

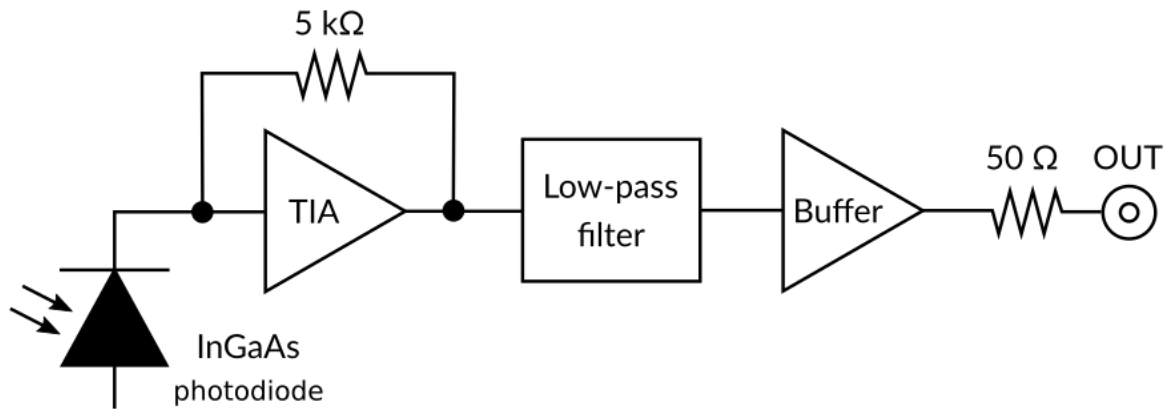
Koheron PD10S is a photodetector with 5 kV/A transimpedance gain and 50 MHz bandwidth. With a noise equivalent power spectral density below 2 pW/ $\sqrt{\text{Hz}}$ at 1 MHz, and up to 0 V to 8.2 V DC output voltage, the PD10S is a good alternative to the [PD100-DC photodetector](#) for high dynamic range applications such as power stabilization of CW lasers.

Specifications

PD10S-5-DC

| Detector | |
|---------------------------------|---|
| Detector type | InGaAs photodiode |
| Wavelength range | 900 nm to 1700 nm |
| Optical input power | 0 mW to 1.3 mW |
| Photodiode connector | FC |
| Photodiode active diameter | 300 μ m |
| Photodiode peak responsivity | 0.9 A/W |
| Transimpedance amplifier | |
| Small signal bandwidth | 0 Hz to 50 MHz at 3 dB |
| Transimpedance gain | 5 kV/A |
| Coupling | DC |
| Noise Equivalent Power at 1 MHz | 2 pW/ \sqrt Hz |
| Output impedance | 50 Ω |
| Output voltage range | 0 V to 8.2 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 | 130 mA (positive supply) |
| Other | |
| Outside dimensions | 63 mm x 38 mm x 14 mm |
| Weight | 19 g |
| Operating temperature | 0 $^{\circ}$ C to 50 $^{\circ}$ C |
| Mechanical details | Compatible with M6 metric breadboards (25 mm spacing) |

