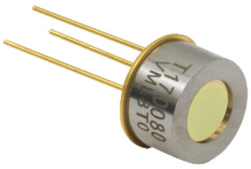
8 µm PV Photodiode, Optically Immersed

VML8T0



Description

The VML8T0 photodetector features an IR, multiple junction, optically immersed photovoltaic detector.

The VML8T0 is easy to use with no cooling or heatsink needed. The device is optimized for maximum performance at 8.0 µm. The detector features a variable gap HgCdTe semiconductor, optimized doping, and sophisticated surface processing for high performance and stability.

The photodiode is packaged in a TO-39 housing and is equipped with an anti-reflective zinc selenide window, which guarantees high transmission over the entire working range.

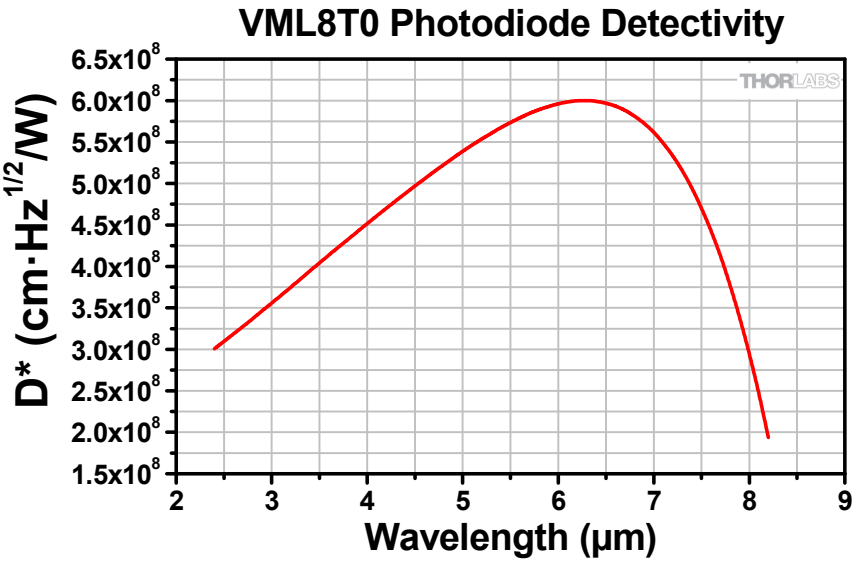
Specifications

VML8T0		
	Symbol	**Value**
Optimal Performance Wavelength	λ_{opt}	8 µm
Effective Area	A	1 mm^2
Assured Detectivity @ λ_{opt}	D*	≥3.0x10^8 $\frac{cm \cdot \sqrt{Hz}}{W}$
Assured Detectivity @ λ_{peak}	D*	≥6.0x10^8 $\frac{cm \cdot \sqrt{Hz}}{W}$
Current Responsivity x Width @ λ_{opt}	$R_i \cdot w$	≥0.04 $A \cdot mm \cdot W^{-1}$
Reverse Bias Voltage	V_{BIAS}	0 V (Typ.) 2 V (Max)
Time Constant	τ	≤4 ns
Resistance	R	50 to 300 Ω
Acceptance Angle	Φ	35°
Operating Temperature	T	27 °C (300 K)
Storage Temperature	T	-23 to 47 °C (250 to 320 K)
Storage Humidity		20% to 90%
Sensor Material		MCT
Package		TO-39
PIN Diameter	Ø	0.5 mm (0.02")

