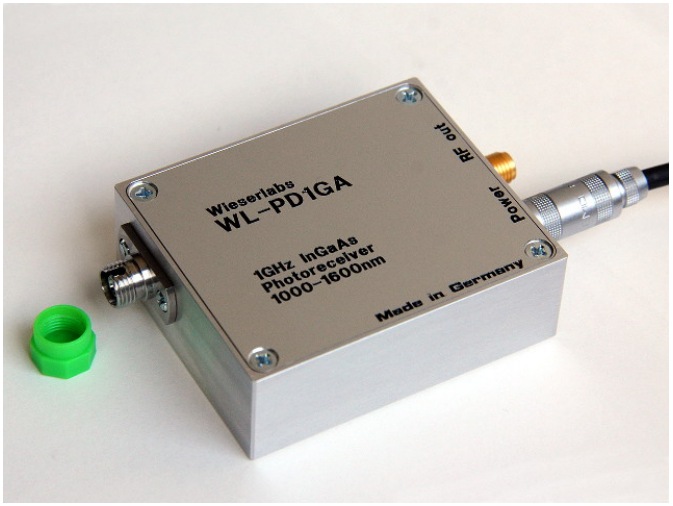
WL-PD1GA

(Rev. 2c, 03/2022)

1 GHz InGaAs Low Noise Photodetector

Features

- High transimpedance gain: 3 200 V/W
- Low noise: below -130 dBm/Hz
- 1 GHz 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



(Photo shows mechanically equivalent product.)

Typical Application

- Laser pulse detection
- Intensity noise monitoring

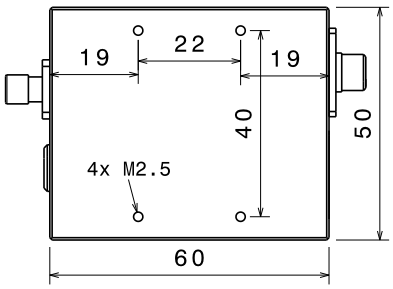
General Description

The WL-PD1GA is an AC-coupled high-speed InGaAs photoreceiver. It features a high transimpedance gain, very low noise, and a -3 dB bandwidth of 1 GHz.

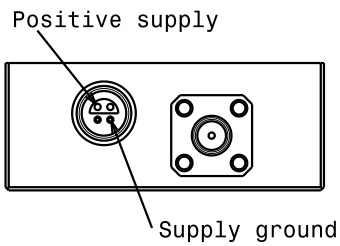
The WL-PD1GA comes in a rugged aluminum case with an FC fiber receptable and a 50 Ω SMA output. It operates from a single 11–15 V DC supply. OEM versions are available upon request.

Mechanical Properties

- Fiber coupling: FC receptable for FC/PC and FC/APC connectors
- RF output: SMA (female)
- Supply voltage input: Push-pull LEMO plug (included with diode)
- Small form factor: 50×60×20 mm (weight: 105 g without cable)
- Mounting: 4x M2.5 threaded holes on bottom (screw length 4 mm)



Electrical Connectors



Supply connector (front view). The case is electrically connected to ground. There are two types of supply cable, one has 2 wires (new cable) and one has 5 wires (old). The corresponding color scheme of these cables is:

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

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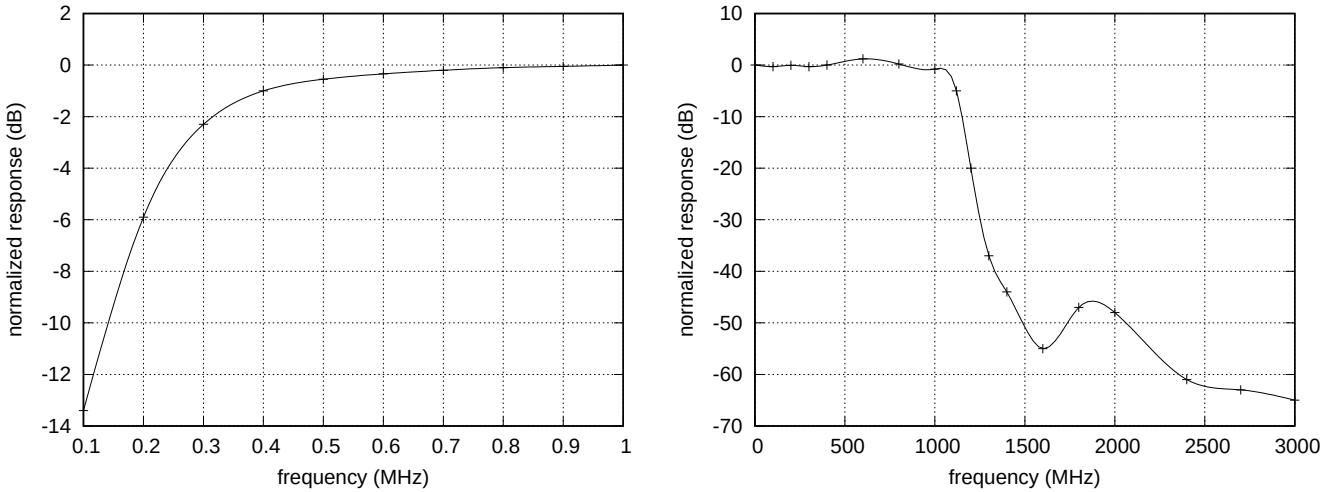
Specifications

Parameter	Conditions	Min	Typ	Max	Units
DC Characteristics					
Supply Voltage ($+V_S$)		11	12	15	V
Supply Current			110		mA
AC Characteristics					
3dB Bandwidth		950	1000	1100	MHz
Rise Time	pulse input		350		ps
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 – 1400 MHz			-130	dBm/Hz
	$>$ 1400 MHz			-150	dBm/Hz
Output Impedance			50		Ω
Optical Characteristics					
Input Wavelength Range		1000		1700	nm
Transimpedance Gain	wavelength 1550 nm		3 200		V/W_{optic}
	wavelength 1310 nm		3 000		V/W_{optic}
Maximum Input Power	(damage threshold)	10			mW
Environmental Characteristics					
Operating Temperature Range[1]	non-condensing	-20		+80	°C
Storage Temperature Range	non-condensing	-20		+120	°C

Typical Performance Characteristics

Frequency response: RF output power versus frequency



Test conditions: Light input 100 μW at 1550 nm, modulated via EOM.

[1] Test show operation up to 120°C ambient temperature for multiple days without failure, contact us for more information.