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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## **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

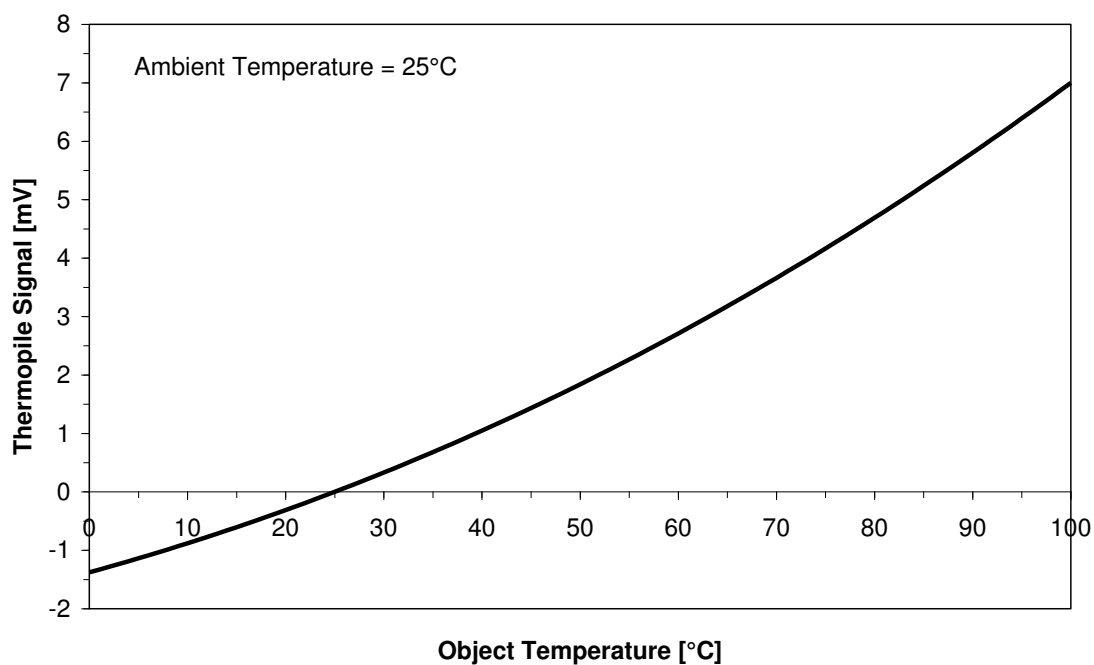


Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

## Optical Characteristics

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

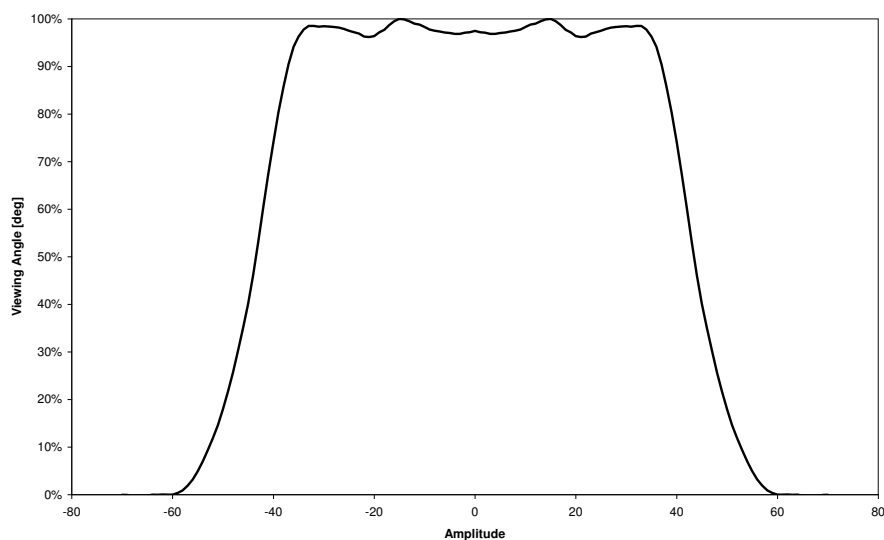


Figure 2: Field of View Curve

## FILTER CHARACTERISTICS

Parameter	Symbol	Value	Unit	Description
Transmission Range	LWP	$\geq 5.5$	$\mu\text{m}$	Long Wave Pass

