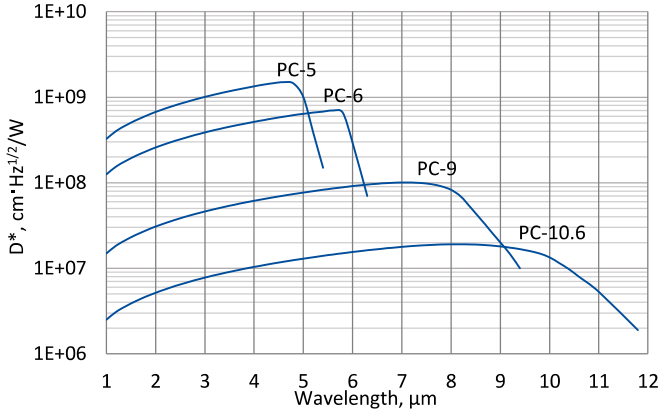
PC series

1 – 12 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°C)



BNC TO39

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

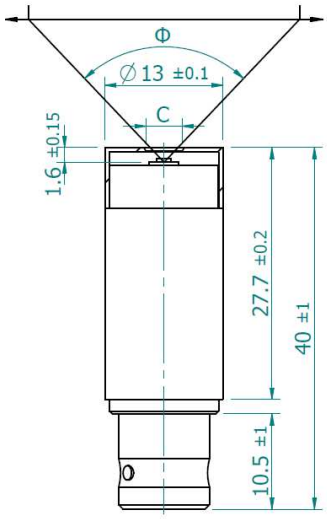
Specification (T_a = 20°C)

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*(λ_{peak}, 20kHz), cm·Hz$^{1/2}$/W	≥1.5×10^9		≥7.0×10^8		≥1.0×10^8		≥1.9×10^7	
Detectivity D*(λ_{opt}, 20kHz), cm·Hz$^{1/2}$/W	≥1.0×10^9		≥3.0×10^8		≥2.0×10^7		≥9.0×10^6	
Current responsivity-active area length product $R_i(\lambda_{opt})$·L, A·mm/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	≤10k						≤20k	
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×mm	0.05×0.05, 0.1×0.1, 0.25×0.25, 0.5×0.5, 1×1, 2×2, 3×3, 4×4							
Package	TO39	BNC	TO39	BNC	TO39	BNC	TO39	BNC
Acceptance angle Φ	~90°	~102°*), ~124°**)	~90°	~102°*), ~124°**)	~90°	~102°*), ~124°**)	~90°	~102°*), ~124°**)
Window	none							

*) Aperture C = Ø4 mm.
**) Aperture C = Ø6 mm.

Mechanical layout, mm

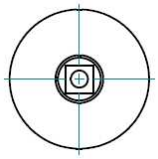
BNC package



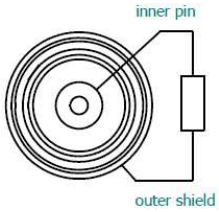
Parameter	Value	
Active area, mm×mm	0.05×0.05 – 2×2	3×3 – 4×4
C, mm	Ø4	Ø6
Acceptance angle Φ	~102°	~124°

C – aperture

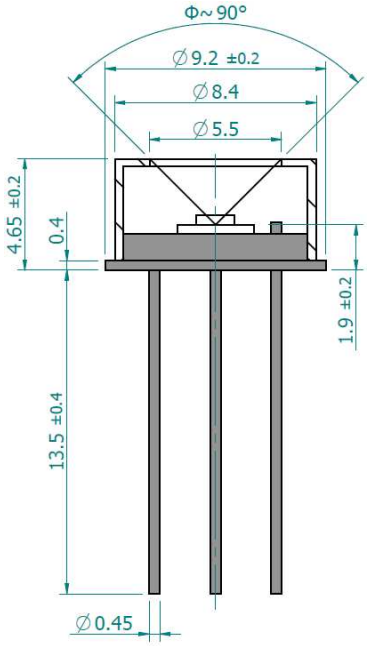
Top view



Bottom view

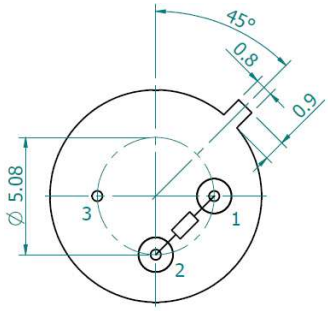


TO39 package



Φ – acceptance angle

Bottom view



Function	Pin number
Detector	1, 2
Chassis ground	3

Dedicated preamplifier

small SIP-TO39