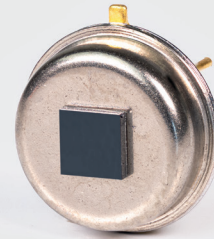


# MTS1TEMP and MTS1HIGHTEMP

The thermo-electric IR detectors of the MTS series (Micro-Hybrid thermopile sensors) are characterized by a particularly high detectivity and durability.



## Features

- Environmental temperatures up to 180 °C
- Soldered filter (optional) for harsh environments
- High sensitivity
- Resistent against humidity and other environmental influences

## Product benefits

- Excellent performance due to best materials like BiSb / Sb for thermoelectrical effect (MTS80)
- Best detectivity
- High sensitivity

## 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.

## Applications

- Glas, polymers: temperature monitoring of melting processes
- Automotive and other moving parts: temperature monitoring of engines, brakes
- Life science medicals: contactless temperature measurement of laboratory parameters
- Metal, paper: monitoring of thermal indicated process parameters
- Solar semiconductors: maintenance

The sensitive component of Micro-Hybrid thermopile detectors is a MEMS-based thin-layer system on a silicon substrate. We offer thermopile detectors with either 80 or 44 thermocouples for remote temperature measurement.

**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	TEMP80	HIGHTEMP80	TEMP44	Unit
Active area	Ø 0.5	Ø 0.5	1.0 x 1.0	mm <sup>2</sup>
Aperture	Ø 0.75	Ø 0.75	Ø 0.75	mm <sup>2</sup>
Number of thermocouples	80	80	44	
Time constant <sub>0-63 %</sub> <sup>1,2,3</sup>	typ. 51	typ. 51	typ. 13	ms
DC output voltage <sup>1,2,3</sup>	typ. 3.74	typ. 3.74	typ. 1.47	mV
DC sensitivity <sup>1,2,3</sup>	typ. 501	typ. 501	typ. 39	V/W
Noise voltage <sup>2</sup>	typ. 18	typ. 18	typ. 24	nV/Hz <sup>1/2</sup>
Noise equivalent power NEP <sup>1,2,3</sup>	typ. 0.04	typ. 0.04	typ. 0.62	nW/Hz <sup>1/2</sup>
Specific dectivity D* <sup>1,2,3</sup>	typ. 12.2*10 <sup>8</sup>	typ. 12.2*10 <sup>8</sup>	typ. 1.61*10 <sup>8</sup>	cmHz <sup>1/2</sup> /W
Resistance of thermopile <sup>2</sup>	typ. 20	typ. 20	typ. 35	kΩ
Thermistor	PTC Ni1000, other on request: Technical specifications see document „Thermistors“.			
Filling gas <sup>3</sup>	Kr	Kr	Kr	
Filters	Si, 8 -14 µm (B1)	Si, 8 -14 µm (B1)	Si, 8 -14 µm (B1)	
Operating temperature	-20 ... +85	-20 ... +180	-20 ... +85	°C
Housing	TO39	TO39	TO39	

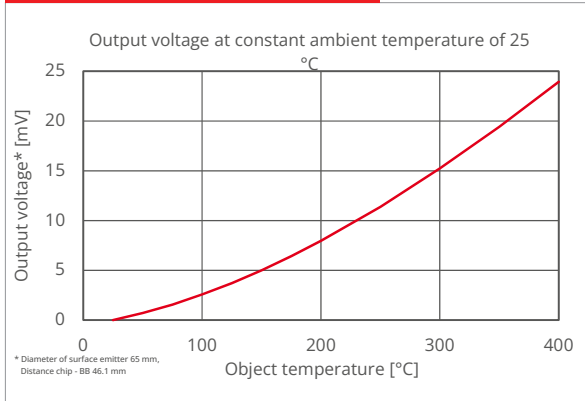
<sup>1</sup> T=500 K, E=38 W/m<sup>2</sup>, without influence of filter characteristic

