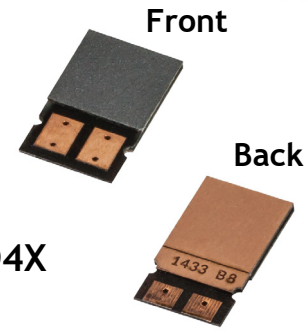
Unmounted Thermal Detector



Description

The TD4X unmounted and compact thermopile detector with a 4.4 mm x 4.4 mm sensing area measures optical power levels between 100 µW and 1 W. 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. This surface mount device (SMD) includes copper solder pads to facilitate electrical connection. A copper layer on the back allows the detector to be soldered onto a heat sink and ensures excellent thermal contact.

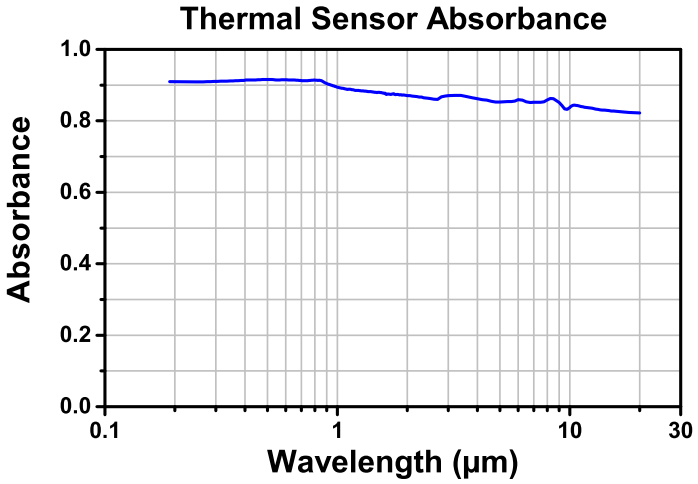
As a thermal gradient across the sensor is required for voltage generation, it is crucial that the back side of the detector is mounted to an appropriate heat sink. Please read the *Handling Instructions* document for information on mounting the thermal detector on a metal-core PCB, making electrical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

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

Specifications

TD4X	
Detector Type	Thermopile
Wavelength Range	190 nm - 20 µm
Optical Power Working Range[a]	100 µW - 1 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]	1.1 s
Active Sensor Area	4.4 mm x 4.4 mm (0.17" x 0.17")
Active Area Uniformity	±1% (>1 mm Beam Diameter)
Detector Dimensions	4.4 mm x 7.4 mm x 0.6 mm (0.17" x 0.28" x 0.02")
Mounting	SMD Solder Pads or Thermally Conductive Adhesive
Connection	PCB, Wire

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



Drawing

When mounting the TD4X to a terminal on a PCB, the contacts on the PCB should have the dimensions specified in the drawing at the lower left.