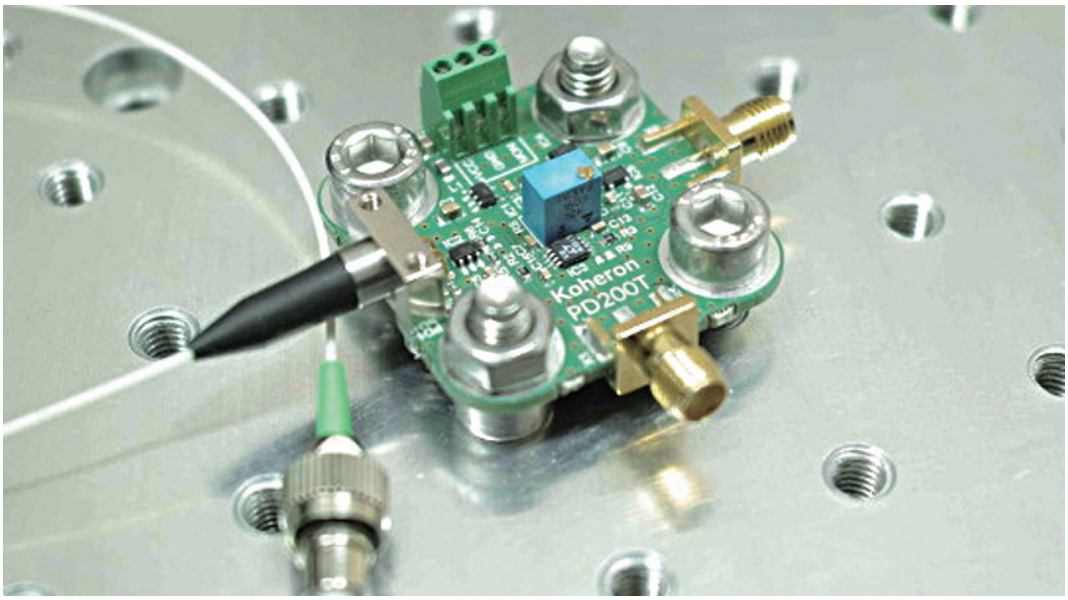
200 MHz TTL-analog photodetector
Photodetector for pulsed applications



Koheron PD200T is an InGaAs photodetector with a dual TTL-analog output. The analog output has a gain of 500 V/A and a 200 MHz bandwidth. The TTL output has 2.5 ns propagation delay, 1.3 ns rise time and 0.7 ns fall time. Trigger threshold can be adjusted with a precision trimmer.

Product details

Parameter	Value
Operating wavelength	900 - 1700 nm
TTL rise / fall time	1.5 ns
Analog bandwidth	200 MHz
Analog gain	500 V / A
Power Supply	3.7 - 15 VDC
Optical input power	0 - 2 mW
Analog output impedance	50 Ω
Logic low	max. 0.1 V
Logic high	min. 2.6 V
TTL output impedance	50 Ω
Fiber output	1 m SM fiber with FC/APC connector
Outputs	SMA
Mechanical details	Compatible with M6 metric breadboards (25 mm spacing)

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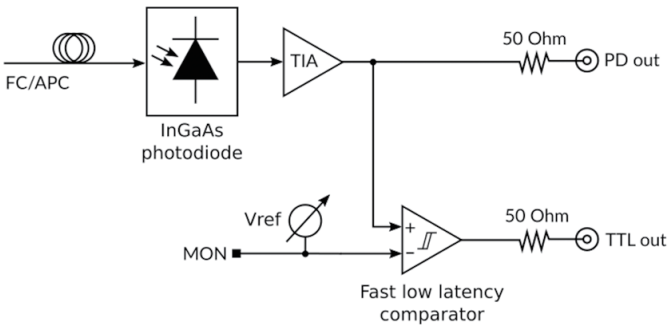
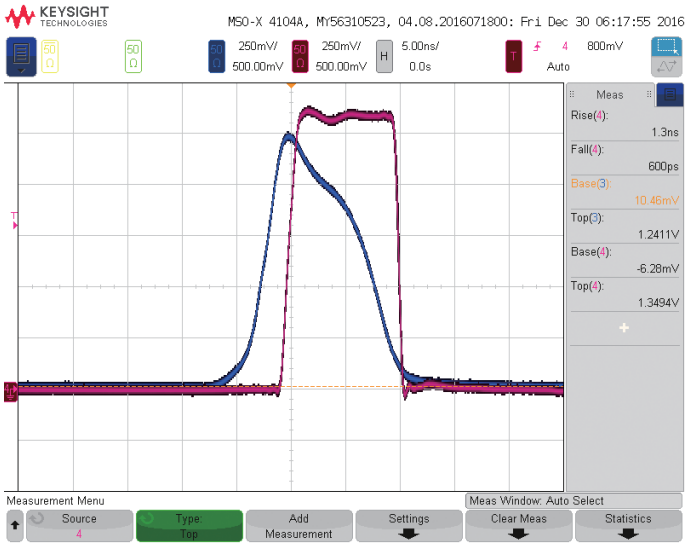
Functional diagram



Characterization

Pulse detection

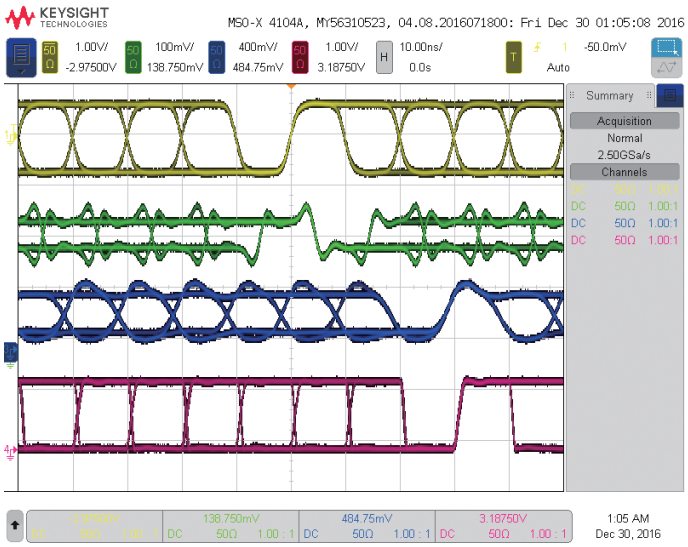
We operated the Koheron LD100 laser in pulsed-mode (width of 10 ns, pulse period of 100 ns, 10 V_{pp} modulation). The laser average output power was 850 µW. Half of this power was used to feed the PD200T. Trigger threshold was adjusted to 1.0 V. The figure below shows the analog output (in blue) and the TTL output (in purple) observed on an oscilloscope:



Propagation delay between the analog and the TTL output is about 2.5 ns. TTL rise and fall times (10 to 90 %) are 1.3 ns and 0.7 ns, respectively.

PRBS modulation

We modulated the Koheron LD100 laser with a 100 Mbps pseudo random binary sequence (PRBS) shown in yellow in the figure below. The green curve represents the modulation detected by the 100 MHz photodetection of the LD100. The analog and TTL output of the PD200T are shown in blue and red, respectively.



The 25 ns delay between the laser modulation (in orange) and the PD200T analog output (in blue) corresponds to the 5 m fiber between the laser and the PD200T.

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