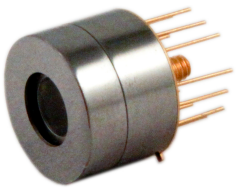
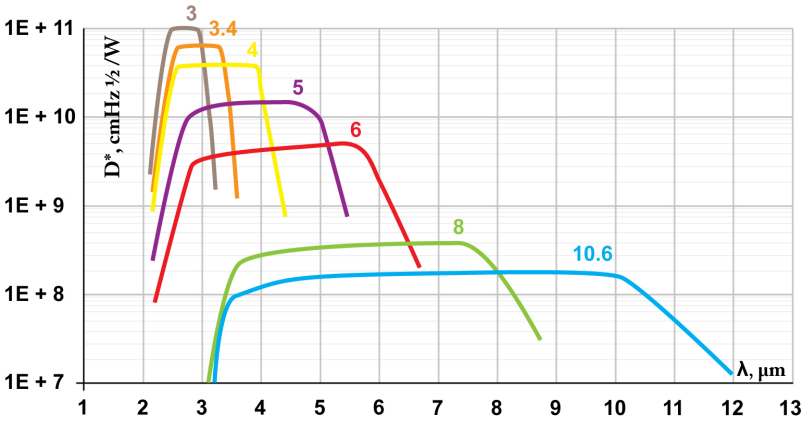
PV-2TE SERIES

2-12 µm IR PHOTOVOLTAIC DETECTORS THERMOELECTRICALLY COOLED





FEATURES

- High performance in the 2-12 µm wavelength range
- Fast response
- No flicker noise
- Convenient to use
- Wide dynamic range
- Compact, rugged and reliable
- Low cost
- Prompt delivery
- Custom design upon request

DESCRIPTION

PV-2TE-λ_{opt} photodetectors series (λ_{opt} - optimal wavelength in micrometers) feature IR photovoltaic detector on two-stage thermoelectrical cooler. The devices are optimized for the maximum performance at λ_{opt}. Cut-on wavelength can be optimized upon request. Reverse bias may significantly increase speed of response and dynamic range. It results also in improved performance at high frequencies, but 1/f noise that appears in biased devices may reduce performance at low frequencies.

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 BaF_2 windows. Other packages, windows and connectors are also available.

SPECIFICATION

@20ºC

CHARACTERISTICS	UNITS	PV-2TE-3	PV-2TE-3.4	PV-2TE-4	PV-2TE-5	PV-2TE-6	PV-2TE-8	PV-2TE-10.6
λ_{opt}	µm	3	3.4	4	5	6	8	10.6
Detectivity[1]: @ λ_{peak} @ λ_{opt}	cmHz$^{1/2}$/W	≥1×10^{11} ≥7×10^{10}	≥6×10^{10} ≥4×10^{10}	≥4×10^{10} ≥3×10^{10}	≥1.5×10^{10} ≥9×10^{9}	≥5×10^{9} ≥2×10^{9}	≥4×10^{8} ≥2×10^{8}	≥2×10^{8} ≥1×10^{8}
Responsivity @ λ_{opt}	A/W	≥0.5	≥0.8	≥1	≥1.3	≥1.5	≥0.8	≥0.4
Time Constant[2]	ns	≤20	≤20	≤20	≤20	≤15	≤8	≤6
Resistance-optical area product	Ω×cm^2	≥150	≥3	≥2	≥0.1	≥0.02	≥0.0002	≥0.0001
Operating temperature	K	~230						
Acceptance angle, F/#	deg, -	70, 0.87						

[1] Data sheet states minimum guaranteed D* values for each detector model. Higher performance can be provided upon request.
[2] Faster response may be achieved with high-frequency-optimized devices.

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

[1] Custom detector may require reverse bias in order to increase dynamic resistance and improve frequency response.
X – standard detectors
P – default with reverse bias
O – detectors available on request, parameters may vary from these in data sheets

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