WL-PD450MA

(Rev. 1a, 01/2016)

450 MHz InGaAs Low Noise Photodetector

Features

- High transimpedance gain: 3500 V/W (1550 nm)
- Low noise: below -135 dBm/Hz
- 450 MHz bandwidth
- AC coupled; low cutoff below 300 kHz (30 kHz to 5 MHz on request)
- Wavelength range: 1000 nm to 1700 nm
- Fiber Coupled: FC receptable
- Output: 50 Ω SMA plug
- Wide range single supply: 11 to 15 V

Typical Application

- Ultrahigh speed SS-OCT imaging
- Laser pulse detection

General Description

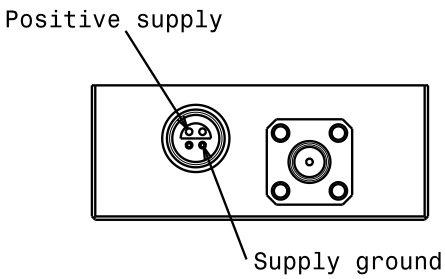
The PD450MA is an AC-coupled high-speed InGaAs photoreceiver. It features a high transimpedance gain, very low noise, and a -3 dB bandwidth of 450 MHz.

The PD450MA comes in a rugged aluminum case with an FC fiber receptable and a 50 Ω SMA output. It operates from a single 11–15 V DC supply. OEM versions without a case are available upon request.

Mechanical Properties

- Fiber coupling: FC receptable for FC/PC and FC/APC connector
- RF output: SMA (female)
- Supply voltage input: Push-pull LEMO plug (included with diode)
- Small form factor: 50×48×22 mm

Electrical Connectors



Supply connector (front view). The case is electically connected to ground.

There are two types of supply cable, one has 2 wires and one has 5 wires. The corresponding color scheme of these cables is:

Cable type	Positive supply	Supply ground
2-wire	white	brown, shield
5-wire	yellow	grey, shield

Wieserlabs UG (haftungsbeschränkt)
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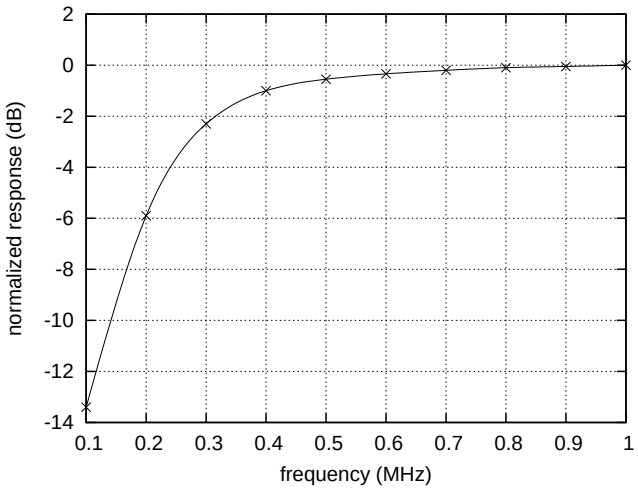
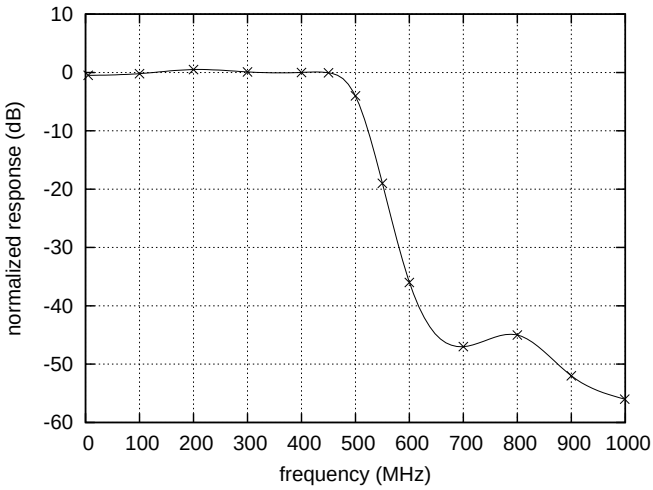
Specifications

Parameter	Conditions	Min	Typ	Max	Units
DC Characteristics					
Supply Voltage (V_S)		11	12	15	V
Supply Current			110		mA
AC Characteristics					
3dB Bandwidth		450		520	MHz
AC Low Frequency Cutoff			260	300	kHz
Output IP3			28		dBm
2nd Harmonic	$P_{out} = 0$ dBm		-40		dBc
	$P_{out} = -10$ dBm		-53		dBc
3rd Harmonic	$P_{out} = 0$ dBm		-45		dBc
	$P_{out} = -10$ dBm		-47		dBc
Noise Spectral Density	1 MHz–600 MHz			-130	dBm/Hz
	> 600 MHz			-150	dBm/Hz
Output Impedance			50		Ω
Optical Characteristics					
Input Wavelength Range		1000		1700	nm
Transimpedance Gain	wavelength 1550 nm		3500		V/W$_{optic}$
	wavelength 1310 nm		3300		V/W$_{optic}$
Maximum Input Power	(damage threshold)	10			mW

Typical Performance Characteristics

Frequency response: RF output power versus frequency





Test conditions: Light input 100 μW at 1310 nm, modulated via EOM.