

30 GHz Photodiode, Module



SK-PD-30- M

The Optilab SK-PD-30-M is a 30 GHz photodiode module designed for RF over Fiber, antenna remoting, and broadband RF transmission applications using single mode optical. The SK-PD-30-M can accept input power of up to 20 mW. The SK-PD-30-M utilizes a high input power, low distortion PIN photodiode that provides optical to RF conversion out to the frequency range beyond 30 GHz. This compact, cost-effective receiver module can provide users with status monitoring through the use of an on-board processor that communicates to a host computer over an RS-232 I/O interface via a standard USB 2.0 port. When the SK-PD-30-M RF over fiber receiver module is linked with the LT series of RF over fiber transmitter modules, the combination provides an excellent solution for ultra-wideband RF to fiber conversion applications, go to optilab.com for more details.

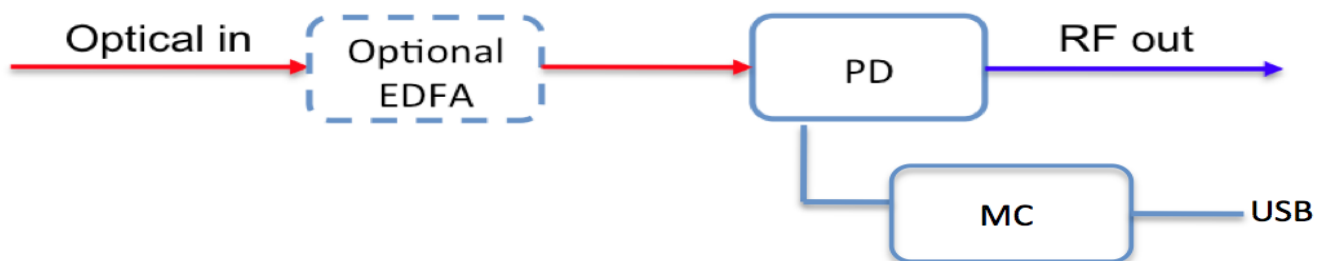
Features

- Ultra-wide Bandwidth up to 30 GHz
- High Dynamic Range
- High Input Power Handling Capacity of 20 mW
- Highly Linear for Analog Signals Transmission
- No TIA for Intrinsic Phase Linearity
- Status Monitoring: RS-232 (Standard)
- Power and Remote Monitoring via [USB Port](#)

Applications

- Wideband RF Transmission over Fiber
- RF/IF Signal Distribution
- Satcom Microwave Antenna Signal Distribution
- EW Systems
- Broadband Delay-line and Signal Processing
- LIDAR Receivers
- Phased and Interferometric Array Antenna

