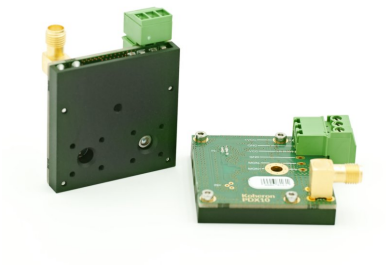
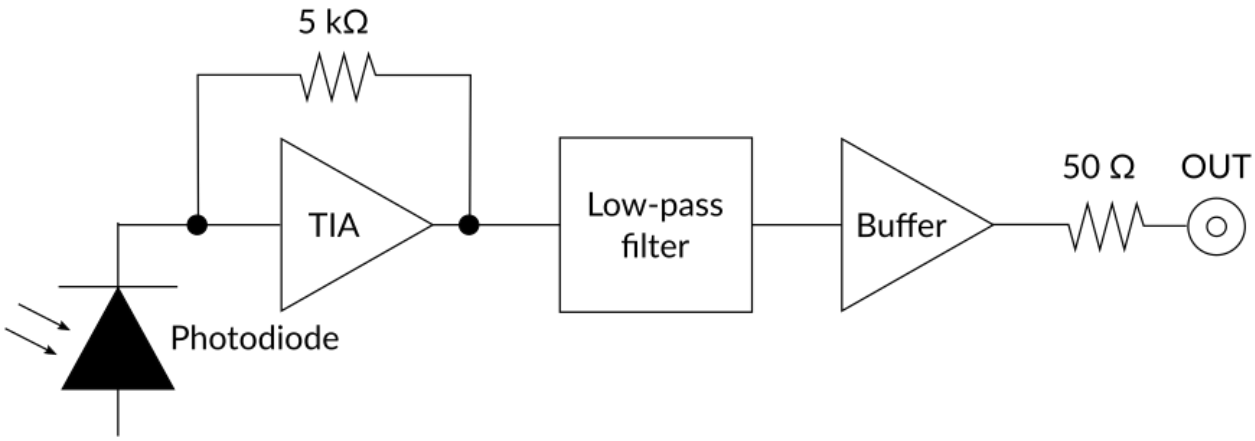


Koheron PDX10S-INGAAS is an InGaAs free-space photodetector with 5 kV/A transimpedance gain and 50 MHz bandwidth. With a noise-equivalent power spectral density of 2 pW/√Hz at 1550 nm and up to 8 V DC output voltage, the PDX10S-INGAAS is the perfect candidate for applications requiring high dynamic range. A 1 MV/A version with 0.8 MHz bandwidth is also available.

Specifications

	PDX10S-1M-DC-INGAAS	PDX10S-5-DC-INGAAS	PDX10S-5-DC-LWINGAAS
Detector			
Detector type	InGaAs PIN photodiode	InGaAs PIN photodiode	InGaAs PIN long wavelength photodiode
Photodiode active diameter	300 µm	300 µm	300 µm
Wavelength range	900 nm to 1700 nm	900 nm to 1700 nm	1000 nm to 2100 nm
Optical input power	0 µW to 7.5 µW	0 mW to 1.5 mW	0 mW to 1.5 mW
Photodiode peak responsivity	1.1 A/W (at 1550 nm)	1.1 A/W (at 1550 nm)	1.2 A/W (at 1900 nm)
Transimpedance amplifier			
Small signal bandwidth	0 Hz to 0.8 MHz at 3 dB	0 Hz to 50 MHz at 3 dB	0 Hz to 40 MHz at 3 dB
Coupling	DC	DC	DC
Transimpedance gain	1 MV/A	5 kV/A	5 kV/A
Noise Equivalent Power	150 fW/√Hz at 10 kHz	2 pW/√Hz at 1 MHz	2 pW/√Hz at 1 MHz
Output impedance	50 Ω	50 Ω	50 Ω
Output voltage range high impedance load	0 V to 8 V	0 V to 8 V	0 V to 8 V
Output voltage range 50 Ω load	0 V to 4 V	0 V to 4 V	0 V to 4 V
Output	SMA female connector	SMA female connector	SMA female connector
Power supplies			
Positive supply voltage	10.5 V to 13 V	10.5 V to 13 V	10.5 V to 13 V
Negative supply voltage	-9 V to -4 V	-9 V to -4 V	-9 V to -4 V
Quiescent current per rail	40 mA	40 mA	40 mA
Maximum current positive supply	130 mA	130 mA	130 mA
Other			
Outside dimensions	49 mm x 40 mm x 18 mm	49 mm x 40 mm x 18 mm	49 mm x 40 mm x 18 mm
Operating temperature	0 °C to 50 °C	0 °C to 50 °C	0 °C to 50 °C
Weight	26 g	26 g	26 g

