



## TS305-10C50 Thermopile Sensor



- Thermopile IR-Sensor
- For Contactless Temperature Measurement
- Single Element
- 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. Major applications are appliances like microwave oven, clothes dryer, automatic cooking, medical devices like ear and forehead thermometer, automotive applications like car climate control, seat occupancy, blind spot alert, black ice detection, consumer products like printer, copier, mobile phone and many industry applications like paper web, plastic parts etc.

### FEATURES

- High Signal
- Accurate Reference Sensor

### APPLICATIONS

- Industrial Pyrometers
- Climate Control
- Medical

### PERFORMANCE SPECS

| Parameter         | Unit                 | TS305-10C50         | Condition  |
|-------------------|----------------------|---------------------|--|
| Package           |                      | TO-5                |  |
| Absorber          | mm <sup>2</sup>      | 0.64                |  |
| TP Resistance     | kΩ                   | 70±25               | +25°C ambient                                      |
| TP TCR            | %/K                  | -0.06±0.04          | +25°C → +75°C ambient                              |
| TP Voltage        | mV                   | 6.5±1.9             | +25°C, BB +100°C, DC, totally filled field of view |
| TC of sensitivity | %/K                  | -0.45±0.08          | +25°C → +75°C ambient                              |
| NEV               | nV/Hz <sup>1/2</sup> | 45                  | +25°C ambient                                      |
| Rise Time         | ms                   | 12±5                | τ <sub>90%</sub>                                   |
| Field of View     |                      | 90°                 | at 50%   |
| Filter Type       |                      | LWP                 | LWP = long wave pass                               |
| Wavelength        | μm                   | ≥5.0                | transmission range                                 |
| Temperature       | °C                   | -20...+85           | permanent operation                                |
| Temperature       | °C                   | -20...+100          | non permanent                                      |
| ATS               |                      | NTC                 | ambient temperature sensor                         |
| Resistance        |                      | 100kΩ±5%<br>at 25°C |  |
| ATS TCR           | ppm/K                |                     | 0°C → +100°C ambient                               |
| ATS β-Value       | K                    | 3955 ±0.3%          | 0°C → +50°C ambient                                |
| Connections       |                      |                     |  |
| Pin 1             |                      | TP +                |  |
| Pin 2             |                      | NTC                 |  |
| Pin 3             |                      | TP -                |  |
| Pin 4             |                      | GND                 |  |