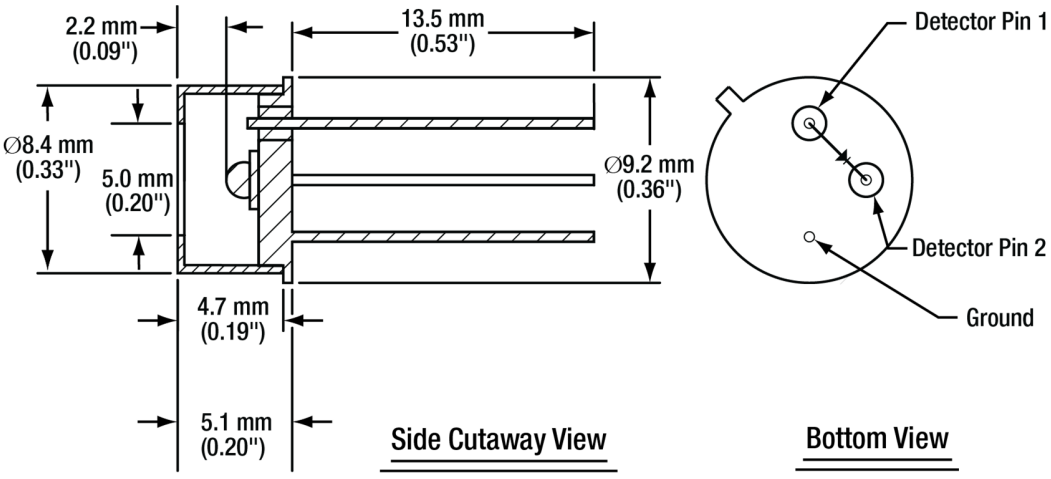
Specifications valid at 20 °C room temperature. Values are typical unless otherwise specified.

Be careful with handling. Window is very fragile!

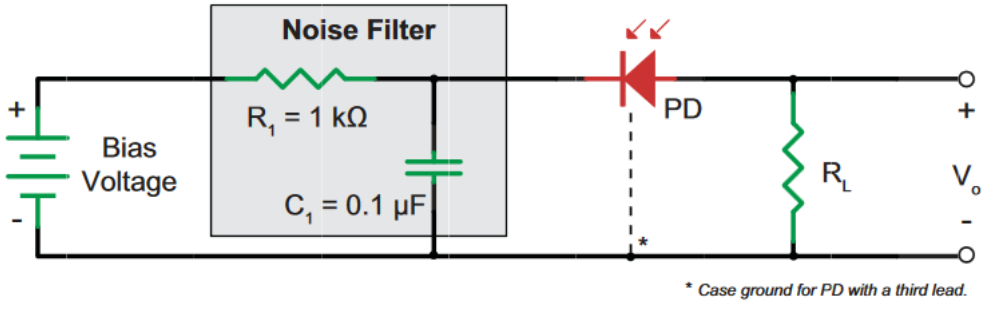
Typical Responsivity Curve



Technical Drawing and PIN Description



Recommended Circuit



* Case ground for PD with a third lead.

Precautions and Warranty Information

These products are ESD (electro static discharge) sensitive and as a result are not covered under warranty. In order to ensure the proper functioning of a photodiode care must be given to maintain the highest standards of compliance to the maximum electrical specifications when handling such devices. The photodiodes are particularly sensitive to any value that exceeds the absolute maximum ratings of the product. Any applied voltage in excess of the maximum specification will cause damage and possible complete failure to the product. The user must use handling procedures that prevent any electro static discharges or other voltage surges when handling or using these devices.

Precautions for Use and Storage:

- Standard ohmmeter may overbias and damage the detector. Bias of 10 mV can be used for resistance measurements.
- Operation in 10% to 80% humidity and -20°C to +30°C
- Storage in dark place with 10% to 90% humidity and -20°C to +50°C
- Beam Power limitation for optically immersed detectors irradiated with CW or single pulse longer than 1µs irradiance on the apparent optical active area must not exceed 2.5 W/cm^2. The irradiance of the pulse shorter than 1 µs must not exceed 10 kW/cm^2.
  For detectors without immersion lens irradiated with CW or single pulse longer than 1µs irradiance on the active area must not exceed 100 W/cm^2. The irradiance of the pulse shorter than 1µs most not exceed 1 MW/cm^2.

Thorlabs, Inc. Life Support and Military Use Application Policy is stated below:

THORLABS' PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS OR IN ANY MILITARY APPLICATION WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF THORLABS, INC. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.

2. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.

3. The Thorlabs products described in this document are not intended nor warranted for usage in Military Applications.