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

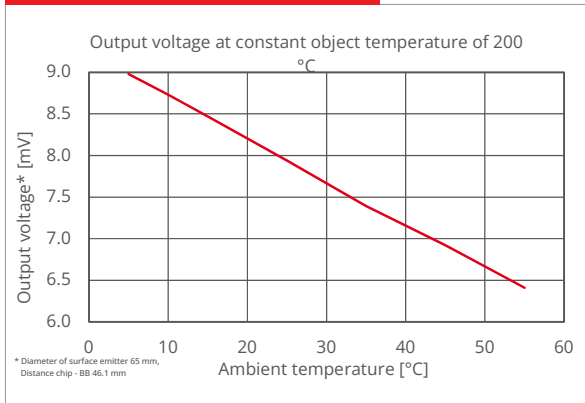
<sup>3</sup> With Kr-filling, other gases on customer's request

## Typical operating characteristics

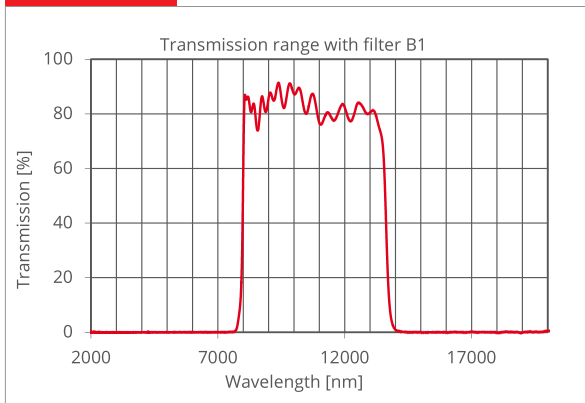
### MTS1HIGHTEMP80 with filter B1



### MTS1HIGHTEMP80 with filter B1

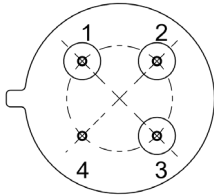


### MTS1 filter B1



## Electrical schemata

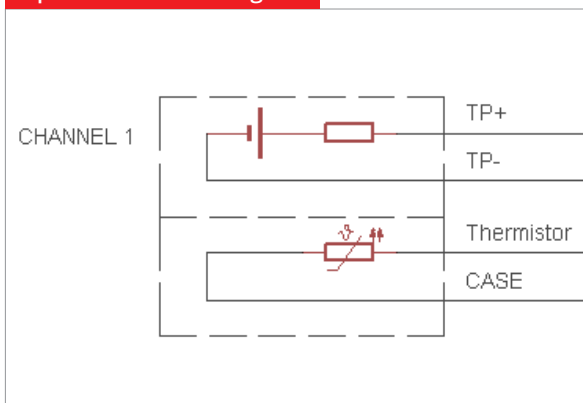
### Pin out (bottom view)



