



## **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  $\mu\text{m}$  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

## PERFORMANCE SPECS

Parameter	Symbol	Value	Unit	Condition
Operating Ambient Temperature	$T_{\text{Amb}}$	-20 to +85	$^{\circ}\text{C}$	permanent
Operating Ambient Temperature	$T_{\text{Amb}}$	-20 to +100	$^{\circ}\text{C}$	non permanent
Package		TO-5		
Absorber Area	A	$0.8 \times 0.8$	$\text{mm}^2$	
Thermopile Resistance	$R_{\text{TP}}$	$70 \pm 30$	$\text{k}\Omega$	$T_{\text{Amb}} = +25^{\circ}\text{C}$
Temperature Coefficient of Thermopile Resistance	$\text{TCR}_{\text{TP}}$	$-0.06 \pm 0.04$	$\%/K$	$T_{\text{Amb}} = +25^{\circ}\text{C}$ to $+75^{\circ}\text{C}$
Voltage Response	$V_{\text{TP}}$	$7.0 \pm 2.1$	mV	$T_{\text{Amb}} = +25^{\circ}\text{C}$ , $T_{\text{Obj}} = +100^{\circ}\text{C}$ , DC, totally filled field of view
Temperature Coefficient of Voltage Response	$\text{TCV}_{\text{TP}}$	$-0.45 \pm 0.08$	$\%/K$	$T_{\text{Amb}} = +25^{\circ}\text{C}$ to $+75^{\circ}\text{C}$
Noise Equivalent Voltage	NEV	45	$\text{nV}/\text{Hz}^{1/2}$	$T_{\text{Amb}} = +25^{\circ}\text{C}$
Rise Time	$\tau_{63}$	$12 \pm 5$	ms	
Ambient Temperature Sensor		NTC		
Ambient Temperature Sensor Resistance	$R_{\text{NTC}}$	$100 \pm 5$	$\text{k}\Omega$	$T_{\text{Amb}} = +25^{\circ}\text{C}$
Beta Value of NTC	$\beta$ -Value	$3955 \pm 0.3\%$	K	$T_{\text{Amb}} = 0^{\circ}\text{C}$ to $+50^{\circ}\text{C}$

