



**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**

The PVI-n (where n is optimal wavelength ( $\lambda_{op}$ ), in micrometers, to which the detector is optimized) series photodetectors are IR photovoltaic detectors, which have been optically immersed to high refractive index GaAs hyperhemispherical (standard) or hemispherical (option) lenses. These devices can be optimized for the maximum performance anywhere within 2 to 8 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-39 or BNC-based packages with out window. Other packages, and connectors are available upon request. See application notes for more details.

Multiple cells connected in series (PVMI-n) are preferable for large area devices. They are characterized by similar  $D^*$ , larger resistance (for better PA integration) and lower  $R_i$ .

**SPECIFICATION**

**@20°C**

CHARACTERISTICS	UNITS	PVI-3	PVI-3.4	PVI-4	PVI-5	PVI-6	PVI-8
$\lambda_{op}$	μm	3	3.4	4	5	6	8
Detectivity*: at $\lambda_{peak}$ at $\lambda_{op}$	cmHz <sup>1/2</sup> /W	$\geq 5 \times 10^{10}$ $\geq 5 \times 10^{10}$	$\geq 5 \times 10^{10}$ $\geq 4.5 \times 10^{10}$	$\geq 3 \times 10^{10}$ $\geq 2 \times 10^{10}$	$\geq 1.5 \times 10^{10}$ $\geq 9 \times 10^9$	$\geq 8 \times 10^9$ $\geq 4 \times 10^9$	$\geq 8 \times 10^8$ $\geq 4 \times 10^8$
Responsivity	A/W	$\geq 0.5$	$\geq 0.8$	$\geq 1$	$\geq 1$	$\geq 1$	$\geq 0.3$
Time constant**	ns	$\leq 15$	$\leq 15$	$\leq 15$	$\leq 15$	$\leq 12$	$\leq 7$
Parallel resistance-optical area product	$\Omega \times \text{cm}^2$	$\geq 100$	$\geq 50$	$\geq 6$	$\geq 1$	$\geq 0.2$	$\geq 0.01$
Operating temperature	K	300					
Acceptance angle, F/#	deg, -	36, 1.62					

\* Data sheet states minimum  $D^*$  values for each detector model. Higher performance detectors can be provided upon request.

\*\* Faster response may be achieved with high-frequency-optimized devices.

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
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*	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



**VIGO System S.A.**  
129/133 Poznańska St.,  
tel.: +48 22 733 54 21  
fax.: +48 22 66521 55  
info@vigo.com.pl

