

20GHz Microwave Photonics Receiver

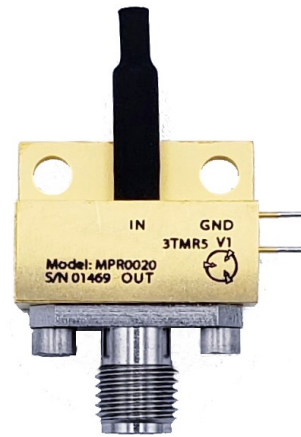
MPR0020
Rev. V1

Features

- Greater than 20 GHz RF Bandwidth
- DC Coupled
- Compact Lightweight Design
- High Responsivity
- Positive Supply Voltage
- 50Ω Output Impedance

Applications

- Signal Remoting
- Communications
- Radar
- Information Processing



Description

The MPR0020 Microwave Photonics Receiver extends link response to greater than 20 GHz via direct optical-to-analog RF conversion for signal remoting, communications, radar and information processing applications.

The unit consists of a high speed InGaAs PIN photodiode coupled to the RF output connector. It includes internal bias decoupling and can operate over a wide range of supply voltages (+3 to +15V). The detector response covers 1300 to 1600 nm. It is pigtailed with 900µm jacketed, single mode (ITU-T G.652.D compliant) fiber and can be terminated with a variety of optical connector options.

The entire unit is contained in a sealed housing and weighs less than 25 grams.

Electrical Specifications

Parameters	Unit	Min.	Typ.	Max.
RF Characteristics				
Operational Frequency Band	GHz	0 to 20	0 to 26	-
Output Impedance	Ω	-	50	-
Output Return Loss	dB	8	-	-
RF -3 dB Bandwidth	GHz	20	25	-
Optical Characteristics				
Optical Wavelength	nm	1300	-	1600
DC Responsivity @ 1550 nm/25°C	A/W	0.75	0.9	-
Optical Input Power ¹	mW	-	-	10
Optical Return Loss	dB	30	-	-
DC Characteristics				
V PIN Bias Voltage	V	3	5	15
Dark Current	µA	-	0.008	50

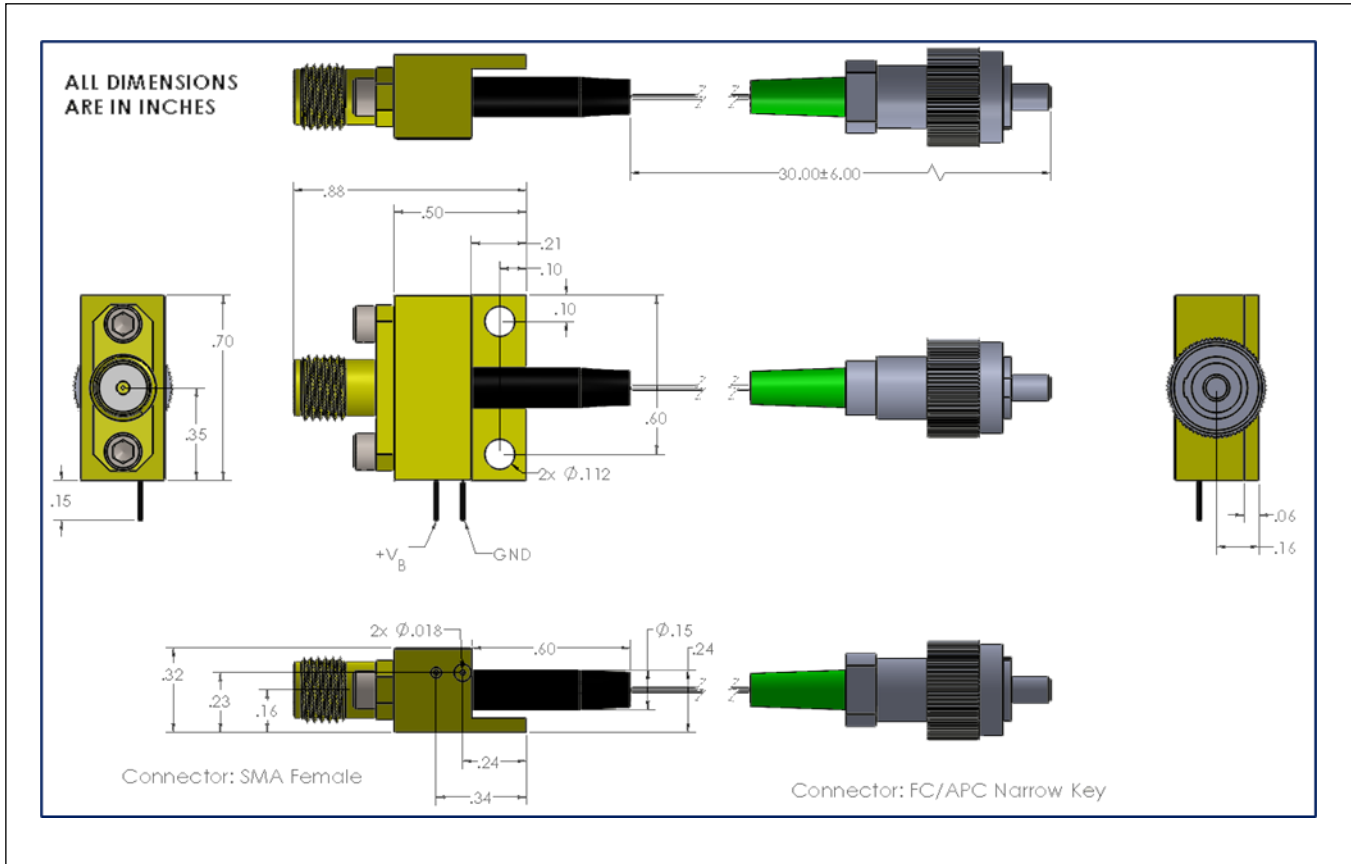
¹ Exceeding maximum optical input power may damage the device.

