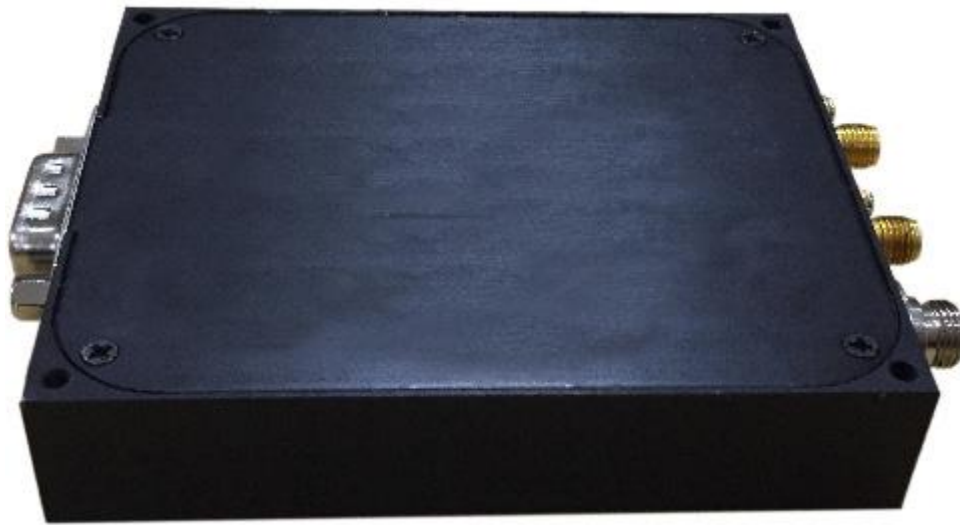


3 GHz High Gain Avalanche Photoreceiver Module



SK-APP-3-M

The Optilab SK-APR-3-M is a 3 GHz bandwidth receiver module designed for RF over fiber, antenna remoting, and broadband RF transmission applications using single mode optical and differential RF output. The APR-3-D can accept input power as low as 26 dBm. 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. When the SK-APR-3-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/LL for more information.

Features

- Single optical input differential RF output
- Integrated Transimpedance Amplifier
- Useful bandwidth up to 7 GHz
- High sensitivity: -26.5dBm
- Operates in both C and L wavelength bands
- Status monitoring: RS-232 (standard)
- DC-coupled output
- Single 12V power supply

Applications

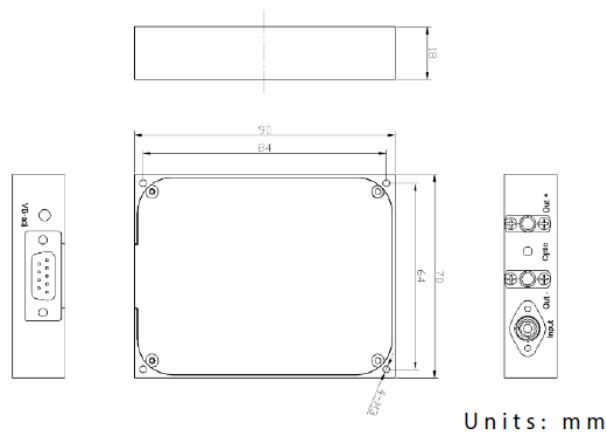
- Wideband RF Transmission over Fiber at 1,310nm or 1,530-1,610nm
- Optical fiber systems operating up to 7 GHz.
- Typical transimpedance (Z_t) value of 20,000 Ω
- Broadband delay-line and signal processing
- Phased and interferometric array antenna
- Low noise linear transmission system

