

Photoconductive detectors PC

PC series features room temperature and TE cooled IR photoconductive detectors. The devices are optimized for the maximum performance at λ_{opt} . Cut-on wavelength is limited by GaAs transmittance ($\sim 0.9 \mu\text{m}$). Bias is needed to operate photocurrent. Performance at low frequencies ($< 20 \text{ kHz}$) is reduced due to $1/f$ noise. The highest performance and stability are achieved by application of variable gap HgCdTe semiconductor, optimized doping and sophisticated surface processing.



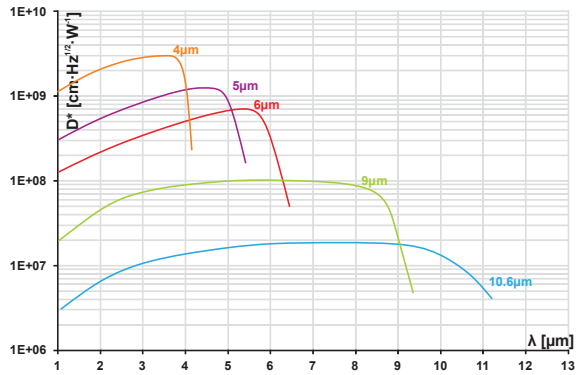
Detector type	Cooling, operating temperature $T [K]$	Optimal wavelength $\lambda_{opt} [\mu\text{m}]$	Detectivity ^{**) [cm²·√Hz/W]}		Current responsivity length product @ λ_{opt} $R_{i,L} [\text{A} \cdot \text{mm}/\text{W}]$	Time constant $\tau [ns]$	1/f noise corner frequency $f_c [kHz]$	Bias voltage-length ratio $\frac{V}{L} [\text{V}/\text{mm}]$	Sheet resistance $R_{sq} [\Omega]$	Acceptance angle $\varnothing [^\circ]_{2\sigma/A}$	Optical area ^{**) [mm × mm]}	Package	Window ^{****)}	
			@ λ_{peak}^1 20kHz	@ λ_{opt}^1 20kHz										
PC	uncooled, ~300	4	$\geq 3.2 \times 10^9$	$\geq 2.0 \times 10^9$	≥ 0.1	≤ 12000	≤ 20	≤ 6.0	≤ 2000	$\geq 90, 0.71$	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 ¹⁾ 4 × 4 ¹⁾	BNC, TO39	no window	
		5	$\geq 1.5 \times 10^9$	$\geq 1.0 \times 10^9$	≥ 0.07	≤ 5000		≤ 6.0	≤ 1200					
		6	$\geq 7.0 \times 10^8$	$\geq 3.0 \times 10^8$	≥ 0.02	≤ 500		≤ 6.0	≤ 600					
		9	$\geq 1.0 \times 10^8$	$\geq 2.0 \times 10^7$	≥ 0.003	≤ 10		≤ 6.0	≤ 300					
		10.6	$\geq 1.9 \times 10^7$	$\geq 9.0 \times 10^6$	≥ 0.001	≤ 3		≤ 6.0	≤ 120					
	two-stage TE-cooled (2TE), ~230	4	$\geq 3.2 \times 10^{10}$	$\geq 2.0 \times 10^{10}$	≥ 0.65	≤ 30000		≤ 4.5	≤ 1500	$\sim 70, 0.87$		≤ 2.25	TO8, TO66	wedged Al ₂ O ₃
		5	$\geq 2.0 \times 10^{10}$	$\geq 1.0 \times 10^{10}$	≥ 0.5	≤ 20000		≤ 4.5	≤ 1200					
		6	$\geq 6.0 \times 10^9$	$\geq 3.0 \times 10^9$	≥ 0.18	≤ 4000		≤ 4.5	≤ 800					
		9	$\geq 9.0 \times 10^8$	$\geq 4.5 \times 10^8$	≥ 0.025	≤ 40		≤ 3.8	≤ 400					
		10.6	$\geq 4.0 \times 10^8$	$\geq 1.4 \times 10^8$	≥ 0.01	≤ 10		≤ 3.8	≤ 300					
		12	$\geq 1.0 \times 10^8$	$\geq 4.5 \times 10^7$	≥ 0.005	≤ 3		≤ 2.5	≤ 200					
	three-stage TE-cooled (3TE), ~210	9	$\geq 1.5 \times 10^9$	$\geq 1.0 \times 10^9$	≥ 0.075	≤ 60		≤ 3.0	≤ 400	≤ 2.25		≤ 300	wedged ZnSe AR coated	
		10.6	$\geq 4.5 \times 10^8$	$\geq 2.5 \times 10^8$	≥ 0.02	≤ 20		≤ 2.25	≤ 300					
		12	$\geq 1.8 \times 10^8$	$\geq 9.0 \times 10^7$	≥ 0.01	≤ 5		≤ 2.25	≤ 300					
		13	$\geq 1.2 \times 10^8$	$\geq 6.0 \times 10^7$	≥ 0.007	≤ 4		≤ 2.25	≤ 300					
	four-stage TE-cooled (4TE), ~195	9	$\geq 2.5 \times 10^9$	$\geq 2.0 \times 10^9$	≥ 0.1	≤ 80		≤ 3.8	≤ 500	≤ 2.25		≤ 300	wedged ZnSe AR coated	
		10.6	$\geq 5.0 \times 10^8$	$\geq 3.5 \times 10^8$	≥ 0.03	≤ 30		≤ 3.0	≤ 400					
		12	$\geq 4.0 \times 10^8$	$\geq 2.0 \times 10^8$	≥ 0.015	≤ 7		≤ 3.0	≤ 400					
		13	$\geq 2.0 \times 10^8$	$\geq 1.0 \times 10^8$	≥ 0.01	≤ 6		≤ 3.0	≤ 400					
		14	$\geq 1.0 \times 10^8$	$\geq 6.0 \times 10^7$	≥ 0.007	≤ 5		≤ 2.25	≤ 300					

