



WBA0030-15A

0.01- 3.0 GHz LOW NOISE WIDE BAND AMPLIFIER

REV B
September 2013

Key Features



- 50 Ohm Impedance
- 10 MHz ~ 3.0 GHz
- 1.8 dB Noise Figure
- 31.0 dBm Output IP_3
- 14.0 dB Gain
- 19.0 dBm P_{1dB}
- 20 dB Return Losses
- Single Power Supply
- >34 Years MTBF
- RoHS Compliant

Product Description

WBA0030-15A 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 DC operation, the amplifier has optimal input and output 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 MIL-STD-202 standard.

CAUTION:



ELECTROSTATIC DISCHARGE SENSITIVE

Applications

- Mobile Infrastructures
- GPS
- CATV/DBS
- Defense
- PCS & 3G
- Measurement
- Fixed Wireless



Specifications

Summary of the electrical specifications WBA0030-15A at room temperature

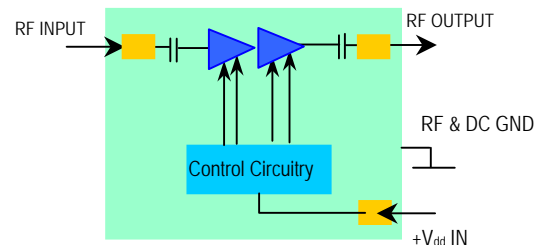
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	20 MHz – 3.0 GHz	13	14	15	dB
2	Gain Variation	ΔG	20 MHz – 3.0 GHz		+/- 0.3	+/-0.6	dB
3	Input Return Loss	S_{11}	20 MHz – 3.0 GHz	14	20		dB
4	Output Return Loss	S_{22}	20 MHz – 3.0 GHz	14	20		dB
5	Reverse Isolation	S_{12}	20 MHz – 3.0 GHz	12	15		dB
6	Noise Figure	NF	100 MHz – 3.0 GHz		1.8	2.2	dB
			20 MHz – 100 MHz			4.0	
7	Output Power 1dB Compression Point	P_{1dB}	20 MHz – 3.0 GHz	18	19		dBm
8	Output-Third-Order Interception Point	IP_3	Two-Tone, P_{out} +10 dBm each, 1 MHz separation	30	31		dBm
9	Current Consumption	I_{dd}	$V_{dd} = +7 \sim +25$ V		70		mA
10	Power Supply Voltage	V_{dd}		+7		+25	V
11	Operating Temperature	T_o		-40		+85	°C
12	Maximum Average RF Input Power	$P_{IN, MAX}$	DC – 6.0 GHz			10	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	-0.5, +25
Drain Current	mA	100
Total Power Dissipation	W	2.5
RF Input CW Power	dBm	+10
Channel Temperature	°C	150
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



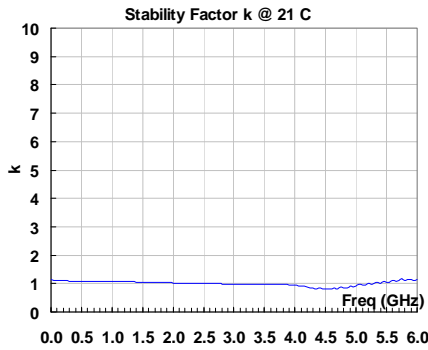
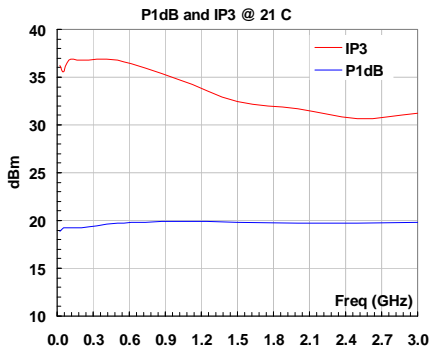
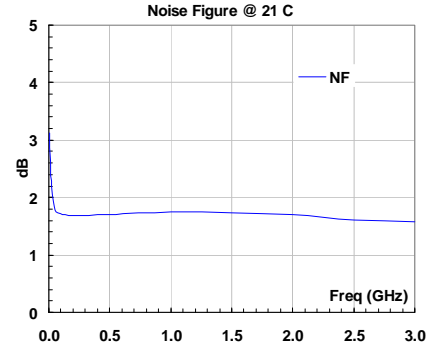
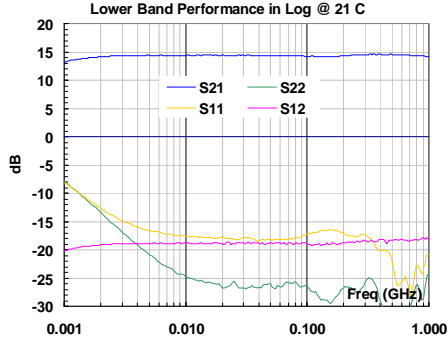
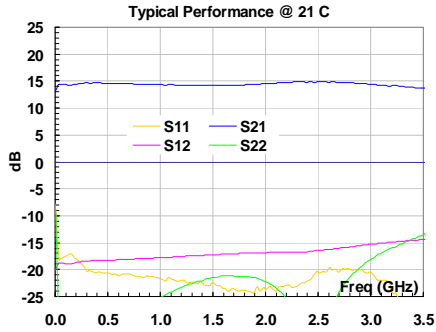
Ordering Information

Model Number	WBA0030-15A
--------------	-------------

Specifications and information are subject to change without notice.

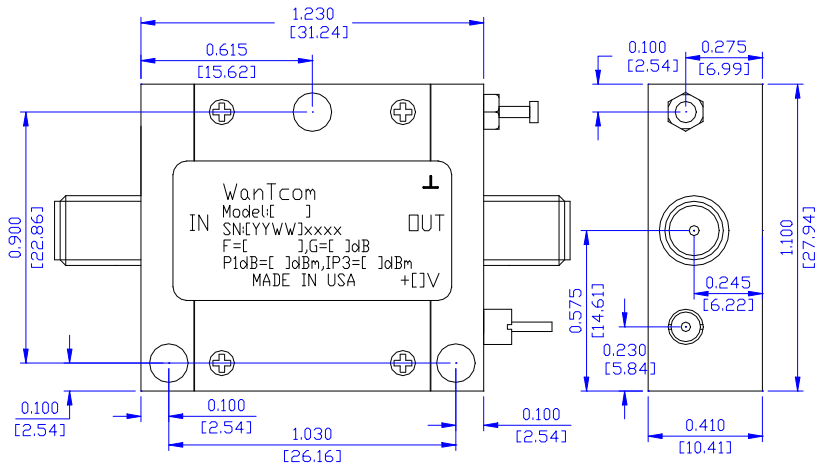


Typical Data



Outline, WP-6 Housing

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



Specifications and information are subject to change without notice.



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 turn 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. Never use too large soldering iron tip and too high temperature soldering this DC power line. Too hot tip will damage the feed thru and causes permanent damage to the amplifier.

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.
