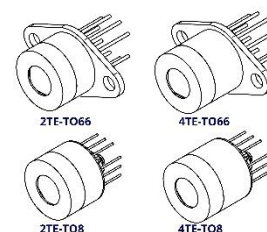


PCI-10.6 DETECTOR SERIES

DATASHEET

HgCdTe thermoelectrically cooled optically immersed photoconductive infrared detectors



FEATURES

- Spectral range: over 12.8 μm
- Back-side illuminated
- Unique immersion lens technology applied
- No minimum order quantity required

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](#)

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

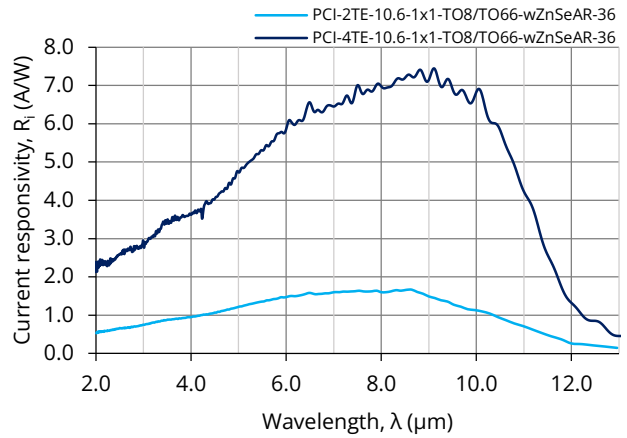
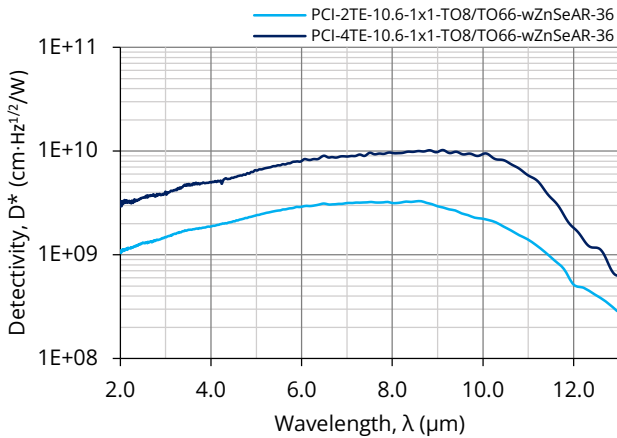
SERIES DESCRIPTION

Detector symbol	Cooling	Temperature sensor	Optical area, A_o , mm \times mm	Optical immersion	Package	Acceptance angle, Φ , deg.	Window
PCI-2TE-10.6-1x1-TO8-wZnSeAR-36	2TE	thermistor	1 \times 1	hyperhemisphere	2TE-T08	~36	wZnSeAR (3 deg. zinc selenide, anti-reflection coating)
PCI-2TE-10.6-1x1-TO66-wZnSeAR-36	$T_{\text{chip}} \cong 230\text{K}$				2TE-T066		
PCI-4TE-10.6-1x1-TO8-wZnSeAR-36	4TE				4TE-T08		
PCI-4TE-10.6-1x1-TO66-wZnSeAR-36	$T_{\text{chip}} \cong 200\text{K}$				4TE-T066		

SPECIFICATION ($T_{\text{amb}} = 293 \text{ K}$)

Detector symbol	Peak wavelength	Specific wavelength	Cut-off wavelength (10%)	Detectivity			Current responsivity			Time constant	Resistance	Bias voltage	1/f corner frequency
	λ_{peak}	λ_{spec}	$\lambda_{\text{cut-off}}$	$D^*(\lambda_{\text{peak}}, 20\text{kHz})$	$D^*(\lambda_{\text{spec}}, 20\text{kHz})$		$R_i(\lambda_{\text{peak}})$	$R_i(\lambda_{\text{spec}})$		τ	R	V_b	f_c
	μm	μm	μm	cm-Hz $^{1/2}$ /W	Min.	Typ.	A/W	A/W		ns	Ω	V	kHz
	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Typ.	Min.	Typ.	Typ.	Max.	Typ.	Typ.
PCI-2TE-10.6-1x1-TO8-wZnSeAR-36	8.2 \pm 0.8	10.6	12.8	2.2 \times 10 9	1.0 \times 10 9	1.5 \times 10 9	0.6	0.1	0.3	10	200	0.30	20
PCI-2TE-10.6-1x1-TO66-wZnSeAR-36	8.2 \pm 0.8	10.6	12.8	2.2 \times 10 9	1.0 \times 10 9	1.5 \times 10 9	0.6	0.1	0.3	10		0.30	
PCI-4TE-10.6-1x1-TO8-wZnSeAR-36	9.5 \pm 0.6	10.6	12.5	4.1 \times 10 9	3.0 \times 10 9	3.0 \times 10 9	0.7	0.2	0.4	30		0.24	
PCI-4TE-10.6-1x1-TO66-wZnSeAR-36	9.5 \pm 0.6	10.6	12.5	4.1 \times 10 9	3.0 \times 10 9	3.0 \times 10 9	0.7	0.2	0.4	30	0.24		

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



MECHANICAL LAYOUT AND PINOUT

- [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
PCI-2TE-10.6-1x1-TO8-wZnSeAR-70	AIP series
	PIP series
	MIP series
PCI-4TE-10.6-1x1-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	2.5	W/cm^2
	Single pulses $< 1\ \mu\text{s}$ duration	10	kW/cm^2
Maximum bias voltage, $V_{b,max}$		1.5	V
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.