

## Si free-space photodetector



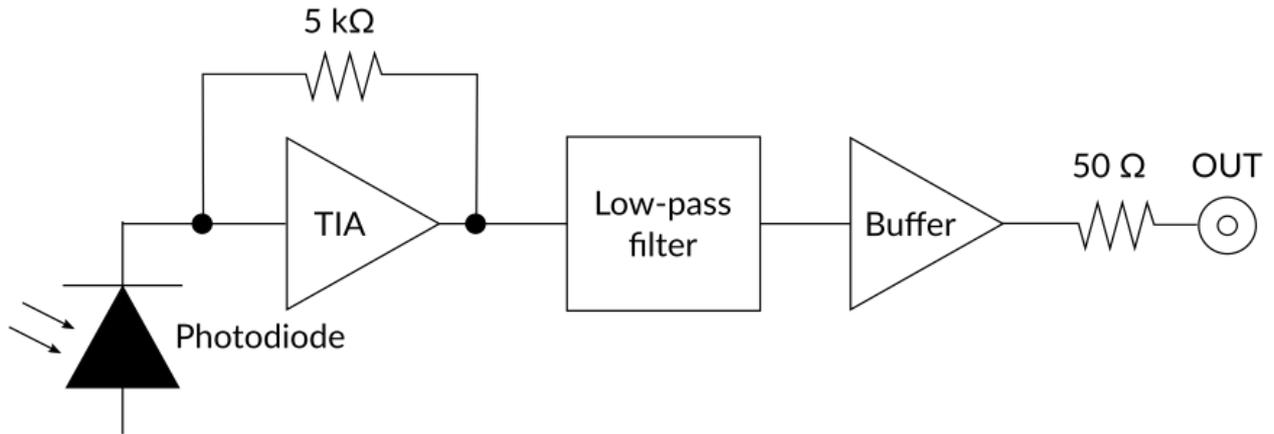
Koheron PDX10S-SI is a Si free-space photodetector with 5 kV/A transimpedance gain and 50 MHz bandwidth. With a noise-equivalent power spectral density of 4 pW/ $\sqrt{\text{Hz}}$  at 800 nm and up to 8 V DC output voltage, the PDX10S-SI is the perfect candidate for applications requiring high dynamic range.

## Specifications

**PDX10S-5-DC-SI**

Detector	
Detector type	Si PIN photodiode
Photodiode active diameter	800 $\mu\text{m}$
Wavelength range	320 nm to 1000 nm
Optical input power	0 mW to 3 mW
Photodiode peak responsivity (800 nm)	0.55 A/W
Transimpedance amplifier	
Small signal bandwidth	0 Hz to 50 MHz at 3 dB
Coupling	DC
Transimpedance gain	5 kV/A
Noise Equivalent Power (at 1 MHz)	4 pW/ $\sqrt{\text{Hz}}$
Output impedance	50 $\Omega$
Output voltage range	0 V to 8 V
Output	SMA female connector
Power supplies	
Positive supply voltage	10.5 V to 13 V
Negative supply voltage	-9 V to -4 V
Quiescent current per rail	40 mA
Maximum current (positive supply)	130 mA
Other	
Outside dimensions	49 mm x 40 mm x 18 mm
Operating temperature	0 $^{\circ}\text{C}$ to 50 $^{\circ}\text{C}$
Weight	26 g

## Functional diagram

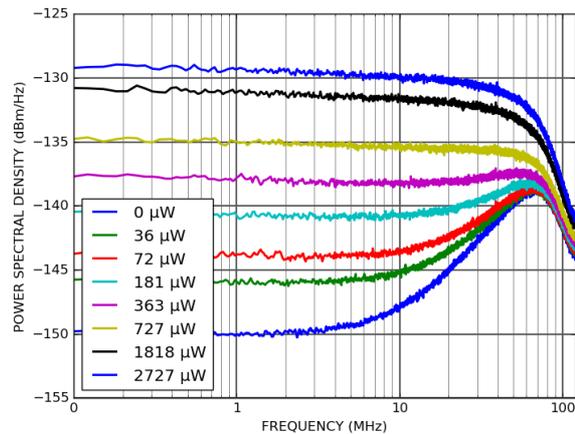


PDX10S-SI functional diagram

## Characterization

### Output power spectral density

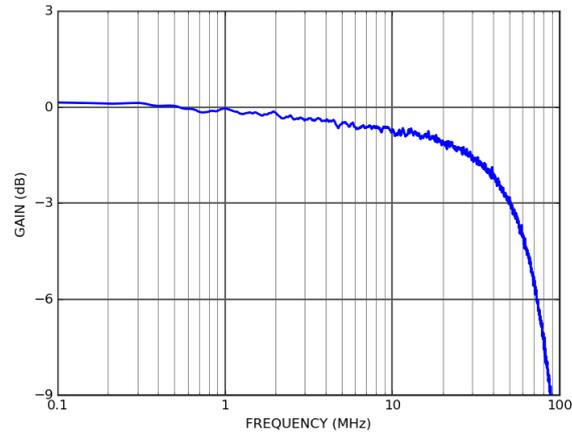
The power spectral density of the PDX10S-5-DC-SI output was measured for different incident optical powers. Optical source is a 810 nm LED driven by a [Koheron DRV110-A-375 laser driver](#). Power spectrum is measured using the [Koheron ALPHA250](#) FFT analyzer.



PDX10S-5-DC-SI power spectral density vs optical power

### Small signal frequency response

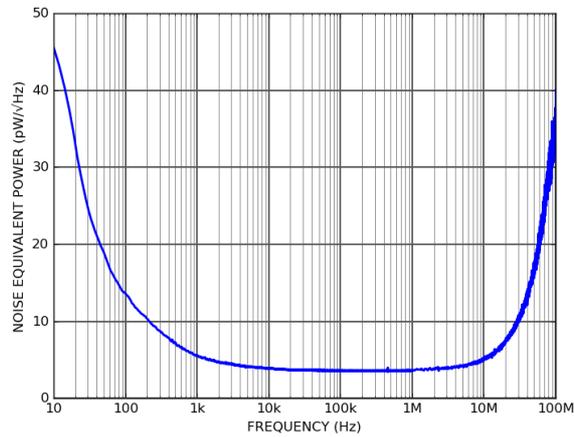
Small signal bandwidth is 50 MHz at 3 dB.



PDX10S-5-DC-SI small signal frequency response

### Noise equivalent power

The figure below shows the noise-equivalent power spectral density at a wavelength of 810 nm.



PDX10S-5-DC-SI noise equivalent power

## Ordering codes

**PRODUCT NUMBER**

**ATTRIBUTE**

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PDX10S-5-DC-SI