## TYPICAL PERFORMANCE CURVES

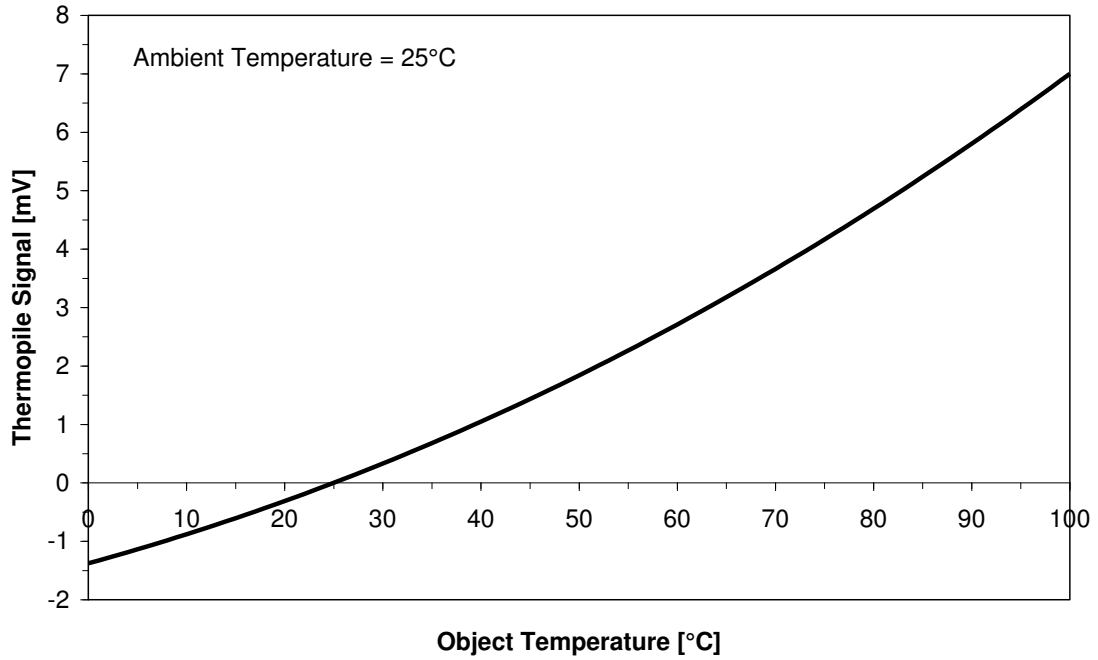


Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

## Optical Characteristics

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

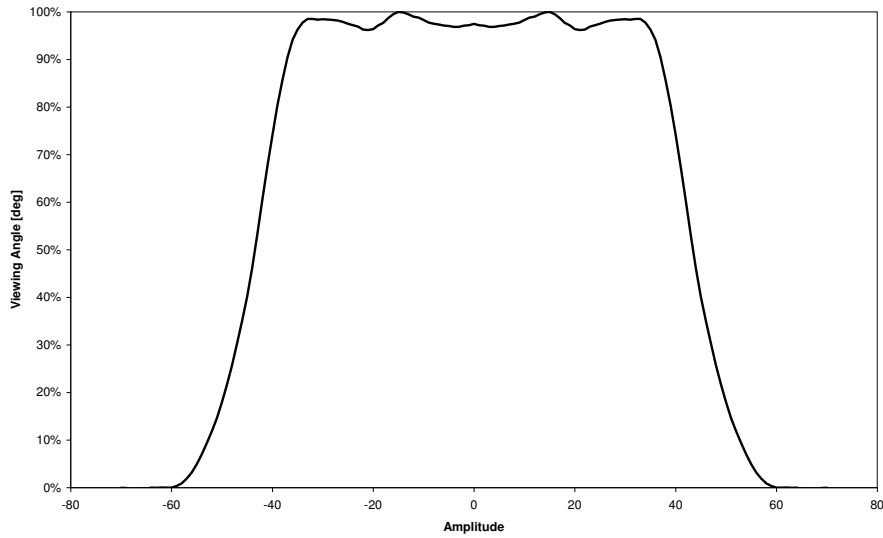


Figure 2: Field of View Curve

## FILTER CHARACTERISTICS

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

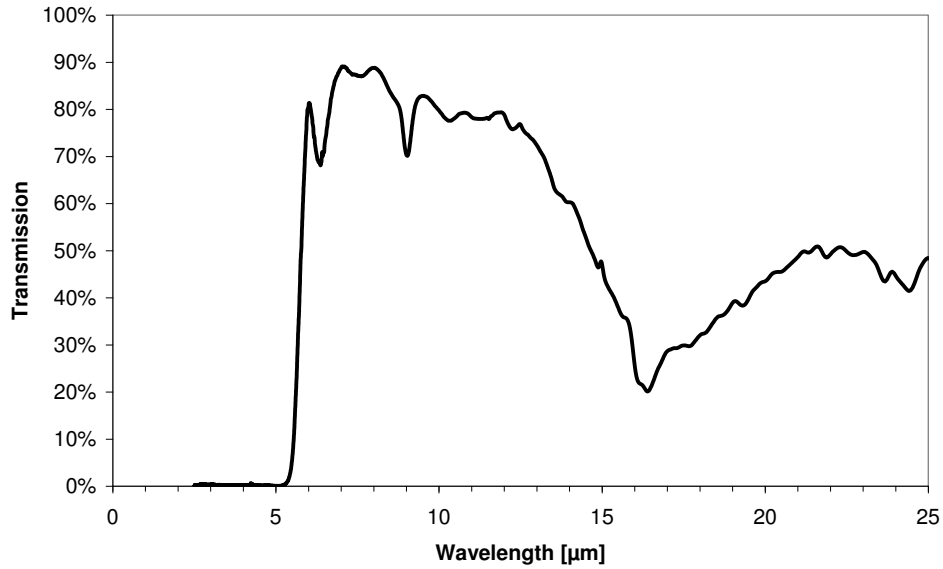


