

# MTS1TEMP56

One channel IR thermopile detector for industrial non-contact temperature measurement



## Applications

- Life science: non-contact temperature measurement of laboratory parameters.

## Product benefits

- Long service life
- Integrated temperature measurement
- Filter cut-on 5.5  $\mu\text{m}$  optimized for non-contact temperature measurement in high-volume applications
- Good price/performance ratio

## Additional product information

The base of each thermopile detector is formed by the so-called thermocouple. Due to thermal diffusion currents of two different metals (Seebeck effect), it generates an electrical voltage – the measurement signal. These serially connected thermocouples, called thermopiles, achieve a higher output voltage.

## Features

- Chip with 56 p/n-doped Si thermocouples
- Integrated thermistor for reference temperature determination
- Filter cut-on 5.5  $\mu\text{m}$
- TO46 housing
- Filling gas nitrogen
- Availability in high volumes > 50 000 p.a.

The sensitive component of Micro-Hybrid thermopile detectors is a MEMS-based thin-layer system on a silicon substrate.

**Online shop for IR components and sensors**

Filter products simply by selecting the desired properties and request your quotation.

 [microhybrid.com/shop](https://microhybrid.com/shop)



## Technical data

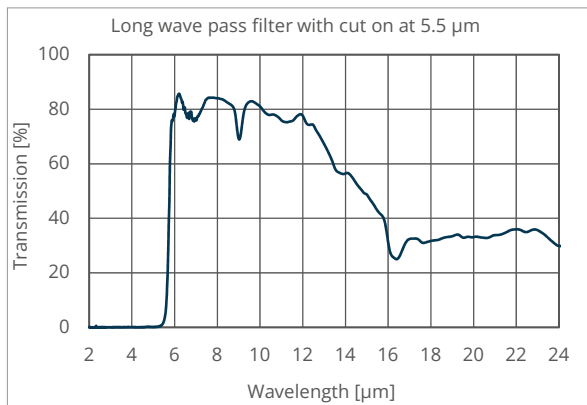
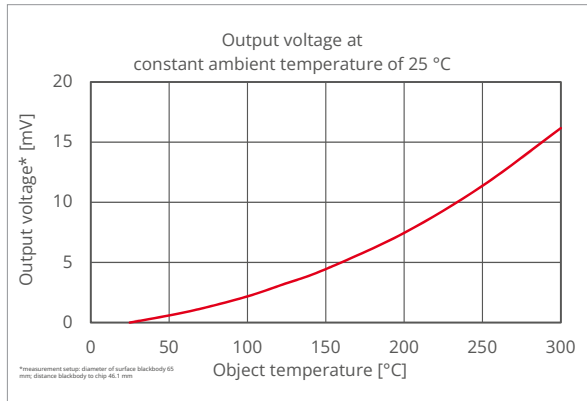
Technical parameter		Unit
Active area	0.82 x 0.82	mm <sup>2</sup>
Aperture	Ø 2.5	mm
Number of thermocouples	56	
Time constant <sub>0-63 %</sub> <sup>1,2,3</sup>	typ. 11	ms
DC output voltage <sup>1,2,3</sup>	typ. 0.8	mV
DC sensitivity <sup>1,2,3</sup>	typ. 31	V/W
Noise voltage <sup>2</sup>	typ. 38	nV/Hz <sup>1/2</sup>
Noise equivalent power NEP <sup>1,2,3</sup>	typ. 1.23	nW/Hz <sup>1/2</sup>
Specific dectivity D* <sup>1,2,3</sup>	typ. 0.67*10 <sup>8</sup>	cmHz <sup>1/2</sup> /W
Resistance of thermopile <sup>2</sup>	typ. 90	kΩ
Thermistor	NTC, 100 kΩ, B = 4 000	
Filling gas <sup>3</sup>	N <sub>2</sub>	
Filter	Si, cut-on 5.5 μm	
Operating temperature	-20 ... +85	°C
Housing	TO46	

<sup>1</sup> T=500 K, E=38 W/m<sup>2</sup>, without influence of filter characteristic

