



# PSI-1628 20 GHz Low Noise Microwave Amplifier

## PRODUCT DESCRIPTION

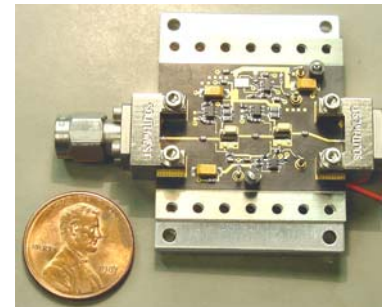
The PSI-1628 microwave low noise amplifier module provides 28 dB of gain over an exceptionally wide bandwidth. Designed for amplification in microwave photonic link transmitters and receivers, these modules provide high gain with low noise figure over the frequency range of 45 MHz to 20 GHz. This high level of gain is achieved using GaAs pHEMT technology and offers noise figure of better than 4 dB with +16 dBm of output power at 1 dB compression.

Offering high gain and excellent gain flatness over multiple octaves of bandwidth, the PSI-1628 amplifier is easily used in applications where multiple bands are transmitted over a single optical or radio span. When used in conjunction with PSI's optical link products, users are able to optimally match system losses, noise figure or gain requirements with optical link parameters.

Included in the compact sized module are DC power protection circuitry and RF matching to 50 ohms at both input and output SMA ports. This design allows for simple integration with microwave components and systems in either laboratory or field installation environments. The amplifier requires minimal DC power derived from +12 and -5 volt power supplies. The PSI-1628 microwave amplifier is contained in a housing measuring 1.5" x 1.75" x 0.75".

## Applications

- Radio over fiber
- LMDS, MMDS
- Radio astronomy
- Remote antenna distribution
- Phased array radar
- Cellular antenna farms
- Optical delay lines
- Spectroscopy
- Remote imaging

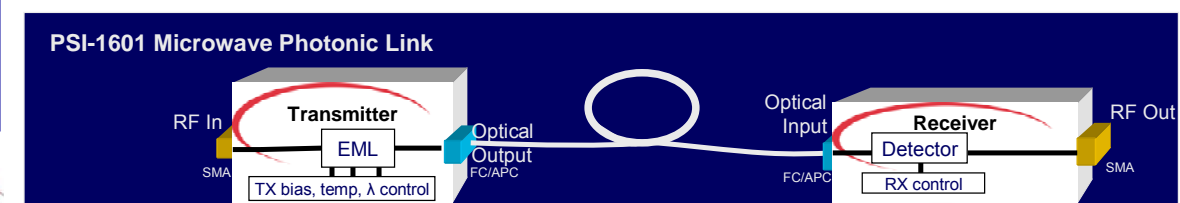
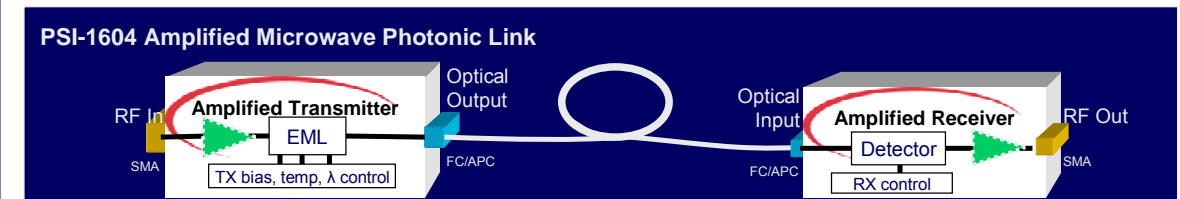


Photonic Systems, Inc. (PSI) is a recognized expert in the design, analysis and implementation of high performance fiber optic systems.

With decades of collective experience, the PSI team offers comprehensive fiber optic engineering solutions to government, military and commercial customers.

