

# ISOTHERMAL MINIATURE THERMOPILE DETECTORS FOR EAR THERMOMETRY



## TPiD 012B, TPiD 022B Thermopile

### Applications

- Ear thermometry
- General purpose thermometry

### Features and Benefits

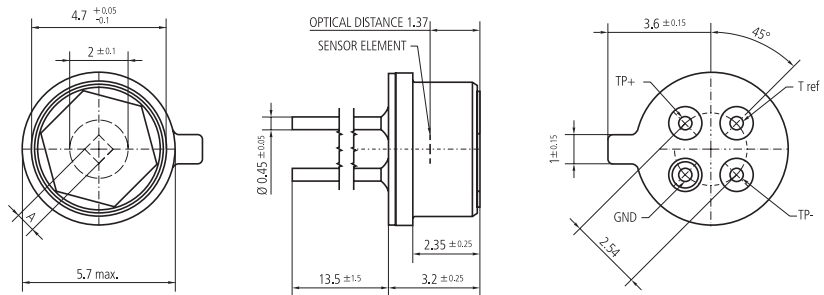
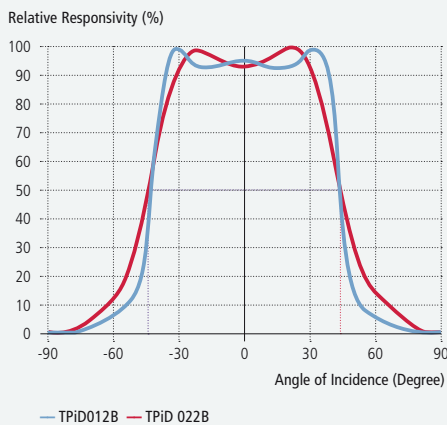
- Miniature TO-type metal housing
- Light collecting aperture
- Thermistor included

### Product Description

Excelitas offers ear thermometry thermopiles referenced as ISOthermal detector range. The patented designs provide a superior performance of thermopiles under thermal shock conditions.

The TPiD 012B is the low cost version, whereas the TPiD 022B provides higher signal. The physical dimensions of the two ISO thermal sensors are equivalent to our TO-46 sensor housings and include a special aperture. Both types are equipped with an internal thermistor as temperature reference for thermopile temperature compensation to further improve accuracy.

### Field of View



### TPiD 012B, TPiD 022B Thermopile

Parameter	Symbol	TPiD 012B	TPiD 022B	Unit	Remark
Sensitive area	A	Ø 0.5	0.7 x 0.7	mm	Absorber area
Sensitive area	A	0.2	0.5	mm <sup>2</sup>	Absorber area
Thermopile resistance	R <sub>TP</sub>	85 ... 135	50 ... 100	kΩ	25° C
Responsivity	R	92	60	V/W	500° / 1Hz/ without IR-filter
Sensitivity (T <sub>det</sub> 25° C / T <sub>obj</sub> 40° C)	S <sub>40</sub>	44	95	µV/K	With standard filter (LWP, cut-on 5.5 µm)
Sensitivity (T <sub>det</sub> 25° C / T <sub>obj</sub> 100° C)	S <sub>100</sub>	58	125	µV/K	With standard filter (LWP, cut-on 5.5 µm)
Time constant	t	15	22	ms	
Noise voltage	V <sub>N</sub>	42	35	nV / √Hz	25° C
Specific detectivity	D*	1.0	1.2	10 <sup>8</sup> cm <sup>2</sup> /Hz / W	25° C
Temp. coefficient of resistance	TC <sub>RTP</sub>	0.03	0.03	% / K	
Temp. coefficient of responsivity	TC <sub>R</sub>	-0.05	-0.05	% / K	
Field of view	FoV	90	90	Degrees	At 50 % intensity points
Thermistor resistance (25° C)	R <sub>25</sub>	100	100	kΩ	25° C
Thermistor BETA-value	β	3964	3964	K	Defined at 25° C / 100° C