Figure 3: Filter transmission curve

## ELECTRICAL CONNECTIONS

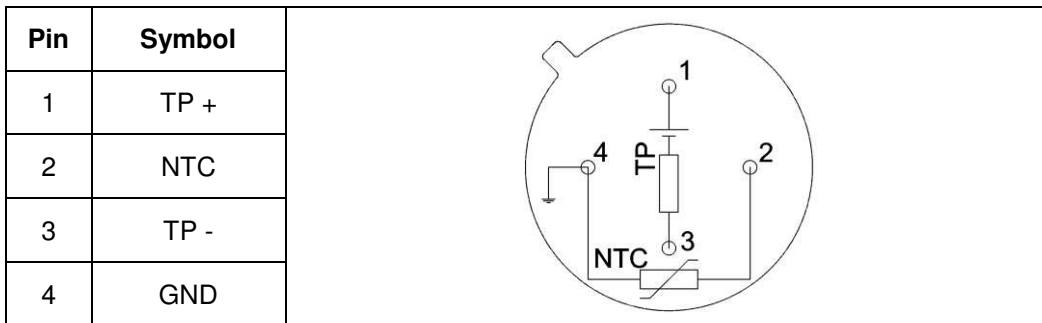


Figure 4: Electrical connections - bottom view of thermopile

## MECHANICAL DIMENSIONS

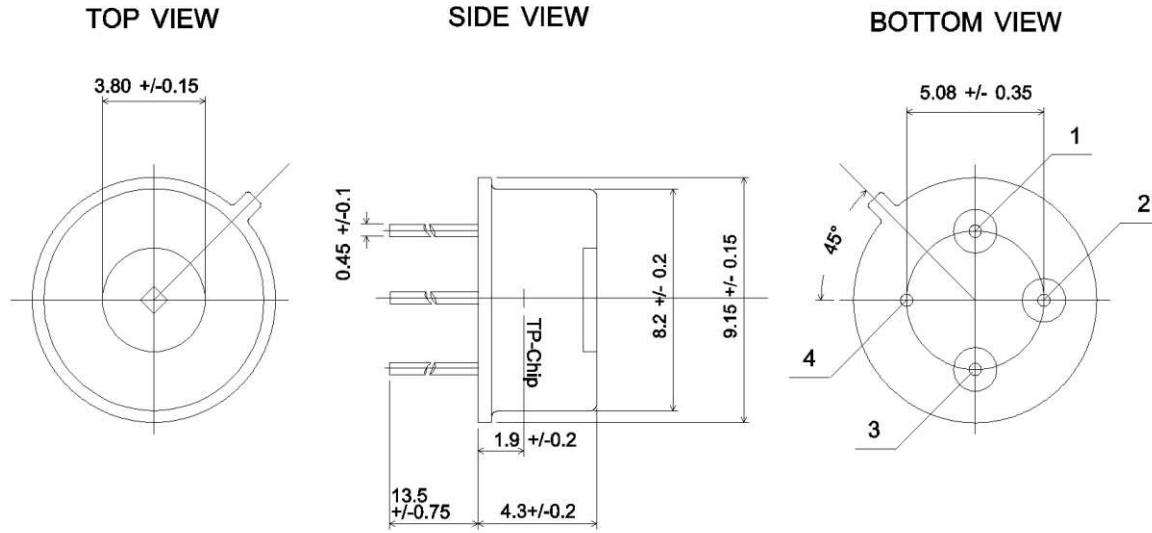


Figure 5: Mechanical dimensions of thermopile

## ORDERING INFORMATION

<b>Part Description</b>	TS305-11C55
<b>Part No.</b>	G-TPCO-033

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