² Military temperature range available. Consult factory.

³ Other fiber options available. Consult factory.

⁴ Other connector options available. Consult factory.

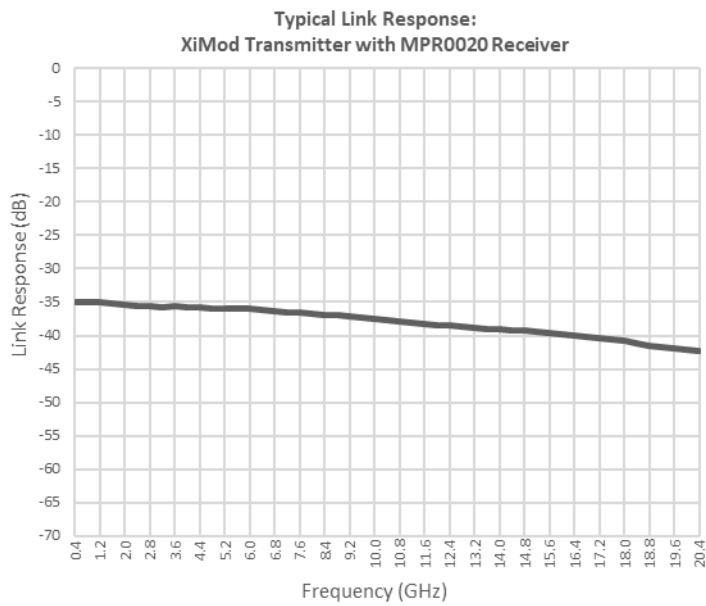
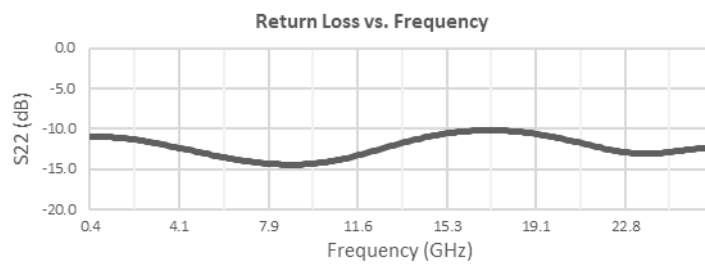
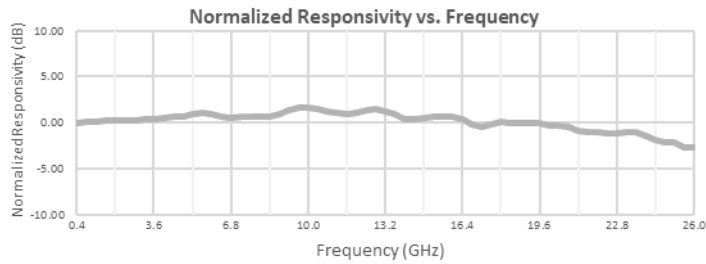
Mechanical Outline



Mechanical Characteristics	
RF Connector	3.5 mm (SMA) Female
Fiber Pigtail	G.652D, Single Mode 900 μm buffer, 1m typ ³
Fiber Connector	FC/APC ⁴
Bias Connectors	0.018" dia. Kovar pins with Sn/Pb coating
Max Weight (Grams)	25

Electrical Characteristics				
Parameters	Unit	Min.	Typ.	Max.
Operating Temperature Range	°C	-40	-	85
Storage Temp. Range	°C	-40	-	95

Typical Performance Curves



MACOM Technology Solutions Inc. ("MACOM"). All rights reserved.

These materials are provided in connection with MACOM's products as a service to its customers and may be used for informational purposes only. Except as provided in its Terms and Conditions of Sale or any separate agreement, MACOM assumes no liability or responsibility whatsoever, including for (i) errors or omissions in these materials; (ii) failure to update these materials; or (iii) conflicts or incompatibilities arising from future changes to specifications and product descriptions, which MACOM may make at any time, without notice. These materials grant no license, express or implied, to any intellectual property rights.

THESE MATERIALS ARE PROVIDED "AS IS" WITH NO WARRANTY OR LIABILITY, EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHT, ACCURACY OR COMPLETENESS, OR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.