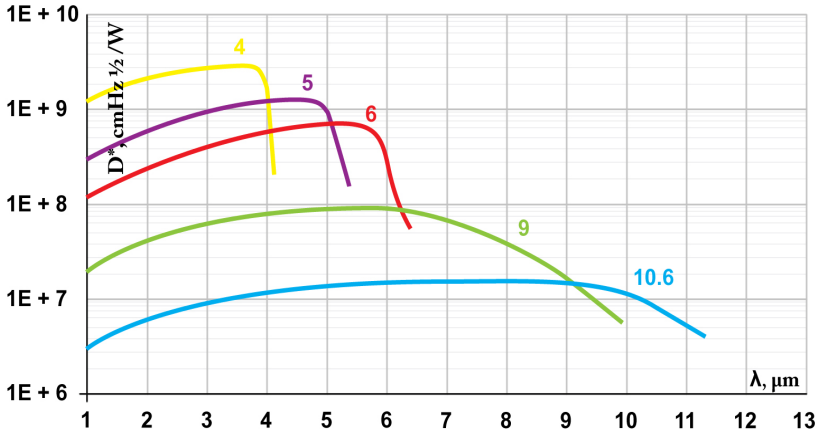
PC Series — 2 – 11 µm IR PHOTOCONDUCTORS



Example of D vs Wavelength λ for PC 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 **PC-λ_{opt}** (λ_{opt} - optimal wavelength in micrometers) feature IR photoconductive detector.
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***	$\frac{cm\cdot\sqrt{Hz}}{W}$	≥3.2×10^9 ≥2.0×10^9	≥1.5×10^9 ≥1.0×10^9	≥7.0×10^8 ≥3.0×10^8	≥1.0×10^8 ≥2.0×10^7	≥1.9×10^7 ≥9.0×10^6
Voltage Responsivity - Width Product @λ_{opt} 1×1mm	$R_v\cdot w$	$\frac{V\cdot mm}{W}$	≥100	≥40	≥6	≥0.4	≥0.1
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 5	1 to 10	1 to 15	2 to 20	5 to 30
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, -**	>90, 0.71				

*) *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**
PC-4	X	X	X	X	X	X	X	X	X	X
PC-5	X	X	X	X	X	X	X	X	X	X
PC-6	X	X	X	X	X	X	X	X	X	X
PC-9	X	X	X	X	X	X	X	X	X	X
PC-10.6	X	X	X	X	X	X	X	X	X	X

X – standard detectors