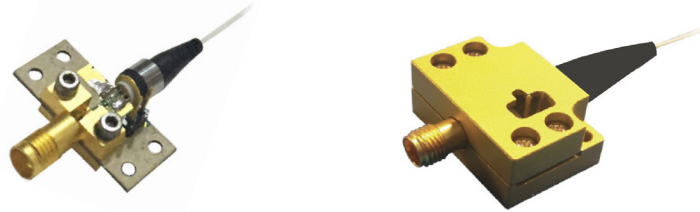


PD-20



20 GHz Linear InGaAs PIN Photodetector

The Optilab PD-20 is a highly linear, 20 GHz bandwidth InGaAs PIN photodetector that is ideal for use in O/E front-ends requiring wide band frequency response. The coplanar waveguide photodiode design optimizes speed and sensitivity for the 1260 nm through 1610 nm wavelength range, and assures a 20 GHz frequency response necessary for digital and analog applications. The front-illuminated mesa-structured PIN design allows a high input power level of up to 40 mW. The PD-20 is available in a standard 2-pin package with SMA RF connector output for ease of assembly, and can be ordered with or without the external protective housing. Contact Optilab for more information.

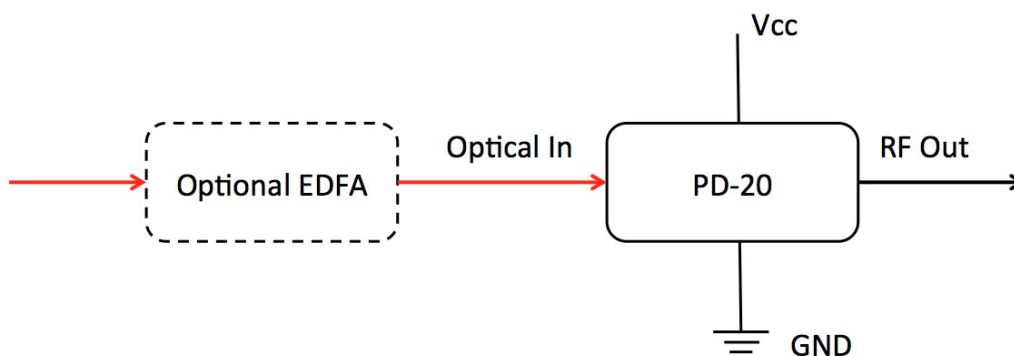
Features

- Bandwidth 60 KHz to 20 GHz
- DC to 20 GHz, DC version
- Highly linear to 40 mW+ input power
- Operating temperature from -30 °C to +60 °C
TQ Version: -55 °C to +70 °C
- High current handling up to 35 mA
- Flat frequency response, ±1 dB
- Useful spectral range 850 nm -1650 nm
- Hermetically sealed

Applications

- 20 GHz Analog RF over Fiber
- Optically amplified photonics link
- RZ and NRZ up to 20 Gb/s
- Coherent lightwave systems
- Front-End O/E converter for test instruments

Functional Diagram



20 GHz Linear InGaAs PIN Photodetector

OPTIONS

PD-20-X-YY

Housing Type:

- X A, No Housing, default
B, Legacy Housing
C, External Housing

YY DC, DC Version

ZZ TQ: Temperature Qualified

TECHNICAL INFO

For technical info and support:

sales@optilab.com

www.optilab.com

WEB ORDER

To order, please visit OEQuest.com.



