



- Thermopile IR-Sensor
- For Contactless Temperature Measurement
- Single Element
- For Industrial Pyrometers
- Silicon Lens
- 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

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 |

Model TS105-10L5.5mm Thermopile Sensor

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 | k Ω | $T_{Amb} = +25^{\circ}\text{C}$ |
| 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} | 0.9 ± 0.25 | 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 | 30 | nV/Hz ^{1/2} | $T_{Amb} = +25^{\circ}\text{C}$ |
| Rise Time | τ_{63} | 20 ± 5 | ms | |
| Ambient Temperature Sensor | | NTC | | |
| Ambient Temperature Sensor Resistance | R_{NTC} | 100 ± 5 | k Ω | $T_{Amb} = +25^{\circ}\text{C}$ |
| Beta Value of NTC | β -Value | $3955 \pm 0.3\%$ | K | $T_{Amb} = 0^{\circ}\text{C}$ to $+50^{\circ}\text{C}$ |

TYPICAL PERFORMANCE CURVES

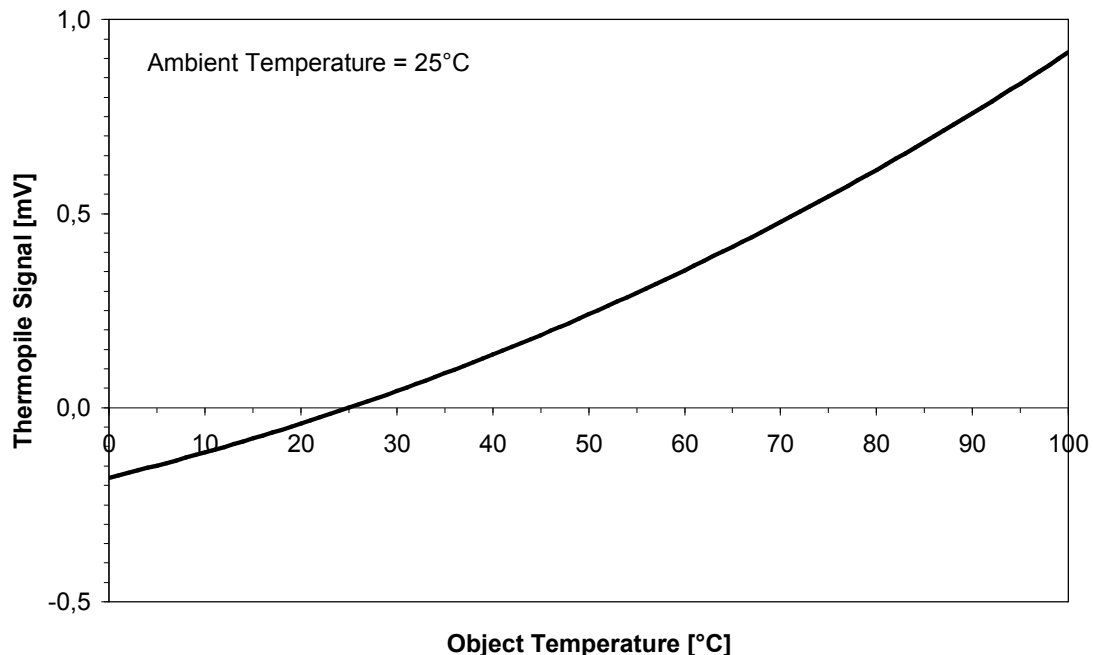


Figure 1: Thermopile signal versus object temperature at 25°C ambient temperature

