



FEATURES

- High performance in the 2-14 μm range
- Fast response
- Convenient to use
- Wide dynamic range
- Compact, rugged and reliable
- Low cost
- Prompt delivery
- Custom design upon request

DESCRIPTION

PCI-3TE-λ_{opt} photodetectors series (λ_{opt} - optimal wavelength in micrometers) feature three-stage thermoelectrical cooler IR photoconductive detector, optically immersed to high refractive index GaAs hyperhemispherical (standard) or hemispherical or any intermediate lens (as option) for different acceptance angle and saturation level. The devices are optimized for the maximum performance at λ_{opt}. Cut-on wavelength is limited by GaAs transmittance (~0.9 μm). Bias is needed to operate photocurrent. Performance at low frequencies (<20 kHz) is reduced due to 1/f noise. Highest performance and stability are achieved by application of variable gap (HgCd)Te semiconductor, optimized doping and sophisticated surface processing. Custom devices with quadrant cells, multielement arrays, different windows, lenses and optical filters are available upon request. Standard detectors are available in TO-8 packages with BaF₂ windows. Other packages, windows and connectors are also available.

SPECIFICATION

@20°C

CHARACTERISTICS	UNITS	PCI-3TE-9	PCI-3TE-10.6	PCI-3TE-12	PCI-3TE-13
λ _{opt}	μm	9	10.6	12	13
Detectivity ¹⁾ : @ λ _{peak} , 20kHz @ λ _{opt} , 20kHz	cmHz ^{1/2} /W	≥1.1×10 ¹⁰ ≥6×10 ⁹	≥4.5×10 ⁹ ≥2.5×10 ⁹	≥1.6×10 ⁹ ≥9×10 ⁸	≥9×10 ⁸ ≥4.5×10 ⁸
Responsivity-Width product @λ _{opt} 1×1mm	Vmm/W	≥150	≥30	≥10	≥5
Time Constant	ns	<7	<5	<5	<4
1/f Corner Frequency	kHz	1 to 20	1 to 20	1 to 20	1 to 20
Bias current-Width Ratio	mA/mm	3 to 5	3 to 5	3 to 5	3 to 5
Sheet Resistance	Ω/sqr	60 to 200	40 to 160	40 to 150	60 to 100
Operating Temperature	K	~210			
Acceptance angle, F/#	deg, -	36, 1.62			

¹⁾ Data sheet states minimum guaranteed D* values for each detector model. Higher performance detectors can be provided upon request.

Type	Length [mm]									
	0.025	0.05	0.1	0.2	0.25	0.5	1	2	3	4
PCI-3TE-9					X	X	X	X		
PCI-3TE-10.6					X	X	X	X		
PCI-3TE-12					X	X	X	X		
PCI-3TE-13					X	X	X	X		

X – standard detectors

