WBA0016A

100KHz- 1.6 GHz LOW NOISE WIDE BAND AMPLIFIER

REV A
July 2007

Key Features

- 100KHz ~ 1.6 GHz
- 2.0 dB noise figure
- 22.0 dBm output IP_3
- 12.0 dB Gain
- 10.0 dBm P1dB
- 1.4:1 VSWR
- Single power supply
- >34 years MTBF
- 50 Ohm Impedance
- RoHS compliant

Product Description

WBA0016A 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 exceptional gain flatness performances together. With single wide range DC voltage operation, the amplifier has optimal input and out put matching in the specified frequency range at 50-Ohm impedance system. The amplifier has standard SMA connectorized WP-6 gold plated housing.

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

Applications

- Mobile Infrastructures
- GPS
- CATV/DBS
- Defense
- Security System
- Measurement
- Fixed Wireless

Specifications

Summary of the electrical specifications WBA0016A at room temperature

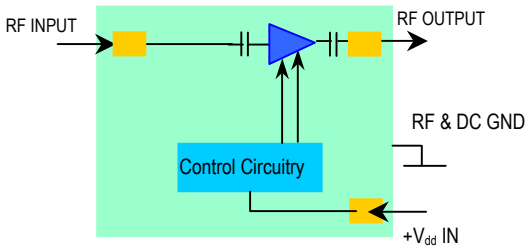
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	100 kHz – 1.6 GHz		12		dB
2	Gain Variation	ΔG	100 kHz – 1.6 GHz		+/- 0.3	+/-0.5	dB
3	Input VSWR	SWR_1	100 kHz – 1.6 GHz		1.4:1	1.6:1	Ratio
4	Output VSWR	SWR_2	100 kHz – 1.6 GHz		1.4:1	1.6:1	Ratio
5	Reverse Isolation	S_{12}	100 kHz – 1.6 GHz		15		dB
6	Noise figure	NF	10 MHz – 1.6 GHz		2.0	4.0	dB
7	Output Power 1dB compression Point	P_{1dB}	100 kHz – 1.6 GHz		10		dBm
8	Output-Third-Order Interception point	IP_3	Two-Tone, P_{out} +0 dBm each, 1 MHz separation	20	22		dBm
9	Current Consumption	I_{dd}	V_{dd}		30		mA
10	Power Supply Voltage	V_{dd}	WBA0016A	+7.0		+30	V
11	Thermal Resistance	$R_{th,c}$	Junction to case			220	°C/W
12	Operating Temperature	T_o		-40		+85	°C
13	Maximum Average RF Input Power	$P_{IN, MAX}$	100 kHz – 1.6 GHz			10	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	+30V
Drain Current	mA	35
Total Power Dissipation	mW	1200
RF Input Power	dBm	10
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85
Thermal Resistance	°C/W	220

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

Functional Block Diagram



Ordering Information

Model Number
WBA0016A

Specifications and information are subject to change without notice.

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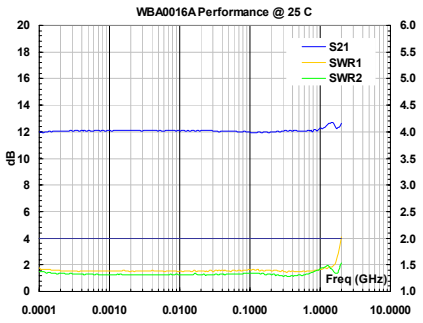
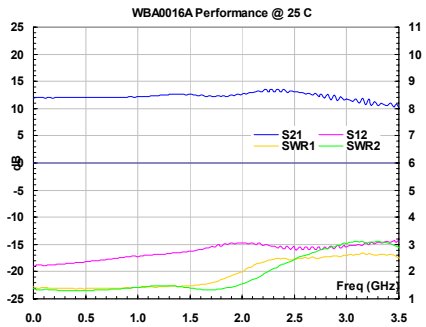
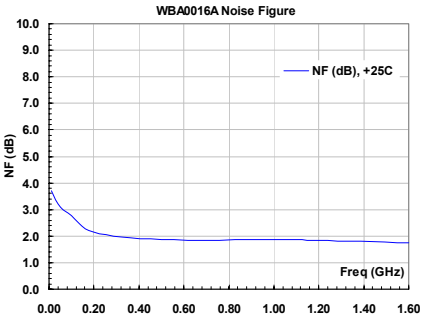
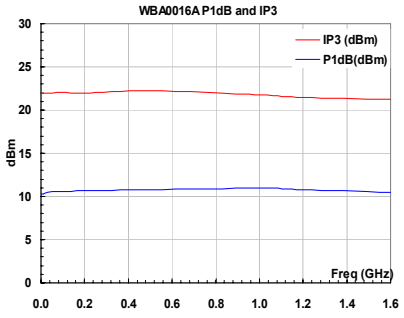
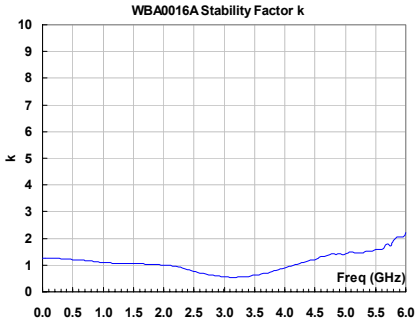
Typical Data





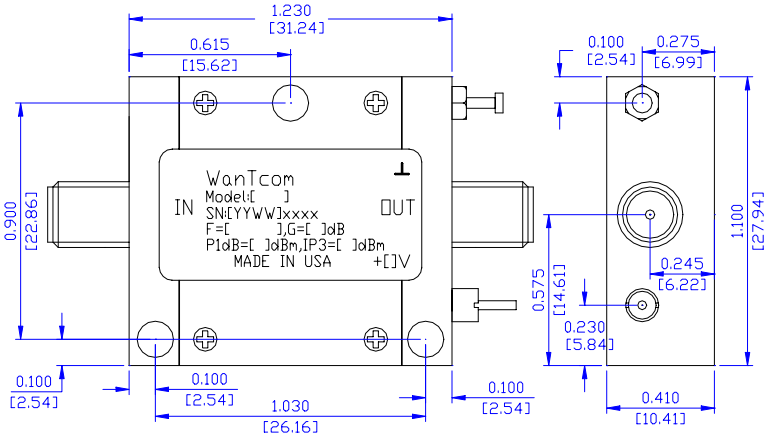






Outline, WP-6 Housing

UNITS:	INCH [mm]
BODY:	Brass
Finish:	Gold Plating
RF Connector:	SMA F Gold
V_{dd} PWR:	Feed through



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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 good torque wrench choice from Agilent Technology.

B. DC Power Line Connection

Strip the insulation layer at the end of DC power supply wire. The stripped distance should be in the range of 0.100" to 0.200". The 24 ~ 26 American Wire Gauge wire is suitable. Wound the stripped terminal wire about 1 to 2 turns on the DC feed thru center pin. Solder the wounded wire and the center pin together. Clean the soldering area by Q-tip with alcohol to remove the flux and residue.

Repeat the process to solder the DC return wire on the ground turret.

C. 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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