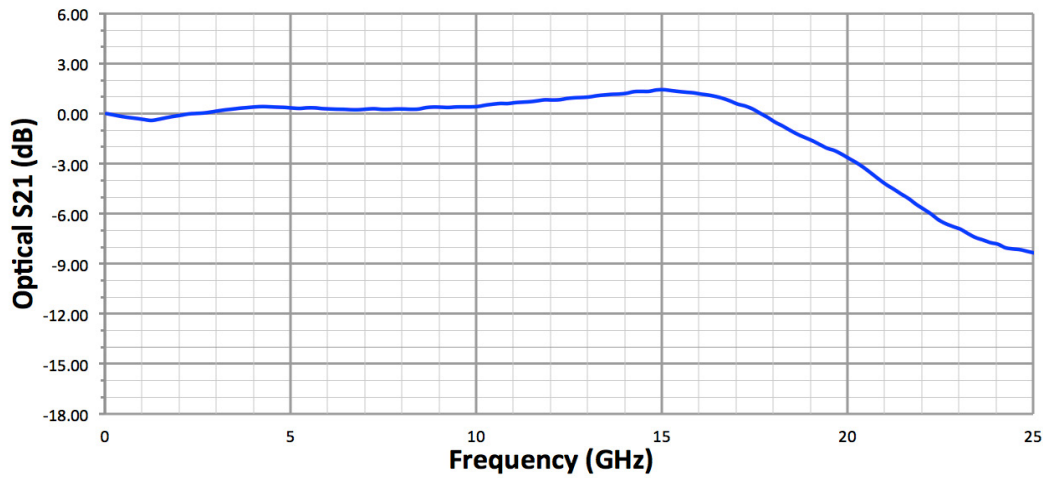
Optilab Advantage

- Innovation
- Performance
- Quality
- Customization
- Warranty

General Specifications	
Optimized Operating Wavelength	1260 nm to 1610 nm
Useful Operating Wavelength	850 nm to 1650 nm
Optical Input Level	40 mW max.
S21 3 dB Bandwidth	17 GHz min., 19 GHz typ.
S22 Characteristics	< -10 dB @ 12 GHz; < -6 dB @ 20 GHz
Low Frequency Cut off	60 KHz; DC for DC version
Responsivity	0.85 A/W @ 1550 nm typ. 0.40 A/W @ 850 nm typ.
Dark Current @ 25° C, 5 V	10 nA typ., 100 nA max.
Optical Return Loss	-30.00 dB typ.
Optical PDL @ 1550 nm	0.05 dB max.
Optical Fiber	SMF-28
Bias Voltage	5 V typ.
Impedance	50 Ω
Coupling	AC-Coupled; DC Coupled is available
Analog Applications	
Ripple over any 1 GHz	±1.0 dB max.
Group Delay	< 7.0 ps
2nd Harmonics Distortion	-70.0 dBc max.
3rd Harmonics Distortion	-75.0 dBc max.
Link Performance with LT-20	
SFDR	113 dB Hz ^{2/3}
Link Loss	-25 dB @ 10 dBm Optical Input
Mechanical Specifications	
Operating Temperature	Standard : -30 °C to +60 °C; TQ Version: -55 °C to +70 °C
Storage Temperature	-65 °C to +75 °C
Operating Humidity	85%
Package type	2-pin module with SMA Female RF connector
Dimensions	30 mm x 20 mm x 14 mm
Fiber Connector	FC/APC
Optical Fiber	SMF-28 with 900 mm Tube
Absolute Maximum Ratings	
PIN Bias Voltage	+2.0 to +7 V
Forward Current	35 mA
Optical Input Power	40 mW
Lead Soldering Temp (10 s)	250 °C

