# SMD Sensor With Integrated Processing

## For Non-Contact Temperature Measurement

## TPiS 1S 0133 – Thermopile Sensor

### Target Applications

- General purpose Temperature Monitoring

### Features and Benefits

- SMD Housing
- ISOthermal Performance
- Internal Signal Processing
- Factory calibrated
- Available in "Tape and Reel"

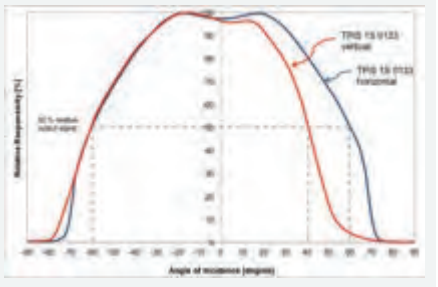
### Product Description

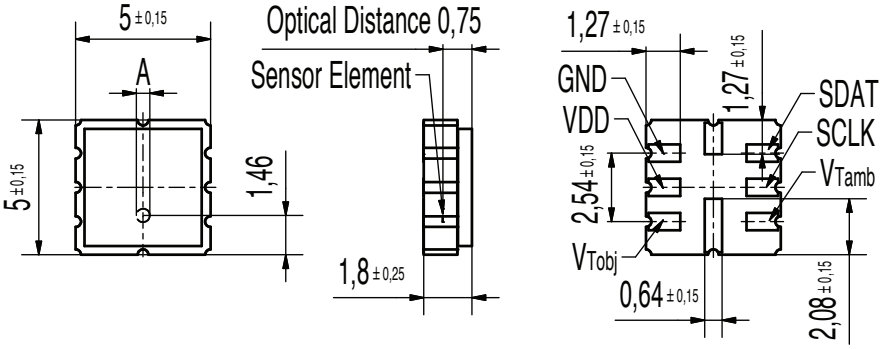
Excelitas offers the proven concept of TPMI® in SMD housing. It senses the thermal radiation emitted by objects and converts this to an analog voltage. The product is fully factory-calibrated for an accurate signal output over a specified temperature range and includes optional temperature compensation. The internal signal processing, with 8 bit resolution of the control registers and the EEPROM technology, allows for calibration as per customer requirements.
A temperature reference output is included. Upon request, other object temperature ranges can be provided. The sensors can also be supplied as "OBA" version without internal temperature compensation. By integrating the thermopile and electronic circuit into an industry-standard SMD housing, the TPiS 1S 0133 enables fully-automated "pick and place" and soldering processes associated with the SMD technology.

To address object temperature ranges, Excelitas offers the following standard pre-calibrated Sensors:

-20...60°C: TPiS 1S 0133 OAA060
-20...120°C: TPiS 1S 0133 OAA120
Customized calibrations on request.

### Field of View






**TPiS 1S 0133**

| Parameter | Symbol | TPiS 1S 0133 | Unit | Remark |
|---|---|---|---|---|
| Output Voltage Swing | $V_O$ | 0,25...(VDD- 0,25) | V | |
| Resistive Output Load | $R_L$ | 50 | kΩ | min. |
| Object Temp Accuracy | | 1,5 | K | + / - |
| Response Time | $t_{resp}$ | 100 | ms | typ. |
| Sensitive area | A | 0,2 | $mm^2$ | |
| Field of View | FoV | 120 | Degrees | |
| Supply Voltage | $V_{DD}$ | 4,5....5,5 | V | |
| Supply Current | $I_{DD}$ | 1,5 | mA | typ.; RL > 1MΩ |
| Operating Temp range | | -25....+100 | °C | |
| Storage Temp range | | -40....+100 | °C | |
| ESD tolerance | | 2,5 | kV | human body model |
| Soldering Temp | | Refer to Page 46 (handling and precautions). | | |