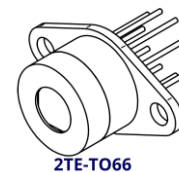
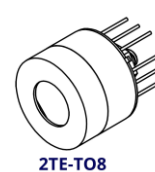


PCI-5 DETECTOR SERIES

DATASHEET

HgCdTe thermoelectrically cooled optically immersed photoconductive infrared detectors



FEATURES

- Spectral range: over 5.6 μm
- Back-side illuminated
- Unique immersion lens technology applied
- No minimum order quantity required

RELATED PRODUCTS

- [LabM-I-5 detection module](#)
- [PVIA-5-1x1-TO39-NW-36 RoHS-compliant detector](#)
- [PVMA-1TE-5-1x1-TO39-pSiAR-70 RoHS-compliant detector](#)
- AMS3140-01 RoHS-compliant detection module

APPLICATIONS

- Contactless temperature measurement: railway transport, industrial and laboratory processes monitoring
- Flame and explosion detection
- Threat warning systems
- Heat-seeking, thermal signature detection
- Dentistry
- Gas detection, monitoring and analysis: CH_4 , C_2H_2 , CH_2O , HCl , NH_3 , SO_2 , C_2H_6 , CO , CO_2 , NO_x
- Breath analysis: C_2H_6 , CH_2O , NH_3 , NO , OCS
- Gas leak detection
- Combustion process control
- Non-destructive material testing

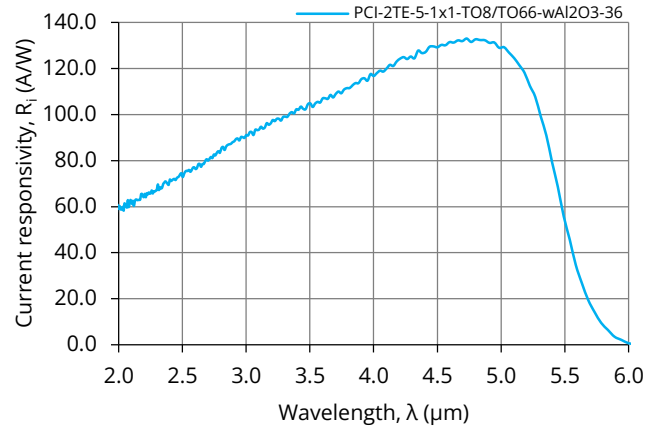
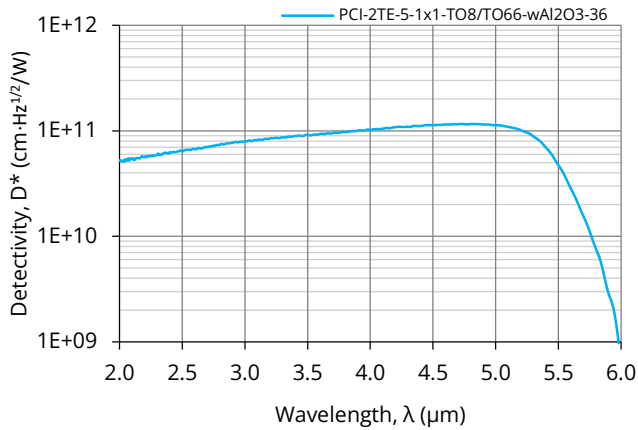
SERIES DESCRIPTION

Detector symbol	Cooling	Temperature sensor	Active area, A, mm \times mm	Optical immersion	Package	Acceptance angle, Φ , deg.	Window
PCI-2TE-5-1x1-TO8-wAl ₂ O ₃ -36	2TE $T_{\text{chip}} \cong 230\text{K}$	thermistor	1 \times 1	no	2TE-TO8	~36	wAl ₂ O ₃ (3 deg. wedged sapphire)
PCI-2TE-5-1x1-TO66-wAl ₂ O ₃ -36					2TE-TO66		

SPECIFICATION ($T_{\text{amb}} = 293\text{ K}$, $V_b = 0.5\text{ V}$)

Detector symbol	Wavelength			Detectivity			Current responsivity			Time constant	Resistance	Bias voltage	1/f corner frequency
	Peak wavelength	Specific wavelength	Cut-off wavelength (10%)	D*(λ_{peak} , 20kHz)		D*(λ_{spec} , 20kHz)	R(λ_{peak})		R(λ_{spec})	τ	R	V _b	1/f corner frequency
	λ_{peak}	λ_{spec}	$\lambda_{\text{cut-off}}$	cm \cdot Hz ^{1/2} /W		cm \cdot Hz ^{1/2} /W	A/W		A/W	μs	Ω	V	kHz
	μm	μm	μm	Typ.		Min. Typ.	Typ. Min. Typ.		Typ. Min. Typ.	Typ.	Max.	Typ.	Typ.
PCI-2TE-5-1x1-TO8-wAl ₂ O ₃ -36	4.6 \pm 0.3	5.0	5.5	4.0 \times 10 ¹⁰	2.0 \times 10 ¹⁰	6.0 \times 10 ¹⁰	90	30	60	20	750	0.5	20
PCI-2TE-5-1x1-TO66-wAl ₂ O ₃ -36													

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](#)

RECOMMENDED AMPLIFIERS

Detector symbol	Amplifier type
PCI-2TE-5-1x1-TO8-wAl ₂ O ₃ -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, $V_{TEC,max}$	2TE	1.0	V
Maximum TEC current, $I_{TEC,max}$	2TE	1.2	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.