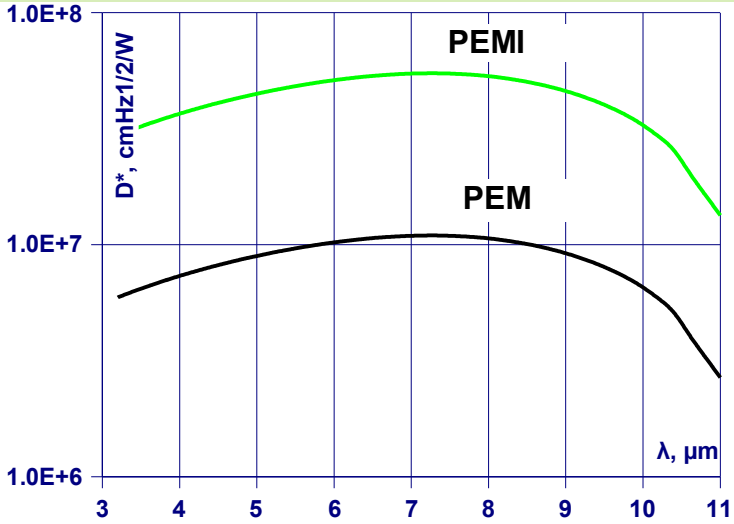
SERIES PEM

10.6 µm PHOTOELECTROMAGNETIC IR DETECTORS
AMBIENT TEMPERATURE
OPTICALLY IMMERSED AND FLAT



FEATURES

- Ambient temperature operation
- No bias required
- Wide spectral range (2-12 µm)
- D*(10.6 µm) up to $2 \cdot 10^7$ $cmHz^{1/2}/W$
- Response time of 1 ns or less
- No flicker noise
- Operation from DC to HF
- Lightweight, rugged and reliable
- Convenient to use
- Low cost
- Custom design upon request

DESCRIPTION

The PEM series detectors operate on the photoelectromagnetic effect photovoltage in the semiconductors. The devices are typically optimized for the best performance at 10.6 µm. PEMI have been optically immersed to high refractive index GaAs (or CdZnTe) hyperhemispherical (standard) or hemispherical (option) lenses. The detector include a quaternary semiconductor (Hg-Cd-Zn-Te) with selected composition and doping profiles, and of miniature permanent magnets to produce very strong magnetic fields.

The PEM detectors are exceptionally well suited for heterodyne detection of 10.6 µm radiation. Exhibiting no flicker noise, they can be at the same time used for detection of CW and low frequency modulated radiation in the whole 2-12 µm spectral range. Custom detectors such as for e.g. single elements of various sizes, quadrant cells and multielement arrays, various specialized packages and connectors are available upon request.

SPECIFICATION* @ 20ºC

CHARACTERISTICS	UNITS	PEM-10.6	PEMI-10.6
λ_{op}	µm	10.6	10.6
Detectivity: at λ_{peak} at λ_{op}	$cmHz^{1/2}/W$	 ≥1.5E7 ≥4E6	 ≥8E7 ≥2E7
Responsivity	V/W	≥0.04	≥0.2
Response time	ns	≤1	≤1
Resistance	Ω	40÷100	40÷100
Optical area length×width	mm×mm	0.1×0.1;0.25×0.25;0.5×0.5;1×1;2×2	
Operating temperature	K	300	
Field of view, F/#	deg	60, 0.5	38, 1.65

* Data sheet states minimum D* values for each detector model. Higher performance detectors can be provided upon request. See application notes for more details.

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