WBPA90160A

9.5 – 16.5 GHz 1 WATT WIDE BAND AMPLIFIER

REV A
December 2015

Key Features

- 50 Ohm Impedance
- 9.5 ~ 16.5 GHz
- 4.5 dB noise figure
- 30.0 dBm Output P_{sat}
- 32.0 dB Gain
- +/-1.0 dB Gain Flatness
- 1.5:1 VSWR
- Single Power Supply
- >34 years MTBF
- Unconditional Stable
- RoHS compliant

Product Description

CAUTION: ELECTROSTATIC DISCHARGE SENSITIVE

WBPA90160A is integrated with WanTcom proprietary power 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-10 Gold plated housing.

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

Applications

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

Specifications

Summary of the electrical specifications WBPA90160A at room temperature

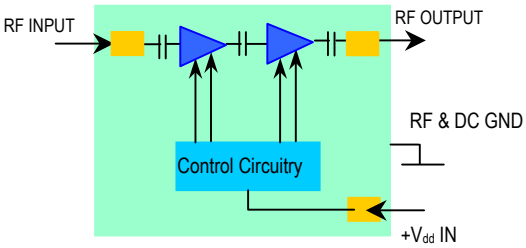
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	9.5 – 16.5 GHz		32		dB
2	Gain Variation	ΔG	9.5 – 16.5 GHz		+/- 1.0		dB
3	Input VSWR	SWR_1	9.5 – 16.5 GHz		1.5:1	2.0:1	Ratio
4	Output VSWR	SWR_2	9.5 – 16.5 GHz		1.5:1	2.0:1	Ratio
5	Reverse Isolation	S_{12}	9.5 – 16.5 GHz		60		dB
6	Noise Figure	NF	9.5 – 16.5 GHz		4.5	5.5	dB
7	Output Saturated Power	P_{sat}	9.5 – 16.5 GHz	28	30		dBm
8	Current Consumption	I_{dd}	V_{dd}= + 5.0 V		730		mA
9	Power Supply Voltage	V_{dd}		+4.7	+5.0	+5.3	V
10	Operating Temperature	T_o		-40		+85	°C
11	Maximum CW RF Input Power	$P_{IN, MAX}$	DC – 26.0 GHz			20	dBm
12	Thermal Resistance	R_{th}	Junction-to-base plate, last stage transistor		20		C/W

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	6.0
Drain Current	mA	800
Total Power Dissipation	W	4.0
CW RF Input Power	dBm	20
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
WBPA90160A

Additional heat sink is required for continuous operation!

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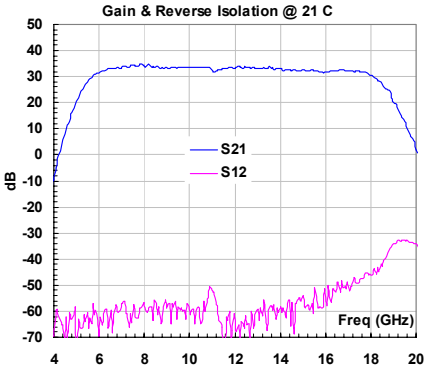
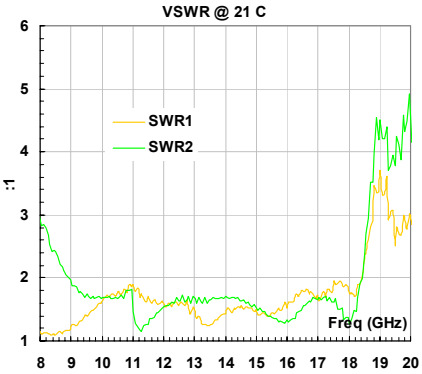
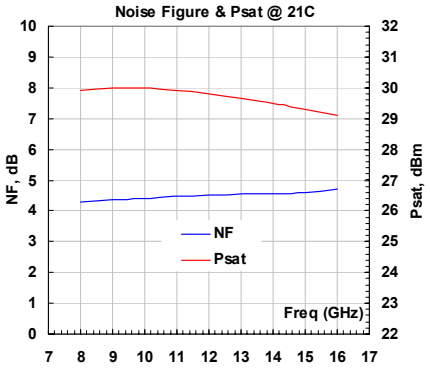
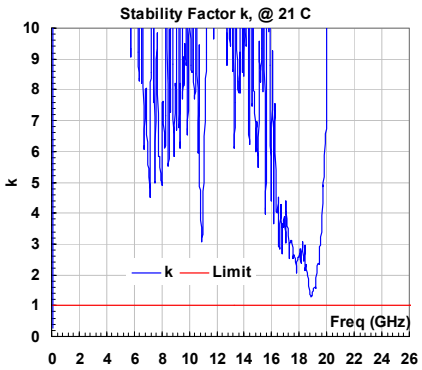
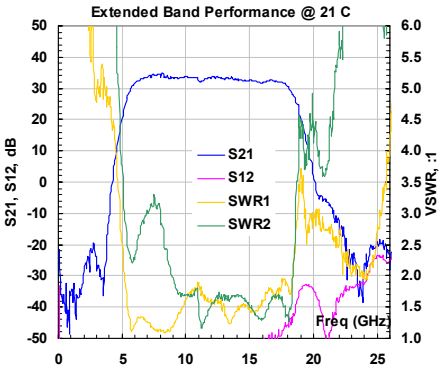
Typical Data



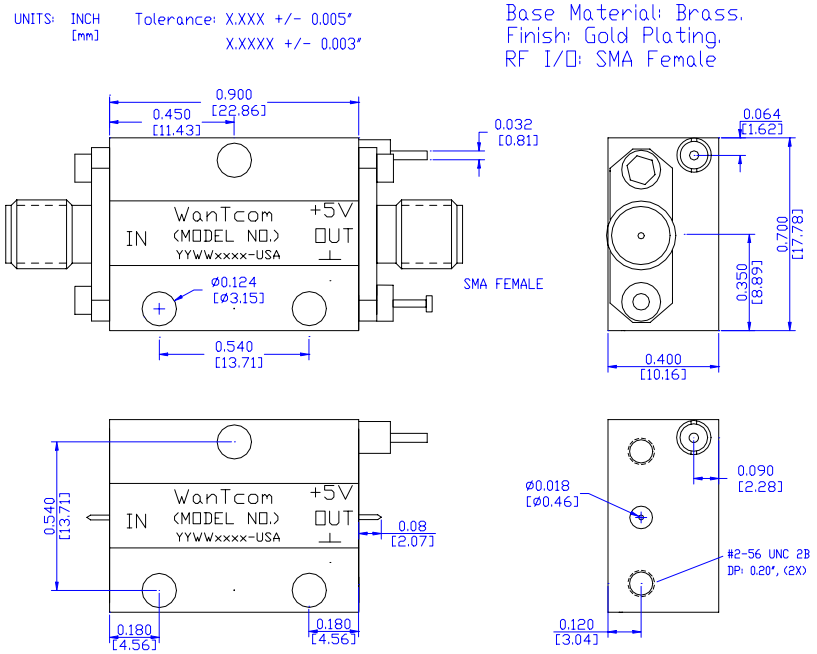








Outline, WP-10 Housing



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

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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 or heat sink. 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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