20 GHz Photodiode, Module

SK-PD-20- M

The Optilab SK-PD-20-M is a 20 GHz photodiode module designed for RF over Fiber, antenna remoting, and broadband RF transmission applications using single mode optical. The SK-PD-20-M can accept input power of up to 35 mW. The SK-PD-20-M utilizes a high input power, low distortion PIN photodiode that provides optical to RF conversion out to the frequency range beyond 20 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-20-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.

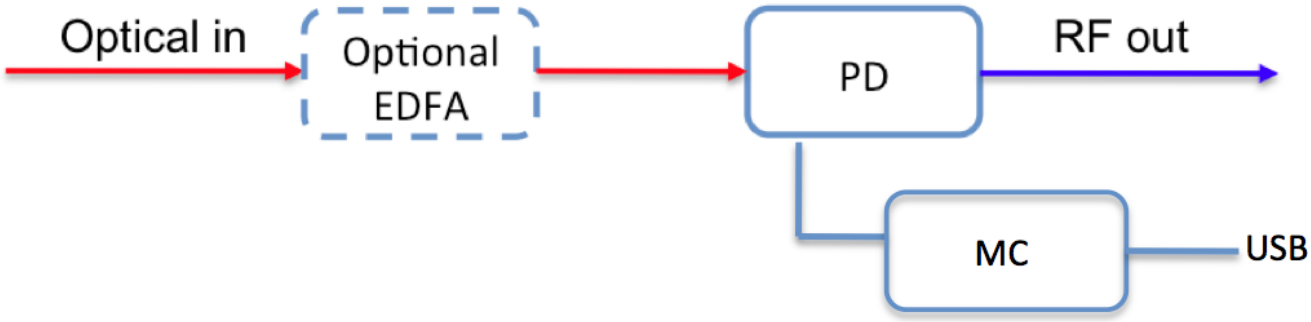
Features

- ➢ Ultra-wide Bandwidth up to 20 GHz
- ➢ High Dynamic Range
- ➢ High Input Power Handling Capacity of 35 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

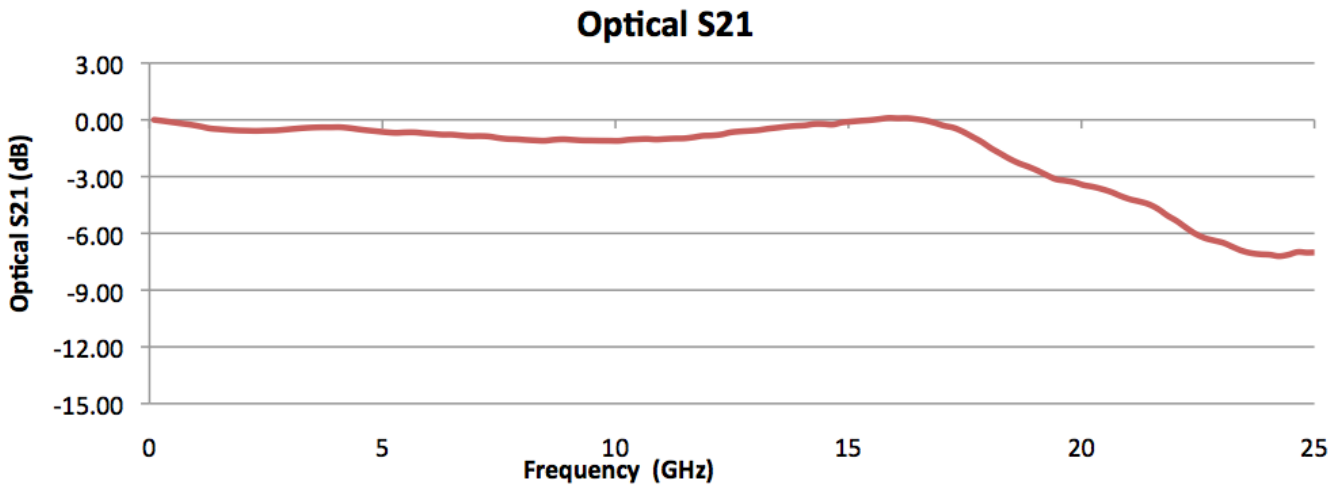
- ➢ Wideband RF Transmission over Fiber
- ➢ RF/IF Signal Distribution
- ➢ Satcom Microwave Antenna Signal Distribution
- ➢ EW Systems➢ Broadband Delay-line and Signal Processing
- ➢ LIDAR Receivers
- ➢ Phased and Interferometric Array Antenna

