Ø1.3 mm $LiTaO_3$ Pyroelectric Detector

EPD13



Description

Thorlabs' EPD13 $LiTaO_3$ (lithium tantalate) pyroelectric detector is ideal for measuring pulsed light sources by converting optical power to electrical current. The EPD13 is easy to use with no cooling or heatsink needed and is housed in a TO-39 package with a drain, source and ground connection. It is equipped with an uncoated zinc selenide window with high transmission over the entire working range.

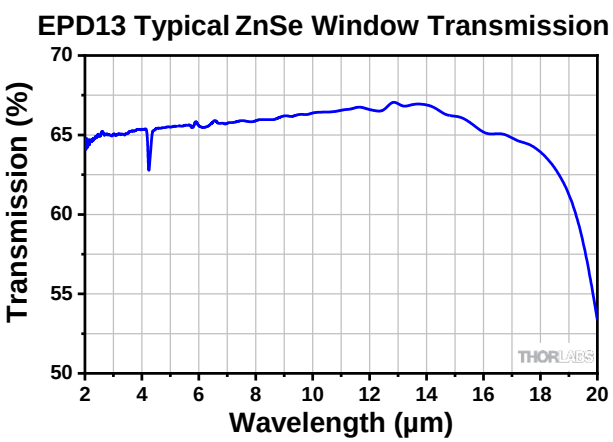
Specifications

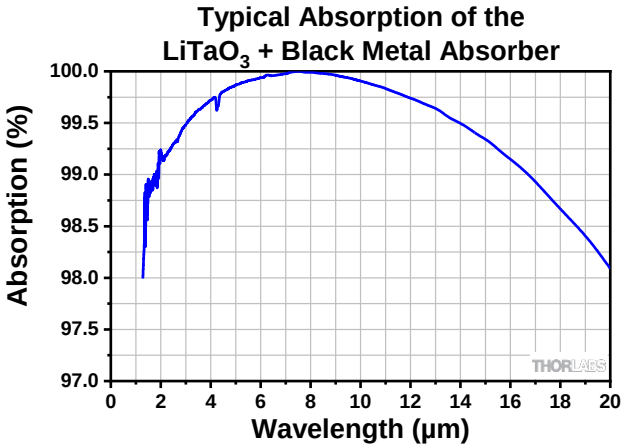
Specification	Symbol	Value
Wavelength Range	λ	0.6 µm – 16 µm
Responsivity (500 K, 100 Hz, 25 °C)[a]	$\Re(\lambda)$	120 V/W
Active Area Size	A	Ø1.3 mm
Detectivity (500 K, 100 Hz, 25 °C)[a]	D*	$3.0 \times 10^8 \frac{cm\sqrt{Hz}}{W}$
Noise Density (rms)	-	$65 \frac{nV}{\sqrt{Hz}}$
Thermal Time Constant	τ	50 ms
Package	-	TO-39
Sensor Material	-	Lithium Tantalate ($LiTaO_3$)
Window Material	-	ZnSe (0.8 mm Thick)
Acceptance Angle	Φ	130° (Typ.)

a. This value is measured without the ZnSe window; therefore, the transmission of the window must be taken into account when calculating the value for a given wavelength.

