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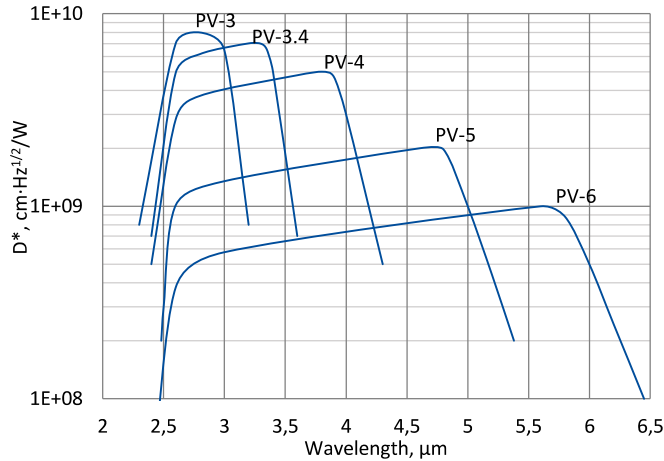
Exemplary spectral detectivity, the spectral response of delivered devices may differ.

BNC   TO39

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 $D^*(\lambda_{peak})$, 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-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
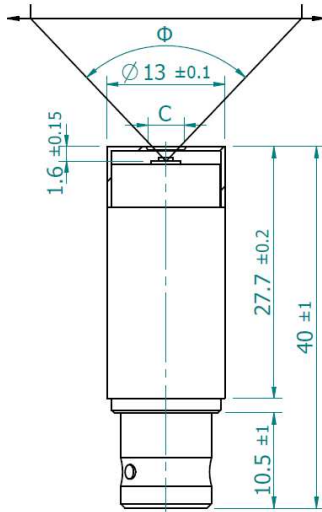
Parameter	Value
Active area, mm×mm	0.05×0.05 − 0.1×0.1
C, mm	Ø4
Acceptance angle Φ	~102°

C – aperture

Top view

Bottom view
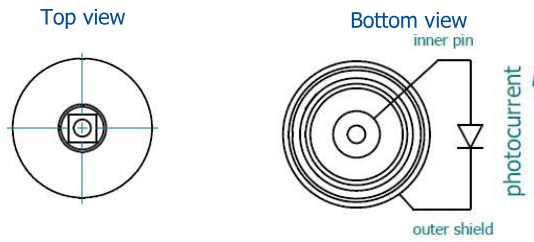
TO39 package
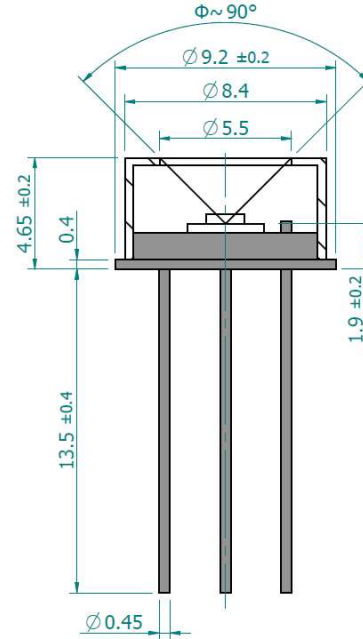
Φ – acceptance angle

Bottom view
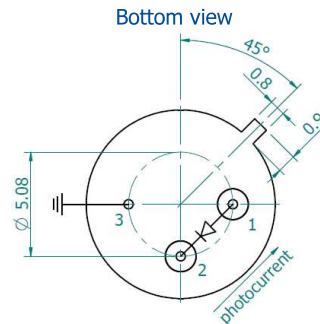
Function	Pin number
Detector	1, 2
Chassis ground	3

Dedicated preamplifier

small SIP-TO39