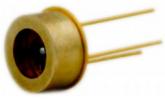
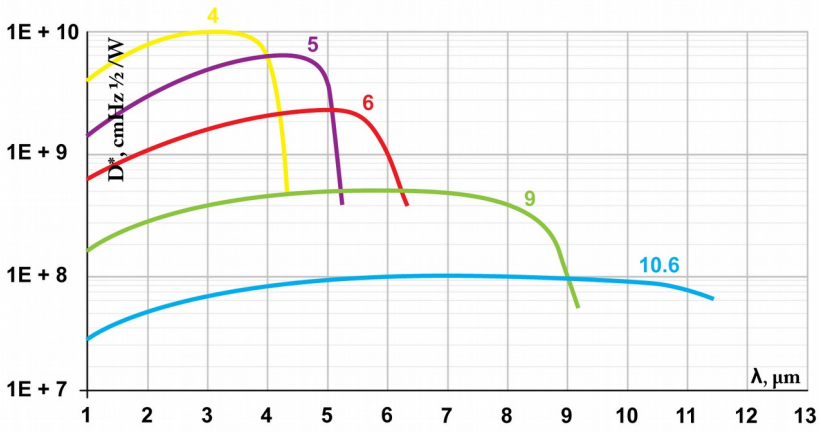
PCI Series

2 – 11 µm IR PHOTOCONDUCTORS OPTICALLY IMMERSED





Example of D vs Wavelength λ for PCI Series HgCdTe Detectors. Spectral Characteristics of individual detectors may vary from those shown on the chart.*

Features

- Ambient temperature operation
- Perfect match to fast electronics
- Convenient to use
- Wide dynamic range
- Low cost
- Prompt delivery
- Custom design upon request

Description

The **PCI-λ_{opt}** photodetectors series (λ_{opt} - optimal wavelength in micrometers) feature IR photoconductive detector, optically immersed to high refractive index GaAs hyperhemispherical (standard) or hemispherical or any intermediate lens (as option) for different acceptance angle and saturation level.

This series is easy to use, no cooling or heatsink needed. 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.

Standard detectors are available in **TO39** or **BNC** packages without windows. Various windows, other packages and connectors are available upon request.

IR Detector Specification @20°C

Parameter	Symbol	Unit	PC-4	PC-5	PC-6	PC-9	PC-10.6
Optimal Wavelength[*)]	λ_{opt}	µm	4	5	6	9	10.6
Detectivity[**)]: **@ λ_{peak}, 20 kHz** **@ λ_{opt}, 20 kHz**	D*	$\frac{cm\cdot\sqrt{Hz}}{W}$	$\geq 1.0\times10^{10}$ $\geq 6.0\times10^{9}$	$\geq 6.0\times10^{9}$ $\geq 4.0\times10^{9}$	$\geq 2.5\times10^{9}$ $\geq 1.0\times10^{9}$	$\geq 5.0\times10^{8}$ $\geq 1.0\times10^{8}$	$\geq 1.0\times10^{8}$ $\geq 8.0\times10^{7}$
Voltage Responsivity - Width Product @λ_{opt}, 1×1mm	$R_v\cdot w$	$\frac{V\cdot mm}{W}$	≥600	≥300	≥60	≥3	≥1
Time Constant	τ	ns	≤1000	≤500	≤200	≤2	≤1
Corner Frequency	1/f	kHz	1 to 20				
Bias Current - Width Ratio	$\frac{I_b}{w}$	$\frac{mA}{mm}$	1 to 2	2 to 4	3 to 10	3 to 15	5 to 20
Sheet Resistance	R_{sq}	Ω	300 to 1000	200 to 400	100 to 300	50 to 150	40 to 120
Operating Temperature	T	K	~300				
Acceptance Angle, F/#	Φ, -	deg, -	36, 1.62				

*) *Other Optimal Wavelengths available upon request.*

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

Type	Optical Area [mm×mm]									
	0.025×0.025	0.05×0.05	0.1×0.1	0.2×0.2	0.25×0.25	0.5×0.5	1×1	2×2	3×3	4×4
PCI-4					X	X	X	X		
PCI-5					X	X	X	X		
PCI-6					X	X	X	X		
PCI-9					X	X	X	X		
PCI-10.6					X	X	X	X		

X – standard detectors

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