

PD100 - Low noise photodetector

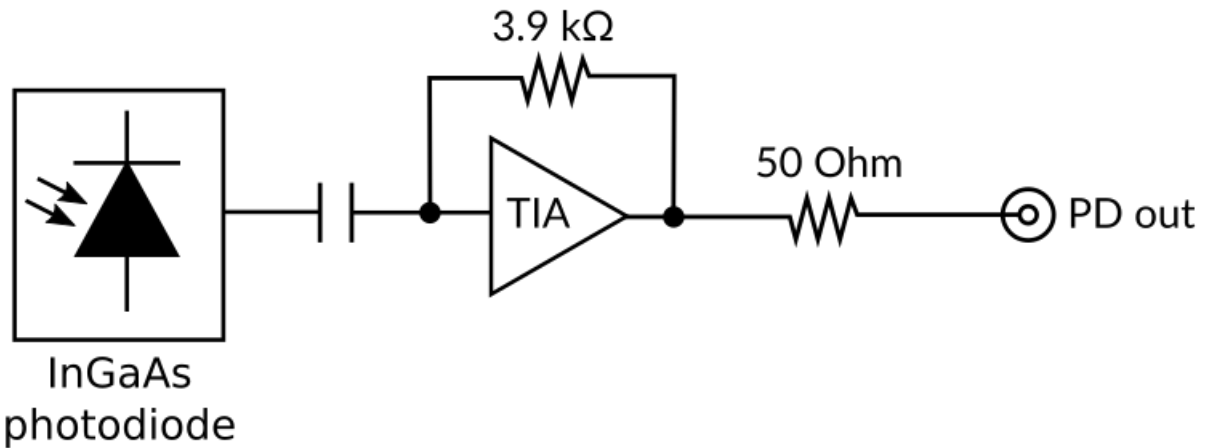


Koheron PD100 photodetectors are amplified InGaAs photodetectors with a bandwidth in excess of 100 MHz. Designed for shot noise limited operation with hundreds of μW of incident power, PD100 photodetectors make perfect candidates for coherent sensing.

Specifications

	PD100-AC	PD100-DC
Wavelength range	900 - 1700 nm	900 - 1700 nm
Small signal bandwidth	1.6 kHz - 105 MHz at 3 dB	0 - 110 MHz at 3 dB
Coupling	AC	DC
Transimpedance gain	3.9 kV / A	3.9 kV / A
Power supply (positive)	6 - 15 V _{DC}	6 - 15 V _{DC}
Power supply (negative)	-15 to -6 V _{DC}	-15 to -6 V _{DC}
Optical input power	0 - 2.5 mW	0 - 0.6 mW
Noise Equivalent Power	9 pW / $\sqrt{\text{Hz}}$ (at 10 MHz)	7 pW / $\sqrt{\text{Hz}}$ (at 10 MHz)
Offset voltage	± 2 mV	± 2 mV
Output impedance	50 Ω	50 Ω
Outside Dimensions	38 mm x 53 mm x 14 mm	38 mm x 53 mm x 14 mm
Photodiode connector	FC	FC
Photodiode active diameter	300 μm	300 μm
Outputs	SMA	SMA
Mechanical details	Compatible with M6 metric breadboards (25 mm spacing)	Compatible with M6 metric breadboards (25 mm spacing)

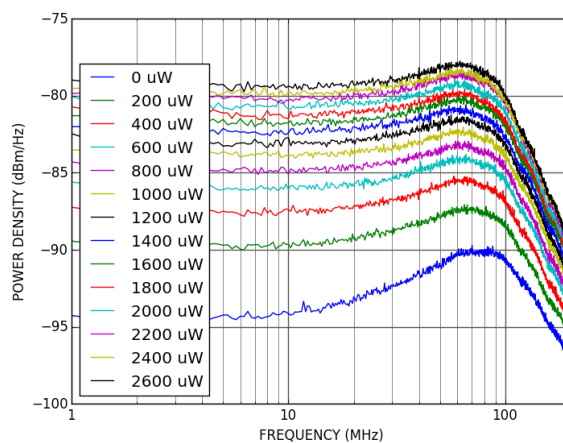
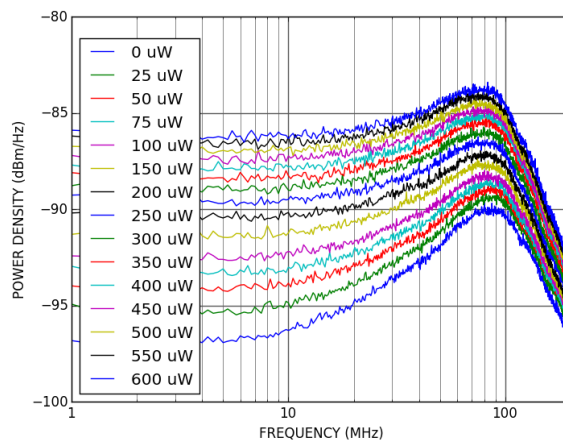
Functional diagram



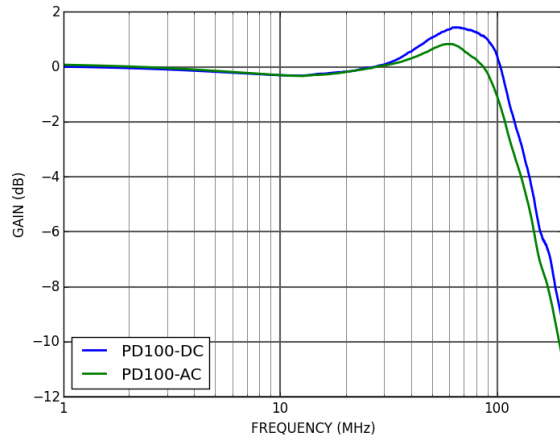
Characterization

Output power spectral density

The power spectral density of the PD100 output is given for different incident optical powers. The spectrum analyzer is a Tektronix RSA306 in series with a Mini-Circuits ZFL-500LN+ 28 dB low-noise amplifier. Optical source is a [Koheron LD100 laser](#) at 1550 nm.



Frequency response



Noise equivalent power

