Photoelectromagnetic detectors PEM

PEM series features room temperature IR detectors operate on the on the photoelectromagnetic effect in the semiconductors.

Detector type	Cooling, operating temperature $T\,[K]$	Optimal wavelength*) $\lambda_{opt}\,[\mu m]$	Detectivity**) $D^*\left[\frac{cm\cdot\sqrt{Hz}}{W}\right]$		Current responsivity length product @λ_{opt} $R_i\cdot L\left[\frac{A\cdot mm}{W}\right]$	Time constant $\tau\,[ns]$	Resistance $R\,[\Omega]$	Acceptance angle $\varnothing\left[^\circ\right]$, $\frac{1}{2NA}$	Optical area***) $[mm\times mm]$	Package	Window****)
			@λ_{peak}	@λ_{opt}							
PEM	uncooled, ~300	10.6	≥1.6×10^7	≥1.0×10^7	≥0.002	≤1.2	40 to 100	~48, 1.23	1×1 2×2	PEM-SMA, PEM-TO8	wedged ZnSe AR coated

*) *Other optimal wavelengths available upon request.*
**) *Data wheet states minimum guaranteed D* values for each detector model. Higher performance detectors can be provided upon request.*
***) *Other optical area available upon request.*
****) *Other windows available upon request.*

Photoelectromangetic detectors optically immersed PEMI

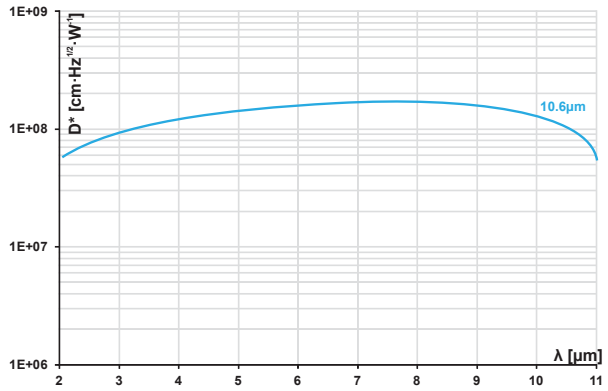
PEMI series features room temperature IR detectors operate on the on the photoelectromagnetic effect in the semiconductor, optically immersed (achieved by using high refractive index micro lenses) in order to improve performance of the devices, different acceptance angle and saturation level. Both PEM/PEMI devices are typically optimized for the best performance at 10.6 μm. The detectors include active element based on HgCdTe band gap engineered with selected composition and doping profiles, and miniature permanent magnets to produce a magnetic field. Exhibiting no flicker noise, they can be at the same time used for detection of CW and low frequency modulated radiation in the whole 2 to 11 μm spectral range.

Detector type	Cooling, operating temperature $T\,[K]$	Optimal wavelength*) $\lambda_{opt}\,[\mu m]$	Detectivity**) $D^*\left[\frac{cm\cdot\sqrt{Hz}}{W}\right]$		Current responsivity length product $R_i\cdot L\left[\frac{A\cdot mm}{W}\right]$	Time constant $\tau\,[ns]$	Resistance $R\,[\Omega]$	Acceptance angle $\varnothing\left[^\circ\right]$, $\frac{1}{2NA}$	Optical area $[mm\times mm]$	Package	Window****)
			@λ_{peak}	@λ_{opt}							
PEMI	uncooled, ~300	10.6	≥1.6×10^8	≥1.0×10^8	≥0.01	≤1.2	40 to 100	~36, 1.62	1×1 2×2	PEM-SMA, PEM-TO8	wedged ZnSe AR coated

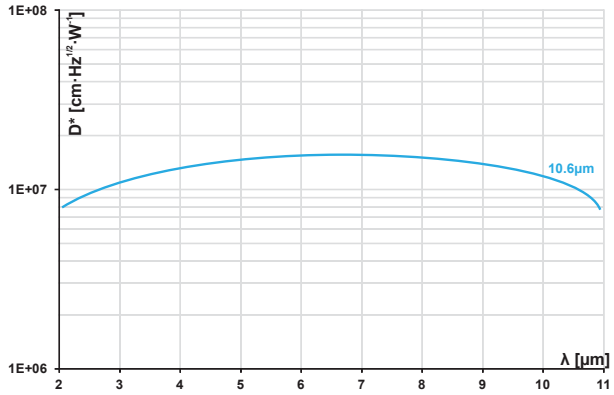
*) *Other optimal wavelengths available upon request.*
**) *Data sheet states minimum guaranteed D* values for each detector model. Higher performance detectors can be provided upon request.*

Spectral characteristics*)

PEMI



PEM



)Example of D vs wavelength λ for HgCdTe detectors.
Spectral characteristics of individual detectors may vary from those shown on the chart.

Detector code

Different information such as detector type, optical immersion, number of stages TE-cooler, wavelength a detector is optimized for, dimensions of optical area, package type, window type and FOV combine, to create VIGO detector code.

Code description of uncooled detector

PC - 10 6 - 1x1 - BNC - NoWindow - 102

- PC: VIGO detector type
- 10 6: Optimal wavelength
- 1x1: Optical area
- BNC: Detector package
- NoWindow: Window (without window)
- 102: FOV

Code sescription of cooled detector

PVI - 2TE - 5 - 1x1 - TO8 - wAl2O3 - 35

- PVI: VIGO detector type (I - optical immersion)
- 2TE: Cooling
- 5: Optimal wavelength
- 1x1: Optical area
- TO8: Detector package
- wAl2O3: Window
- 35: FOV

Please see data sheets to get possibile option of each type detector.