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

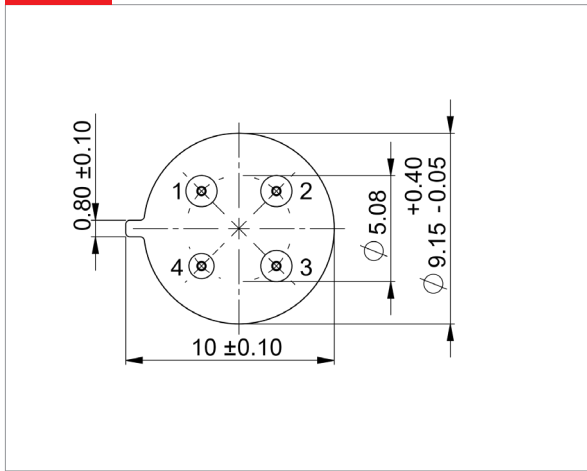
## Circuits

### Equivalent circuit diagram



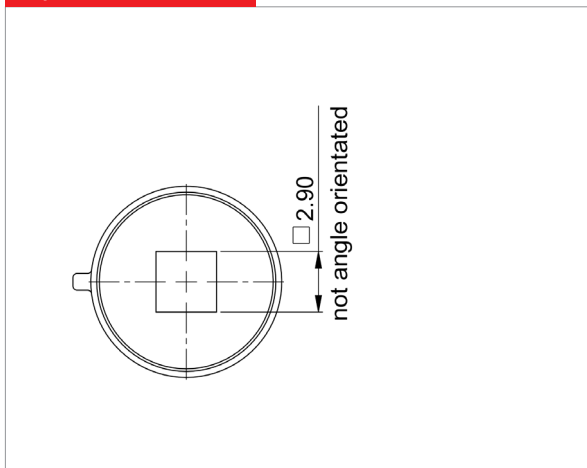
# Mechanical drawings

**Bottom**

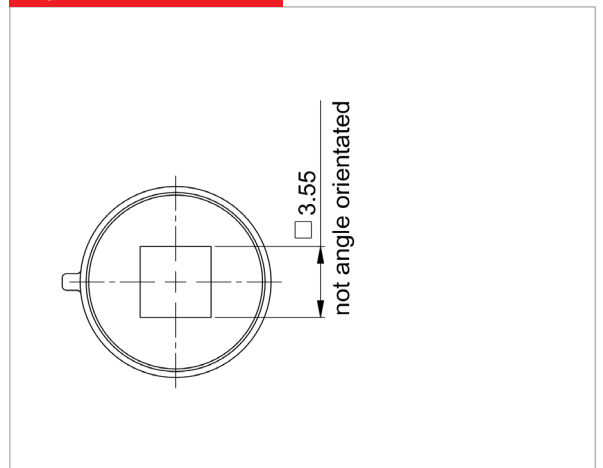


➔ All geometrical dimensions in mm

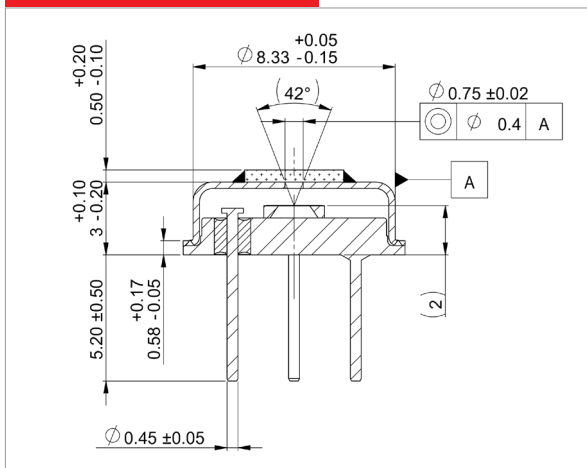
**Top MTS1TEMP80/44**



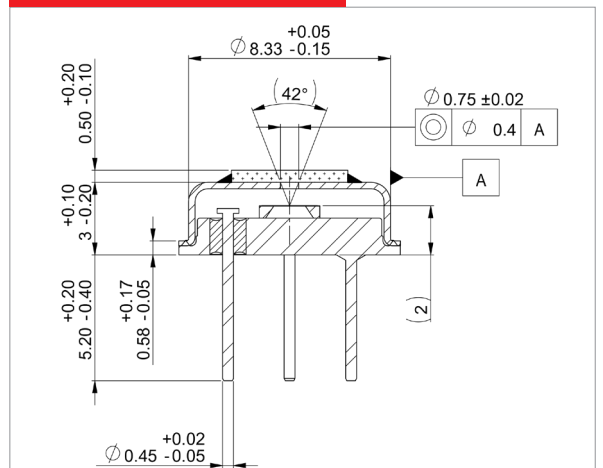
**Top MTS1HIGHTEMP80**



**Sectional MTS1TEMP80/44**



**Sectional MTS1HIGHTEMP80**



## Product overview

Article	Type	Filling gas	Temp. min	Temp. max	Aperture	
<a href="#">TS1x80B-A-D0.75-1-Kr-B1-180</a>	TO39 with cap	Kr	-20 °C	180 °C	0.75 mm	High temp
<a href="#">TS1x80B-A-D0.75-1-Kr-B1</a>	TO39 with cap	Kr	-20 °C	85 °C	0.75 mm	
<a href="#">TS1x44S-A-D0.75-1-Kr-B1</a>	TO39 with cap	Kr	-20 °C	85 °C	0.75 mm	

## Disclaimer

All rights reserved. All information in this data sheet are based on latest knowledge, results of practical experience and tests carried out. Earlier specifications are hereby invalid. All specifications – technical included – are subject to change without notice. It is the customer's responsibility to ensure that the performance of the product is suitable for customer's specific application. No liability is accepted for indirect damage, in particular for the use or inability to use the product. Any liability we may have is limited to the value of the product itself.