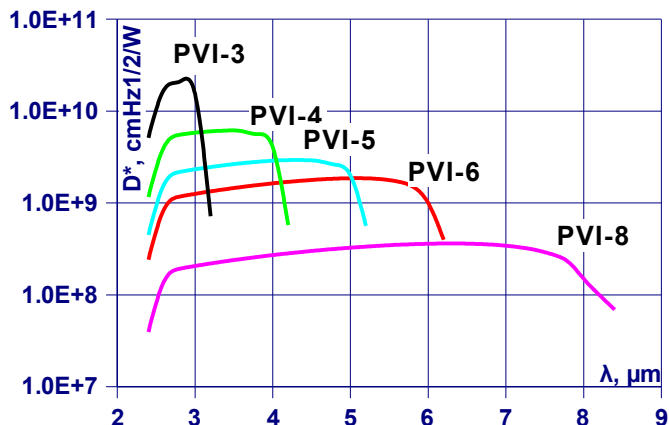
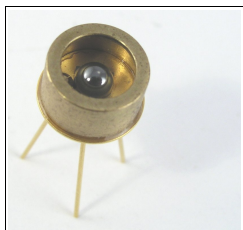


# SERIES PVI

# 2-11 $\mu\text{m}$ IR PHOTOVOLTAIC DETECTORS OPTICALLY IMMERSED



## FEATURES

- Ambient temperature operation
- No bias required
- Short response time
- 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 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 (or CdZnTe) hyperhemispherical (standard) or hemispherical (option) lenses. These devices can be optimized for the maximum performance anywhere within 2 to 11  $\mu\text{m}$  range. High performance and stability were achieved by using a variable gap (Hg,Cd,Zn)Te semiconductors, 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 no windows. Other packages, windows 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	PVI-3	PVI-4	PVI-5	PVI-6	PVI-8
$\lambda_{op}$	$\mu\text{m}$	3	4	5	6	8
Detectivity: at $\lambda_{peak}$ at $\lambda_{op}$	$\text{cmHz}^{1/2}/\text{W}$	$\geq 2\text{E}10$ $\geq 1.5\text{E}10$	$\geq 6\text{E}9$ $\geq 4\text{E}9$	$\geq 3\text{E}9$ $\geq 2\text{E}9$	$\geq 2\text{E}9$ $\geq 1\text{E}9$	$\geq 3\text{E}8$ $\geq 1.5\text{E}8$
Responsivity	A/W	$\geq 1.2$	$\geq 1.3$	$\geq 1.3$	$\geq 1.2$	$\geq 1$
Response time	ns	$\leq 15^{**}$	$\leq 15^{**}$	$\leq 15^{**}$	$\leq 12^{**}$	$\leq 7^{**}$
Parallel resistance-optical area product	$\Omega \times \text{cm}^2$	$\geq 5$	$\geq 1$	$\geq 0.3$	$\geq 0.1$	$\geq 0.02$
Optical area length $\times$ width or diameter for round devices	mm $\times$ mm mm		0.2 $\times$ 0.2; 0.25 $\times$ 0.25; 0.5 $\times$ 0.5; 1 $\times$ 1; 2 $\times$ 2; $\emptyset$ 0.2; $\emptyset$ 0.25; $\emptyset$ 0.5; $\emptyset$ 1; $\emptyset$ 2; $\emptyset$ 3			
Operating temperature	K	300				
Acceptance angle, F#	deg	35, 1.65				

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

\*\* Faster response may be achieved at reverse bias and with high-frequency-optimized devices.

See application notes for more details.



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