<sup>2</sup> At T<sub>amb</sub> = 25 °C

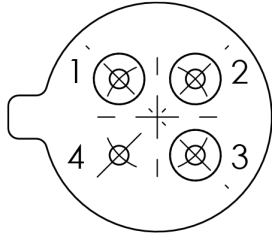
<sup>3</sup> With N<sub>2</sub>-filling

## Typical operating characteristics



## Electrical schemata

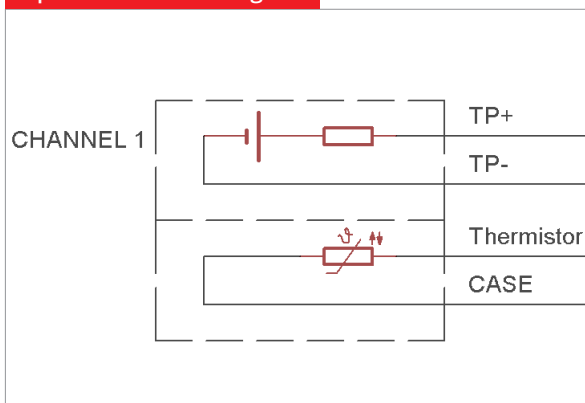
### Pin out



- Pin 1 - TP +
- Pin 2 - Thermistor
- Pin 3 - TP -
- Pin 4 - Case

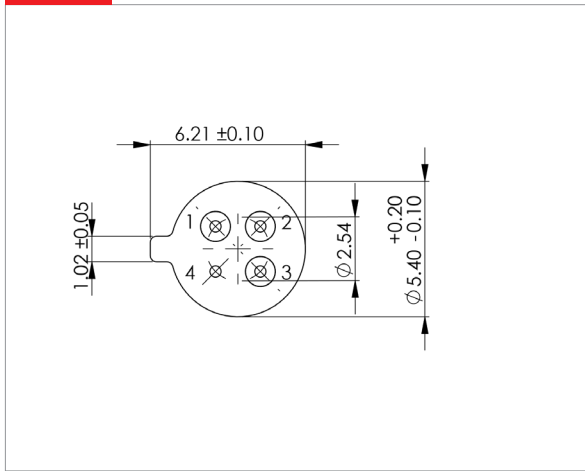
## Circuits

### Equivalent circuit diagram



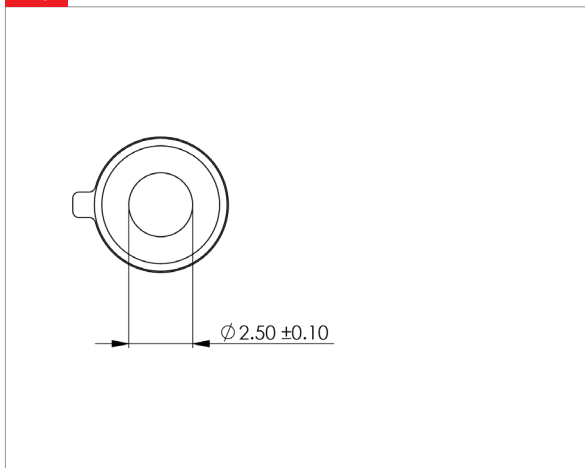
## Mechanical drawings

### Bottom

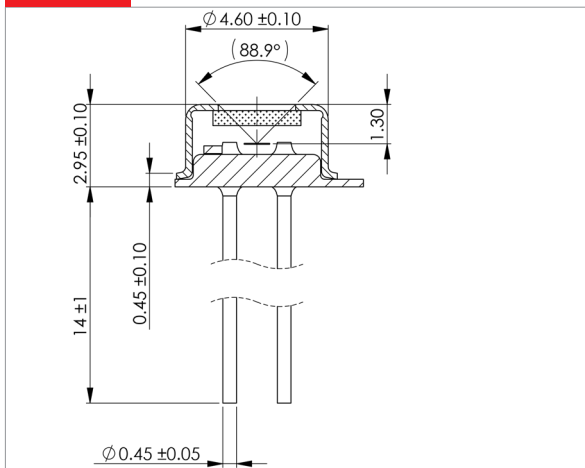


➔ All geometrical dimensions in mm

### Top



### Sectional



## Product overview

Article	Type	Filling gas	Temp. min	Temp. max	Aperture
<a href="#">TS1x56S-B-D2.5-4-N2-B2</a>	TO46 with cap	N <sub>2</sub>	-20 °C	85 °C	2.5 mm

### Disclaimer

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