-11C55
Part No. G-TPCO-033

TECHNICAL CONTACT INFORMATION

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