

Balanced Photodetector

BPD-001

OCT and sensor systems require high performance balanced photodetectors to boost system signal to noise ratio. The BPD-001 is specially designed for OEM applications in such fields, engineered for low cost and small size as well as high performance. The device consists of an optical head and a post-amplification board with an optical SMB RF output. The optical head has two input fibers aligned with a pair of balanced photodetectors, followed by an integrated ultra low noise transimpedance amplifier (TIA) placed immediately after the photodetectors to amplify received signals with low noise and enhanced CMRR. The post-amplification board further conditions and amplifies the signal to a range of ± 3.5 V maximum. With a bandwidth of up to 350 MHz and a total conversion gain of up to 400kV/A (at a bandwidth of 80 MHz), the BPD-001 is ideal for integration into OCT, fiber sensor and high performance optical measurement systems.



Preliminary Specifications

Photodetector Type	InGaAs
Wavelength Range	800 - 1700 nm
Optical Head Responsivity	0.75 A/W @ 1310 nm 0.8 A/W @ 1550 nm
Transimpedance Gain	2×10^4 V/A
TIA Bandwidth (3dB) ¹	DC-240 MHz (Typ), 350 MHz(Max)
CW Saturation Power	50 μ W @ 1310 nm
Max Input Power (PD damage threshold)	10 mW@1310 nm
Min NEP (DC - 100MHz)	3.3 pW / $\sqrt{\text{Hz}}$
Post Amplifier Gain (G) ¹	6 (standard) 1 ~ 20 (customer request)
Post Amplifier Gain x BW ²	1.6×10^9 (Max)
Total Conversion Gain (including TIA and post amplifier)	$2 \times 10^4 \times \text{Gain}$ (in units of V/A)
Common Mode Rejection Ratio	>35 dB (DC-40 MHz) >15 dB (40 - 200 MHz)
Electrical Output Impedance	50 Ω
Electrical Outputs	SMB or pins on PCB
Electrical Output Voltage Range	± 3.5 V
Pigtail Fiber Type	SMF-28
Pigtail Length	>0.75m
Power Supply	± 5 V, 200 mA
Operating Temperature	10 ~ 50 $^{\circ}$ C
Storage Temperature	-40 ~ 85 $^{\circ}$ C

Notes:

1. The standard configuration has a post amplification gain of 6 and an overall bandwidth of 200 MHz. Other bandwidth and post amplification gain values may be available on request. Contact General Photonics for details.
2. Maximum bandwidth < 1.6×10^9 /Gain.

Applications:

- Optical Coherence Tomography
- Fiber sensing interrogator
- Instrumentation
- R&D

Unique Features:

- Ultra low noise
- Excellent CMRR
- High conversion gain
- Wide bandwidth
- Compact

Ordering Information:

BPD - 001 - XX - XX - XXX

Post Amp Gain:
1 ~ 20

Connector type:
FC/PC, FC/APC or
NC = No Connectors

Bandwidth:
5 MHz ~ 240 MHz,
may be restricted
by gain settings



General Photonics Corp.
5228 Edison Ave.
Chino, CA 91710

Tel: 909.590.5473
Fax: 909.902.5536

Email:
info@generalphotonics.com

Website:
www.generalphotonics.com