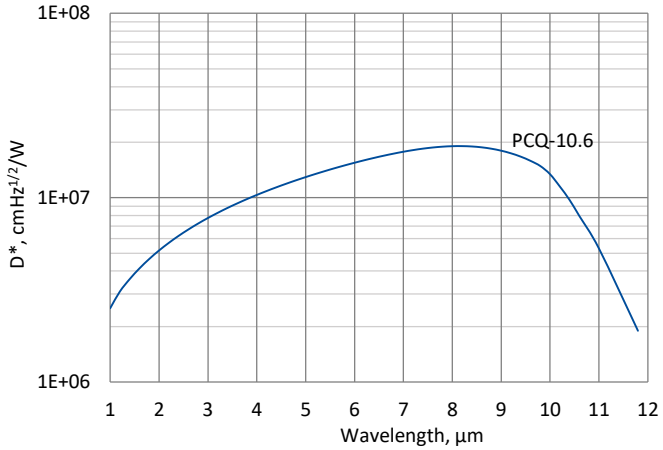
PCQ

1.0 – 12.0 µm HgCdTe ambient temperature photoconductive quadrant detector

PCQ is uncooled IR photoconductive quadrant detector based on sophisticated HgCdTe heterostructures for the best performance and stability. Quadrant detector consists of four separate active elements arranged in a quadrant geometry. The device is optimized for the maximum performance at 10.6 µm. The detector should operate in optimum bias voltage and current readout mode. Performance at low frequencies is reduced due to 1/f noise. The main application of PCQ detectors is laser beam profiling and positioning.

Spectral response (T_a = 20°C)

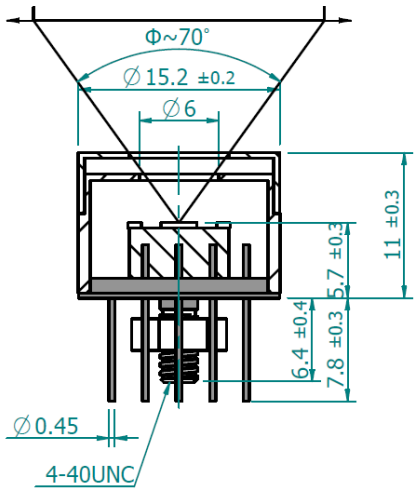


Exemplary spectral detectivity, the spectral response of delivered devices may differ.

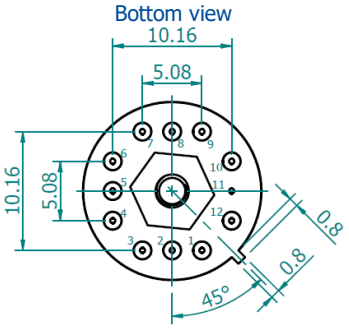
Specification (T_a = 20°C)

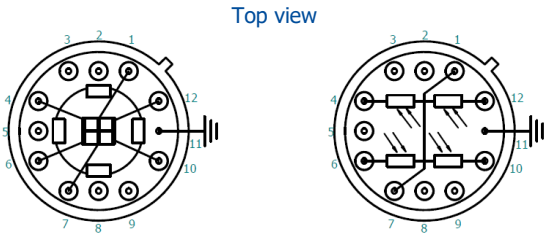
Parameter	Detector type
	PCQ-10.6
Active elements material	epitaxial HgCdTe heterostructure
Optimum wavelength λ_{opt}, µm	10.6
Detectivity D*(λ_{peak}, 20kHz), cm·Hz$^{1/2}$/W	≥1.9×10^7
Detectivity D*(λ_{opt}, 20kHz), cm·Hz$^{1/2}$/W	≥9.0×10^6
Current responsivity R_i(λ_{opt}), A/W	≥0.001
Time constant τ, ns	≤5
1/f noise corner frequency f_c, Hz	≤20k
Bias voltage-active area length ratio V_b/L, V/mm	≤6.0
Resistance R, Ω	≤240
Active area of single element A, mm×mm	1×1
Distance between elements, µm	50
Package	TO8
Acceptance angle Φ	~70°
Window	none

Mechanical layout, mm



Φ – acceptance angle





Function	Pin number
Detector 1	12
Detector 2	10
Detector 3	6
Detector 4	4
Common	1, 7
Chassis ground	11
Not used	2, 3, 5, 8, 9