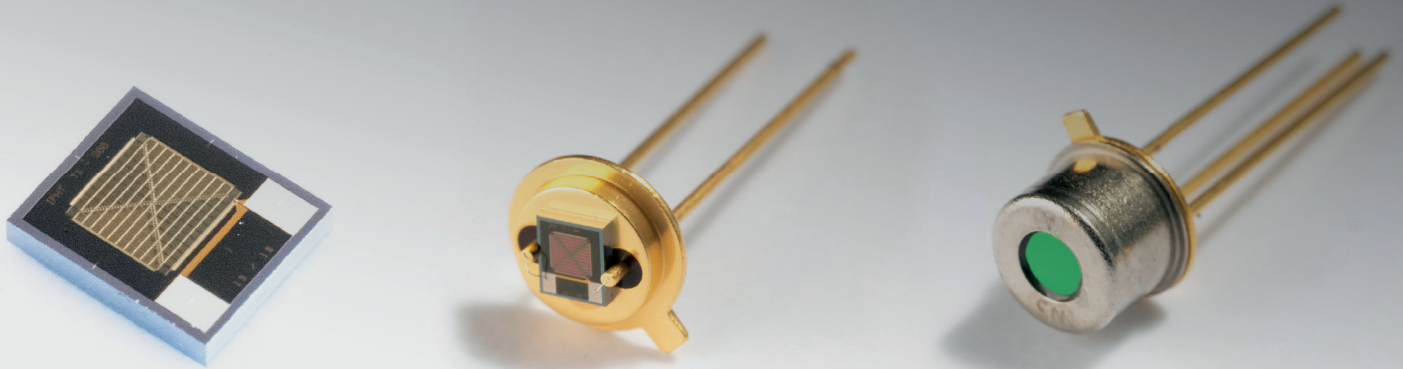




INFRARED SENSOR TS-200

www.leibniz-ipht.de

DESCRIPTION TS-200

The product TS-200 is a MEMS-based multijunction thermopile sensor processed on silicon substrate. The sensor offers excellent detectivity by means of antimony and bismuth thin films. The operational wavelength range is adjustable by an absorption multilayer system. 3 μm to 5 μm and 5.5 μm to 13 μm are standard, while other ranges are also available upon request.

We offer the bare sensor die as well as a completely packaged TS-200 hermetically sealed in a small TO-package under different inert gas atmosphere. We advise customers for an application optimized sensor package compilation.

Cooling, bias voltage or current are NOT required for operation. The passive sensor can be used for DC and low frequency AC measurements.

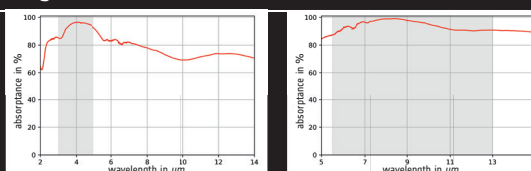
TECHNICAL DATA TS-200

Chip Parameters	Values	Units
Active Area	1.44 [1.2x1.2]	mm ² (mm x mm)
Number of Thermocouples	200	
Dimension	2.45x2.05	mm x mm
Functional Parameters	Values	Units
Absorbing Layer	3 ... 5 5.5 ... 13	μm
Resistance	50 ... 80	k Ω
Resistance TC	-0.06 ... -0.08	% / K
Noise Voltage (300 K)	≤ 33	nV/Hz ^{1/2}
Max. Irradiance	12	mW / mm ²
DC Responsivity	80 ... 115	V / W
DC Responsivity TC	-0.35 ... -0.55	% / K
DC Output @ 38 μW / mm ² (N ₂ -Filling)	4.4 ... 5.9 4.5 ... 6.3	mV
Time Constant τ_{10-90} (N ₂ -Filling)	≤ 90	ms
Specific Detectivity D* (500 K, DC)	2.6 ... 3.6 2.7 ... 3.8	10 ⁸ cm Hz ^{1/2} / W

Sensor Parameters

Filling Gases	Ne, Kr, Xe, Ar, N ₂
Spectral Response	Standard: 3.0 ... 5.0 μm or 5.5 ... 13.0 μm , respectively
Window Materials	Standard: 8 ... 14 μm Filter (other materials on request)
Mounting	TO-18 Package or TO-39 Package (modified)
Thermistor	TRS-Si, 10 k Ω $\pm$ 0.5 %, 3850 $\pm$ 200 ppm / K
Operating Temperature	-20 ... +85 °C
Weight	< 1 g

Spectral Absorbance



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FEATURES TS-200

- › High Responsivity
- › Excellent Long-Term Stability
- › Broad Spectral Response in the IR
- › No cooling required
- › No bias voltage required
- › Thermal & mechanical shock resistant

APPLICATIONS TS-200

- › Pyrometry (non-contact temperature measurements)
- › Radiometry
- › NDIR spectroscopic gas detection



PHOTONICS FOR LIFE
from Ideas to Instruments

All specifications – technical included – are subject to change without notice.