Functional Diagram

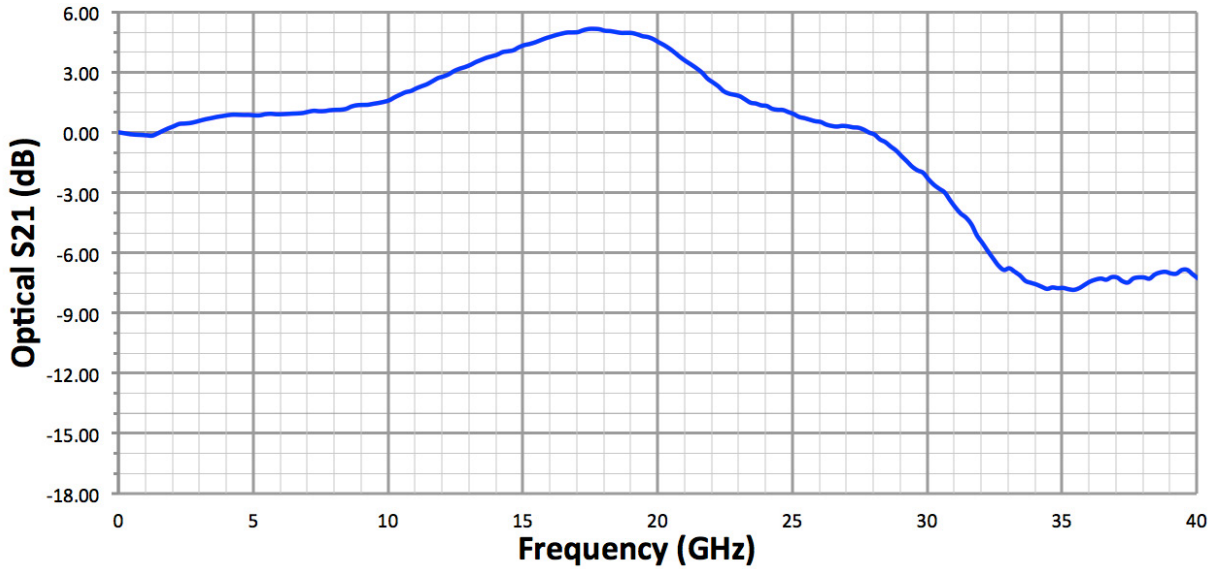


General Specifications	
Optimized Operating Wavelength	1260 nm to 1610 nm
Useful Operating Wavelength	850 nm to 1650 nm
Optical Input Level	20 mW max.
S21 3 dB Bandwidth	28 GHz min., 30 GHz typ.
S22 Characteristics	< -10 dB @ 20 GHz
Low Frequency Cut off	60 KHz; DC for DC version
Responsivity	0.85 A/W @ 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 : -10 °C to +60 °C; TQ Version: -55 °C to +70 °C
Storage Temperature	-55 °C to +75 °C
Operating Humidity	85%
Power Supply Requirements	+5 V DC, 500 mA max.
Optical Connector	FC/APC, SC/APC Optional
RF Input Connector	K Connector Female, 50 Ω
Local Alarm	LED: Optional Input Power
Remote Alarms	RS-232 Interface (Standard) via USB
Dimensions	82 mm x 60 mm x 26.5 mm
Accessories Included	110 V - 240 VAC USB Adaptor & Cable
Housing	Precision Mach. Anodized Aluminum

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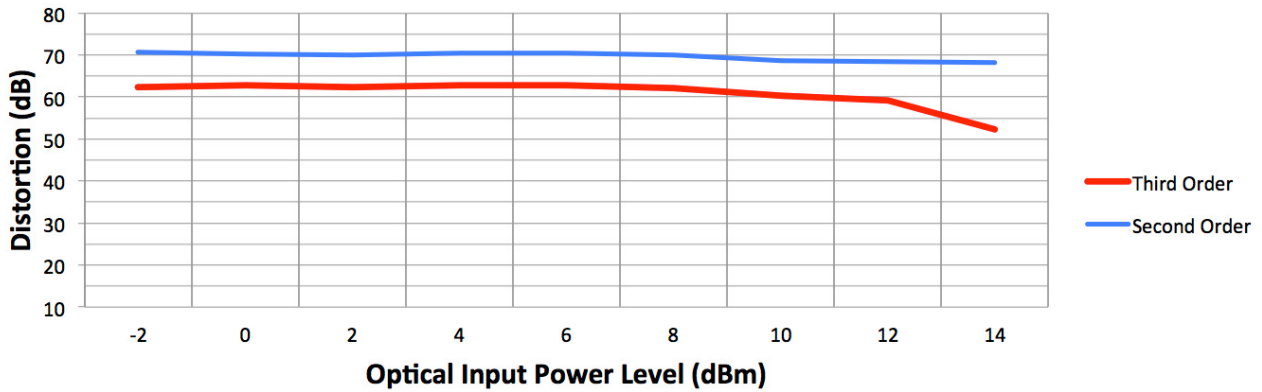
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S21 O/E Response₁

