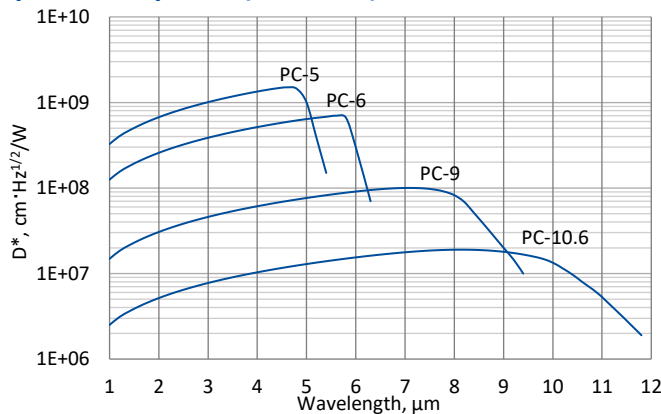


PC series

1.0 – 12.0 μm HgCdTe ambient temperature photoconductive detectors

PC series features uncooled IR photoconductive detectors based on sophisticated HgCdTe heterostructures for the best performance and stability. The devices are optimized for the maximum performance at λ_{opt} . The devices should operate in optimum bias voltage and current readout mode. Performance at low frequencies is reduced due to 1/f noise. The 1/f noise corner frequency increases with the cut-off wavelength.

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



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

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

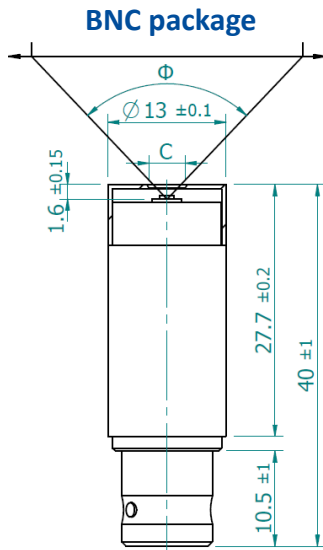
Parameter	Detector type			
	PC-5	PC-6	PC-9	PC-10.6
Active element material	epitaxial HgCdTe heterostructure			
Optimal wavelength λ_{opt} , μm	5.0	6.0	9.0	10.6
Detectivity $D^*(\lambda_{\text{peak}}, 20\text{kHz})$, $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	$\geq 1.5 \times 10^9$	$\geq 7.0 \times 10^8$	$\geq 1.0 \times 10^8$	$\geq 1.9 \times 10^7$
Detectivity $D^*(\lambda_{\text{opt}}, 20\text{kHz})$, $\text{cm}\cdot\text{Hz}^{1/2}/\text{W}$	$\geq 1.0 \times 10^9$	$\geq 3.0 \times 10^8$	$\geq 2.0 \times 10^7$	$\geq 9.0 \times 10^6$
Current responsivity-active area length product $R_i(\lambda_{\text{opt}}) \cdot L$, $\text{A}\cdot\text{mm}/\text{W}$	≥ 0.07	≥ 0.02	≥ 0.003	≥ 0.001
Time constant τ , ns	≤ 5000	≤ 500	≤ 10	≤ 3
1/f noise corner frequency f_c , Hz		$\leq 10\text{k}$		$\leq 20\text{k}$
Bias voltage-active area length ratio V_b/L , V/mm	≤ 4.5	≤ 4.0	≤ 3.6	≤ 3.0
Resistance R , Ω	≤ 1200	≤ 600	≤ 300	≤ 120
Active area A , mm \times mm	0.05 \times 0.05, 0.1 \times 0.1, 0.25 \times 0.25, 0.5 \times 0.5, 1 \times 1 ^{*)} , 2 \times 2, 3 \times 3			
Package	TO39	BNC	TO39	BNC
Acceptance angle Φ	$\sim 90^\circ$	$\sim 102^\circ$ ^{**) / $\sim 124^\circ$^{***)}}	$\sim 90^\circ$	$\sim 102^\circ$ ^{**) / $\sim 124^\circ$^{***)}}
Window	none			

^{*)} Not available for PC-9

^{**) Aperture C = $\varnothing 4$ mm.}

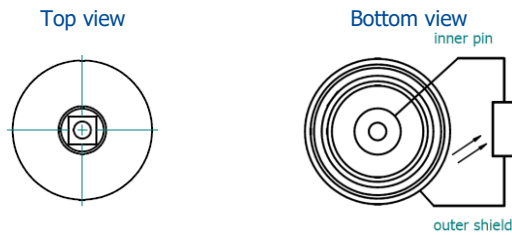
^{***) Aperture C = $\varnothing 6$ mm.}

Mechanical layout, mm

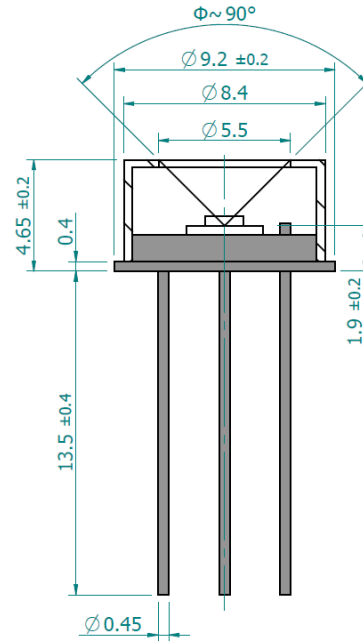


Parameter	Value
Active area, mm×mm	0.05×0.05 – 2×2 3×3 – 4×4
C, mm	Ø4 Ø6
Acceptance angle Φ	~102° ~124°

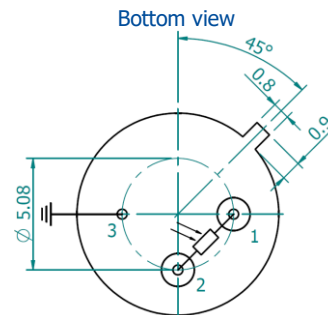
C – aperture



T039 package



Φ – acceptance angle



Function	Pin number
Detector	1, 2
Chassis ground	3

Dedicated preamplifier



small SIP-T039