



FEATURES

- High performance in the 2-11 μm range
- Fast response
- No flicker noise
- Convenient to use
- Wide dynamic range
- Compact, rugged and reliable
- Low cost
- Custom design upon request

DESCRIPTION

The PV-3TE-n (where n is optimal wavelength (λ_{op}), in micrometers, to which the detector is optimized) series photodetectors are three-stage TE-cooled IR photovoltaic detectors. These devices can be optimized for the maximum performance anywhere within 3 to 12 μm range. High performance and stability are achieved by using band gap engineered (HgCdZn)Te structures of optimized doping and improved surface processing. Custom devices with quadrant cells, multielement arrays, various immersion lenses, windows and optical filters are available on request.

Standard detectors are available in modified TO-8 packages with BaF₂ windows. Other packages, and connectors are available upon request. See application notes for more details.

Multiple cells connected in series are preferable for large area devices. They are characterized by similar D*, larger parallel resistance and lower R_i.

SPECIFICATION

@20°C

CHARACTERISTICS	UNITS	PV-3TE-3	PV-3TE-3.4	PV-3TE-4	PV-3TE-5	PV-3TE-6	PV-3TE-8	PV-3TE-10.6
λ_{op}	μm	3	3.4	4	5	6		
Detectivity*: at λ_{peak} at λ_{op}	cmHz ^{1/2} /W	>3×10 ¹¹ >1×10 ¹¹	>9×10 ¹⁰ >7×10 ¹⁰	>6×10 ¹⁰ >4×10 ¹⁰	>4×10 ¹⁰ >1×10 ¹⁰	>7×10 ⁹ >4×10 ⁹	>5×10 ⁸ >3×10 ⁸	>3×10 ⁸ >1.5×10 ⁸
Responsivity	A/W	>0.5	>0.8	>1	>1.3	>1.5	>1	>0.7
Time constant	ns	≤15	≤15	≤20	≤20	≤10	≤7	≤3
Parallel resistance-optical area product	Ω×cm ²	>240	>15	>6	>0.3	>0.025	>0.0004	>0.0002
Operating temperature	K	210						
Acceptance angle, F/#	deg, -	70, 0.87						

Data sheet states minimum D* values for each detector model. Higher performance detectors can be provided upon request. See application notes for more details.

Type	Length or diameter [mm]									
	0.025	0.05	0.1	0.2	0.25	0.5	1	2	3	4
PV-3TE-3	O	X	X	O		O	O			
PV-3TE-3.4	O	X	X	O		O	O			
PV-3TE-4	O	X	X	O		O	O			
PV-3TE-5	O	X	X	O		O	O			
PV-3TE-6	O	X	X	O		O	O			
PV-3TE-8	X	X*	P							
PV-3TE-10.6	X	X*	P							

*) Devices may require reverse bias in order to increase dynamic resistance and improve frequency response.

X – unbiased standard device

P – default with reverse bias

O – detectors available on request, parameters may differ from these in data sheets



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