## ELECTRICAL CONNECTIONS

ambient temperature sensor: NTC  
TS305-10C50

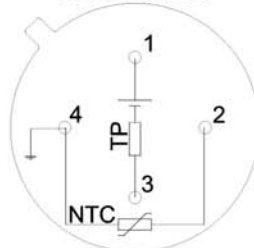


Figure 1: Electrical connections- bottom view of thermopile

## MECHANICAL DIMENSIONS

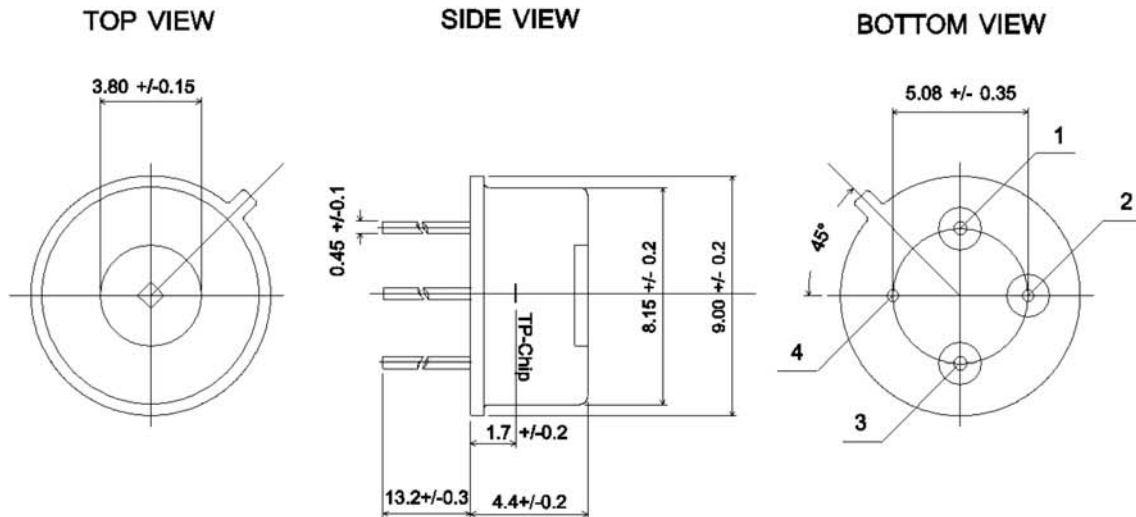


Figure 2: Mechanical dimensions of thermopile

## TYPICAL PERFORMANCE CURVES

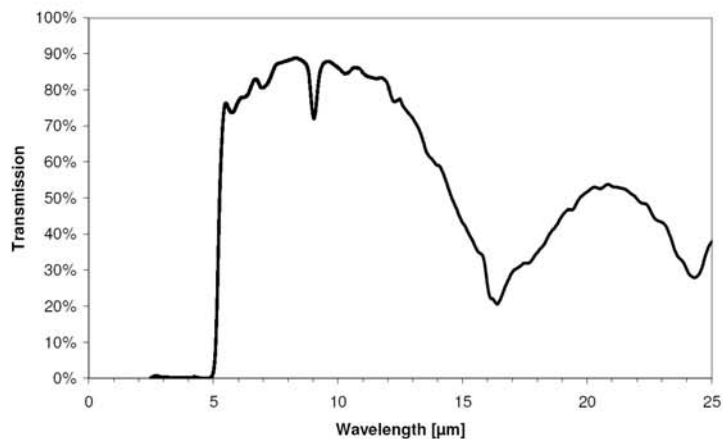


Figure 3: Filter transmission curve

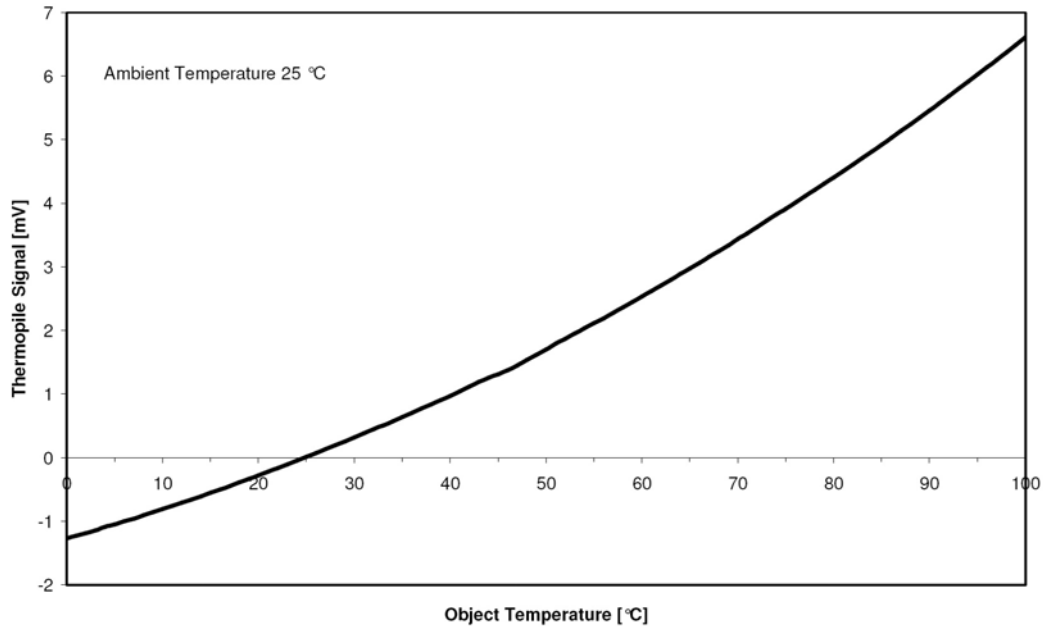


Figure 3: Thermopile signal versus object temperature at 25°C ambient temperature