TS305-11C55

Thermopile Sensor

SPECIFICATIONS

- **Thermopile IR-Sensor**
- **For Contactless Temperature Measurement**
- **Single Element**
- **High Signal**
- **Flat Filter**
- **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

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	°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	0.8 × 0.8	mm^2	
Thermopile Resistance	R_{TP}	70 ± 30	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}	7.0 ± 2.1	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	45	$nV/Hz^{½}$	T_{Amb} = +25°C
Rise Time	τ_{63}	12 ± 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

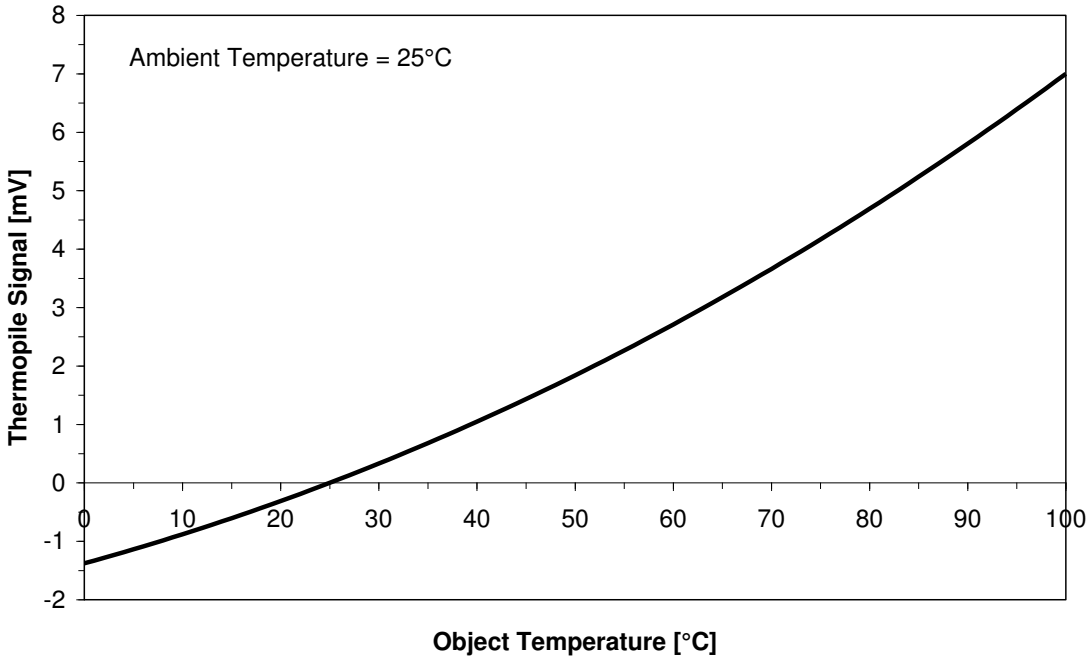

Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

