

Photoconductive detectors optically immersed PCI

PCI series features room temperature and TE cooled IR photoconductive detectors, optically immersed (achieved by using high refractive index micro lenses) in order to improve performance of the devices, different acceptance angle and saturation level. The devices are optimized for the maximum performance at λ_{opt} . Cut-on wavelength is limited by GaAs transmittance ($\sim 0.9 \mu m$). Bias is needed to operate photocurrent. Performance at low frequencies (< 20 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.

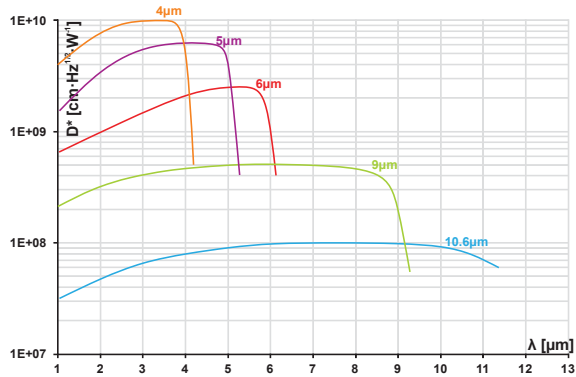
Detector type	Cooling, operating temperature $T [K]$	Optimal wavelength ^{*)} $\lambda_{opt} [\mu m]$	Detectivity ^{**) [cm²·V/Hz/W]}		Current responsivity length product @ λ_{opt} $R_{\lambda} \cdot L [\frac{A \cdot mm}{W}]$	Time constant $\tau [ms]$	1/f noise corner frequency $f_c [kHz]$	Bias voltage length ratio $\frac{V}{L} [\frac{V}{mm}]$	Sheet resistance $R_{sq} [\Omega]$	Acceptance angle $\varnothing [^\circ]_{2\sigma/A}$	Optical area ^{***) [mm x mm]}	Package	Window ^{****)}				
			@ λ_{peak} 20kHz	@ λ_{opt} 20kHz													
PCI	uncooled, ~300	4	$\geq 1.0 \times 10^{10}$	$\geq 6.0 \times 10^9$	≥ 0.6	≤ 12000	≤ 20	≤ 4.8	≤ 2000	$\sim 36, 1.62$	0.25x0.25 0.5x0.5 1x1 2x2	BNC, TO39	no window				
		5	$\geq 6.0 \times 10^9$	$\geq 4.0 \times 10^9$	≥ 0.5	≤ 5000								≤ 1200			
		6	$\geq 2.5 \times 10^9$	$\geq 1.0 \times 10^9$	≥ 0.2	≤ 500								≤ 600			
		9	$\geq 5.0 \times 10^8$	$\geq 1.0 \times 10^8$	≥ 0.02	≤ 10								≤ 300			
		10.6	$\geq 1.0 \times 10^8$	$\geq 8.0 \times 10^7$	≥ 0.008	≤ 3								≤ 240			
	two-stage TE-cooled (2TE), ~230	4	$\geq 6.0 \times 10^{10}$	$\geq 4.0 \times 10^{10}$	≥ 4.0	≤ 30000								≤ 3.8	≤ 3000	TO8, TO66	wedged Al ₂ O ₃
		5	$\geq 4.0 \times 10^{10}$	$\geq 2.0 \times 10^{10}$	≥ 3.0	≤ 20000								≤ 3.8	≤ 2000		
		6	$\geq 2.0 \times 10^{10}$	$\geq 1.0 \times 10^{10}$	≥ 1.5	≤ 4000								≤ 3.8	≤ 800		
		9	$\geq 8.0 \times 10^9$	$\geq 4.0 \times 10^9$	≥ 0.225	≤ 40								≤ 3.0	≤ 400		
		10.6	$\geq 2.8 \times 10^9$	$\geq 1.0 \times 10^9$	≥ 0.1	≤ 10								≤ 3.0	≤ 300		
		12	$\geq 1.0 \times 10^9$	$\geq 4.5 \times 10^8$	≥ 0.05	≤ 3						≤ 2.0	≤ 200				
	three-stage TE-cooled (3TE), ~210	9	$\geq 1.0 \times 10^{10}$	$\geq 6.2 \times 10^9$	≥ 0.7	≤ 60						≤ 2.4	≤ 400	wedged ZnSe AR coated			
		10.6	$\geq 4.5 \times 10^9$	$\geq 2.5 \times 10^9$	≥ 0.17	≤ 20						≤ 1.8	≤ 300				
		12	$\geq 1.8 \times 10^9$	$\geq 9.0 \times 10^8$	≥ 0.07	≤ 5						≤ 1.8	≤ 300				
		13	$\geq 9.0 \times 10^8$	$\geq 4.5 \times 10^8$	≥ 0.03	≤ 4						≤ 1.8	≤ 300				
	four-stage TE-cooled (4TE), ~195	9	$\geq 1.25 \times 10^{10}$	$\geq 1.0 \times 10^{10}$	≥ 0.9	≤ 80						≤ 3.0	≤ 500	wedged ZnSe AR coated			
		10.6	$\geq 4.0 \times 10^9$	$\geq 3.0 \times 10^9$	≥ 0.2	≤ 30						≤ 2.4	≤ 400				
		12	$\geq 3.0 \times 10^9$	$\geq 2.0 \times 10^9$	≥ 0.09	≤ 7						≤ 2.4	≤ 400				
		13	$\geq 2.0 \times 10^9$	$\geq 1.0 \times 10^9$	≥ 0.05	≤ 6						≤ 2.4	≤ 400				
		14	$\geq 5.0 \times 10^8$	$\geq 3.0 \times 10^8$	≥ 0.03	≤ 5						≤ 1.8	≤ 300				

