40 GHz Amplified Microwave Receiver



Overview

The MR-40A is a high-performance optoelectronic receiver that performs photoelectric conversion, amplifies the output RF signal via a built-in low-noise amplifier, and then outputs the signal. It features a 3 dB bandwidth of ≥40 GHz for the optical receiver, with S22 ≤-10 dB within this bandwidth range, and a 14 dB gain from the built-in amplifier, making it suitable for technical fields such as ultra-wideband microwave photonic link construction.

Features

- Wide bandwidth
- High stability
- Low power consumption
- High amplitude-frequency flatness

Key Parameter

Product Specifications

Note: Unless otherwise specified, test temperature is 25°C.

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Operating Wavelength	λ	—	800	1550	1620	nm
Detector Responsivity	R	Vbias = 0 V; λ = 1550 nm	0.5	—	—	A/W
Detector Responsivity	R	Vbias = 0 V; λ = 1310 nm	0.7	—	—	A/W
Amplifier Gain	G	Vbias = +5 V	—	14	—	dB
Link Gain[1]	Gl	Vbias = +5 V; Popt = 0 dBm	—	-9	—	dB

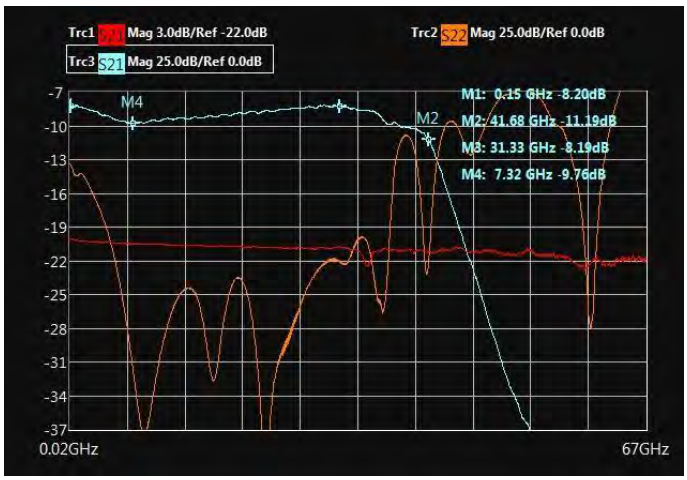
Low Frequency Cutoff	fcut-off	Vbias = +5 V; Popt = 0 dBm	—	100	—	MHz
3 dB Bandwidth	BW	Vbias = +5 V; Popt = 0 dBm	—	40	—	GHz
Input Saturation Optical Power	Psat	Vbias = +5 V	—	12	—	dBm
Return Loss	S22	Vbias = +5 V; Popt = 0 dBm; within 3 dB BW	—	—	-10	dB
Amplitude Flatness	δ	Vbias = +5 V; Popt = 0 dBm; within 3 dB BW	—	±1.5	—	dB
Operating Voltage	Vbias	—	4.5	5	5.5	V
Operating Current	I	Vbias = +5 V	—	45	—	mA

1Deduct the losses of the laser and modulator in the test link.

Maximum Absolute Ratings

Parameter Name	Symbol	Rating Value	Unit
Optical Power	Ps	16	dBm
Forward Voltage	Vr	6	V
Operating Temperature	Top	-40 ~ +70	℃
Storage Temperature	Tstg	-55 ~ +85	℃
Soldering Temperature	Ts	260 (10 s)	℃

Test curve

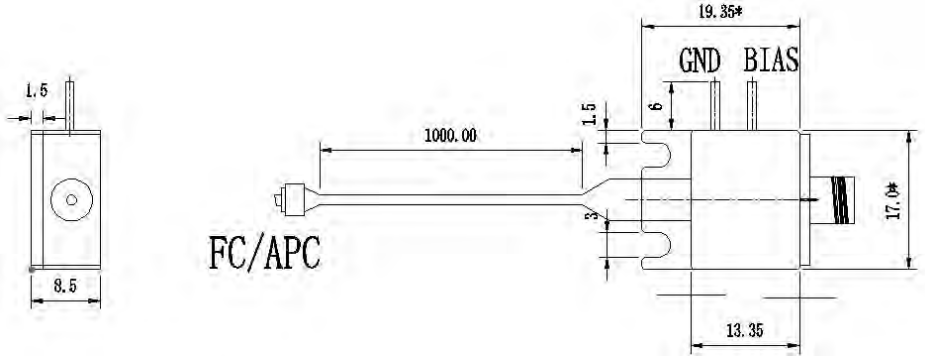


Note: Blue: MR-40A test S21 curve; Yellow: M-WPDR-40L test S22 curve; Red: S21 curve of Finisar XPDV3120R detector tested in the same test link.
The losses of the laser and modulator in the test link have all been deducted.

Usage Precautions:

*Necessary ESD protection measures should be taken to avoid electrostatic damage.
*Do not directly pull the pigtail to prevent damage to the device.
*Do not bend the device, as it may cause fiber breakage.
*Keep the optical connector clean to prevent dust or other foreign matter from affecting performance.

Dimensions and Pin definitions



Ordering Info

M	R	–XXL
Represents product type	PDR: Photodetector Receiver Represents product type	XX represents the 3 dB bandwidth 40: 40 GHz A represents amplifier type: Low Noise mplifier