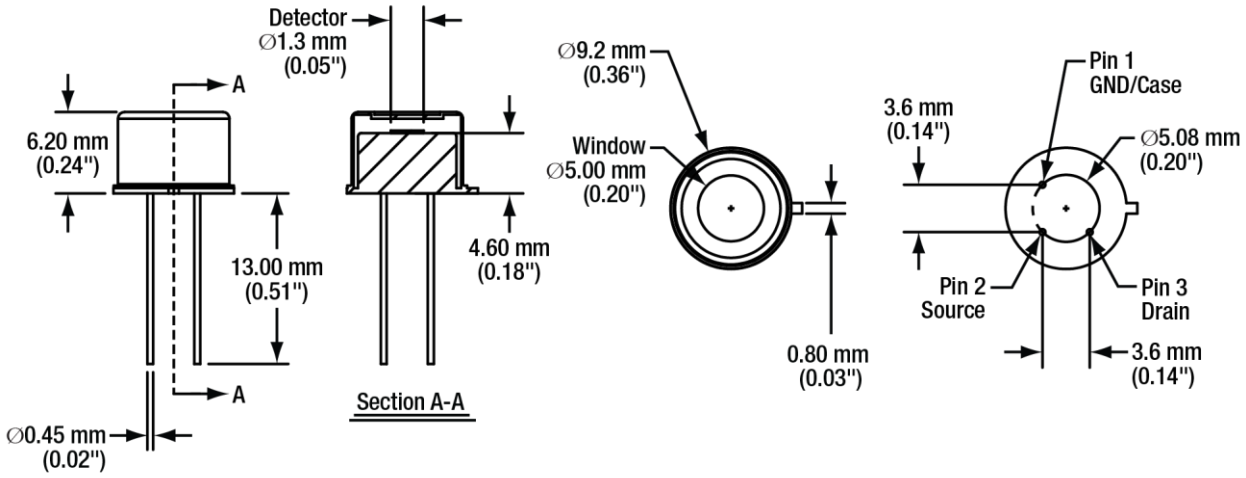
Maximum Ratings	
Drain / Source Voltage	18 V
Operating Temperature	-25 to 60 °C
Storage Temperature	-25 to 60 °C

Typical Performance Plots

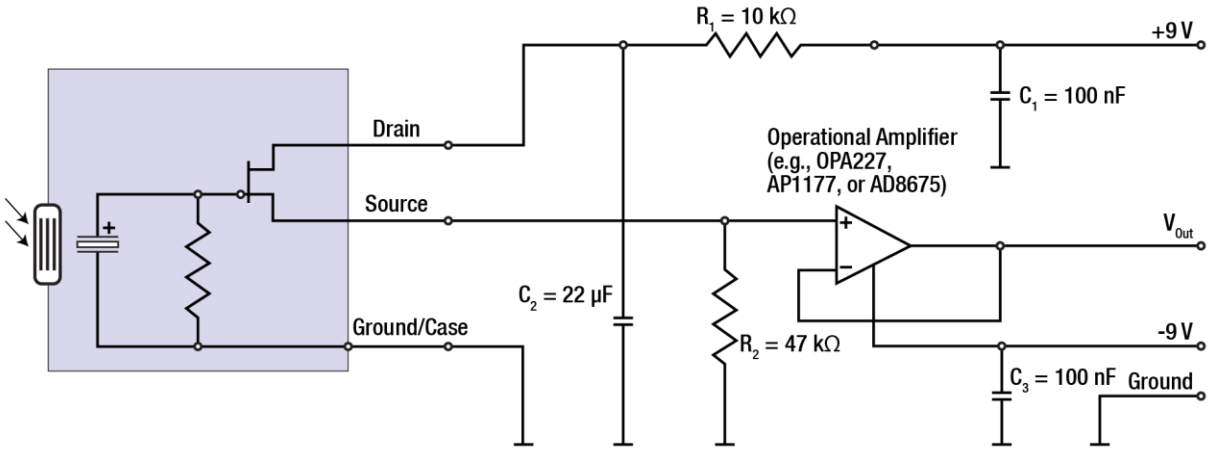




Drawings



Circuit Diagram



The schematic above is an example supporting circuit diagram for the detector. The EPD13 detector is represented in the diagram as a blue square with its drain, source, and ground/case pins labeled.

Precautions

Pyroelectric detectors are ESD (electrostatic discharge) sensitive devices and particularly sensitive to any value that exceeds the absolute maximum ratings. Any applied voltage in excess of the maximum specification will cause damage and possible complete failure. The user must use handling procedures that prevent any electrostatic discharges or other voltage surges when handling or using these devices.