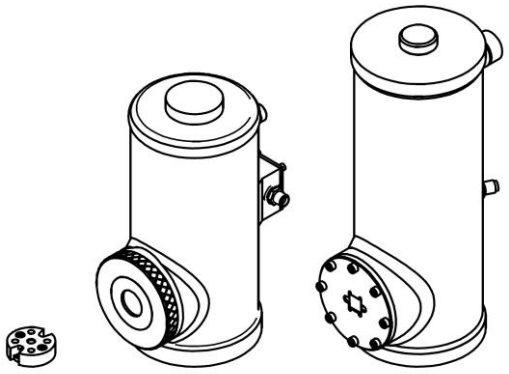
PC-LN2-16.6-1x1-VFP-NW-50 PRELIMINARY DATASHEET

HgCdTe photoconductive infrared detector optimized for operation at 77 K



FEATURES

- Active element material optimized for operation at 77 K
- Especially designed flatpack package (without window) for easy self-assembly in LN2 metal dewars
- Possible assembly in LN2 metal dewars (Kadel KR163-FSMA2, Kadel KR-323) by VIGO Photonics (on request)
- Possible assembly of temperature sensor
- Active area dimension 0.25 mm × 0.25 mm available (on request)
- Other acceptance angle values available (on request)

APPLICATIONS

- FTIR spectroscopy

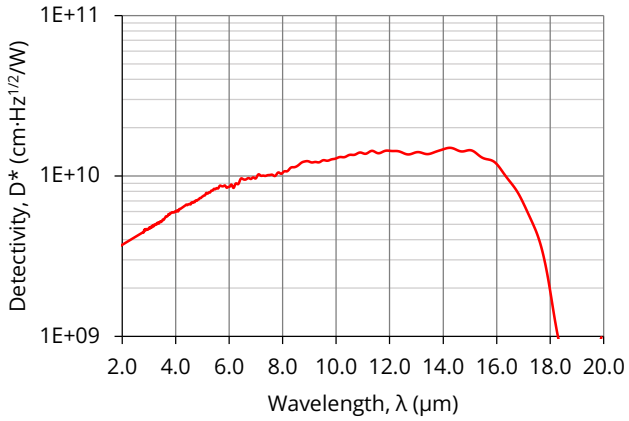
SERIES CONFIGURATION

Detector symbol	Cooling	Temperature sensor	Active area, A, mm×mm	Optical immersion	Package	Acceptance angle, Φ, deg.	Window
PC-LN2-16.6-1x1-VFP-NW-50	LN2 (for operation in 77 K)	no	1x1	no	VFP (flatpack)	50	no

SPECIFICATION (T_{amb} = 293 K, T_{chip} = 77 K, I_b = 15 mA)

Detector symbol	Peak wavelength	Cut-off wavelength (10%)	Detectivity	Voltage responsivity	Resistance	Bias current
	λ_{peak}	$\lambda_{cut\text{-}off}$	D*(λ_{peak}, 20kHz)	$R_v(\lambda_{peak})$	R	I_b
	µm	µm	cm·Hz$^{1/2}$/W	V/W	Ω	mA
	Typ.	Typ.	Typ.	Typ.	Typ.	Typ.
PC-LN2-16.6-1x1-VFP-NW-50	14.3	18.1	1.5×10^{10}	500	40	15

SPECTRAL RESPONSE (Typ., T_{amb} = 293 K, T_{chip} = 77 K, I_b = 15 mA)



MECHANICAL LAYOUT AND SIGNAL OUTPUT

- LN2-VFP(2p), PC detector technical drawing

ABSOLUTE MAXIMUM RATINGS

Parameter	Test conditions, remarks	Value	Unit
Ambient operating temperature, T_{amb}	Operation at T_{amb} >30°C may increase the liquid nitrogen consumption in the dewar	-20 to 30	°C
Storage temperature, T_{stg}		-20 to 50	°C
Storage humidity	No dew condensation	10 to 90	%
Maximum incident optical power density	Continuous wave (CW) or single pulses >1 μs duration	100	W/cm^2
	Single pulses <1 μs duration	1	MW/cm^2
Maximum bias current, $I_{b\,max}$		25	mA

Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. Constant or repeated exposure to absolute maximum rating conditions may affect the quality and reliability of the device.