



**FEATURES**

- Ambient temperature operation
- No bias required
- Short time constant
- No flicker noise
- Operation from DC to VHF
- Perfect match to fast electronics
- Wide dynamic range
- Low cost
- Custom design upon request

**DESCRIPTION**

PVI-λ<sub>opt</sub> photodetectors series (λ<sub>opt</sub> - optimal wavelength in micrometers) feature IR photovoltaic 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. This series is easy to use, no cooling or heatsink needed. The devices are optimized for the maximum performance at λ<sub>opt</sub>. 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. Standard detectors are available without window in TO-39 or BNC based package. Various windows, other packages and connectors are available upon request.

**SPECIFICATION**

**@20°C**

CHARACTERISTICS	UNITS	PVI-3	PVI-3.4	PVI-4	PVI-5	PVI-6	PVI-8
λ <sub>opt</sub>	μm	3	3.4	4	5	6	8
Detectivity <sup>1)</sup> :							
@ λ <sub>peak</sub>	cmHz <sup>1/2</sup> /W	≥5×10 <sup>10</sup>	≥5×10 <sup>10</sup>	≥3×10 <sup>10</sup>	≥1.5×10 <sup>10</sup>	≥8×10 <sup>9</sup>	≥8×10 <sup>8</sup>
@ λ <sub>opt</sub>		≥5×10 <sup>10</sup>	≥4.5×10 <sup>10</sup>	≥2×10 <sup>10</sup>	≥9×10 <sup>9</sup>	≥4×10 <sup>9</sup>	≥4×10 <sup>8</sup>
Responsivity @ λ <sub>opt</sub>	A/W	≥0.5	≥0.8	≥1	≥1	≥1	≥0.3
Time constant <sup>2)</sup>	ns	≤20	≤20	≤20	≤20	≤15	≤8
Resistance-optical area product	Ω×cm <sup>2</sup>	≥100	≥50	≥6	≥1	≥0.2	≥0.01
Operating temperature	K	~300					
Acceptance angle, F/#	deg, -	36, 1.62					

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

<sup>2)</sup>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
PVI-3					O	X	X	O		
PVI-3.4					O	X	X	O		
PVI-4					O	X	X	O		
PVI-5					O	X	X	O		
PVI-6					O	X	X	O		
PVI-8				X	X	X <sup>1)</sup>	P			

<sup>1)</sup> 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 differ from these in data sheets