## PSI-1628 Microwave Amplifier Benefits

Feature	Benefit
Exceptionally wide bandwidth: 45 MHz to 20 GHz	Flexibility for use in many applications
High gain/ Low noise figure	Best system performance with fewest components
Designed for use with photonic links	Simple integration with PSI-1601, 1604 or other systems



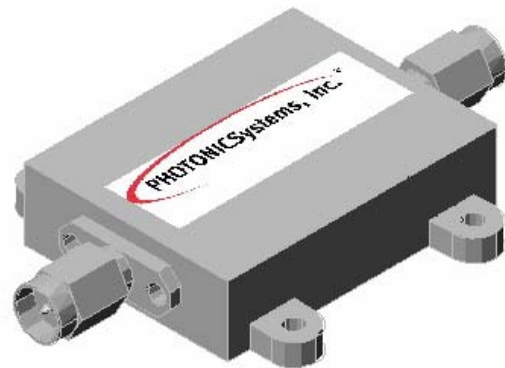
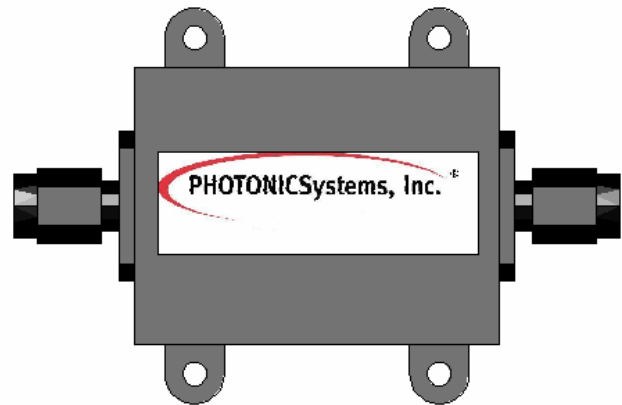
## Electrical and Microwave Specifications

### Pass-band specifications

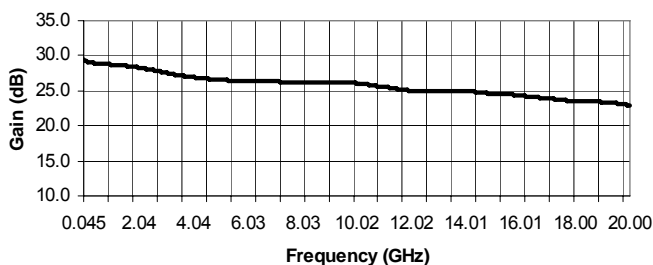
Parameter	Value- typical			
Frequency range	0.045 - 6 GHz	6 - 8 GHz	8 - 12 GHz	12 - 20 GHz
Gain	28 dB	28 dB	26 dB	24 dB
Gain flatness	± 1 dB	± 0.3 dB	± 0.3 dB	± 0.5 dB
Noise figure	4 dB	2.5 dB	2.5 dB	4 dB

### General RF and electrical specifications

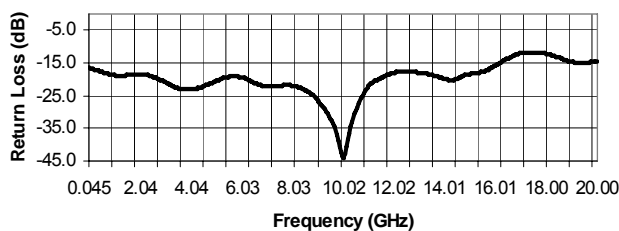
Parameter	Value- typical
Output third order intercept (IP3)	28 dBm
Output power for 1 dB compression (P1dB)	16 dBm
Input return loss	22 dB
Input IP3	-3 dBm
Output return loss	15 dB
RF port impedance (input and output)	50 ohms
DC power supply	+12 V @ < 150 mA; -5 V @ < 20 mA
Operating temperature range	0 to +60 deg. C
Module dimensions	1.5" x 1.75" x 0.75"
RF connectors (input and output)	SMA



PSI-1628 Amplifier Typical gain (S21)



PSI-1628 Amplifier  
Typical input return loss (S11)



PSI-1628 Amplifier  
Typical Noise Figure

