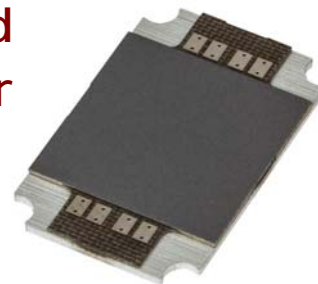


Mounted Thermal Position Detector

TD4HP18XA



Description

TD4HP18XA is a position sensitive device (PSD) with four mechanically coupled but electrically independent thermopile sensors, surface-mounted on an aluminum plate in a quadrant configuration. The TD4HP18XA measures beams with powers from 1 mW to 50 W with very short rise times of 0.25 s and a position resolution of 50 μm . The active sensing area possesses a nearly flat broadband spectral absorption ranging from the UV through the MIR, has negligible dependency on angle of incidence, and a homogeneous response over the full sensing area.

The mechanical integration of the quadrants ensures that they are thermally coupled, so that heat generated by absorbing the incident beam flows across all four quadrants. The thermal signal intensity measured for each quadrant is directly related to the beam's intensity and proximity. Therefore, the X and Y position of the beam can be determined by comparing the signal intensities measured for all quadrants. The metal plate includes copper solder pads used to make electrical contact with each quadrant, and four quarter-hole mounting points with 1.6 mm radii facilitate integration of the TD4HP18XA.

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

TD4HP18XA	
Detector Type	Four Thermopiles in Quadrant Configuration
Wavelength Range	190 nm - 20 μm
Optical Power Working Range ^a	1 mW - 50 W
Spatial Resolution	50 μm
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)
Minimum Responsivity of Each Quadrant	0.5 mV/W
Linearity with Optical Power	$\pm 0.2\%$
Rise Time ^c	0.25 s
Active Sensor Area	18.0 mm x 18.0 mm (0.71" x 0.71")
Active Area Uniformity	$\pm 1\%$ (>1 mm Beam Diameter)
Detector Dimensions	28.0 mm x 18.0 mm x 1.5 mm (1.10" x 0.71" x 0.06")
Mounting	Four 1.6 mm (0.06") Radius Quarter-Hole Mounting Points
Connection	Wire

a. Mounting on appropriate heat sink is required.

b. Damage Threshold

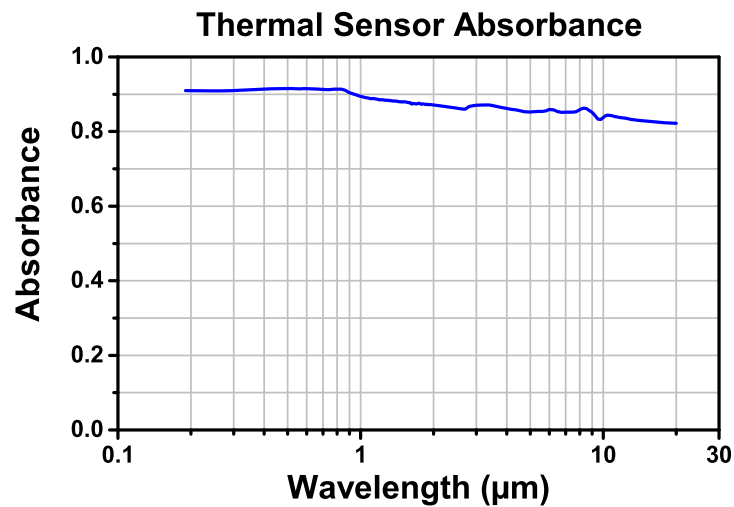
c. Typical Natural Response Time (0 - 95%)



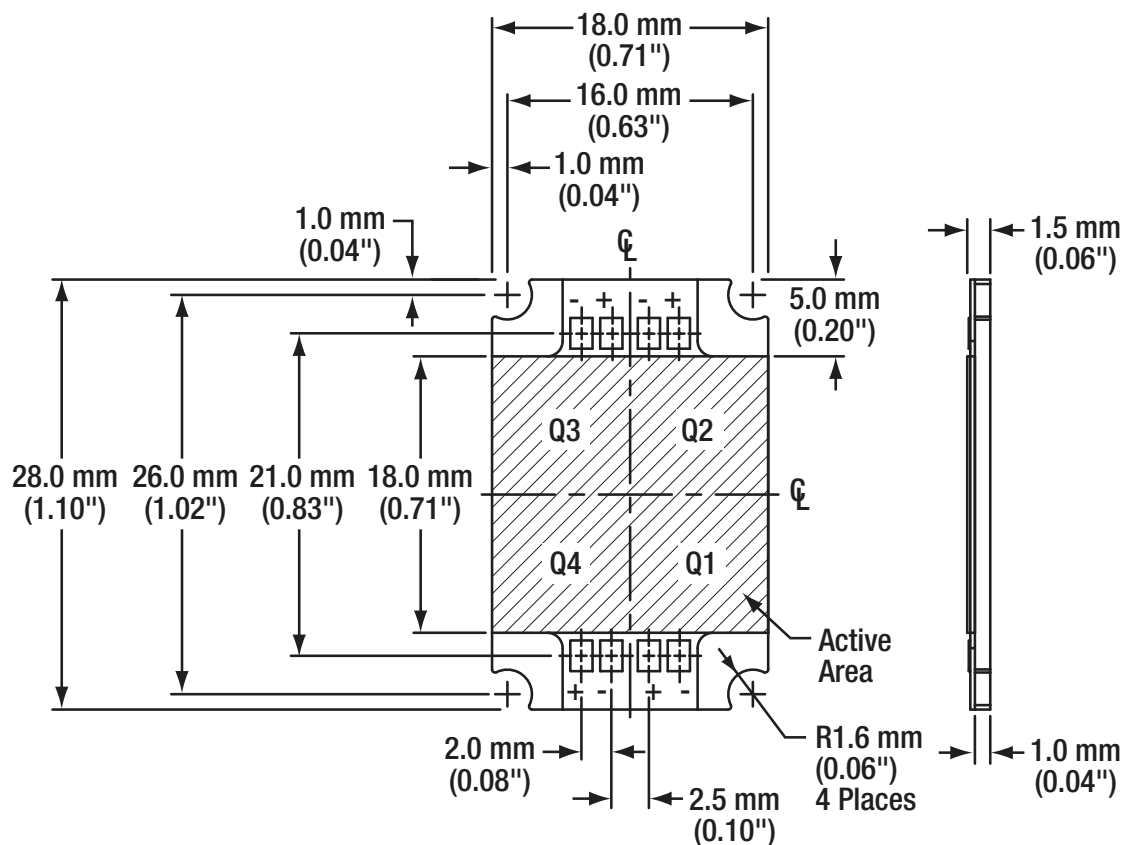
December 12, 2019

MTN011041-S01, Rev C

Specifications (Continued)



Drawing



Notes:

- + Indicates Detector Positive Terminal for Each Quadrant
- Indicates Detector Negative Terminal for Each Quadrant
- Dimensions of Each Terminal: 2.0 mm x 1.5 mm (0.79" x 0.59")