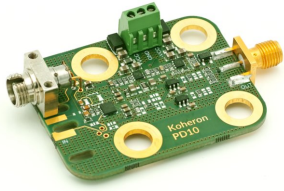


High dynamic range photodetector

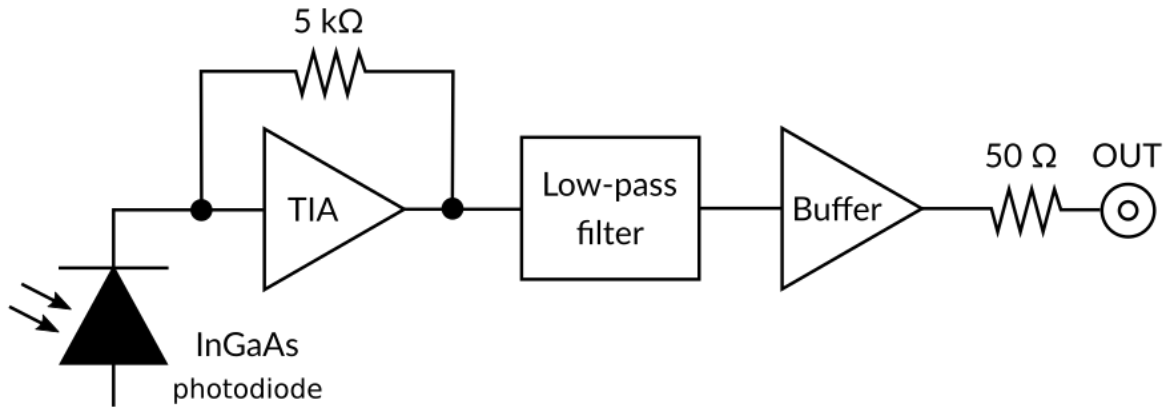


Koheron PD10S is a photodetector with 5 kV/A transimpedance gain and 50 MHz bandwidth. With a noise-equivalent power spectral density below 2 pW / $\sqrt{\text{Hz}}$ at 1 MHz, and up to 8 V DC output voltage, the PD10S is a good alternative to the [PD100-DC photodetector](#) for high dynamic range applications such as power stabilization of CW lasers.

Specifications

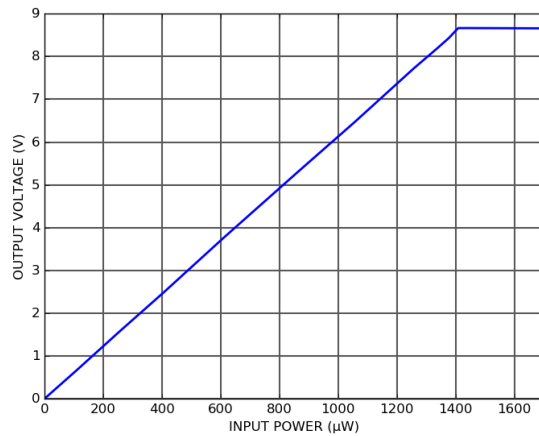
	PD10S-5-DC
Wavelength range	900 - 1700 nm
Small signal bandwidth	0 - 50 MHz at 3 dB
Coupling	DC
Optical input power	0 - 1.3 mW
Photodiode peak responsivity	0.90 A / W
Power supply (positive)	10.5 - 13 V _{DC}
Power supply (negative)	-9 to -4 V _{DC}
Transimpedance gain	5 kV / A
Output voltage range	0 - 8.2 V
Noise Equivalent Power	2 pW / $\sqrt{\text{Hz}}$ (at 1 MHz)
Output impedance	50 Ω
Quiescent current	40 mA per power supply
Outside Dimensions	63 mm x 38 mm x 14 mm
Photodiode connector	FC
Photodiode active diameter	300 μm
Output	SMA
Mechanical details	Compatible with M6 metric breadboards (25 mm spacing)
Operating temperature	0 °C - 50 °C

