

20 GHz Photodiode, High Input Power to 100 mW



SK-PD-20-HP-M

The Optilab SK-PD-20-HP-M is a 20 GHz highly linear photodiode module designed for RF over Fiber, antenna remoting, and broadband RF transmission applications using optical fiber. It can accept optical input power levels of up to 100 mW and keep linear operation to 50 mW input level. With high input power, SK-PD-20-HP-M can be used to replace TIA-based photoreceiver. This compact, cost-effective receiver module can provide users with status monitoring through a USB 2.0 port. When the SK-PD-20-HP-M RF over fiber receiver module is linked with the LTA series of transmitter modules, the combination provides an excellent solution for wideband RF to fiber conversion applications, go to optilab.com for more information.

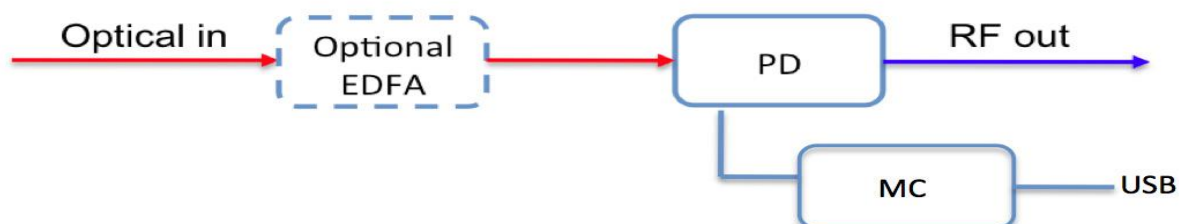
Features

- Bandwidth up to 20 GHz
- High dynamic range
- High Input Power handling of 100 mW
- Staying Linear up to 50 mW
- Up to 50 mA detector
- Link gain of -5 dB@10 GHz, @16 dBm input

Applications

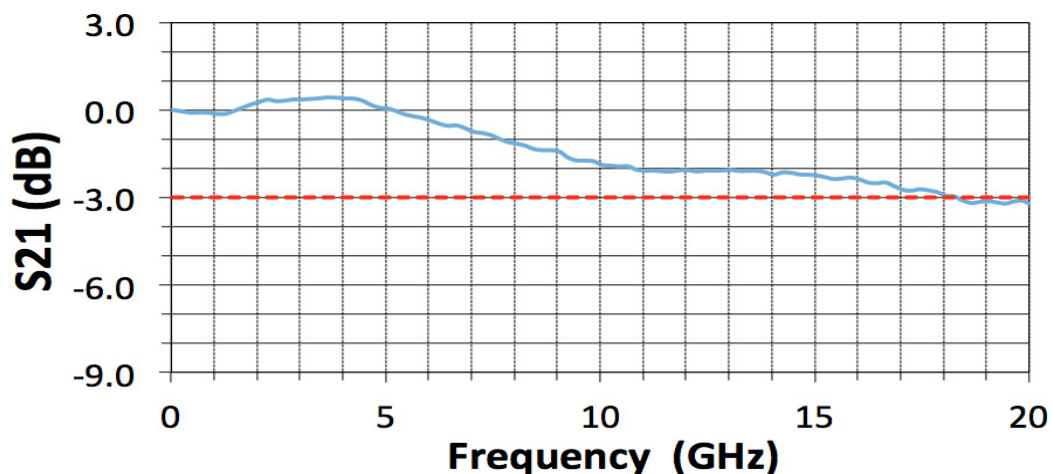
- Wideband RF transmission over fiber
- RF/IF signal distribution
- Satcom microwave antenna signal distribution
- Broadband Delay-line and signal processing
- LIDAR receivers
- Phased and interferometric array antenna