<sup>**) Other optimal wavelengths available upon request.
<sup>**) Data sheet states minimum guaranteed D* values for each detector model. Higher performance detectors can be provided upon request.
<sup>**) Other optical areas available upon request.
<sup>**) Other windows available upon request.
^{1) Optical area available only for uncooled detectors}</sup></sup></sup></sup>

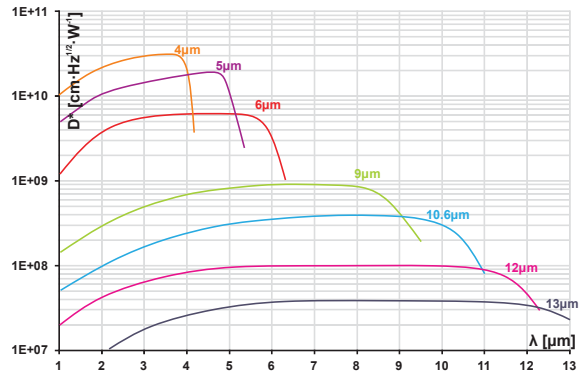


Spectral characteristics^{*)}

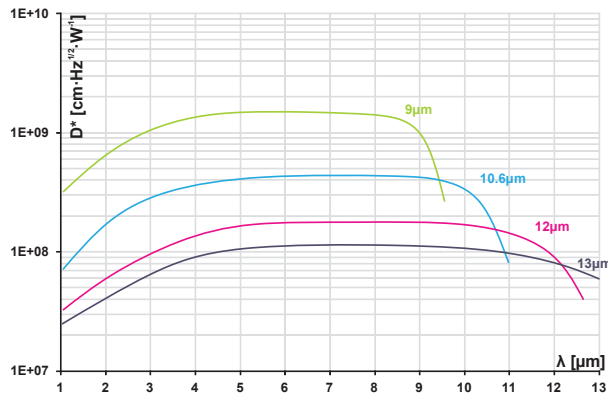
PC



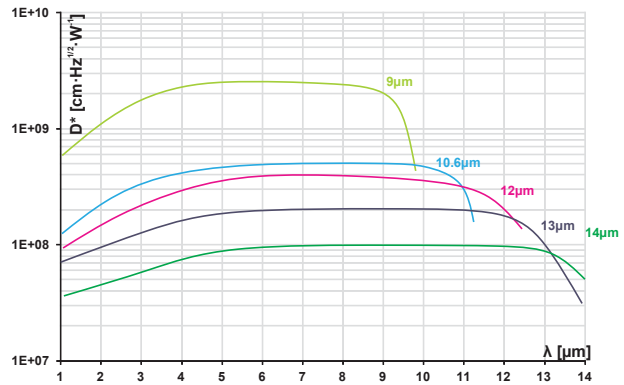
PC-2TE



PC-3TE



PC-4TE



^{*)}Example of D^* vs wavelength for HgCdTe detectors. Spectral characteristics of individual detectors may vary from those shown on the chart.



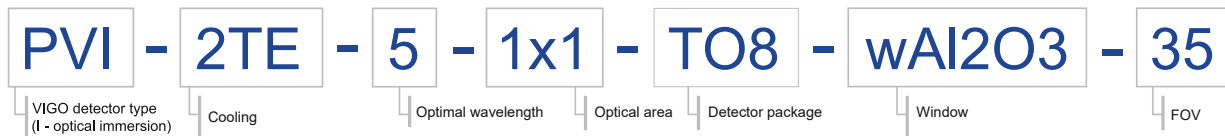
Detector code

Different information such as detector type, optical immersion, number of stages TE-cooler, wavelength a detector is optimized for, dimensions of optical area, package type, window type and FOV combine, to create VIGO detector code.

Code description of uncooled detector



Code description of cooled detector



Please see data sheets to get possible option of each type detector.

