PV

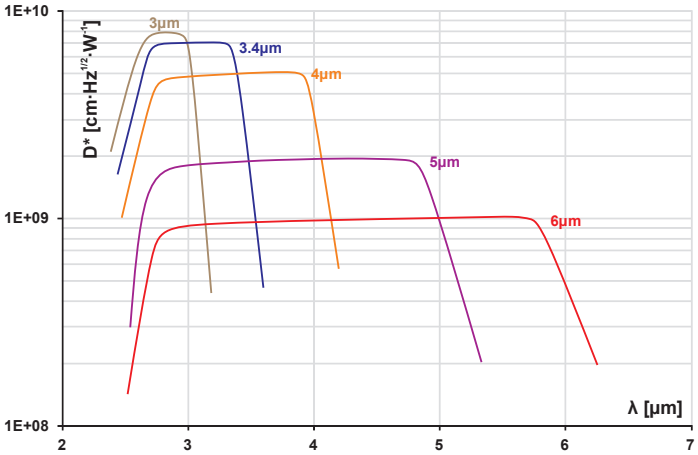
3-8 μm IR PHOTOVOLTAIC DETECTORS

The **PV-λ_{opt}** (λ_{opt} – optimal wavelength in micrometers) feature IR photovoltaic detector.

Detector code description

PV - 10.6 - 1x1 - BNC - NoWindow - 102

- PV: VIGO detector type
- 10.6: Optimal wavelength
- 1x1: Optical area
- BNC: Detector package
- NoWindow: Window (without window)
- 102: FOV



Example of D vs Wavelength λ for PC Series HgCdTe Detectors. Spectral Characteristics of individual detectors may vary from those shown on the chart.*

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

IR Detector Specification @20°C

Detector type	Cooling, operating temperature $T\,[K]$	Optimal wavelength λ[1] $\lambda_{opt}\,[\mu m]$	Detectivity** $D^*\left[\frac{cm\cdot\sqrt{Hz}}{W}\right]$ @λ_{peak}	Detectivity** $D^*\left[\frac{cm\cdot\sqrt{Hz}}{W}\right]$ @λ_{opt}	Current responsivity length product @λ_{opt} $R_i\cdot L\left[\frac{A\cdot mm}{W}\right]$	Time constant $\tau\,[ns]$	Resistance optical area product $R\cdot A\left[\Omega\cdot cm^2\right]$	Acceptance angle $\varnothing\,[^\circ]$, $\frac{1}{2NA}$	Optical area*** $[mm\times mm]$	Package	Window****
PV	uncooled, ~300	3	≥8.0×10⁹	≥6.5×10⁹	≥0.5	≤350	≥1	≥90, 0.71	0.05×0.05 0.1×0.1	BNC, TO39	no window
		3.4	≥7.0×10⁹	≥5.0×10⁹	≥0.8	≤260	≥0.5				
		4	≥5.0×10⁹	≥3.0×10⁹	≥1	≤150	≥0.1				
		5	≥2.0×10⁹	≥1.0×10⁹	≥1	≤120	≥0.01				
		6	≥1.0×10⁹	≥5.0×10⁸	≥1	≤80	≥0.002				

*) *Other optimal wavelengths available upon request.*
**) *Data sheet states minimum guaranteed D* values for each detector model. Higher performance detectors can be provided upon request.*
***) *Other optical areas available upon request.*
****) *Other windows available upon request.*
[1]) *Optical area available only for uncooled detectors*

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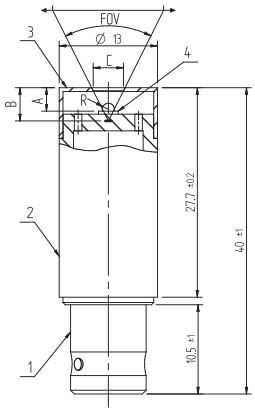
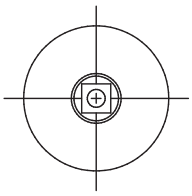
DETECTOR PACKAGES

Uncooled detectors are typically provided in packages (BNC, TO39) without windows. The exception is the specialized PEM package. Due to magnetic circuit incorporated into the package, a window is supplied to protect against pollution. There are two versions of packages dedicated for PEM detectors: PEM with SMA connector and PEM with TO8 base which allows to integrate detector with VIGO preamplifier.

BNC detector package



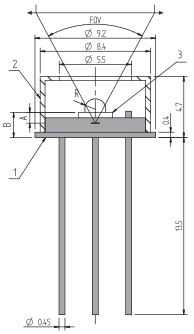


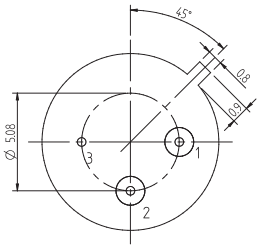
Top view

Dimensions [mm]

Lens shape	Hyperhemisphere			Hemisphere	Flat
Optical area [mm x mm]	0.5×0.5	1×1	2×2	0.5×0.5 - 2×2	0.01×0.01 - 4×4
R [mm]	0.5	0.8	1.25	0.50 – 1.25	infinity
A [mm]	4.6±0.3	5.5±0.3	6.8±0.3	3.1±0.3	1.6±0.3
B [mm]	3.10±0.15	3.10 ±0.15	3.10±0.15	3.10±0.15	1.60±0.15
FOV [°], Ø =4mm	~36	~36	~36	~66	~102
FOV [°], Ø =6mm	~36	~36	~36	~88	~124

TO39 detector package





Bottom view

Pin number	Function
1(+), 2(-)	signal
3	chassis ground

Dimensions [mm]

Lens shape	Hyperhemisphere			Hemisphere	Flat
Optical area [mm x mm]	0.5×0.5	1×1	2×2	0.5×0.5 - 2×2	0.01×0.01 - 4×4
R [mm]	0.5	0.8	1.25	0.5 - 1.6	infinity
A [mm]	1.5±0.2	2.4±0.2	3.75±0.20	0	0
B [mm]	1.9±0.2	1.9±0.2	1.9±0.2	1.9±0.2	1.9±0.3
FOV [°]	~36	~36	~36	~90	~90

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