Functional Diagram



General Specifications	
Photodiode Wavelength Range	1260 nm to 1600 nm
Operational Bandwidth	60 KHz to 20 GHz
Optical Input Level	35 mW max.
Repsonsitivity	0.85 A/W @ 1550 nm typ. 0.90 A/W @ 1310 nm typ. 0.40 A/W @ 850 nm typ.
S21 3 dB Bandwidth	17 GHz min., 19 GHz typ.
S22 Characteristics	< -10 dB @ 20 GHz
Optical Return Loss	-30.0 dB typ.
2nd Harmonics Distortion	-70.0 dBc max.
3rd Harmonics Distortion	-75.0 dBc max.
Optical PDL @ 1550 nm	0.05 dB max.
Output Coupling	AC Coupled
RF Impedence	50 Ω
Ripple over Bandwidth	±1.0 dB max.
Link Performance with LT-20	
SFDR	113 dB $Hz^{2/3}$
Link Loss	-20 dB @ 10 dBm optical
Mechanical Specifications	
Operating Temperature	-10° C to +50° C
Storage Temperature	-20° C to +80° C
Power Supply Requirements	+5 V DC, 500 mA max.
Optical Connector	FC/APC, SC/APC Optional
RF Input Connector	K Connector Female, 50 Ω
DC Connector	Plug-in typ.
Local Alarm	LED: Optional Input Power
Remote Alarms	RS-232 Interface (Standard) via USB
Dimensions	82 mm x 56 mm x 25 mm
Accessories Included	110 V - 240 V AC USB Adaptor & Cable
Housing	Precision Mach. Anodized Aluminum

Typical S21 Bandwidth



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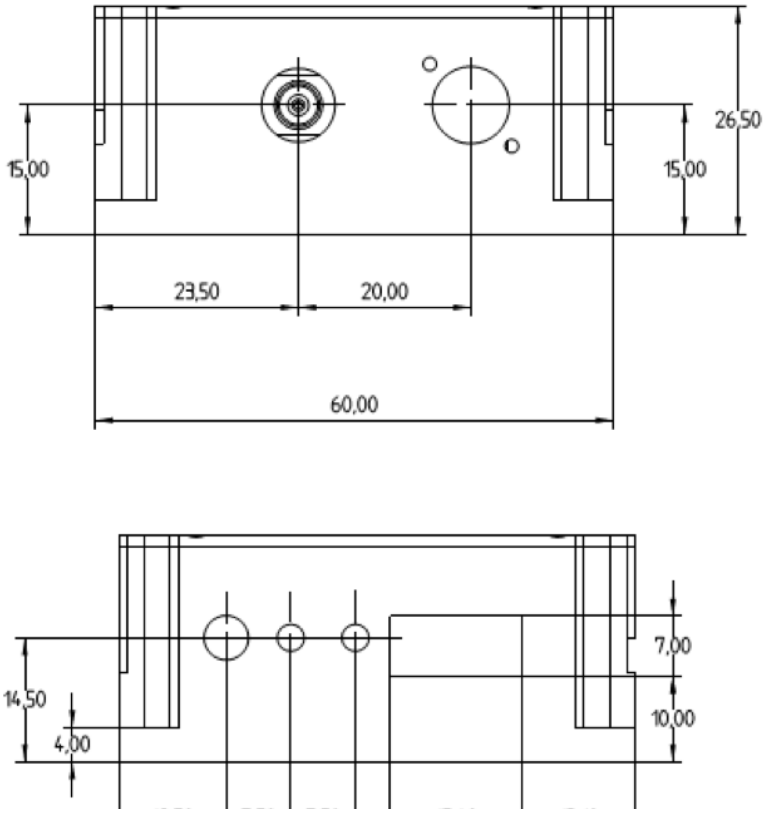
Mechanical Drawing



Unit: mm