

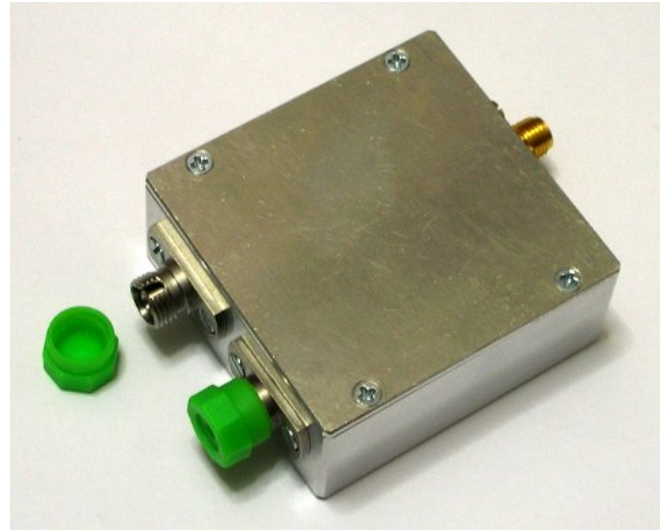
1 GHz Dual-Balanced InGaAs Low Noise Photodetector

Features

- High transimpedance gain:
3500 V/W (1550 nm)
- Low noise: below -135 dBm/Hz
- 1 GHz bandwidth
- AC coupled; low cutoff below 300 kHz
- Wavelength range: 1100 nm to 1700 nm
- Fiber Coupled: FC receptables
- Output: 50 Ω SMA plug
- Wide range single supply: 11 to 16 V

Typical Application

- Ultrahigh speed SS-OCT imaging
- Can be used single-ended as well trigger.



General Description

The BPD1GA is an AC-coupled high-speed dual-balanced InGaAs photoreceiver. Due to its high transimpedance gain, its very low noise, and its bandwidth of 1 GHz, it is ideally suited for future ultrahigh speed swept-source OCT systems with depth scan line rates up to above 1 MHz.

The BPD1GA comes in a rugged aluminum case with two FC fiber receptacles and a 50 Ω SMA output. It operates from a single 11–16 V DC supply. OEM versions without a case are available upon request.

Mechanical Properties

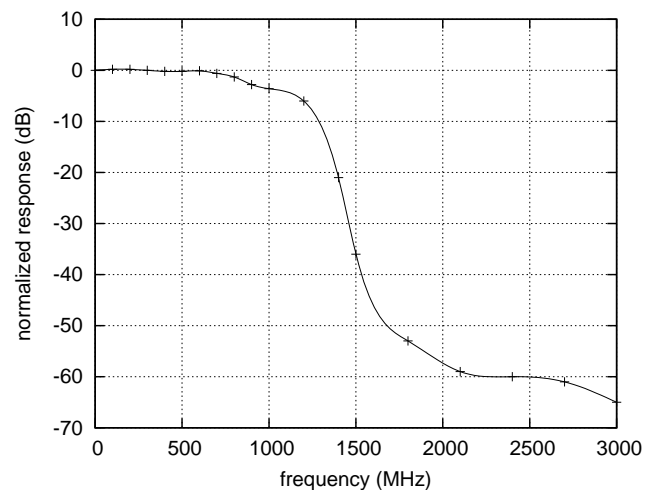
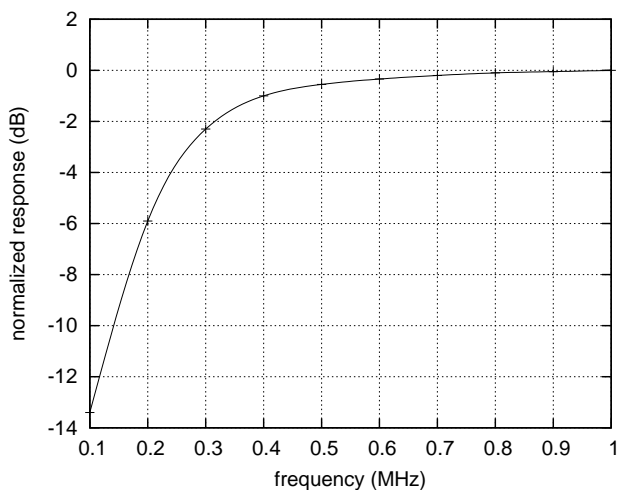
- Fiber coupling: FC receptacles for FC/PC and FC/APC connectors
- RF output: SMA (female)
- Supply voltage input: Push-pull LEMO plug (included with diode)
- Small form factor: 50×48×22 mm

Specifications

Parameter	Conditions	Min	Typ	Max	Units
DC Characteristics					
Supply Voltage (V_S)		11		16	V
Supply Current			110		mA
AC Characteristics					
3dB Bandwidth		950		1050	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		1100		1700	nm
Transimpedance Gain	wavelength 1550 nm		3500		V/W _{optic}
	wavelength 1310 nm		3300		V/W _{optic}
Common Mode Rejection Ratio		10			dB
Maximum Input Power	(damage threshold)	10			mW

Typical Performance Characteristics

Frequency response: RF output power versus frequency



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