



# WBA120160A

## 12 - 16 GHz LOW NOISE WIDE BAND AMPLIFIER

REV A  
July 2010

### Key Features



- 12.0 ~ 16.0 GHz
- 2.0 dB noise figure
- 19.0 dBm output  $P_{1dB}$
- 35.0 dB Gain
- +/-1.0 dB Gain Flatness
- 1.6:1 VSWR
- Single power supply
- >34 years MTBF
- Unconditional stable
- RoHS compliant

### Product Description

WBA120160A integrates WanTcom proprietary low noise amplifier technology, high frequency micro electronic assembly techniques, and high reliability design to realize optimum low noise figure, wideband, high linearity, and unconditional stable performances together. With single +5.0V DC operation, the amplifier has optimal input and output matching in the specified frequency range at 50-Ohm impedance system. The amplifier has standard field replaceable SMA connectorized WP-10D gold plated housing.

The amplifier is designed to meet the rugged standard of MIL-STD-202.

### Applications

- Microwave Radio
- Satellite VSAT & DBS
- 802.16 & 802.20 WiMAX
- WLL & MMDS
- Test Instrument

### Specifications

Summary of the electrical specifications WBA120160A at room temperature

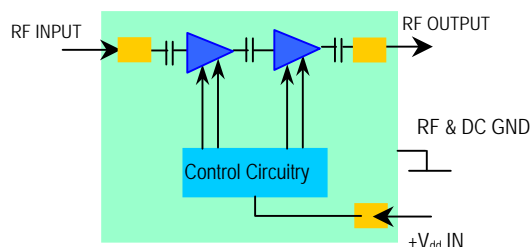
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	$S_{21}$	12.0 ~ 16.0 GHz		35		dB
2	Gain Variation	$\Delta G$	12.0 ~ 16.0 GHz		+/- 1.5		dB
3	Input VSWR	$SWR_1$	12.0 ~ 16.0 GHz		1.6:1	2.0:1	Ratio
4	Output VSWR	$SWR_2$	12.0 ~ 16.0 GHz		1.3:1	1.5:1	Ratio
5	Reverse Isolation	$S_{12}$	12.0 ~ 16.0 GHz	40			dB
6	Noise figure	NF	12.0 ~ 16.0 GHz		2.0	2.3	dB
7	Output Power 1dB compression Point	$P_{1dB}$	12.0 ~ 16.0 GHz		19		dBm
8	Current Consumption	$I_{dd}$	$V_{dd} = +5V$		150		mA
9	Power Supply Voltage	$V_{dd}$		+4.7	+5	+5.3	V
10	Operating Temperature	$T_o$		-40		+85	°C
11	Maximum Average RF Input Power	$P_{IN, MAX}$	12.0 ~ 16.0 GHz			15	dBm

### Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	6.0
Drain Current	mA	200
Total Power Dissipation	mW	1000
RF Input Power	dBm	15
Channel Temperature	°C	175
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85

Operation of this device above any one of these parameters may cause permanent damage.

### Functional Block Diagram



### Ordering Information

Model Number
WBA120160A

Specifications and information are subject to change without notice.

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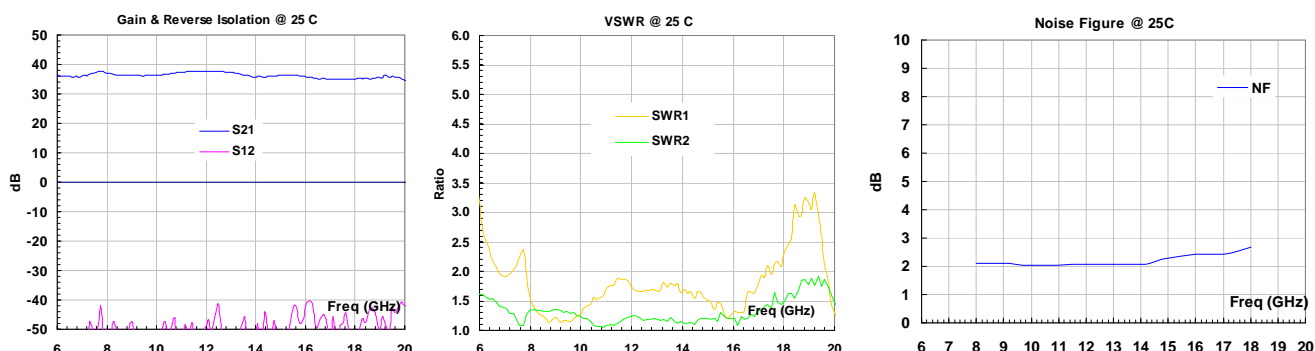


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### Typical Data



\*The measured noise figure includes the input SMA connector loss. The noise figure shall be around 0.1 ~ 0.2 dB lower without SMA connector.

### Outline, WP-10D Housing

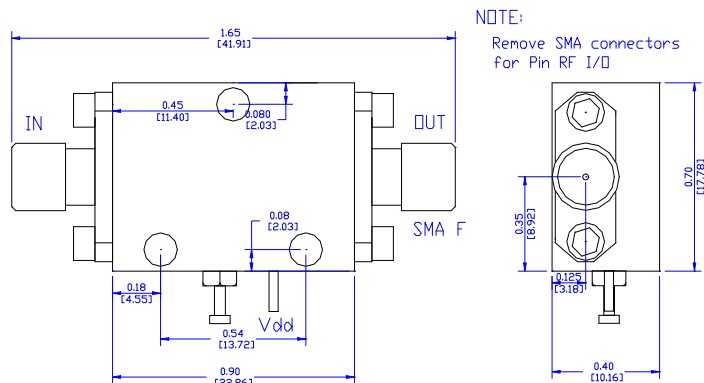
UNITS: INCH  
[mm]

BODY: Brass

Finish: Gold Plating

RF Connector: SMA F Gold

V<sub>dd</sub> PWR: Feed through



For the pin type input and output application, remove the input and output SMA connectors.

### Application Notes:

#### A. SMA Torque Wrench Selection

Always use a torque wrench with 5 ~ 6 inch-lb coupling torque setting for mating the SMA cables to the amplifier. Never use torque more than 8 inch-lb wrench for tightening the mating cable to the connector. Otherwise, the permanent damage will occur to the SMA connectors of the amplifier. 8710-1582 (5 inch-lb) is one of the ideal torque wrench choice from Agilent Technology.

#### B. Mounting the Amplifier

Use three pieces of #4-40 with longer than 9/16" screws for mounting the amplifier on a metal-based chase. Flat and spring washers are needed to prevent the screw loosening during the shock and vibration. Always use the appropriate torque setting of the power screwdriver to mount them.

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