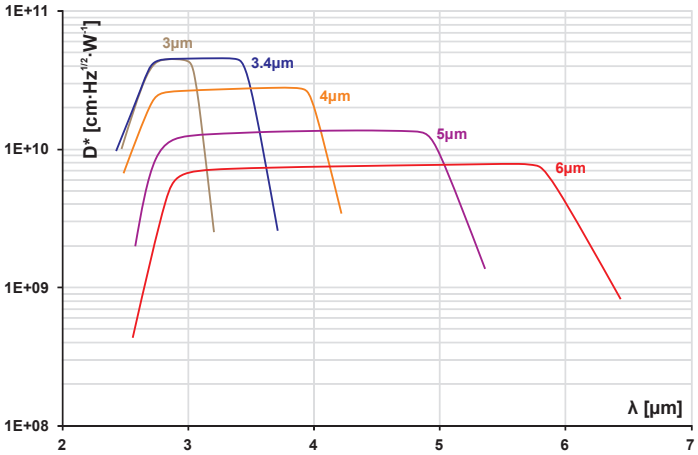
PVI

2-8 μm IR PHOTOVOLTAIC DETECTORS OPTICALLY IMMERSED

The **PVI-λ_{opt}** (λ_{opt} – 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.

Detector code description

PVI	-	10.6	-	1x1	-	BNC	-	NoWindow	-	102
VIGO detector type		Optimal wavelength		Optical area		Detector package		Window (without window)		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*) $\lambda_{opt}[\mu m]$	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 $\varnothing[°]$, $\frac{1}{2NA}$	Optical area***) $[mm\times mm]$	Package	Window****)
PVI	uncooled, ~300	3	≥5.0×10^{10}	≥5.0×10^{10}	≥0.5	≤350	≥100	~36, 1.62	0.5×0.5 1×1	BNC, TO39	no window
		3.4	≥5.0×10^{10}	≥4.5×10^{10}	≥0.8	≤260	≥50				
		4	≥3.0×10^{10}	≥2.0×10^{10}	≥1	≤150	≥6				
		5	≥1.5×10^{10}	≥9.0×10^{9}	≥1	≤120	≥1				
		6	≥8.0×10^{9}	≥4.0×10^{9}	≥1	≤80	≥0.2				

*) *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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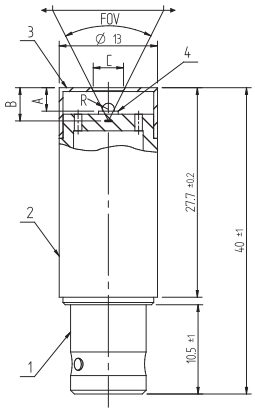
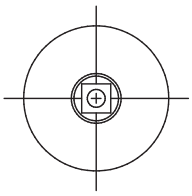
DETECTOR PACKAGES

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



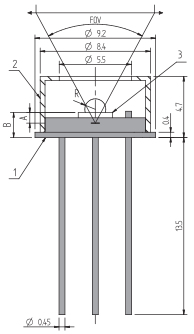


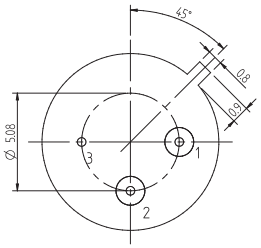
Top view

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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