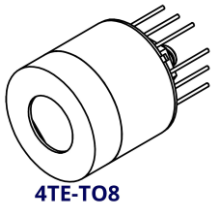
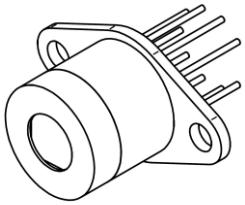
PVMI-8 DETECTOR SERIES

DATASHEET

HgCdTe thermoelectrically cooled photovoltaic multi-junction optically immersed infrared detectors


4TE-TO8


4TE-TO66

FEATURES

- Spectral range: 2.0 to 9.8 µm
- Back-side illuminated
- Fast response
- Unique immersion lens technology applied
- No minimum order quantity required

APPLICATIONS

- Gas detection, monitoring and analysis: CH_4, H_2S, NO_2, SO_x
- FTIR spectroscopy

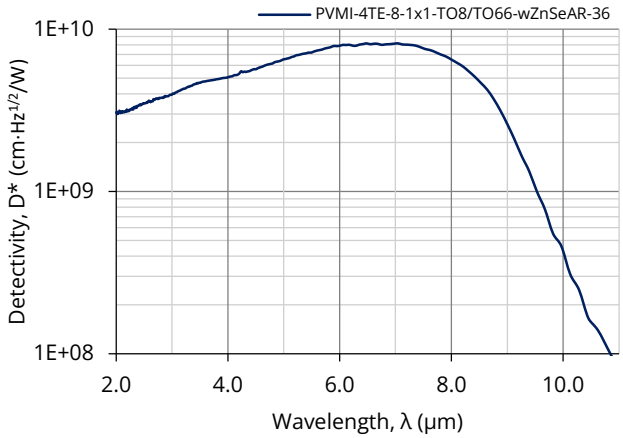
SERIES DESCRIPTION

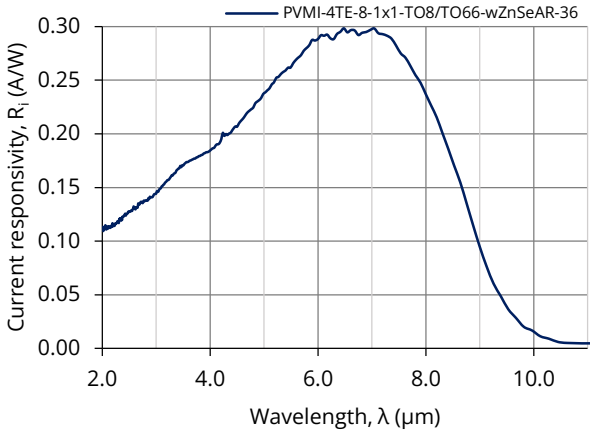
Detector symbol	Cooling	Temperature sensor	Optical area, A_o, mm×mm	Optical immersion	Package	Acceptance angle, Φ, deg.	Window
PVMI-4TE-8-1x1-TO8-wZnSeAR-36	4TE T_{chip}≅197K	thermistor	1×1	hyperhemisphere	4TE-TO8	~36	wZnSeAR (3 deg. zinc selenide, anti-reflection coating)
PVMI-4TE-8-1x1-TO66-wZnSeAR-36					4TE-TO66		

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

Detector symbol	Cut-on wavelength (10%)	Peak wavelength	Specific wavelength	Cut-off wavelength (10%)	Detectivity		Current responsivity			Time constant	Dynamic resistance	
	$\lambda_{cut\text{-}on}$	λ_{peak}	λ_{spec}	$\lambda_{cut\text{-}off}$	D*(λ_{peak}, 20kHz)	D*(λ_{spec}, 20kHz)	$R_i(\lambda_{peak})$	$R_i(\lambda_{spec})$		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.
PVMI-4TE-8-1x1-TO8-wZnSeAR-36	2.0	7.0±1.0	8.0	9.8	8.0×10^9	6.0×10^9	0.4	0.2	0.25	4	500	800
PVMI-4TE-8-1x1-TO66-wZnSeAR-36												

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





MECHANICAL LAYOUT AND PINOUT

- 4TE-TO8(12p)-wW, PVI/PCI detector technical drawing
- 4TE-TO66(9p)-wW, PVI/PCI detector technical drawing

RECOMMENDED AMPLIFIERS

Detector symbol	Amplifier type
PVMI-4TE-8-1x1-TO8-wZnSeAR-36	AIP series PIP series MIP series SIP-TO8 series

ABSOLUTE MAXIMUM RATINGS

Parameter	Test conditions, remarks	Value	Unit
Ambient operating temperature, T_{amb}	Operation at T_{amb} >30°C may increase the active element temperature and reduce the performance of the detector below specified parameters	-20 to 30	°C
Storage temperature, T_{stg}		-20 to 50	°C
Soldering temperature	Within 5 s or less	≤300	°C
Storage humidity	No dew condensation	10 to 90	%
Maximum incident optical power density	Continuous wave (CW) or single pulses >1 μs duration	2.5	W/cm^2
	Single pulses <1 μs duration	10	kW/cm^2
Maximum bias voltage, $V_{b\,max}$	No bias voltage needed	-	-
Maximum TEC voltage, $V_{TEC\,max}$	4TE	8.3	V
Maximum TEC current, $I_{TEC\,max}$	4TE	0.4	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.

VIGO Photonics S.A. reserves the right to change these specifications at any time without notification.