Functional Diagram

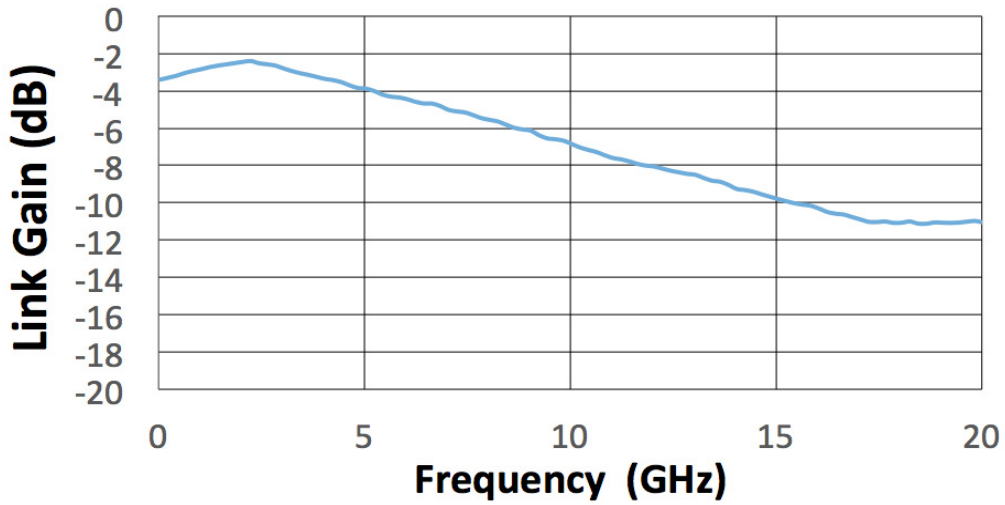


General Specifications	
Operating Wavelength	1450 nm to 1610 nm
Optical Input Level	100 mW max.
S21 3 dB Bandwidth	17 GHz min., 20 GHz typ.
S22 Characteristics	< -10 dB @ 10 GHz
Low Frequency Cut off	60 KHz
Responsivity	0.95 A/W @ 1550 nm typ.
Dark Current @ 25° C,	50 nA typ., 100 nA max.
Optical Return Loss	-30.00 dB typ.
Optical PDL @ 1550 nm	0.2 dB max.
Optical Fiber	SMF-28
Impedance	50 Ω
Coupling	AC-Coupled
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 LTA-20	
SFDR	113 dB Hz ^{2/3}
Link Loss @10 GHz	-11 dB @ 17 dBm Optical Input
Mechanical Specifications	
Operating Temperature	-10 °C to +60 °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	SMA Connector Female, 50 Ω
Local Alarm	LED: Optional Input Power
Remote Alarms	RS-232 Interface (Standard) via USB
Dimensions	90 mm x 80 mm x 22 mm
Accessories Included	110 V - 240 VAC USB Adaptor & Cable
Housing	Precision Mach. Anodized Aluminum

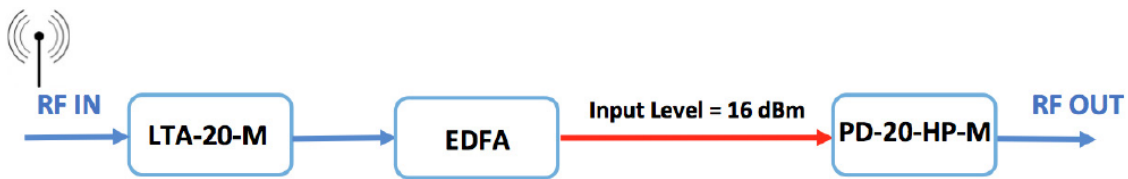
Typical S21 Response



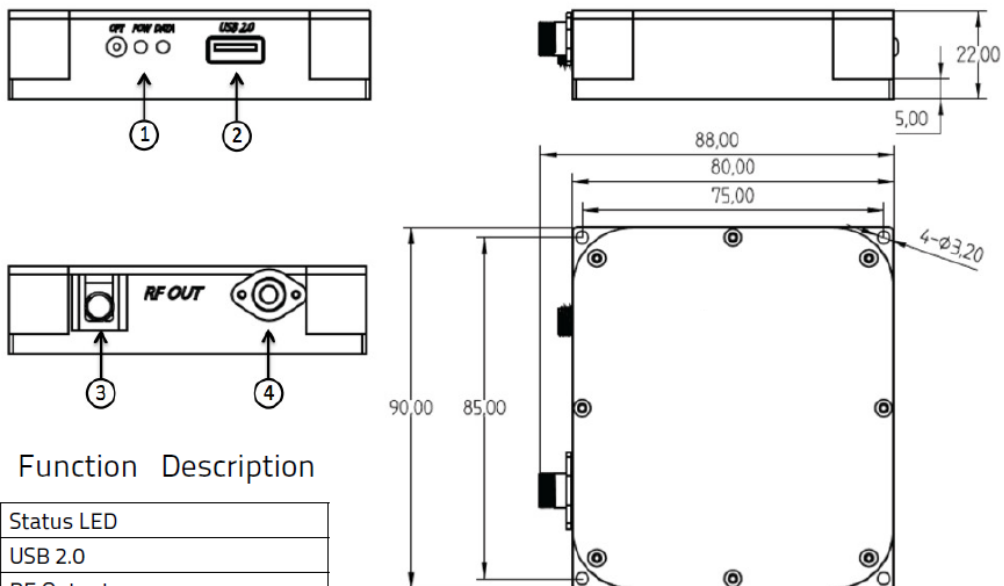
Link Gain with LTA-20-M



Test Conditions & Link Gain Measurements



Mechanical Drawings



Port Function Description

1	Status LED
2	USB 2.0
3	RF Output
4	Optical Input

SK-PD-20-HP-M Module Power and Remote Interface

The PD-20-HP-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 SK-PD-20-HP -M unit or through a PC for optical power monitoring. Contact Optilab for more information.