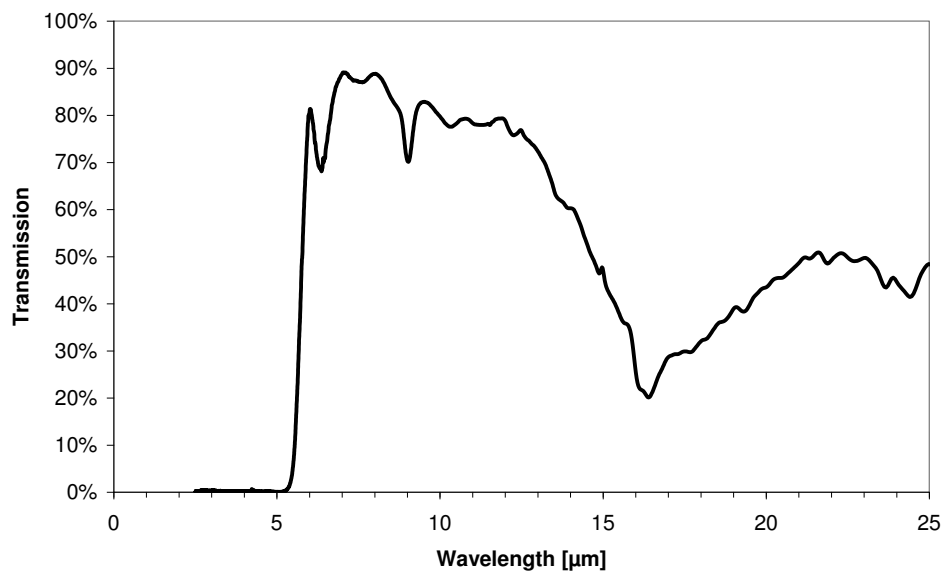


Figure 3: Filter transmission curve

## ELECTRICAL CONNECTIONS

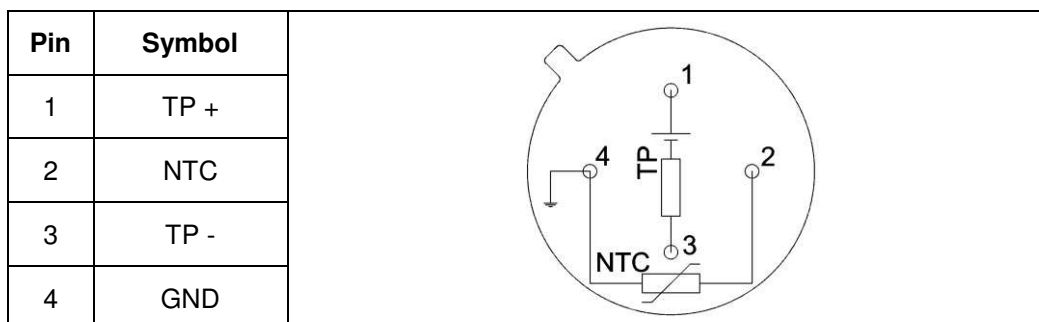


Figure 4: Electrical connections - bottom view of thermopile



## MECHANICAL DIMENSIONS

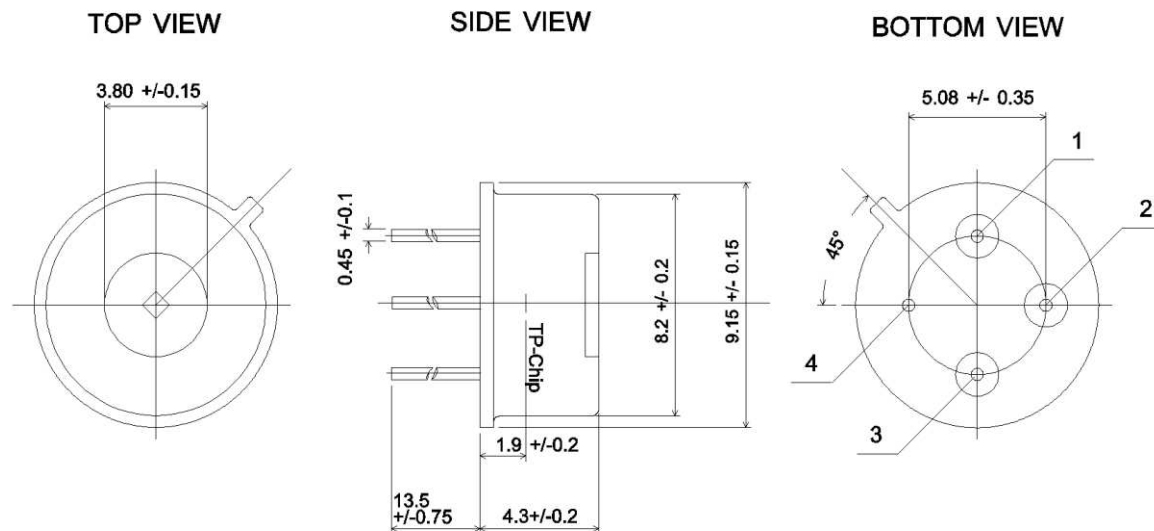


Figure 5: Mechanical dimensions of thermopile

## ORDERING INFORMATION

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

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