*) 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.
 ***) Other optical areas available upon request.
 ****) Other windows available upon request.
 .¹⁾ Optical area available only for uncooled detectors

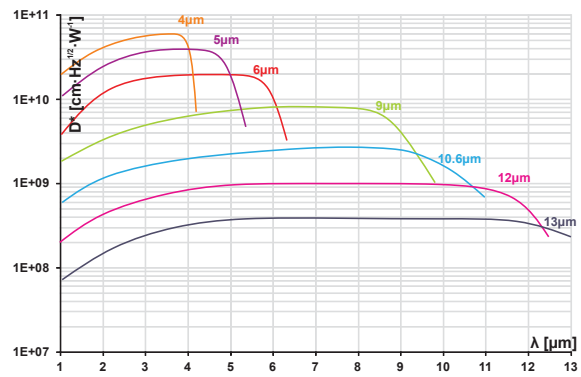


Spectral characteristics^{*)}

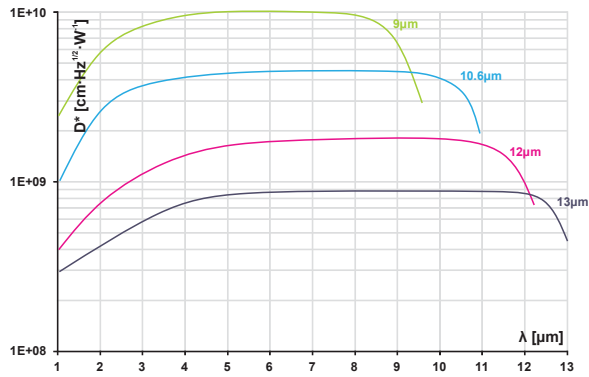
PCI



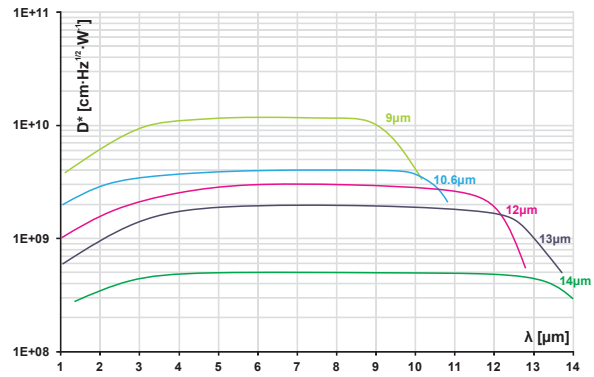
PCI-2TE



PCI-3TE



PCI-4TE



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



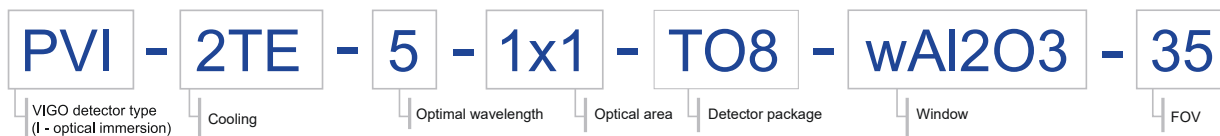
Detector code

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.

