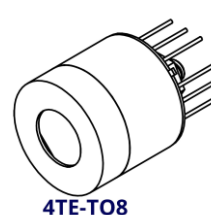


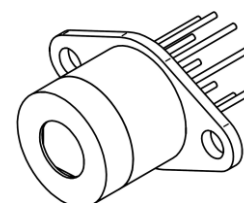
PCI-13 DETECTOR SERIES

DATASHEET

HgCdTe thermoelectrically cooled optically immersed photoconductive infrared detectors



4TE-TO8



4TE-TO66

FEATURES

- Spectral range: over 14.0 μm
- Back-side illuminated
- Unique immersion lens technology applied
- No minimum order quantity required

APPLICATIONS

- FTIR spectroscopy
- Gas detection, monitoring and analysis: C_2H_6
- Toxic gas detection
- Gas leak detection

RELATED PRODUCT

- [PVIA-4TE-13-1x1-TO8-wZnSeAR-36 RoHS-compliant detector](#)

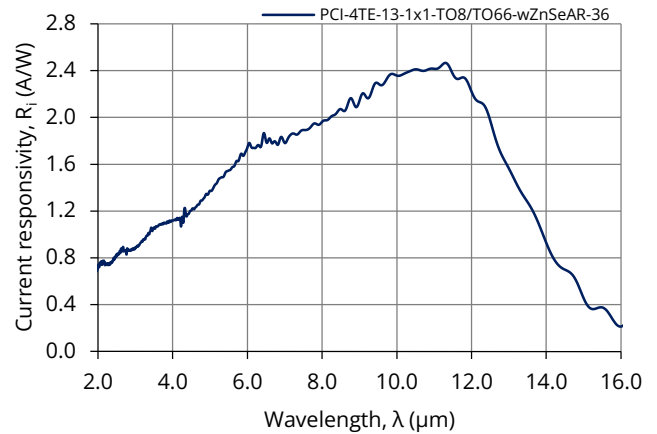
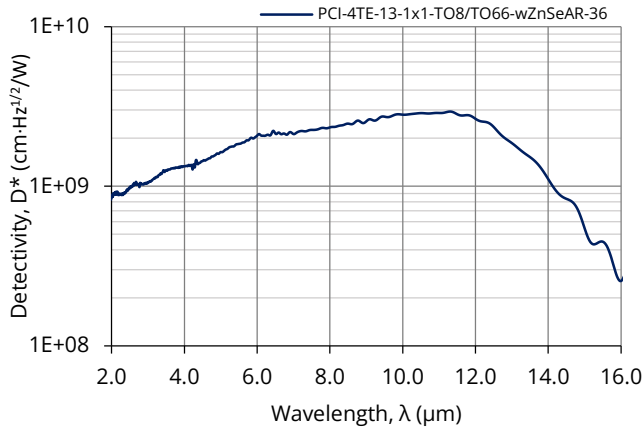
SERIES DESCRIPTION

Detector symbol	Cooling	Temperature sensor	Optical area, A_o , mm \times mm	Optical immersion	Package	Acceptance angle, Φ , deg.	Window
PCI-4TE-13-1x1-TO8-wZnSeAR-36	4TE	thermistor	1 \times 1	hyperhemisphere	4TE-TO8	~36	wZnSeAR (3 deg. zinc selenide, anti-reflection coating)
PCI-4TE-13-1x1-TO66-wZnSeAR-36	$T_{\text{chip}} \cong 200\text{K}$				4TE-TO66		

SPECIFICATION ($T_{\text{amb}} = 293\text{ K}$, $V_b = 0.8\text{ V}$)

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	$\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	Min.	Typ.	A/W	A/W	ns	Ω	V	kHz	
PCI-4TE-13-1x1-TO8-wZnSeAR-36	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Typ.	Min.	Typ.	Typ.	Max.	Typ.	Typ.
PCI-4TE-13-1x1-TO66-wZnSeAR-36	10.4 \pm 0.6	13.0	14.0	2.4 \times 10 ⁹	1.0 \times 10 ⁹	1.8 \times 10 ⁹	0.5	0.05	0.4	6	300	0.8	20

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



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
PCI-4TE-13-1x1-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 $T_{amb} > 30^{\circ}\text{C}$ 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, $V_{TEC,max}$	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.