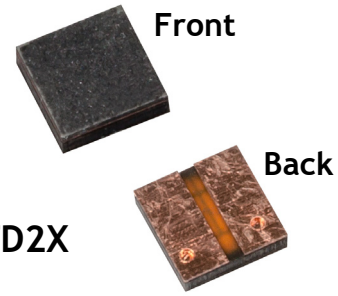
Unmounted Thermal Detector



TD2X

Description

The TD2X unmounted thermopile detector is the most compact offered by Thorlabs with a 4.0 mm^2 sensing area which measures optical power levels between 100 µW and 500 mW. It possesses a nearly flat broadband spectral absorption ranging from the UV through the MIR, has negligible dependency on the angle of incidence, and a homogeneous response over the full sensing area. The copper solder pads of this surface mount device (SMD) ease electrical connection and ensure excellent thermal contact after soldering to a heat sink.

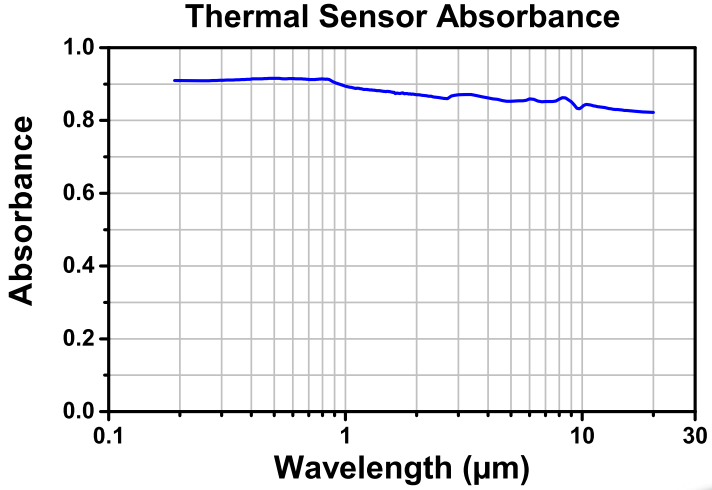
As a thermal gradient across the sensor is required for voltage generation, it is crucial that the back-side of the detector is mounted to an appropriate heat sink. Please read the *Handling Instructions* document for information on mounting the thermal detector, making electrical connections, maintenance, and safety.

The *Handling Instructions* document can be downloaded at: www.thorlabs.com/manuals.cfm.

Specifications

TD2X	
Detector Type	Thermopile
Wavelength Range	190 nm - 20 µm
Optical Power Working Range[a]	100 µW - 0.5 W
Max Average Power Density[b]	1.5 kW/cm^2
Max Pulse Energy Density	0.3 J/cm^2 (1 ns Pulse), 5 J/cm^2 (1 ms Pulse)
Typical Responsivity	>100 mV/W
Linearity with Optical Power	±0.2%
Rise Time[c]	1.5 s
Active Sensor Area	2.0 mm x 2.0 mm (0.08" x 0.08")
Active Area Uniformity	±1% (>1 mm Beam Diameter)
Detector Dimensions	2.0 mm x 2.0 mm x 0.5 mm (0.08" x 0.08" x 0.02")
Mounting	SMD Solder Pads
Connection	Copper Solder Pads on Back Side

a. Mounting on appropriate heat sink is required.
b. Damage Threshold
c. Typical Natural Response Time (0 - 95%)



Drawings

When mounting the TD2X to a terminal on a PCB, the contacts on the PCB should have the dimensions specified in the drawing at the lower left.