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OPTICAL CHARACTERISTICS

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

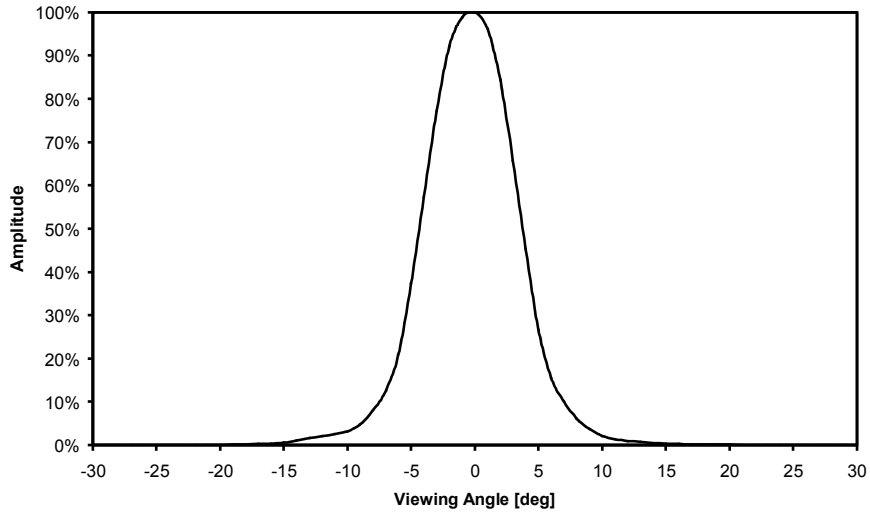


Figure 2: Field of View Curve

FILTER CHARACTERISTICS

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

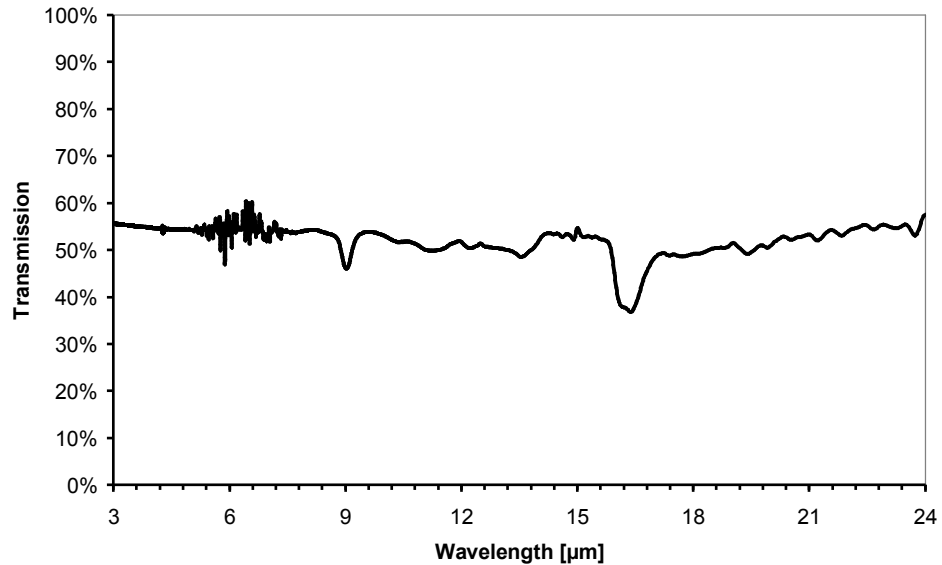


Figure 3: Lens transmission curve

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ELECTRICAL CONNECTIONS

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

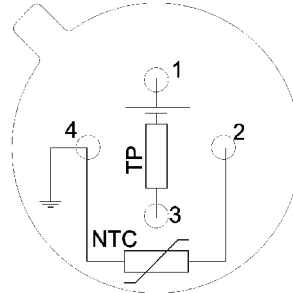


Figure 4: Electrical connections - bottom view of thermopile

MECHANICAL DIMENSIONS

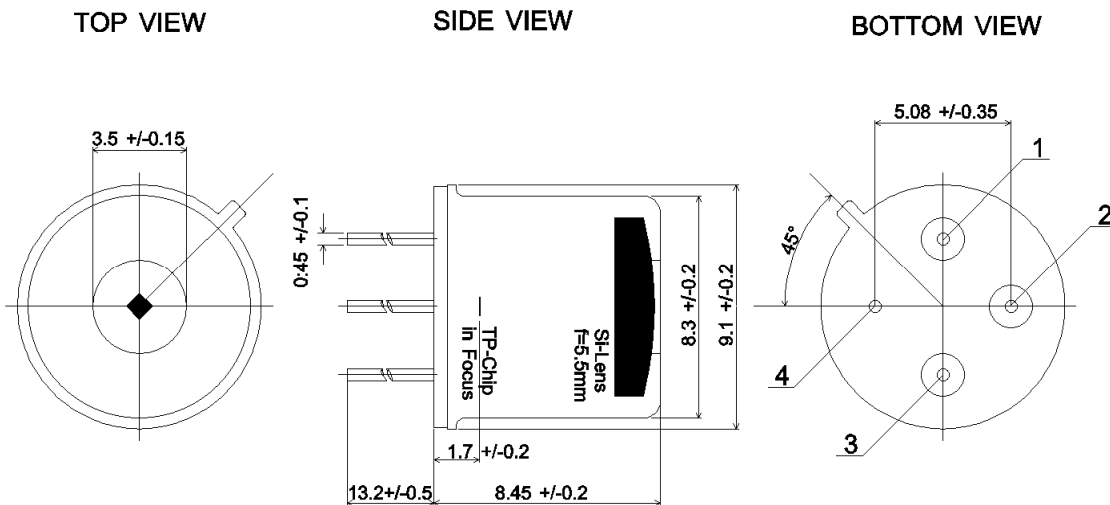


Figure 5: Mechanical dimensions of thermopile

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ORDERING INFORMATION

Part Description TS105-10 L5.5 NTC 100K BETA

Part No. G-TPCO-019

联系方式



深圳市亿为测控电子有限公司
Shenzhen Bill-Well Measurement & Control Electronics Co., Ltd.

广东省深圳市南山区创业路怡海广场东座2407 邮编：518000

电话：+86 755 2641 9890 传真：+86 755 2641 9680

电子邮箱：sales@bill-well.com