Functional diagram



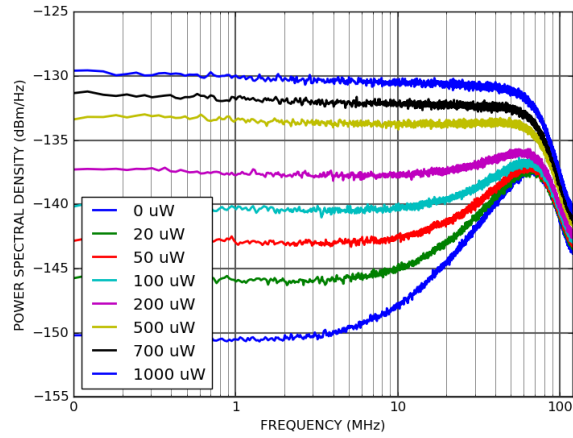
Characterization

Output voltage vs input optical power



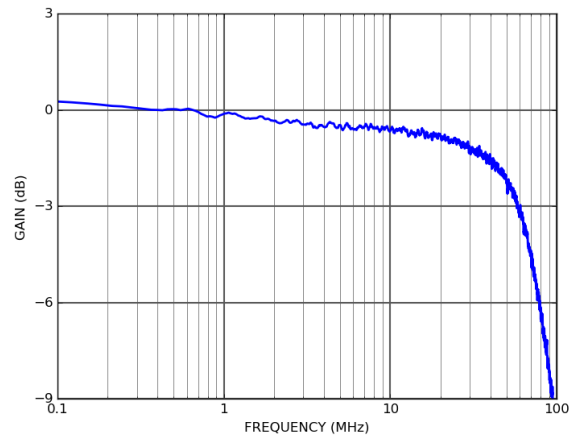
Output power spectral density

The power spectral density of the PD10S-5-DC output was measured for different incident optical powers. Optical source is a [Koheron LD101 laser](#) at 1550 nm. Power spectrum is measured using the [Koheron ALPHA250](#) FFT analyzer.



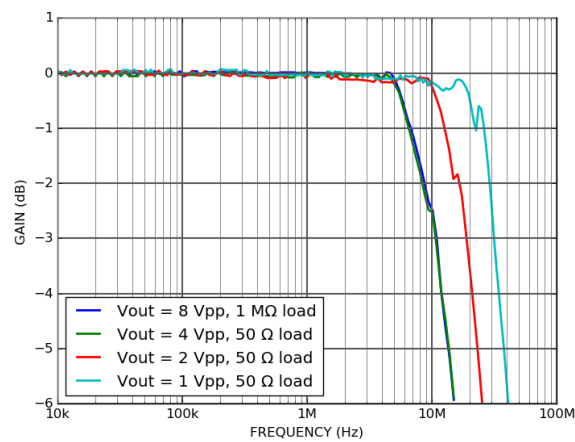
Frequency response

Small signal

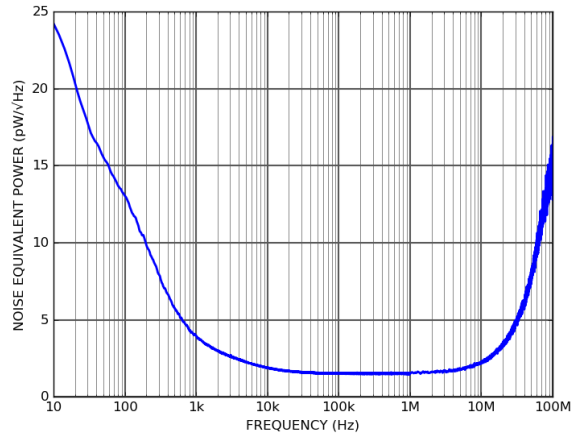


Large signal

Measured with an average input optical power of 777 μ W.



Noise equivalent power



Ordering codes

- PD10S-5-DC