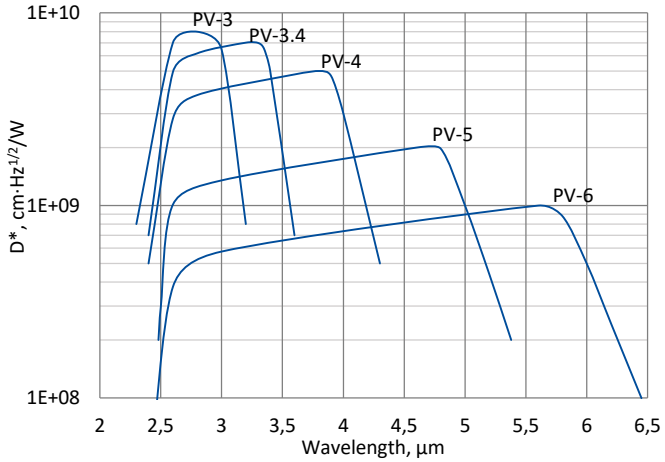
PV series

2.5 – 6.5 µm HgCdTe ambient temperature photovoltaic detectors

PV series features uncooled IR photovoltaic detectors based on sophisticated HgCdTe heterostructures for the best performance and stability. The devices are optimized for the maximum performance at λ_{opt}. Cut-on wavelength can be optimized upon request. Reverse bias may significantly increase response speed and dynamic range. It also results in improved performance at high frequencies, but 1/f noise that appears in biased devices may reduce performance at low frequencies.

Spectral response (T_a = 20°C, V_b = 0 mV)



BNC TO39

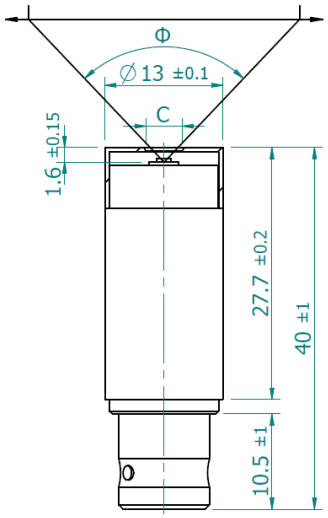
Exemplary spectral detectivity, the spectral response of delivered devices may differ.

Specification (T_a = 20°C, V_b = 0 mV)

Parameter	Detector type									
	PV-3		PV-3.4		PV-4		PV-5		PV-6	
Active element material	epitaxial HgCdTe heterostructure									
Optimal wavelength λ_{opt}, µm	3.0		3.4		4.0		5.0		6.0	
Detectivity D*(λ_{peak}), cm·Hz$^{1/2}$/W	≥8.0×10^9		≥7.0×10^9		≥5.0×10^9		≥2.0×10^9		≥1.0×10^9	
Detectivity D*(λ_{opt}), cm·Hz$^{1/2}$/W	≥6.5×10^9		≥5.0×10^9		≥3.0×10^9		≥1.0×10^9		≥5.0×10^8	
Current responsivity R_i(λ_{opt}), A/W	≥0.5		≥0.8		≥1.0		≥1.0		≥1.0	
Time constant τ, ns	≤350		≤260		≤150		≤120		≤80	
Resistance-active area product R·A, Ω·cm^2	≥1		≥0.5		≥0.1		≥0.01		≥0.002	
Active area A, mm×mm	0.05×0.05, 0.1×0.1									
Package	TO39	BNC	TO39	BNC	TO39	BNC	TO39	BNC	TO39	BNC
Acceptance angle Φ	~90°	~102°	~90°	~102°	~90°	~102°	~90°	~102°	~90°	~102°
Window	none									

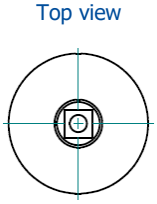
Mechanical layout, mm

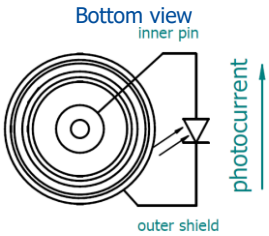
BNC package



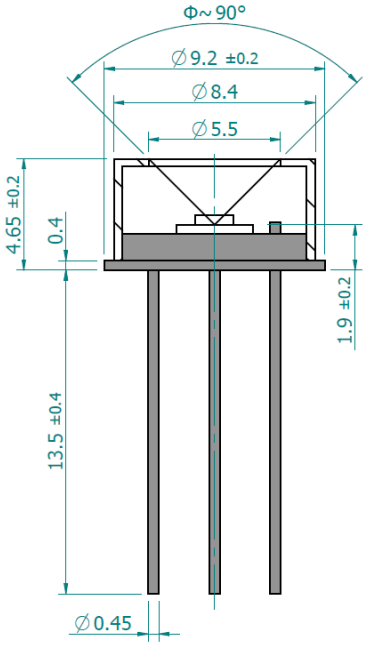
Parameter	Value
Active area, mm×mm	0.05×0.05 – 0.1×0.1
C, mm	Ø4
Acceptance angle Φ	~102°

C – aperture

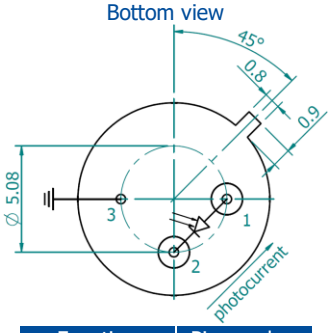




TO39 package



Φ – acceptance angle



Function	Pin number
Detector	1, 2
Chassis ground	3

Dedicated preamplifier

small SIP-TO39