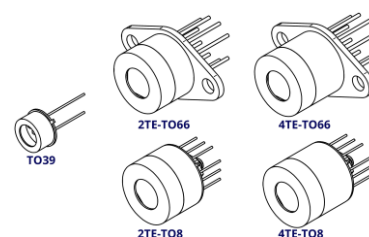


# PVI-6 DETECTOR SERIES

## DATASHEET

**HgCdTe room temperature and thermoelectrically cooled photovoltaic optically immersed infrared detectors**



### FEATURES

- Spectral range: 2.5 to 7.0  $\mu\text{m}$
- Back-side illuminated
- Unique immersion lens technology applied
- No minimum order quantity required
- Detector PVI-2TE-6-1x1-TO8-wZnSeAR-36 is a Selected product

### RELATED PRODUCTS

- [LabM-I-6-01 detection module](#)
- [PVMA-1TE-6-1x1-TO39-pSiAR-70 RoHS-compliant detector](#)
- [AMS6140-01 RoHS-compliant detection module](#)

### APPLICATIONS

- Gas detection, monitoring and analysis:  $\text{CH}_4$ ,  $\text{C}_2\text{H}_2$ ,  $\text{CH}_2\text{O}$ ,  $\text{HCl}$ ,  $\text{NH}_3$ ,  $\text{SO}_2$ ,  $\text{C}_2\text{H}_6$ ,  $\text{CO}$ ,  $\text{CO}_2$ ,  $\text{NO}_x$ ,  $\text{SO}_x$ ,  $\text{HNO}_3$
- Exhaust gas denitrification
- Combustion process control
- Contactless temperature measurement: railway transport, industrial and laboratory processes monitoring
- Heat-seeking, thermal signature detection
- Non-destructive material testing
- Biochemical analysis
- Laser calibration

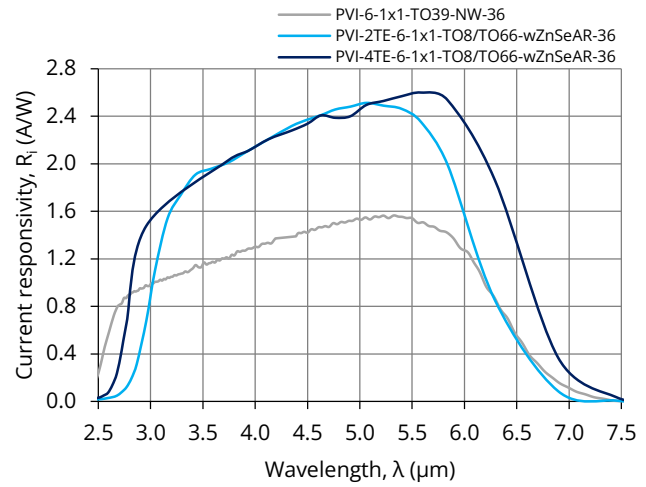
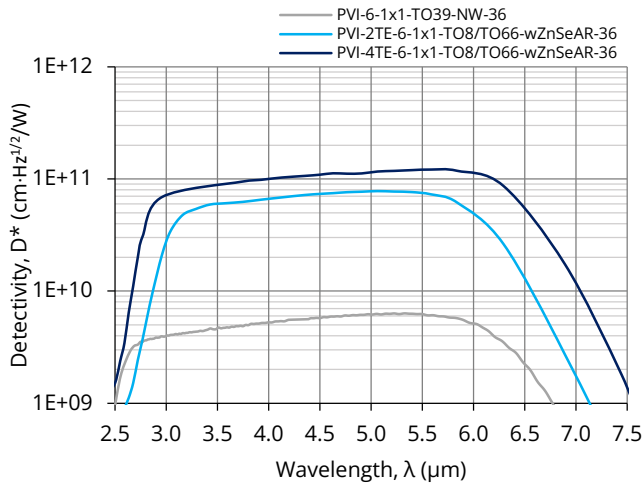
### SERIES DESCRIPTION

Detector symbol	Cooling	Temperature sensor	Optical area, $A_o$ , mm $\times$ mm	Optical immersion	Package	Acceptance angle, $\Phi$ , deg.	Window
PVI-6-1x1-TO39-NW-36	no	n/a	1 $\times$ 1	hyperhemisphere	TO39 (3 pin)	~36	no
PVI-2TE-6-1x1-TO8-wZnSeAR-36	2TE	thermistor			2TE-TO8		wZnSeAR (3 deg. zinc selenide, anti-reflection coating)
PVI-2TE-6-1x1-TO66-wZnSeAR-36	$T_{\text{chip}} \cong 230\text{K}$				2TE-TO66		
PVI-4TE-6-1x1-TO8-wZnSeAR-36	4TE				4TE-TO8		
PVI-4TE-6-1x1-TO66-wZnSeAR-36	$T_{\text{chip}} \cong 198\text{K}$				4TE-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		
	$\lambda_{\text{cut-on}}$	$\lambda_{\text{peak}}$	$\lambda_{\text{spec}}$	$\lambda_{\text{cut-off}}$	$D^*(\lambda_{\text{peak}}, 20\text{kHz})$	$D^*(\lambda_{\text{spec}}, 20\text{kHz})$		$R_i(\lambda_{\text{peak}})$	$R_i(\lambda_{\text{spec}})$		$\tau$	$R_d$		
	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	$\mu\text{m}$	cm $\cdot$ Hz $^{1/2}$ /W	cm $\cdot$ Hz $^{1/2}$ /W		A/W	A/W		ns	$\Omega$		
	Typ.	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Typ.	Min.	Typ.	Typ.	Min.	Typ.	
PVI-6-1x1-TO39-NW-36	2.5	5.1 $\pm$ 0.2	6.0	6.5	8.0 $\times$ 10 $^9$	3.5 $\times$ 10 $^9$	1.5 $\times$ 10 $^{10}$	2.0	0.6	1.2	80	20	40	
PVI-2TE-6-1x1-TO8-wZnSeAR-36	2.6	5.2 $\pm$ 0.2		7.0	8.0 $\times$ 10 $^{10}$	4.0 $\times$ 10 $^{10}$	6.0 $\times$ 10 $^{10}$	2.5	1.3	1.8	50	300	1 000	
PVI-2TE-6-1x1-TO66-wZnSeAR-36					1.2 $\times$ 10 $^{11}$							9.0 $\times$ 10 $^{10}$	600	1 500
PVI-4TE-6-1x1-TO8-wZnSeAR-36														
PVI-4TE-6-1x1-TO66-wZnSeAR-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-6-1x1-TO39-NW-36	<a href="#">SIP-TO39 series</a>
PVI-2TE-6-1x1-TO8-wZnSeAR-36	<a href="#">AIP series</a> <a href="#">PIP series</a> <a href="#">MIP series</a>
PVI-4TE-6-1x1-TO8-wZnSeAR-36	<a href="#">SIP-TO8 series</a> <a href="#">FIP series<sup>*)</sup></a>

<sup>\*)</sup> 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	$\leq 300$	$^{\circ}\text{C}$
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	$\text{W}/\text{cm}^2$
	Single pulses $< 1\ \mu\text{s}$ duration	10	$\text{kW}/\text{cm}^2$
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.