

# TPS 333 - Thermopile Detector

## Miniature Sensor Housing



### Description

The **TPS 333** is an extremely small thermopile detector employing a chip of  $0.7 \times 0.7 \text{ mm}^2$  absorber size and a  $100 \text{ k}\Omega$  thermistor as a temperature reference.

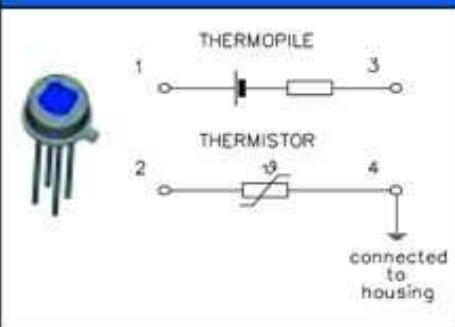
The square window opening is equipped with a  $5.5 \mu\text{m}$  longpass (standard) infrared filter. The detector shows a constant sensitivity characteristics over the wavelength.

### Features

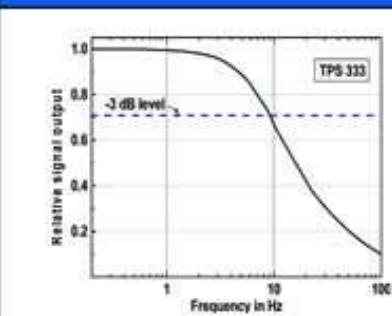
- Miniature Sensor Housing: TO 18
- Thermistor Temperature Reference Included
- Large Signal; Low Temperature coefficient of sensitivity
- Ideally Suited for Ear Thermometers, Miniature Pyrometers

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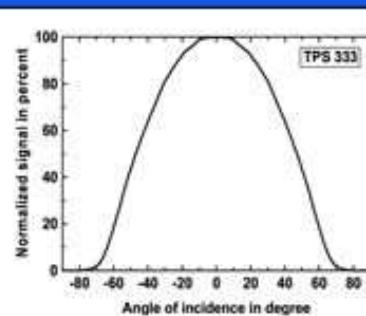
**Figure 1. Package Drawing**



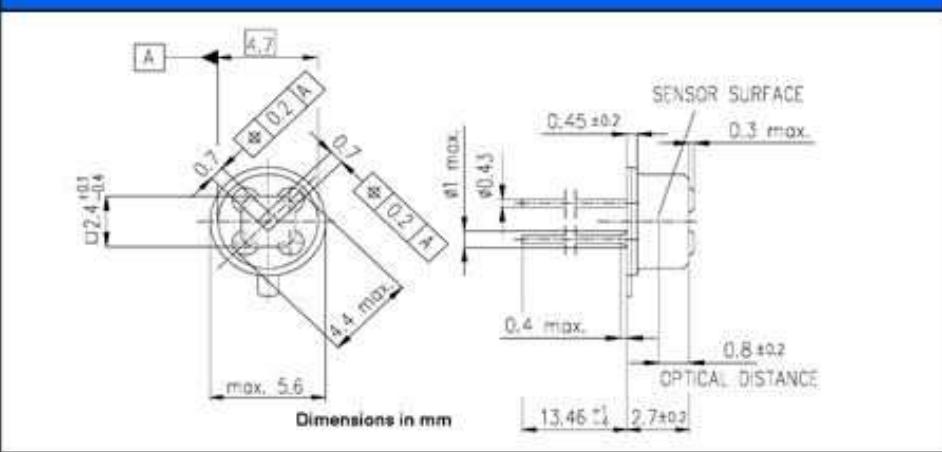
**Figure 2.**



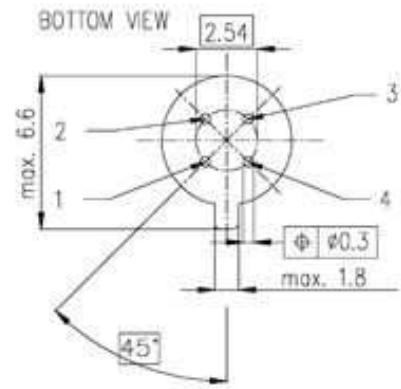
**Figure 3.**



**Figure 4. Top View Package Dimension**



**Figure 5. Bottom View**



**Table 1. TPS 333**

| Parameter             | Typical               | Units           | Condition          |
|-----------------------|-----------------------|-----------------|--------------------|
| Sensitive area        | 0.7 x 0.7             | mm <sup>2</sup> | absorbing area     |
| Window size           | 2.4 x 2.4             | mm <sup>2</sup> |                    |
| DC sensitivity        | 35                    | V/W             | 500K BB 5 ... 14µm |
| Resistance            | 75                    | kΩ              |                    |
| Noise                 | 38                    | nV/√Hz          | r.m.s. 300K        |
| NEP                   | 1.2                   | nW/√Hz          | 500K BB 5 ... 14µm |
| D*                    | 0.6 x 10 <sup>8</sup> | cm √Hz/W        | 500K BB 5 ... 14µm |
| TC of sensitivity     | 0.02                  | %/K             |                    |
| TC of resistance      | 0.02                  | %/K             |                    |
| Time constant         | 25                    | ms              |                    |
| Operating temperature | -40 to 100            | °C              | non permanent      |
| Storage temperature   | -40 to 100            | °C              | non permanent      |
| Thermistor resistance | 100                   | kΩ              | 25°C               |
| beta                  | 3964                  | K               | 25°C/100°C         |
| Field of view         | 100                   | °               | at 50% points      |

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All values are nominal; specifications subject to change without notice.

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