Functional Diagram



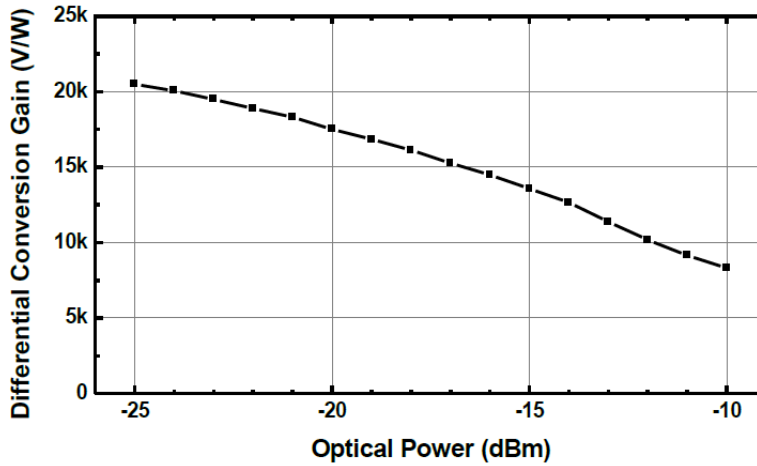
General Specifications	
Photodiode Wavelength Range	1530 nm to 1610 nm or 1310 nm
Operational Bandwidth	750 MHz to 3 GHz
Optical Input Level	-3 dBm max.
Conversion Gain	Over 20000 V/W
Gain Ripple	±1.5 dB
APR Responsivity	1020 v/w @ 1310 nm typ. 1080 v/w @ 1550 nm typ. 960 v/w @ 1610 nm typ.
Input Power	- 3dB @ 750 MHz, 16.3 dBm
S21 3 dB Bandwidth	2.4 GHz min., 2.5 GHz typ.
S22 Characteristics	12dB from 130 MHz to 6 GHz; 7dB from 130 MHz to 8 GHz
Optical Return Loss	27 dB Min.
Output Coupling	AC Coupled
AC Transimpedance	1200 ohm @ 750 MHz, Single - end
Maximun Output Voltage Swing	550 mV
Maximum Overload	-5 dBm Typ.
Maximum Optical Input Power	-9 dBm to -10 dBm
Mechanical Specifications	
Operating Temperature	-5° C to +75° C
Storage Temperature	-40° C to +85° C
Power Supply Requirements	+12 V DC
Optical Connector	FC/ APC
RF Output Connector	SMA Connector Female, 50 Ω
Local Alarm LED	Optional Input Power
Remote Alarms	RS-232 Interface (Standard)
Dimensions	90 mm x 70 mm x 18 mm
Accessories Included	110 V - 240 V AC Adaptor & Cable
Housing Precision Mach.	Anodized Aluminum

Mechanical Drawing



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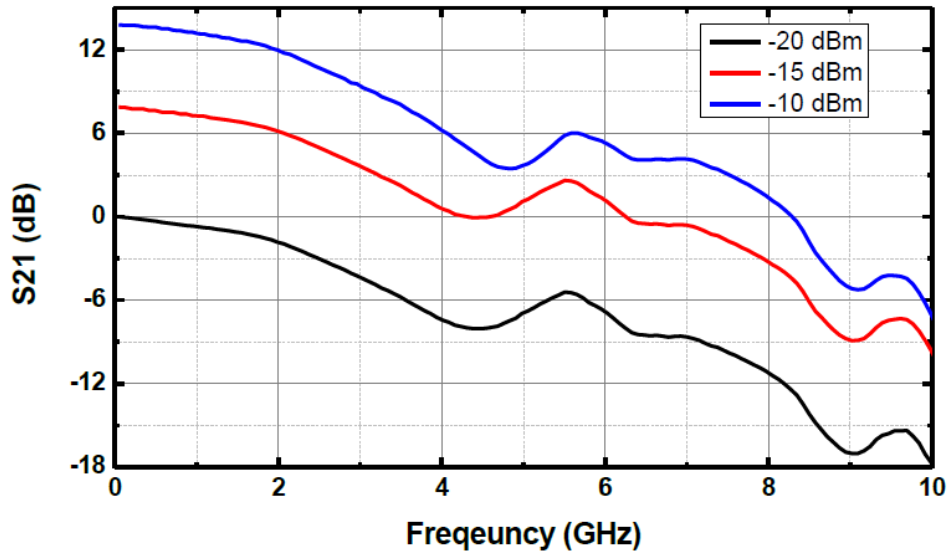
Differential Conversion Gain



Differential conversion gain over 20000 V/W, roughly matches the device datasheet:
M=10, PD Responsivity = 0.9 A/W, TIA Differential Gain = 2000 V/A

S21

Bandwidth: ~ 3 GHz



S21 curve at three different optical input power level: -20 / -15 / -10 dBm