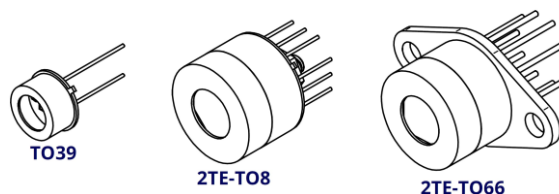


PVM-10.6 DETECTOR SERIES

DATASHEET

HgCdTe room temperature and thermoelectrically cooled photovoltaic multi-junction infrared detectors



FEATURES

- Spectral range: 2.0 to 13.0 μm
- Large active area
- Back-side illuminated
- Fast response
- No minimum order quantity required
- Detector PVM-10.6-1x1-TO39-NW-90 is a Selected product

APPLICATIONS

- Gas detection, monitoring and analysis: SO_2 , NH_3 , SF_6
- CBRN threats detection
- CO_2 laser measurements: power monitoring and control, beam profiling and positioning, calibration
- Free-space optical communication
- FTIR spectroscopy
- Bacteria identification in medicine
- Dentistry
- Glucose sensing

RELATED PRODUCTS

- [LabM-I-10.6 detection module](#)
- [UM-I-10.6 detection module](#)
- [microM-10.6 detection module](#)
- [PVIA-10.6-1x1-TO39-NW-36 RoHS-compliant detector](#)
- [PVIA-4TE-10.6-1x1-TO8-wZnSeAR-36 RoHS-compliant detector](#)

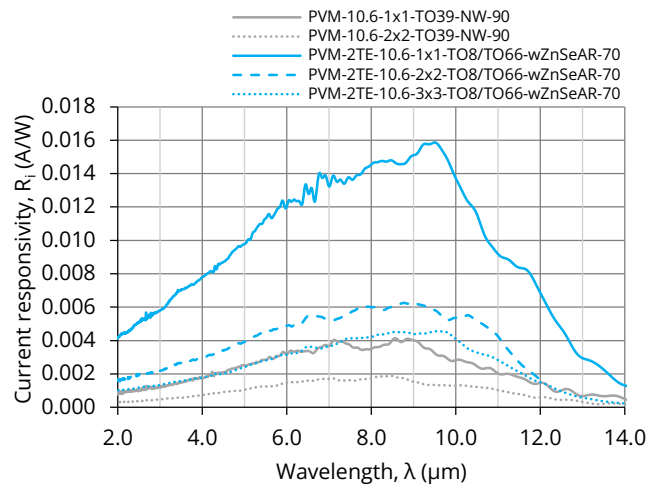
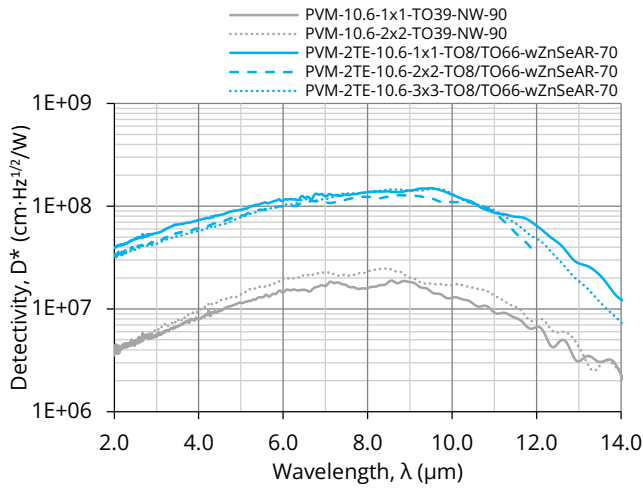
SERIES DESCRIPTION

Detector symbol	Cooling	Temperature sensor	Active area, A, mm \times mm	Optical immersion	Package	Acceptance angle, Φ , deg.	Window
PVM-10.6-1x1-TO39-NW-90	no	n/a	1 \times 1	no	TO39 (3 pin)	~90	wZnSeAR (3 deg. zinc selenide, anti-reflection coating)
PVM-10.6-2x2-TO39-NW-90			2 \times 2				
PVM-2TE-10.6-1x1-TO8-wZnSeAR-70	2TE $T_{\text{chip}} \cong 230\text{K}$	thermistor	1 \times 1		2TE-TO8	~70	
PVM-2TE-10.6-1x1-TO66-wZnSeAR-70			2TE-TO66				
PVM-2TE-10.6-2x2-TO8-wZnSeAR-70			2TE-TO8				
PVM-2TE-10.6-2x2-TO66-wZnSeAR-70			2TE-TO66				
PVM-2TE-10.6-3x3-TO8-wZnSeAR-70			2TE-TO8				
PVM-2TE-10.6-3x3-TO66-wZnSeAR-70			2TE-TO66				

