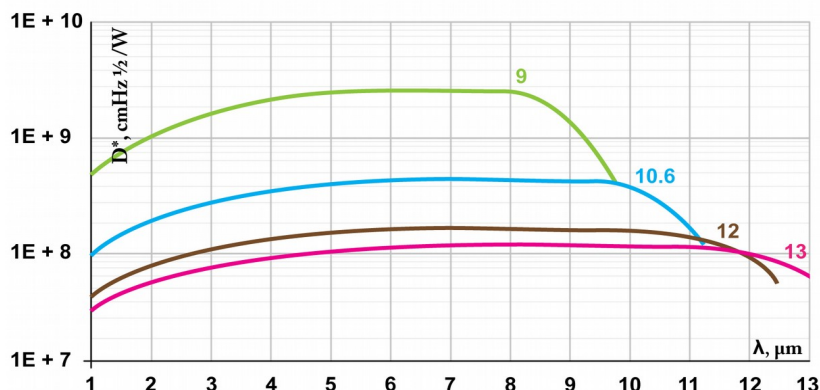
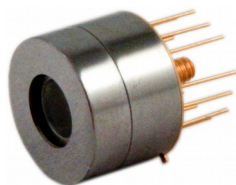


PC-3TE Series

2 – 13 μm IR PHOTOCONDUCTORS THERMOELECTRICALLY COOLED



Example of D^* vs Wavelength λ for PC-3TE Series HgCdTe Detectors. Spectral Characteristics of individual detectors may vary from those shown on the chart.

Features

- High performance in the 2 to 13 μm spectral range
- Fast response
- Convenient to use
- Wide dynamic range
- Compact, rugged and reliable
- Low cost
- Prompt delivery
- Custom design upon request

Description

The **PC-3TE- λ_{opt}** photodetectors series (λ_{opt} - optimal wavelength in micrometers) feature IR photoconductive detector on three-stage thermoelectrical cooler. 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 (**HgCdTe**) semiconductor, optimized doping and sophisticated surface processing. Custom devices with quadrant cells, multielement arrays, different windows, lenses and optical filters are available upon request. Standard detectors are available in **TO8** packages with **wZnSeAR** windows. Other packages, windows and connectors are also available.

IR Detector Specification @20°C

Parameter	Symbol	Unit	PC-3TE-9	PC-3TE-10.6	PC-3TE-12	PC-3TE-13
Optimal Wavelength ¹⁾	λ_{opt}	μm	9	10.6	12	13
Detectivity ²⁾ : @ λ_{peak} , 20 kHz	D^*	$\frac{cm \cdot \sqrt{Hz}}{W}$	$\geq 2.9 \times 10^9$	$\geq 4.5 \times 10^8$	$\geq 1.8 \times 10^8$	$\geq 1.2 \times 10^8$
@ λ_{opt} , 20 kHz			$\geq 1.5 \times 10^9$	$\geq 2.5 \times 10^8$	$\geq 9.0 \times 10^7$	$\geq 6.0 \times 10^7$
Voltage Responsivity - Width Product @ λ_{opt} , 1x1mm	$R_v \cdot w$	$\frac{V \cdot mm}{W}$	≥ 15	≥ 3	≥ 1.5	≥ 1
Time Constant	τ	ns	≤ 7	≤ 5	≤ 5	≤ 4
Corner Frequency	1/f	kHz	1 to 20			
Bias Current - Width Ratio	$\frac{I_b}{w}$	$\frac{mA}{mm}$	4 to 10			
Sheet Resistance	R_{sq}	Ω	60 to 200	40 to 150		
Operating Temperature	T	K	~210			
Acceptance Angle, F/#	Φ , -	deg, -	70, 0.87			

¹⁾ Other Optimal Wavelengths available upon request.

²⁾ 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-3TE-9	X	X	X	X	X	X	X	X	X	
PC-3TE-10.6	X	X	X	X	X	X	X	X		
PC-3TE-12	X	X	X	X	X	X	X	X		
PC-3TE-13	X	X	X	X	X	X	X	X		

X – standard detectors