PC-2TE SERIES

2-13 µm IR PHOTOCONDUCTORS THERMOELECTRICALLY COOLED

FEATURES

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

DESCRIPTION

PC-2TE-λ_{opt} photodetectors series (λ_{opt} - optimal wavelength in micrometers) feature IR photoconductive detector on two-stage thermoelectrical cooler. The devices are optimized for the maximum performance at λ_{opt}. Cut-on wavelength is limited by GaAs transittance (~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. Custom devices with quadrant cells, multielement arrays, different windows, lenses and optical filters are available upon request.

Standard detectors are available in TO-8 packages with BaF_2 windows. Other packages, windows and connectors are also available.

SPECIFICATION   @20ºC

CHARACTERISTICS	UNITS	PC-2TE-4	PC-2TE-5	PC-2TE-6	PC-2TE-9	PC-2TE-10.6	PC-2TE-12	PC-2TE-13
λ_{opt}	µm	4	5	6	9	10.6	12	13
Detectivity[1]: @ λ_{peak}, 20kHz @ λ_{opt}, 20kHz	$cmHz^{1/2}/W$	$\geq 3.2\times 10^{10}$ $\geq 2\times 10^{10}$	$\geq 2\times 10^{10}$ $\geq 1\times 10^{10}$	$\geq 6\times 10^{9}$ $\geq 3\times 10^{9}$	$\geq 9\times 10^{8}$ $\geq 4.5\times 10^{8}$	$\geq 4\times 10^{8}$ $\geq 1.4\times 10^{8}$	$\geq 1\times 10^{8}$ $\geq 4.5\times 10^{7}$	$\geq 4\times 10^{7}$ $\geq 2\times 10^{7}$
Responsivity-Width product @ λ_{opt} 1x1 mm	Vmm/W	>1000	>500	>70	>5	>1.5	>0.5	>0.25
Time Constant	ns	<4000	<2000	<1000	<20	<10	<2	<2
1/f Corner Frequency	kHz	1 to 10	1 to 10	1 to 10	1 to 10	1 to 20	1 to 20	1 to 20
Bias current-Width Ratio	mA/mm	1 to 2	2 to 4	4 to 8	4 to 10	5 to 15	5 to 15	5 to 15
Sheet Resistance	Ω/sqr	600 to 1500	300 to 500	200 to 400	80 to 200	50 to 150	60 to 100	40 to 120
Operating Temperature	K	~230						
Acceptance angle, F/#	deg, -	70, 0.87						

[1] Data sheet states minimum guaranteed D* values for each detector model. Higher performance detectors can be provided upon request.

Type	Length [mm]									
	0.025	0.05	0.1	0.2	0.25	0.5	1	2	3	4
PC-2TE-4	X	X	X	X	X	X	X	X		
PC-2TE-5	X	X	X	X	X	X	X	X		
PC-2TE-6	X	X	X	X	X	X	X	X		
PC-2TE-9	X	X	X	X	X	X	X	X		
PC-2TE-10.6	X	X	X	X	X	X	X	X		
PC-2TE-12	X	X	X	X	X	X	X	X		
PC-2TE-13	X	X	X	X	X	X	X	X		

X – standard detectors