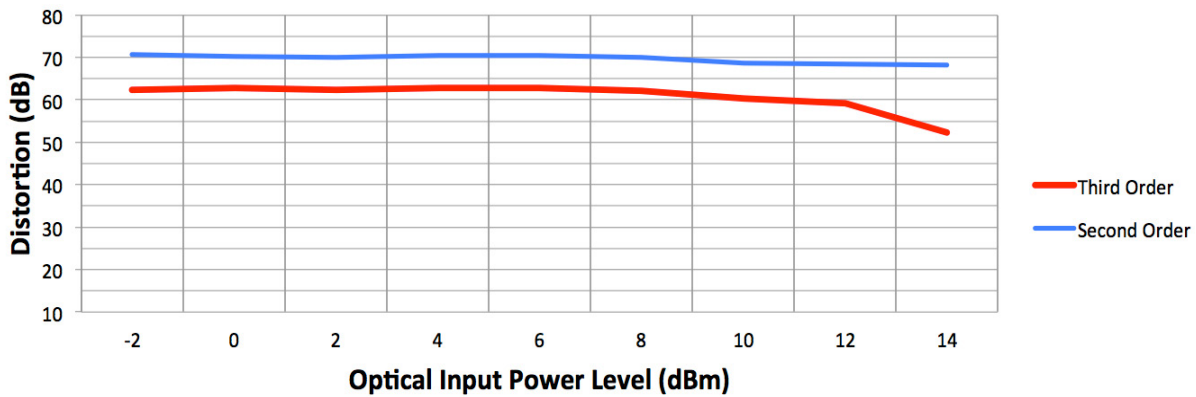
20 GHz Linear InGaAs PIN Photodetector

S21 O/E Response¹

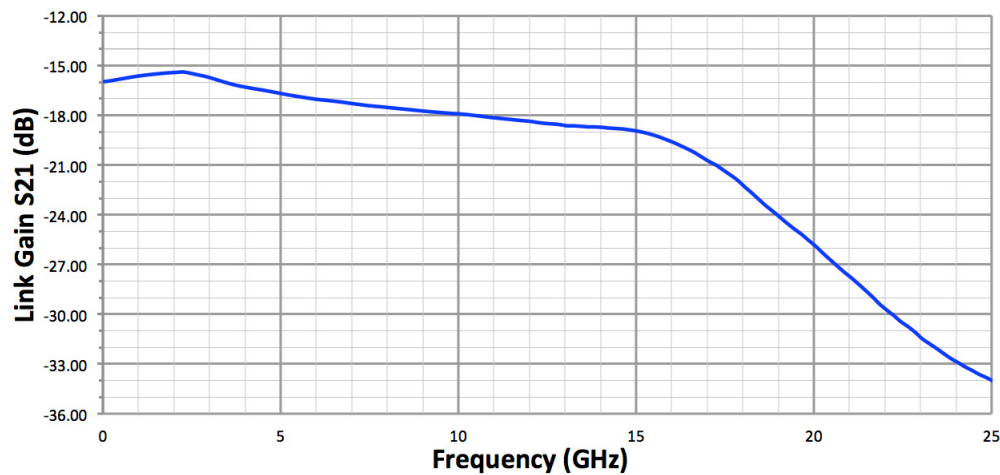


CSO, CTB Linearity Measurement²

Second and Third Order Distortion vs. Optical Input



Link Gain with IM-1550-20

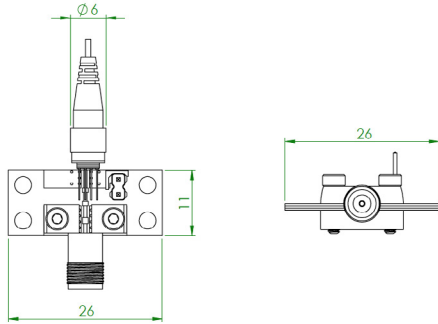


¹ Measured by Agilent 86030A Lightwave Component Analyzer

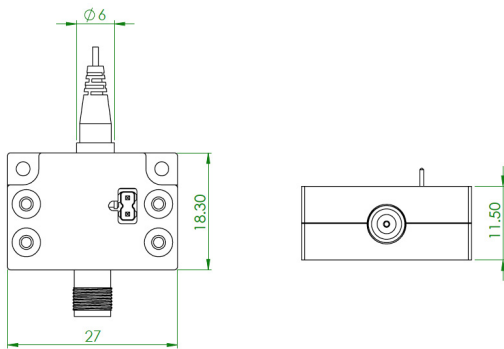
² 40 Channel Analog Channel Loading

20 GHz Linear InGaAs PIN Photodetector

PD-20-A Mechanical Drawing¹



PD-20-C Mechanical Drawing w/ External Housing²

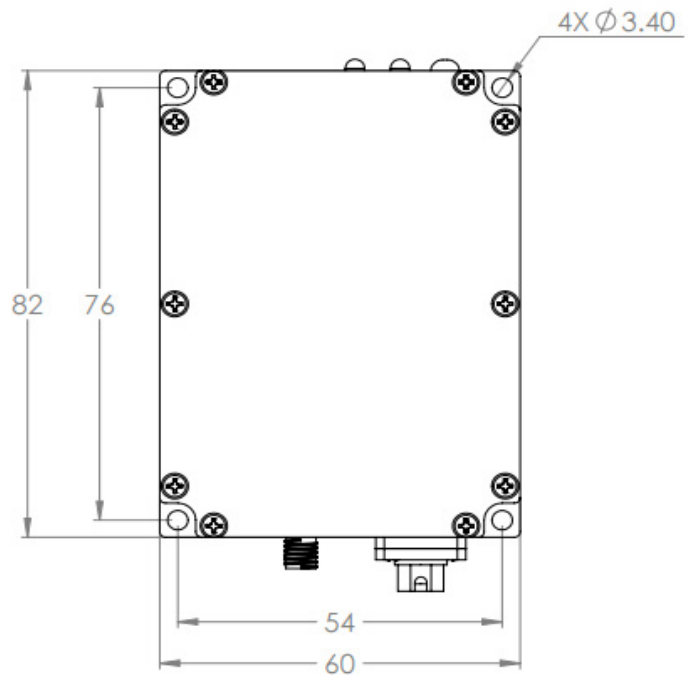


¹ All measurements are in Metric

² External housing is for Mechanical Protection Only
Legacy housing information available upon request

Unit: mm

PD-20-M: Module



Unit: mm

Ready to use module

- Power and Remote Monitoring via [USB Port](#)
- Status Monitoring: RS-232 (Standard)
- No TIA for Intrinsic Phase Linearity