SPECIFICATION ($T_{\text{amb}} = 293\text{ K}$, $V_b = 0\text{ V}$)

Detector symbol	Cut-on wavelength (10%)	Peak wavelength	Specific wavelength	Cut-off wavelength (10%)	Detectivity		Current responsivity			Time constant	Dynamic resistance				
	$\lambda_{\text{cut-on}}$	λ_{peak}	λ_{spec}	$\lambda_{\text{cut-off}}$	$D^*(\lambda_{\text{peak}}, 20\text{kHz})$	$D^*(\lambda_{\text{spec}}, 20\text{kHz})$	$R(\lambda_{\text{peak}})$	$R(\lambda_{\text{spec}})$		τ	R_d				
	μm	μm	μm	μm	cm-Hz $^{1/2}$ /W	cm-Hz $^{1/2}$ /W	A/W	A/W		ns	Ω				
	Typ.	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Min.	Typ.	Typ.	Min.	Typ.			
PVM-10.6-1x1-TO39-NW-90	2.0	8.5 \pm 1.0	10.6	12.0	2.0 \times 10 7	1.0 \times 10 7	0.004	0.002	0.0025	1.5	30	50			
PVM-10.6-2x2-TO39-NW-90									0.002				0.001	0.0015	
PVM-2TE-10.6-1x1-TO8-wZnSeAR-70	2.0	9.0 \pm 1.0	13.0	13.0	1.5 \times 10 8	1.0 \times 10 8	0.015	0.01	0.012	4	90	120			
PVM-2TE-10.6-1x1-TO66-wZnSeAR-70															
PVM-2TE-10.6-2x2-TO8-wZnSeAR-70															
PVM-2TE-10.6-2x2-TO66-wZnSeAR-70															
PVM-2TE-10.6-3x3-TO8-wZnSeAR-70															
PVM-2TE-10.6-3x3-TO66-wZnSeAR-70															

SPECTRAL RESPONSE (Typ., $T_{amb} = 293\text{ K}$)



MECHANICAL LAYOUT AND PINOUT

- [TO39\(3p\)-NW, PV detector technical drawing](#)
- [2TE-TO8\(12p\)-wW, PV detector technical drawing](#)
- [2TE-TO66\(9p\)-wW, PV detector technical drawing](#)

RECOMMENDED AMPLIFIERS

Detector symbol	Amplifier type
PVM-10.6-1x1-TO39-NW-90	SIP-TO39 series
PVM-10.6-2x2-TO39-NW-90	
PVM-2TE-10.6-1x1-TO8-wZnSeAR-70	AIP series
PVM-2TE-10.6-2x2-TO8-wZnSeAR-70	PIP series
PVM-2TE-10.6-3x3-TO8-wZnSeAR-70	MIP series
PVM-2TE-10.6-3x3-TO8-wZnSeAR-70	SIP-TO8 series

ABSOLUTE MAXIMUM RATINGS

Parameter	Test conditions, remarks	Value	Unit
Ambient operating temperature, T_{amb}	Operation at $T_{amb} > 30^\circ\text{C}$ may increase the active element temperature and reduce the performance of the detector below specified parameters	-20 to 30	$^\circ\text{C}$
Storage temperature, T_{stg}		-20 to 50	$^\circ\text{C}$
Soldering temperature	Within 5 s or less	≤ 300	$^\circ\text{C}$
Storage humidity	No dew condensation	10 to 90	%
Maximum incident optical power density	Continuous wave (CW) or single pulses $> 1\ \mu\text{s}$ duration	100	W/cm^2
	Single pulses $< 1\ \mu\text{s}$ duration	1	MW/cm^2
Maximum bias voltage, $V_{b,max}$	No bias voltage needed	-	-
Maximum TEC voltage, $V_{TEC,max}$	2TE	1.0	V
Maximum TEC current, $I_{TEC,max}$	2TE	1.2	A

Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. Constant or repeated exposure to absolute maximum rating conditions may affect the quality and reliability of the device.