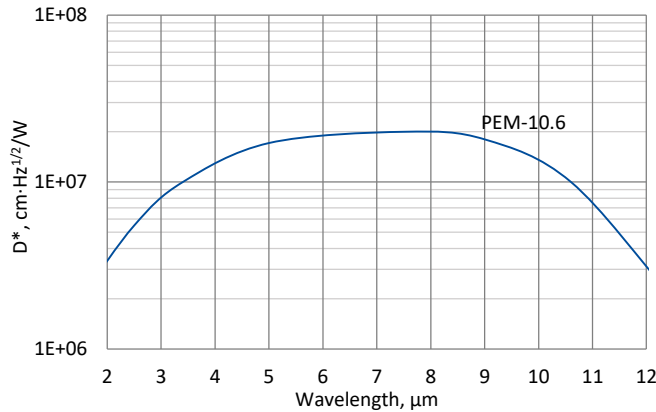


PEM series

2.0 – 12.0 μm HgCdTe ambient temperature photoelectromagnetic detectors

PEM series features uncooled HgCdTe photovoltaic IR detectors based on photoelectromagnetic effect in the semiconductor – spatial separation of optically generated electrons and holes in the magnetic field. The devices are designed for the maximum performance at 10.6 μm and especially useful as a large active area detectors to detect CW and low frequency modulated radiation. These devices are mounted in specialized packages with incorporated magnetic circuit inside. 3° wedged zinc selenide anti-reflection coated (wZnSeAR) window prevents unwanted interference effects and protects against pollution.

Spectral response ($T_a = 20^\circ\text{C}$)



PEM-T08

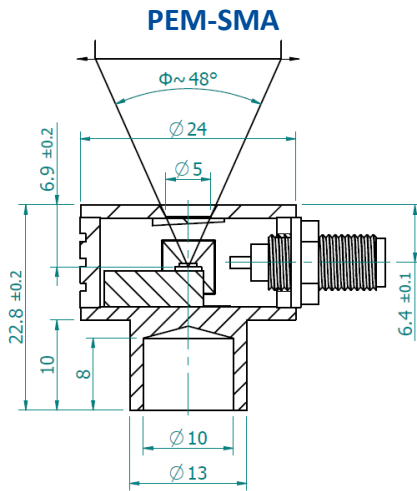
PEM-SMA

Exemplary spectral detectivity, the spectral response of delivered devices may differ.

Specification ($T_a = 20^\circ\text{C}$)

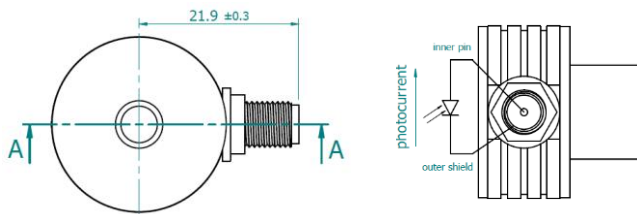
Parameter	Detector type	
	PEM-SMA	PEM-T08
Active element material	epitaxial HgCdTe heterostructure	
Optimum wavelength λ_{opt} , μm	10.6	
Detectivity $D^*(\lambda_{peak})$, cm·Hz ^{1/2} /W	≥ 2.0 × 10 ⁷	
Detectivity $D^*(\lambda_{opt})$, cm·Hz ^{1/2} /W	≥ 1.0 × 10 ⁷	
Current responsivity-active area length product $R_i(\lambda_{opt}) \cdot L$, A·mm/W	≥ 0.002	
Time constant τ , ns	≤ 1.2	
Resistance R, Ω	≥ 40	
Active area A, mm×mm	1×1, 2×2	
Package	PEM-SMA	PEM-T08
Acceptance angle Φ	~48°	~52°
Window	wZnSeAR	

Mechanical layout, mm

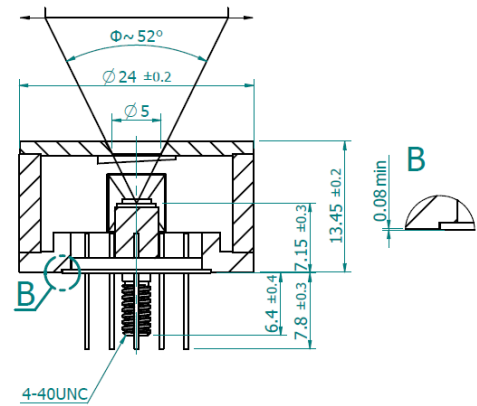


Φ – acceptance angle

Top view

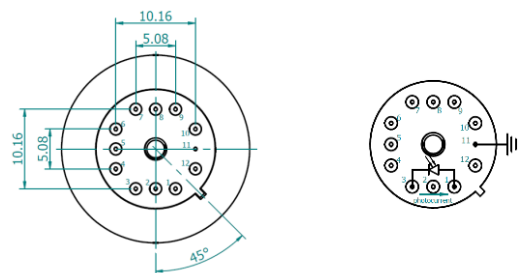


PEM-TO8



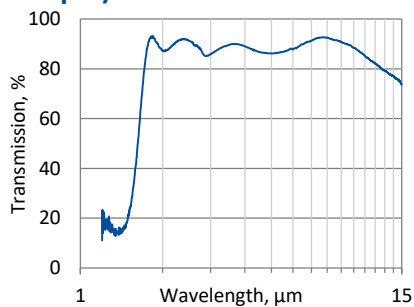
Φ – acceptance angle

Bottom view



Function	Pin number
Detector	1, 3
Chassis ground	11
Not used	2, 4, 5, 6, 7, 8, 9, 10, 12

Spectral transmission of wZnSeAR window (typical example)



Dedicated preamplifier



standard MIP