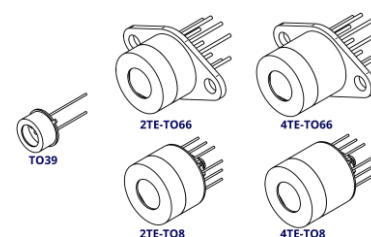


PVI-3 DETECTOR SERIES

DATASHEET

HgCdTe room temperature and thermoelectrically cooled photovoltaic optically immersed infrared detectors



FEATURES

- Spectral range: 2.2 to 3.35 μm
- Back-side illuminated
- Unique immersion lens technology applied
- No minimum order quantity required

APPLICATIONS

- Gas detection, monitoring and analysis: H_2O , HF, CH_4 , C_2H_2 , C_2H_4 , C_2H_6 , NH_3
- Combustion process control
- Green energy
- Medical laser control

RELATED PRODUCTS

- [PVA-3-1x1-TO39-NW-90 RoHS-compliant detector](#)
- [PVA-3-d1.2-SMD-NW-115 RoHS-compliant detector](#)
- [PVA-3-d1.2-SMD-pAl₂O₃-115 RoHS-compliant detector](#)
- [PVA-3-d1.2-SMD-BPF2920-B070-115 RoHS-compliant detector](#)
- [PVA-3-d1.2-SMD-BPF3330-B150-115 RoHS-compliant detector](#)

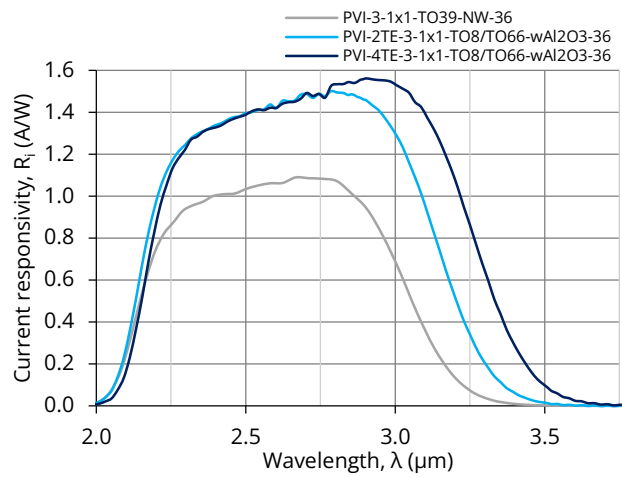
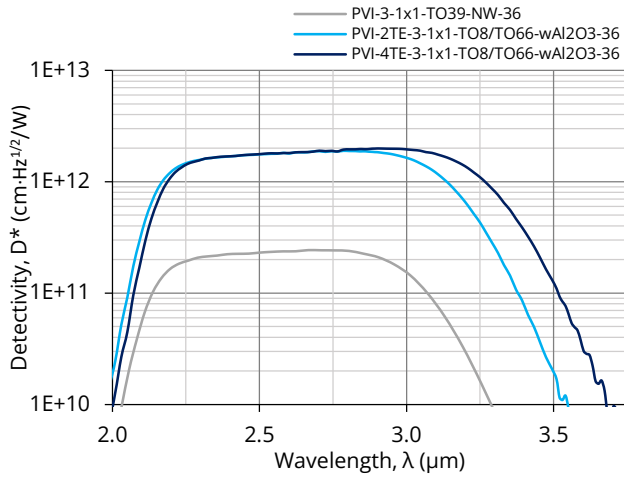
SERIES DESCRIPTION

Detector symbol	Cooling	Temperature sensor	Optical area, A _o , mm×mm	Optical immersion	Package	Acceptance angle, Φ , deg.	Window
PVI-3-1x1-TO39-NW-36	no	n/a	1×1	hyperhemisphere	TO39 (3 pin)	~36	no
PVI-2TE-3-1x1-TO8-wAl ₂ O ₃ -36	2TE	thermistor			2TE-TO8		wAl ₂ O ₃ (3 deg. wedged sapphire)
PVI-2TE-3-1x1-TO66-wAl ₂ O ₃ -36	T _{chip} ≅230K				2TE-TO66		
PVI-4TE-3-1x1-TO8-wAl ₂ O ₃ -36	4TE				4TE-TO8		
PVI-4TE-3-1x1-TO66-wAl ₂ O ₃ -36	T _{chip} ≅198K				4TE-TO66		

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

Detector symbol	Wavelength				Detectivity			Current responsivity			Time constant	Dynamic resistance		
	Cut-on wavelength (10%)	Peak wavelength	Specific wavelength	Cut-off wavelength (10%)	D*(λ_{peak} , 20kHz)	D*(λ_{spec} , 20kHz)		R _i (λ_{peak})		R _i (λ_{spec})	τ	R _d		
	μm	μm	μm	μm	cm·Hz ^{1/2} /W	Min.	Typ.	A/W	A/W		ns	Min.	Typ.	
	Typ.	Typ.	Typ.	Typ.	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Typ.	Min.	Typ.	
PVI-3-1x1-TO39-NW-36		2.7±0.2		3.15	2.0×10 ¹¹	8.0×10 ¹⁰	1.5×10 ¹¹				350	10 000	50 000	
PVI-2TE-3-1x1-TO8-wAl ₂ O ₃ -36	2.2	2.8±0.2	3.0	3.25	1.5×10 ¹²	5.5×10 ¹¹	1.0×10 ¹²	1.4	0.5	0.8	280	1 500 000	5 000 000	
PVI-2TE-3-1x1-TO66-wAl ₂ O ₃ -36				3.35	2.0×10 ¹²	8.0×10 ¹¹	1.2×10 ¹²					3 000 000	6 000 000	
PVI-4TE-3-1x1-TO8-wAl ₂ O ₃ -36														
PVI-4TE-3-1x1-TO66-wAl ₂ O ₃ -36														

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



MECHANICAL LAYOUT AND PINOUT

- [TO39\(3p\)-NW, PVI detector technical drawing](#)
- [2TE-TO8\(12p\)-wW, PVI/PCI detector technical drawing](#)
- [2TE-TO66\(9p\)-wW, PVI/PCI detector technical drawing](#)
- [4TE-TO8\(12p\)-wW, PVI/PCI detector technical drawing](#)
- [4TE-TO66\(9p\)-wW, PVI/PCI detector technical drawing](#)

RECOMMENDED AMPLIFIERS

Detector symbol	Amplifier type
PVI-3-1x1-TO39-NW-36	SIP-TO39 series
PVI-2TE-3-1x1-TO8-wAl ₂ O ₃ -36	AIP series
	PIP series
PVI-4TE-3-1x1-TO8-wAl ₂ O ₃ -36	MIP series
	SIP-TO8 series FIP series^{*)}

^{*)} Only for biased detectors

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	2.5	W/cm^2
	Single pulses $< 1\ \mu\text{s}$ duration	10	kW/cm^2
Maximum bias voltage, $V_{b\ max}$		-800	mV
Maximum TEC voltage, $V_{TEC\ max}$	2TE	1.0	V
	4TE	8.3	
Maximum TEC current, $I_{TEC\ max}$	2TE	1.2	A
	4TE	0.4	

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.