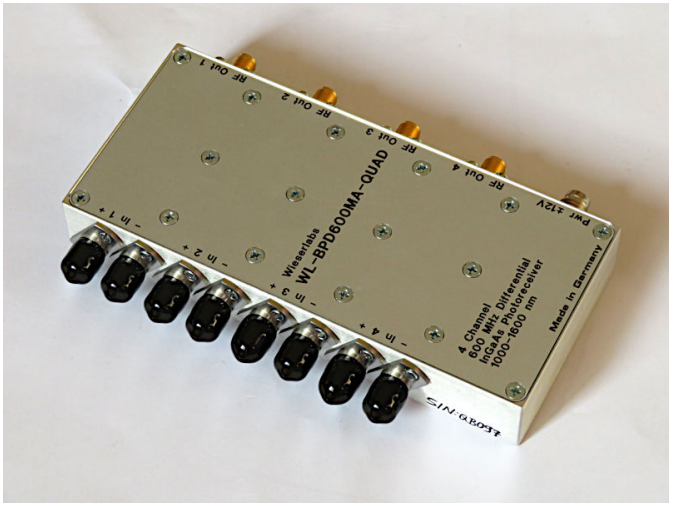
WL-BPD600MA-QUAD

(Rev. 2d, 04/2025)

600 MHz Dual-Balanced InGaAs Low Noise Photodetector

Features



- High transimpedance gain: 5 000 V/W
- 4 differential channels in one package
- Low noise: below -130 dBm/Hz
- NEP: 20 $\mathrm{pW}/\sqrt{\mathrm{Hz}}$ typ.
- 650 MHz bandwidth
- AC coupled; low cutoff below 30 kHz (30 kHz to 5 MHz on request)
- Wavelength range: 1000 nm to 1650 nm
- Fiber Coupled: FC receptables
- Output: 50 Ω SMA plug

Typical Application

- Interferometry
- High speed Swept-Source OCT imaging
- Balanced (differential) detection

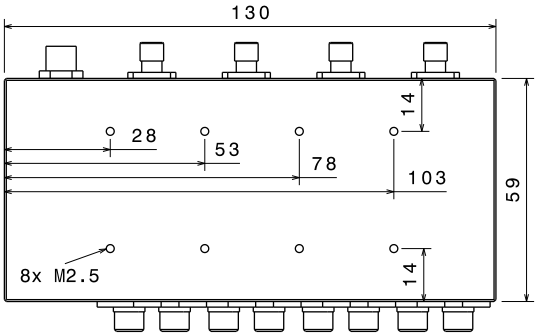
General Description

The WL-BPD600MA-QUAD is an AC-coupled high-speed dual-balanced (differential) InGaAs photoreceiver. The device features 4 independent differential channels in one space-saving package.

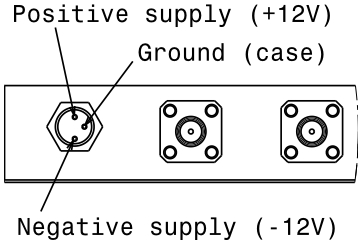
The WL-BPD600MA-QUAD comes in a rugged aluminum case with 8 FC fiber receptables and four 50 Ω SMA outputs. It operates from a dual 11–15 V DC supply.

Mechanical Properties

- Fiber coupling: FC PC/APC receptables
- RF output: SMA (female)
- Supply voltage: 3-pin M8 connector
- Small form factor: 130×59×20 mm (weight: 310 g)
- Mounting: 8x M2.5 threaded holes on bottom (screw length 4 mm)



Electrical Connectors



Male 3-pin supply connector with external M8 thread (front view). The case is electrically connected to ground.

The supplied cable has the following color scheme:
brown (positive), black (ground), blue (negative)

Do not hot plug the power cable. The device features a reverse polarity protection.

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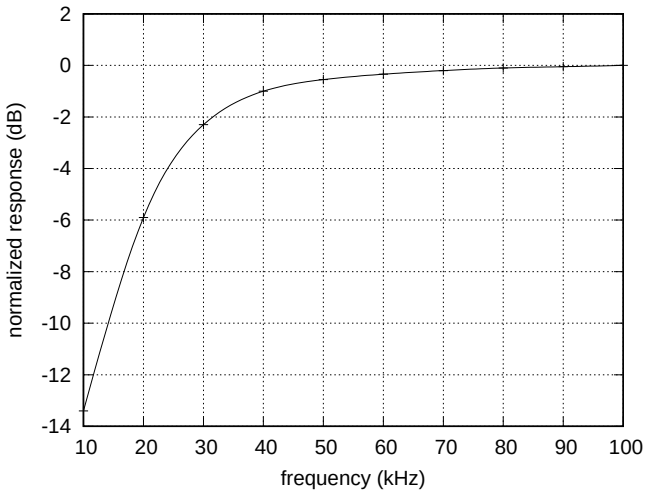
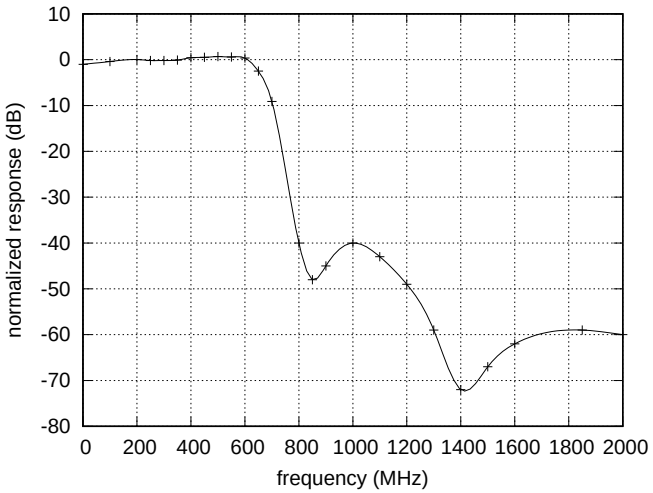
Specifications

Parameter	Conditions	Min	Typ	Max	Units
DC Characteristics					
Positive Supply Voltage ($+V_S$)		11	12	15	V
Positive Supply Current			320		mA
Negative Supply Voltage ($-V_S$)		-11	-12	-15	V
Negative Supply Current	(dominated by photocurrent)		5	50	mA
AC Characteristics					
3dB Bandwidth		600	650	670	MHz
AC Low Frequency Cutoff			26	30	kHz
Output IP3			31		dBm
Noise Spectral Density	1 MHz – 800 MHz		-130	-125	dBm/Hz
	$>$ 800 MHz			-150	dBm/Hz
Noise Equivalent Power (NEP)	1 MHz – 650 MHz, 1550 nm		20	35	$\mathrm{pW}/\sqrt{\mathrm{Hz}}$
Channel-to-channel crosstalk	$<$ 400 MHz			-80	dB
	$>$ 400 MHz			-70	dB
Output Impedance			50		Ω
Optical Characteristics					
Input Wavelength Range		1000		1650	nm
Transimpedance Gain	wavelength 1550 nm		5 000		$\mathrm{V/W}_{optic}$
	wavelength 1310 nm		4 600		$\mathrm{V/W}_{optic}$
Common Mode Rejection Ratio		25	30		dB
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.