



WBA0130A

0.10 – 3.0 GHz WIDEBAND LOW GAIN AMPLIFIER

REV A
April 2012

Key Features



- 0.10 ~ 3.0 GHz
- 4.5 dB Noise Figure
- 22.0 dBm Output P_{1dB}
- 8.0 dB Gain
- **+/-0.25 dB Gain Flatness**
- 1.5:1 VSWR
- Single power supply
- >34 years MTBF
- Unconditional stable
- RoHS compliant
- Meet MIL-STD-202

Product Description

WBA0130A integrates 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 +9.0V DC operation, the amplifier has optimal input and output matching in the specified frequency range at 50-Ohm impedance system. The amplifier has standard SMA connectorized WP-11 gold plated housing.

Applications

- Mobile Infrastructures
- Defense
- Radar
- Measurement
- Fixed Wireless

Preliminary

Specifications

Summary of the electrical specifications WBA0130A at room temperature

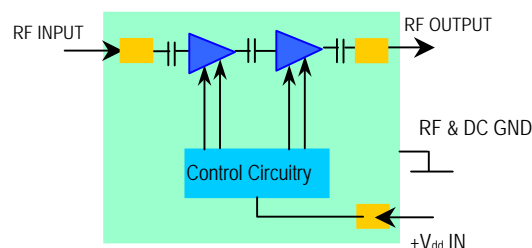
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	0.10 – 3.0 GHz, WBA0130A	7.0	8.0	9.0	dB
			0.10 – 3.0 GHz, WBA0130B	8.0	9.0	10.0	
2	Gain Variation	ΔG	0.10 – 3.0 GHz		+/- 0.25	+/-0.5	dB
3	Input & Output VSWR	$SWR_{1,2}$	0.10 – 3.0 GHz		1.5:1	1.8:1	Ratio
4	Noise Figure	NF	0.10 – 3.0 GHz, WBA0130A		4.0	5.0	dB
			0.10 – 3.0 GHz, WBA0130B		3.5	4.5	
5	Reverse Isolation	S_{12}	0.10 – 3.0 GHz		20		dB
7	Output Power 1dB compression Point	P_{1dB}	0.10 – 3.0 GHz, WBA0130A	20	22		dBm
			0.10 – 3.0 GHz, WBA0130B	21	23		
8	Output IP_3	IP_3	0.10 – 3.0 GHz		32		dBm
9	Current Consumption	I_{dd}	$V_{dd} = +9V$		100		mA
10	Power Supply Voltage	V_{dd}		8.5	+9	+9.5	V
11	Thermal Resistance	$R_{th,c}$	Junction to case			130	°C/W
12	Operating Temperature	T_o		-40		+85	°C
13	Maximum Average RF Input Power	$P_{IN, MAX}$	DC – 6 GHz			20	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	11
Drain Current	mA	150
Total Power Dissipation	W	1
RF Input Power	dBm	20
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85
Thermal Resistance	°C/W	130

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

Functional Block Diagram



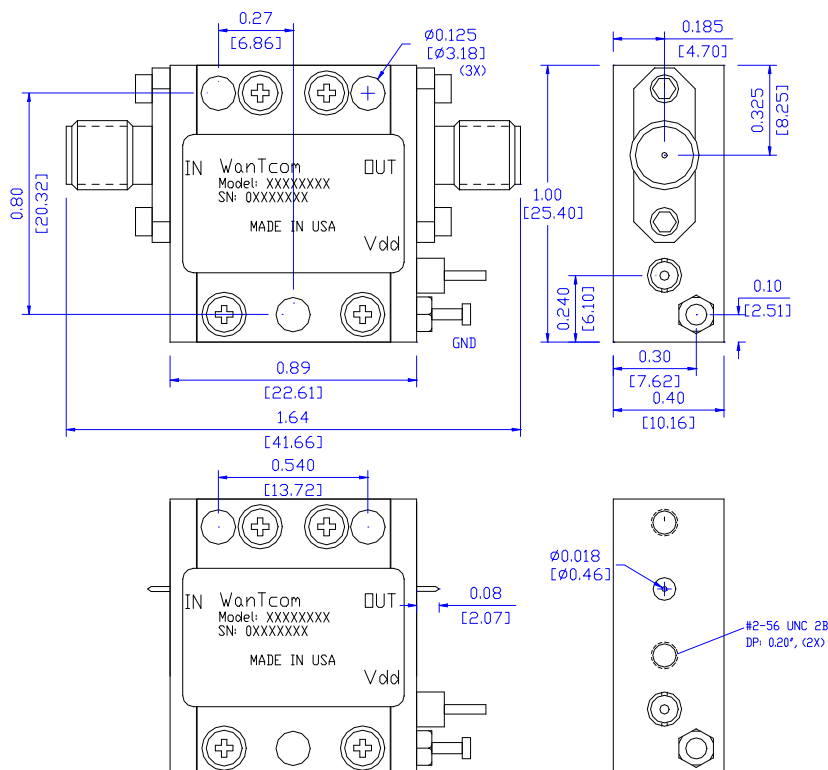
Ordering Information

Model Number	Gain
WBA0130A	8.0 dB
WBA0130B	9.0 dB

Specifications and information are subject to change without notice.

**WBA0130A****0.10 – 3.0 GHz WIDEBAND LOW GAIN AMPLIFIER****REV A****April 2012****Typical Data:****Outline, WP-11 Housing**

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

**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. 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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WanTcom, Inc * Phone 01 952 448 6088 * FAX: 01 952 448 7188 * e-mail: sales@wantcominc.com * Web site: www.wantcominc.com