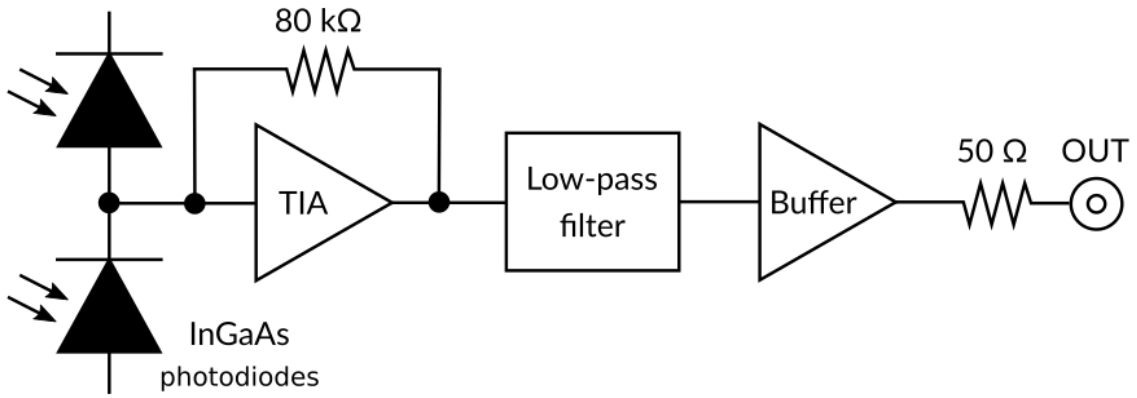
High-gain balanced photodetector

Koheron PD10B is a balanced photodetector with 80 kV/A transimpedance gain and 8 MHz bandwidth. With a noise-equivalent power spectral density of only 0.8 pW / √Hz at 1 MHz, the PD10B is a perfect alternative to the PD100B balanced photodetector for those who require a higher gain.

Specifications

	PD10B-80-DC	PD10B-3-DC
Wavelength range	900 - 1700 nm	900 - 1700 nm
Small signal bandwidth	0 - 8 MHz at 3 dB	0 - 50 MHz at 3 dB
Coupling	DC	DC
Optical input power	0 - 1.5 mW	0 - 1.5 mW
Photodiode peak responsivity	0.90 A / W	0.90 A / W
Power supply (positive)	5.5 - 9 V_{DC}	5.5 - 9 V_{DC}
Power supply (negative)	-9 to -5.5 V_{DC}	-9 to -5.5 V_{DC}
Transimpedance gain	80 kV / A	3 kV / A
Output voltage range	±3.6 V	±3.6 V
Noise Equivalent Power	0.8 pW / √Hz (at 1 MHz)	3.5 pW / √Hz (at 10 MHz)
Output impedance	50 Ω	50 Ω
Outside Dimensions	63 mm x 38 mm x 14 mm	63 mm x 38 mm x 14 mm
Photodiode connector	FC	FC
Photodiode active diameter	300 µm	300 µm
Output	SMA	SMA
Mechanical details	Compatible with M6 metric breadboards (25 mm spacing)	Compatible with M6 metric breadboards (25 mm spacing)
Operating temperature	0 °C - 50 °C	0 °C - 50 °C

Functional diagram

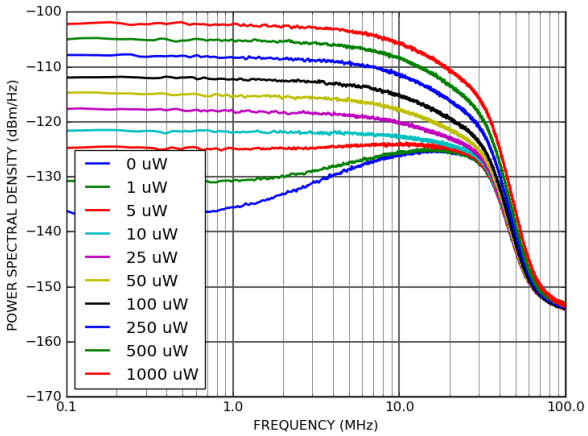


PD10B-80-DC functional diagram

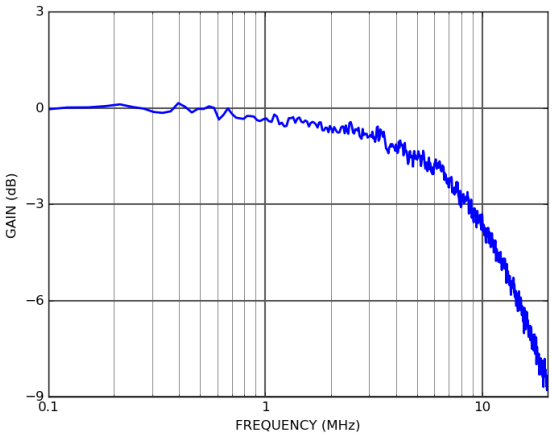
Characterization

Output power spectral density

The power spectral density of the PD10B-80-DC output was measured for different incident optical powers. The indicated power is the incident power per photodiode. Optical source is a Koheron LD101 laser at 1550 nm. Power spectrum is measured using the Koheron ALPHA250 FFT analyzer.

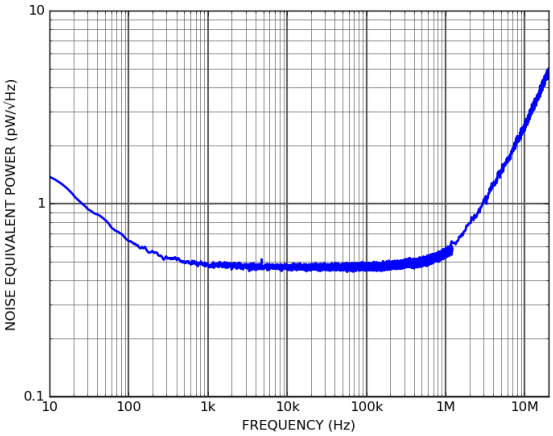


Frequency response



PD10B-80-DC frequency response

Noise equivalent power



Ordering codes

- **PD10B-80-DC:** Transimpedance gain 80 kV/A
- **PD10B-3-DC:** Transimpedance gain 3 kV/A