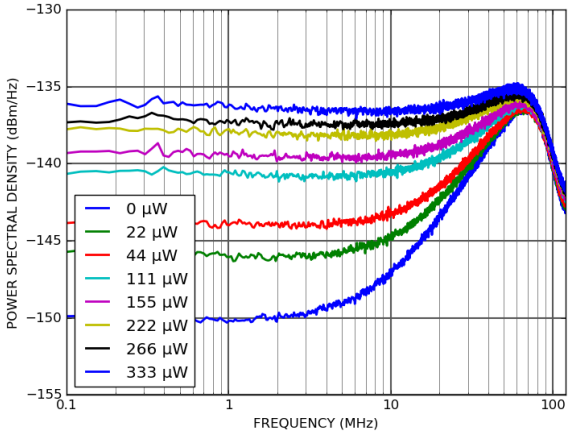
Functional diagram



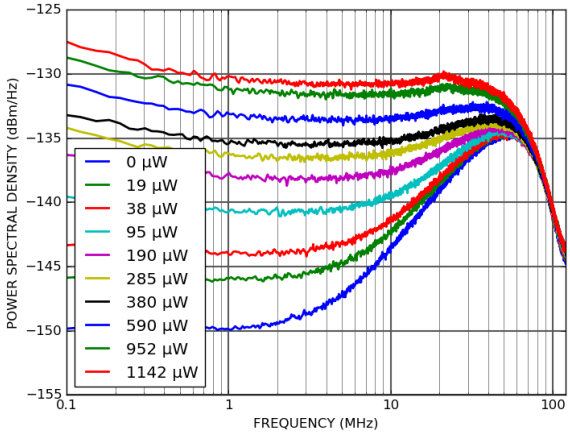
PDX10S-INGAAS functional diagram

Output power spectral density

The power spectral density of the PDX10S-INGAAS output was measured for different incident optical powers. For the PDX10S-5-DC-INGAAS the optical source is a 1300 nm LED driven by a Koheron DRV110-A-1200 laser driver, and for the PDX10S-5-DC-LWINGAAS the optical source is a 1550 nm DFB laser driven by a Koheron CTL101-1-B-200 laser controller. Power spectrum is measured using the Koheron ALPHA250 FFT analyzer.

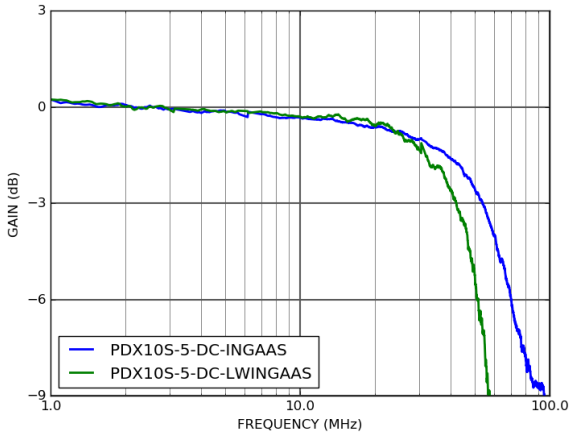


PDX10S-5-DC-INGAAS (900 nm to 1700 nm) power spectral density vs optical power



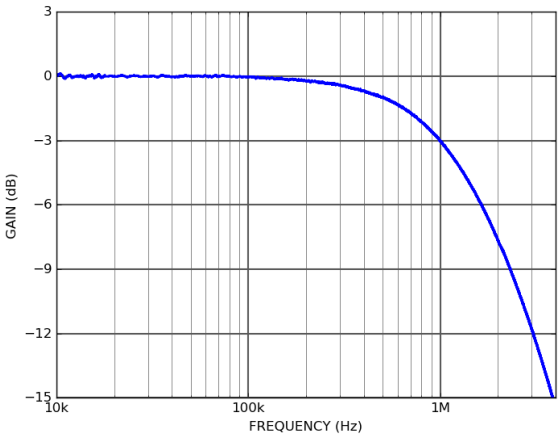
PDX10S-5-DC-LWINGAAS (1000 nm to 2100 nm) power spectral density vs optical power

Small signal frequency response



PDX10S-INGAAS small signal frequency response

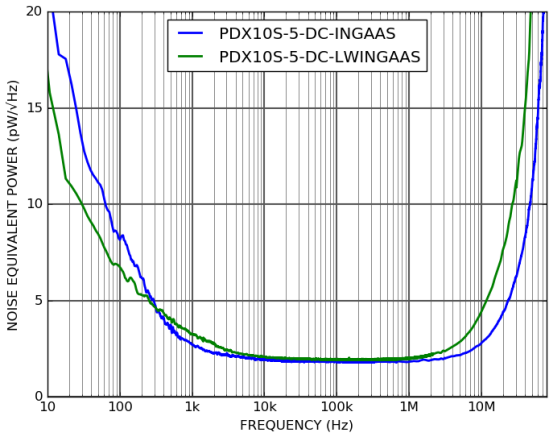
Frequency response for the PDX10S-1M-DC-INGAAS:



PDX10S-1M-DC-INGAAS small signal frequency response

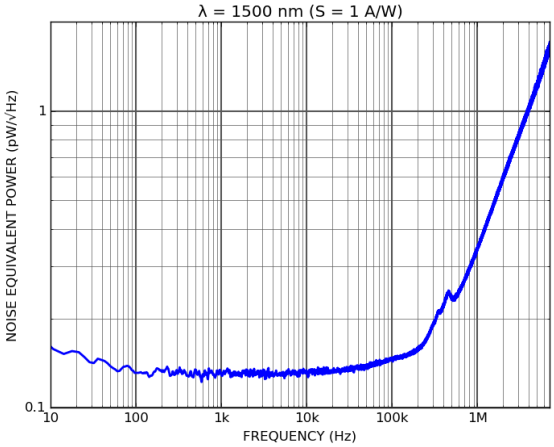
Noise equivalent power

The figure below shows the noise equivalent power spectral density at a wavelength of 1550 nm.



PDX10S-INGAAS noise equivalent power

Noise equivalent power for the PDX10S-1M-DC-INGAAS:



PDX10S-1M-DC-INGAAS noise equivalent power

Ordering codes

PRODUCT NUMBER	ATTRIBUTE
PDX10S-5-DC-INGAAS	Transimpedance gain 5 kV/A / Wavelength range 900 to 1700 nm
PDX10S-5-DC-LWINGAAS	Transimpedance gain 5 kV/A / Wavelength range 1000 to 2100 nm
PDX10S-1M-DC-INGAAS	Transimpedance gain 1 MV/A / Wavelength range 900 to 1700 nm