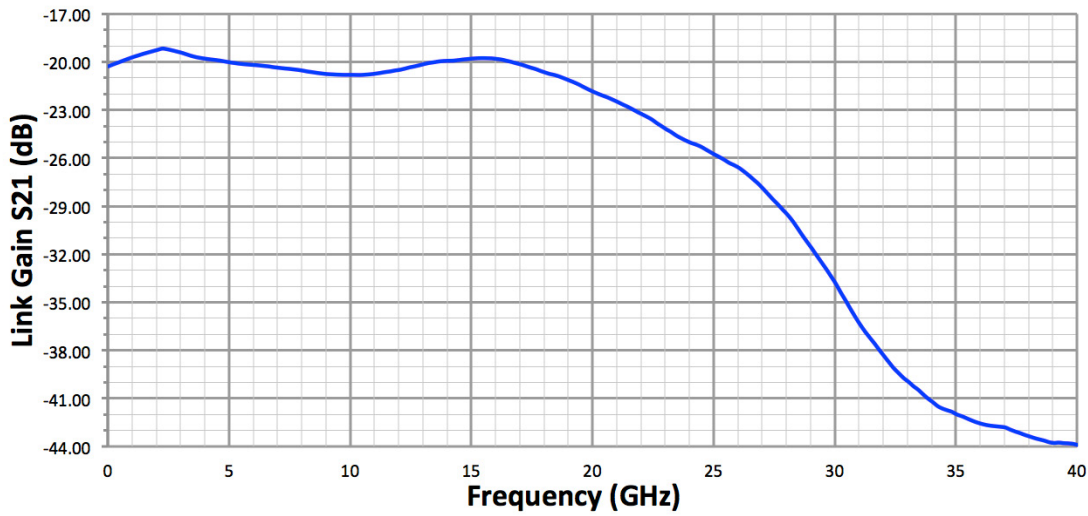


CSO, CTB Linearity Measurement₂

Second and Third Order Distortion vs. Optical Input

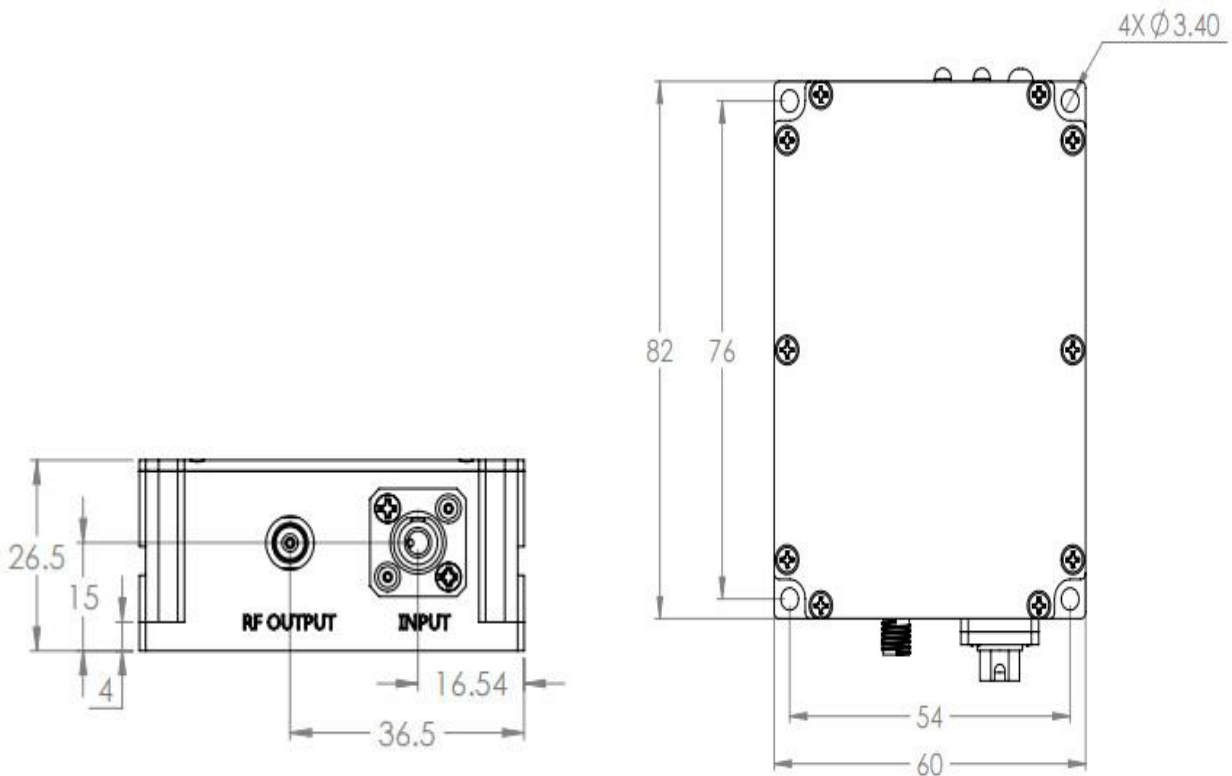


Link Gain with IM-1550-20



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Mechanical Drawings



SK-PD-30-M Module Power and Remote Interface

The SK-PD-30-M product series offers a turn-key modular solution with a USB 2.0 interface, which can be operated with the provided AC/DC adapter included with each PD-30 -M unit or through a PC for optical power monitoring. Contact Optilab for more information.