Optical Characteristics

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

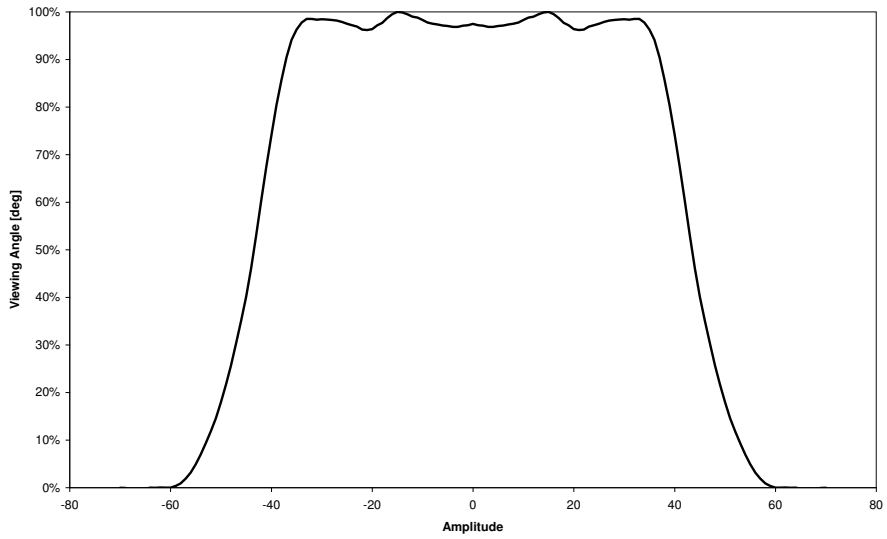

Figure 2: Field of View Curve

FILTER CHARACTERISTICS

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

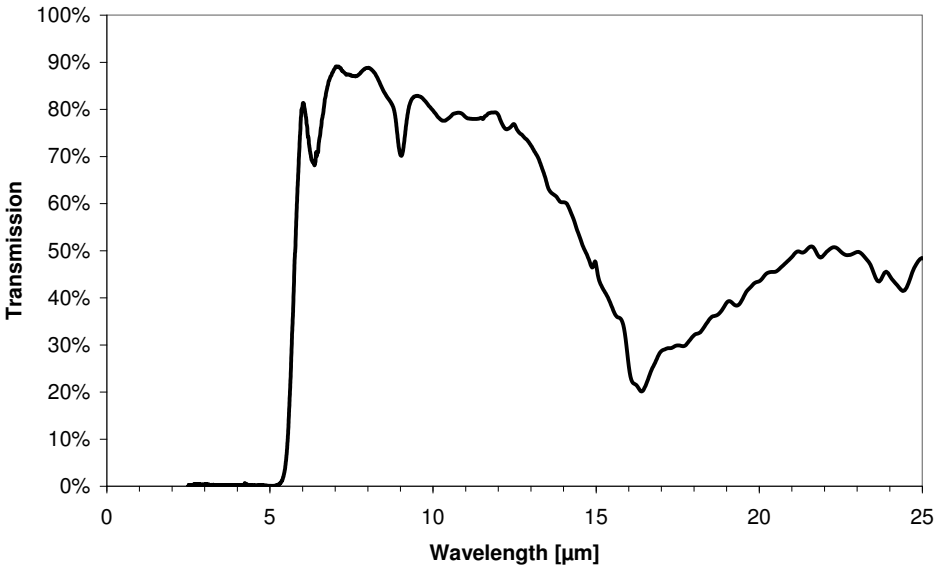

Figure 3: Filter transmission curve

ELECTRICAL CONNECTIONS

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

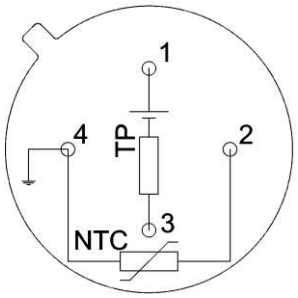

Figure 4: Electrical connections - bottom view of thermopile

MECHANICAL DIMENSIONS

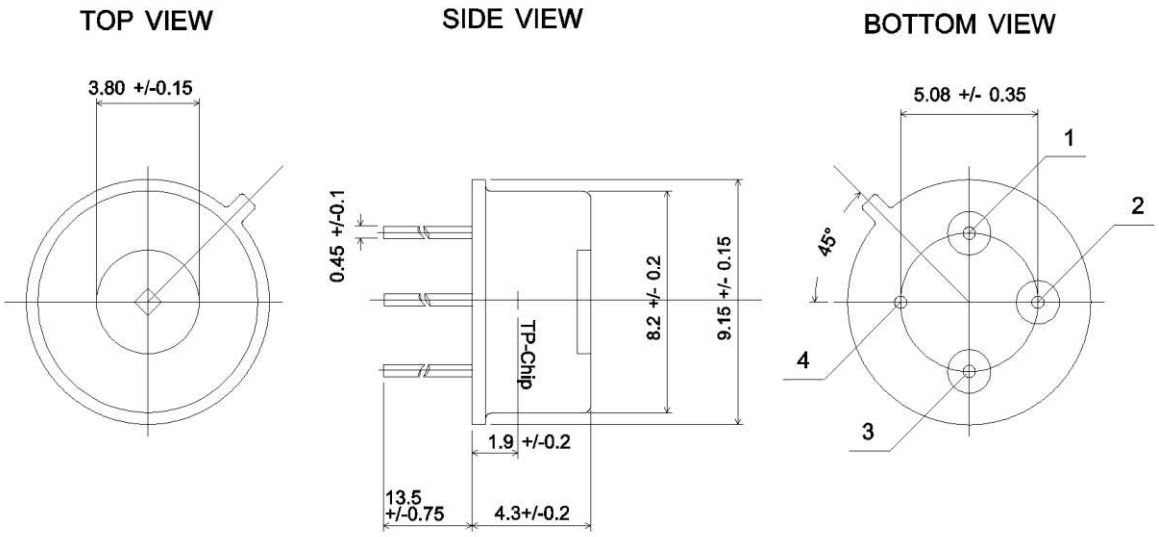

Figure 5: Mechanical dimensions of thermopile

ORDERING INFORMATION

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

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