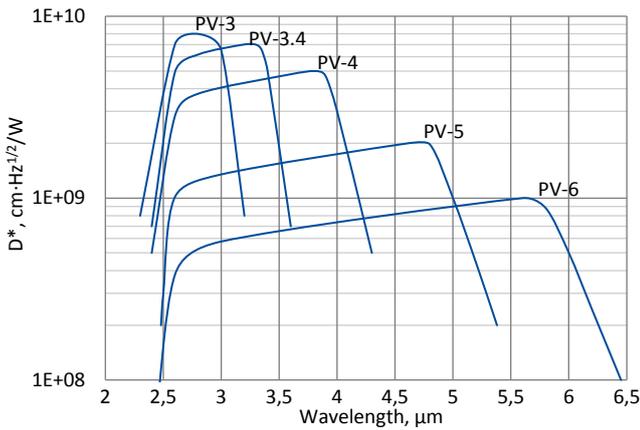


2.9 PV series

2.9.1 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 ($T_a = 20^\circ\text{C}$, $V_b = 0\text{ mV}$)

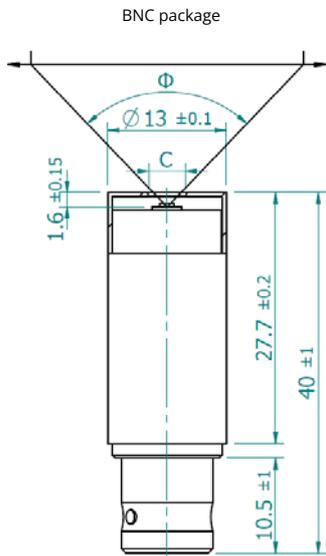


Exemplary spectral detectivity, the spectral response of delivered devices may differ.

Specification ($T_a = 20^\circ\text{C}$, $V_b = 0\text{ mV}$)

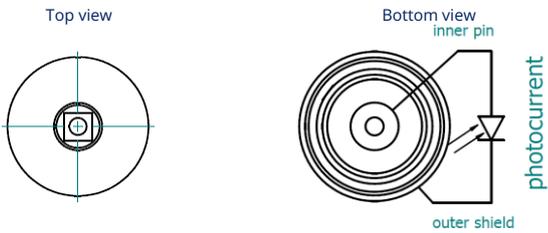
Parameter	Detector type									
	PV-3		PV-3.4		PV-4		PV-5		PV-6	
Active element material	epitaxial HgCdTe heterostructure									
Optimum wavelength λ_{opt} , μm	3.0		3.4		4.0		5.0		6.0	
Detectivity $D^*(\lambda_{peak})$, cm·Hz ^{1/2} /W	≥8.0×10 ⁹		≥7.0×10 ⁹		≥5.0×10 ⁹		≥2.0×10 ⁹		≥1.0×10 ⁹	
Detectivity $D^*(\lambda_{opt})$, 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 $R_i(\lambda_{opt})$, A/W	≥0.5		≥0.8		≥1.0		≥1.0		≥1.0	
Time constant τ , ns	≤350		≤260		≤150		≤120		≤80	
Resistance R , Ω	≥10000		≥5000		≥1000		≥100		≥20	
Active area A , mm×mm	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



Parameter	Value
Active area, mm×mm	0.1×0.1
C, mm	Ø4
Acceptance angle Φ	$\Phi \sim 102^\circ$

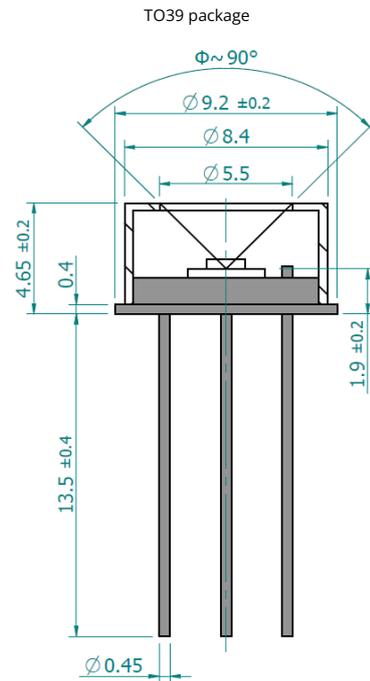
C – aperture



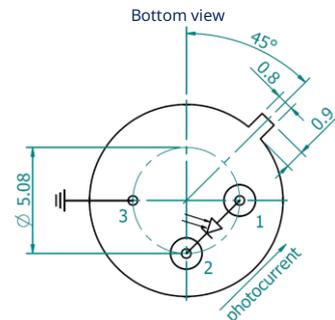
Dedicated preamplifier



small SIP-T039



Φ – acceptance angle



Function	Pin number
Detector	1, 2
Reverse bias (optional)	1(-), 2(+)
Chassis ground	3