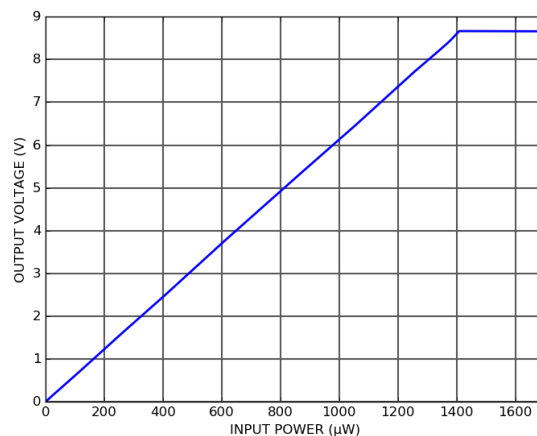
Functional diagram



PD10S-5-DC functional diagram

Characterization

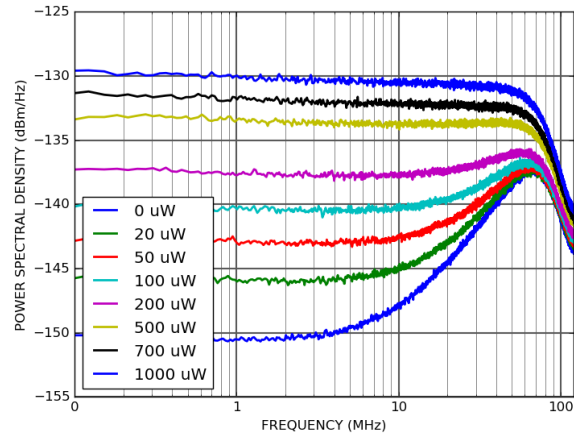
Output voltage vs input optical power



PD10S-5-DC output voltage vs input power

Output power spectral density

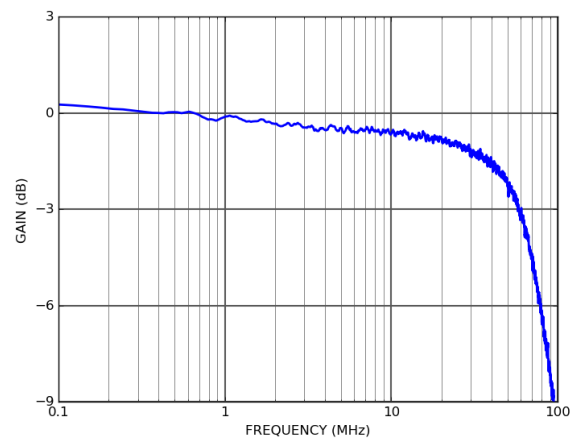
The power spectral density of the PD10S-5-DC output was measured for different incident optical powers. Optical source is a [Koheron LD101 laser](#) at 1550 nm. Power spectrum is measured using the [Koheron ALPHA250](#) FFT analyzer.



PD10S-5-DC power spectral density

Frequency response

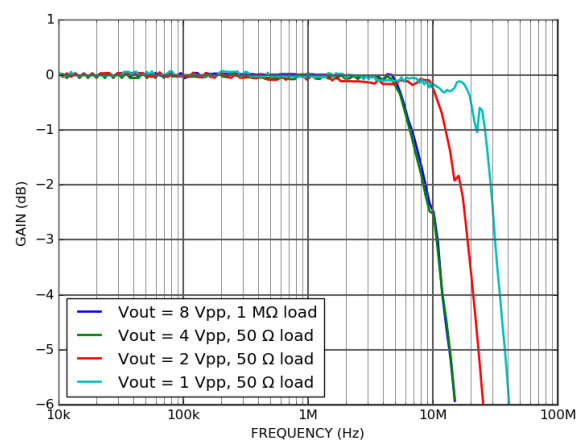
Small signal



PD10S-5-DC small signal frequency response

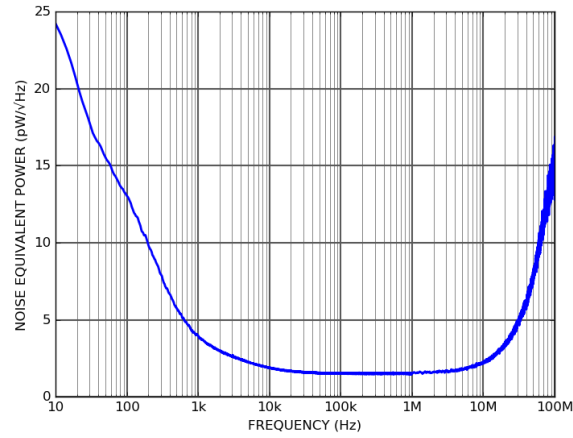
Large signal

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



PD10S-5-DC large signal frequency response

Noise equivalent power



PD10S-5-DC noise equivalent power

Ordering codes

| PRODUCT NUMBER | ATTRIBUTE |
|----------------|-----------|
| PD10S-5-DC | None |