



FEATURES

- Ambient temperature operation
- $D^*(10.6 \mu\text{m}) \geq 9 \cdot 10^6 \text{cmHz}^{1/2}/\text{W}$
- Time constant of 1 ns or less
- Wide dynamic range
- Perfect match to fast electronics
- Convenient to use
- Low cost
- Prompt delivery
- Custom design upon request

DESCRIPTION

The PCQ- λ_{opt} (λ_{opt} - optimal wavelength in micrometers) series detectors are quadrant, high speed, ambient temperature IR photoconductive detectors. The devices are optimized for the maximum performance at λ_{opt} . Cut-on wavelength is limited by GaAs transmittance (~0.9 μm). Bias is needed to operate photocurrent. Performance at low frequencies (<20 kHz) is reduced due to 1/f noise. Highest performance and stability are achieved by application of variable gap (HgCd)Te semiconductor, optimized doping and sophisticated surface processing. The detectors are well suited for broadband CO₂ laser detection due to a very short time constant and perfect match to fast electronics. Standard detectors are available without window in specialized SMA based package. Custom devices such as various sizes, configurations, connectors, windows and optical filters are available on request.

SPECIFICATION

@20°C

CHARACTERISTICS	UNITS	PCQ-10.6
λ_{opt}	μm	10.6
Detectivity ¹⁾ : @ λ_{peak} , 20kHz @ λ_{opt} , 20kHz	cmHz ^{1/2} /W	$\geq 2.5 \times 10^7$ $\geq 9 \times 10^6$
Responsivity-Width product @ λ_{opt}	Vmm/W	>0.1
Time Constant	ns	<1
1/f Corner Frequency	kHz	1 to 20
Bias current-Width Ratio	mA/mm	5 to 30
Sheet Resistance	Ω/sqr	40 to 120
Operating Temperature	K	~300
Acceptance angle, F/#	deg, -	60, 1

¹⁾ Data sheet states minimum guaranteed D* values for each detector model. Higher performance detectors can be provided upon request.

Type	Length [mm]									
	0.025	0.05	0.1	0.2	0.25	0.5	1	2	3	4
PCQ-10.6		X	X	X	X	X	X	X	X	X

X-standard detectors