



## **TS105-10L5.5MM**

### Thermopile Sensor

#### SPECIFICATIONS

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

Small Field of View

Accurate NTC Reference Sensor

## APPLICATIONS

Industrial Pyrometers

## ABSOLUTE MAXIMUM RATINGS

| Parameter           | Symbol         | Min | Typical | Max  | Unit | Description   |
|---------------------|----------------|-----|---------|------|------|---------------|
| Storage Temperature | T <sub>S</sub> | -20 | +20     | +85  | °C   | permanent     |
| Storage Temperature | T <sub>S</sub> | -20 | +20     | +100 | °C   | non permanent |

## PERFORMANCE SPECS

| Parameter                                        | Symbol            | Value        | Unit                 | Condition                                                                             |
|--------------------------------------------------|-------------------|--------------|----------------------|---------------------------------------------------------------------------------------|
| Operating Ambient Temperature                    | T <sub>Amb</sub>  | -20 to +85   | °C                   | permanent                                                                             |
| Operating Ambient Temperature                    | T <sub>Amb</sub>  | -20 to +100  | °C                   | non permanent                                                                         |
| Package                                          |                   | TO-5         |                      |                                                                                       |
| Absorber Area                                    | A                 | 0.7 × 0.7    | mm <sup>2</sup>      |                                                                                       |
| Thermopile Resistance                            | R <sub>TP</sub>   | 43 ± 8       | kΩ                   | T <sub>Amb</sub> = +25°C                                                              |
| Temperature Coefficient of Thermopile Resistance | TCR <sub>TP</sub> | -0.06 ± 0.04 | %/K                  | T <sub>Amb</sub> = +25°C to +75°C                                                     |
| Voltage Response                                 | V <sub>TP</sub>   | 0.9 ± 0.25   | mV                   | T <sub>Amb</sub> = +25°C, T <sub>Obj</sub> = +100°C, DC, totally filled field of view |
| Temperature Coefficient of Voltage Response      | TCV <sub>TP</sub> | -0.45 ± 0.08 | %/K                  | T <sub>Amb</sub> = +25°C to +75°C                                                     |
| Noise Equivalent Voltage                         | NEV               | 30           | nV/Hz <sup>1/2</sup> | T <sub>Amb</sub> = +25°C                                                              |
| Rise Time                                        | τ <sub>63</sub>   | 20 ± 5       | ms                   |                                                                                       |
| Ambient Temperature Sensor                       |                   | NTC          |                      |                                                                                       |
| Ambient Temperature Sensor Resistance            | R <sub>NTC</sub>  | 100 ± 5      | kΩ                   | T <sub>Amb</sub> = +25°C                                                              |
| Beta Value of NTC                                | β-Value           | 3955 ± 0.3%  | K                    | T <sub>Amb</sub> = 0°C to +50°C                                                       |