



WBA0913AS

0.9 – 1.3 GHz SUPER LOW NOISE AMPLIFIER

REV B
April 2022

Key Features



- 0.9 -1.3 GHz
- 0.5 -1.6 GHz Usable
- **0.35 dB Noise Figure**
- 16.0 dBm Output P_{1dB}
- 38.0 dB Gain
- +/- 0.50 dB Gain Flatness
- 1.5:1 VSWR
- Single power supply
- >68 years MTBF
- RoHS compliant
- Meet MIL-STD-202g

Product Description

WBA0913AS is integrated with 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-11 Gold plated housing.



Applications

- Cellular Infrastructures
- Avionics
- GPS
- Measurement
- Fixed Wireless



Specifications

Summary of the electrical specifications WBA0913AS at room temperature

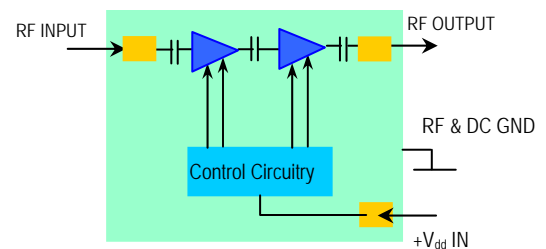
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S ₂₁	0.9 – 1.3 GHz	36	38	40	dB
2	Gain Variation	ΔG	0.9 – 1.3 GHz		+/- 0.50	+/-0.8	dB
3	Noise Figure	NF	0.9 – 1.3 GHz		0.35	0.45	dB
4	Input & Output VSWR	SWR ₁	0.9 – 1.3 GHz		1.25:1	1.5:1	Ratio
5	Output VSWR	SWR ₂	0.9 – 1.3 GHz		1.25:1	1.5:1	Ratio
6	Reverse Isolation	S ₁₂	0.9 – 1.3 GHz		30		dB
7	Output 1dB Gain Compression Point	P _{1dB}	0.9 – 1.3 GHz	13	16		dBm
8	Output Third Interception Point	OIP ₃	0.9 – 1.3 GHz, 1 MHz Sep., 0 dBm each tone	26	30		dBm
9	Current Consumption	I _{dd}	V _{dd}			90	mA
10	Power Supply Voltage	V _{dd}	WBA0913AS	+4.7	+5.0	+5.3	V
			WBA0913BS	+9	+15	+16	
11	Thermal Resistance	R _{th,c}	Junction to case, last stage transistor			220	°C/W
12	Operating Temperature	T _o		-40		+85	°C
13	Maximum Input RF CW Power	P _{IN, MAX}	DC – 6 GHz			13	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	6 (+16 V for WBA0913BS)
Drain Current	mA	100
Total Power Dissipation	W	0.6 (1.6 for WBA0913AS)
Input RF CW Power	dBm	13
Junction 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	V _{dd}
WBA0913AS	+5.0V
WBA0913BS	+9 ~ +16V

Specifications and information are subject to change without notice.

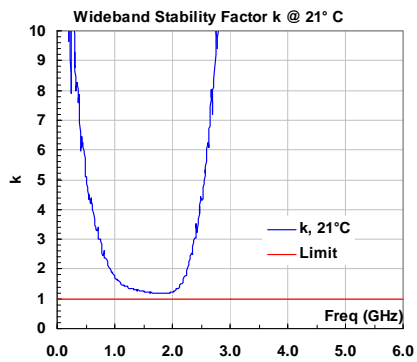
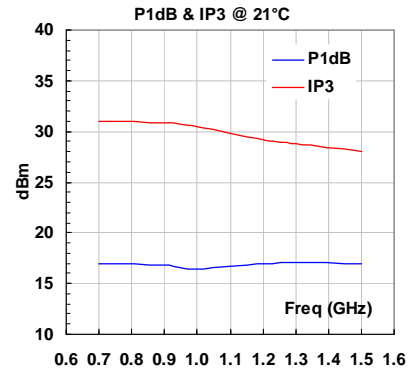
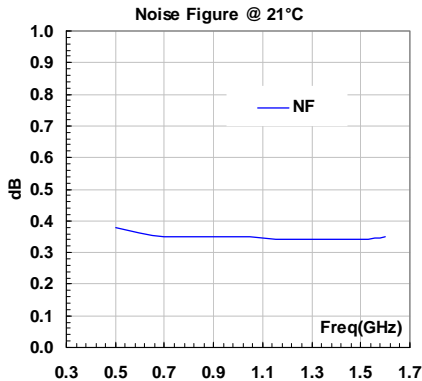
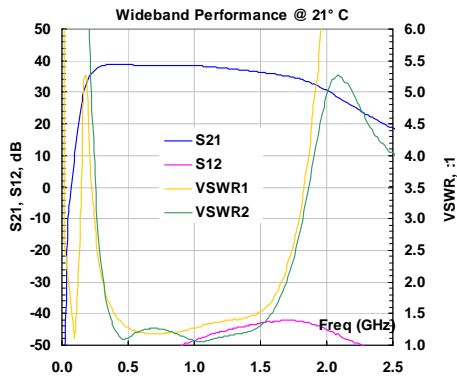


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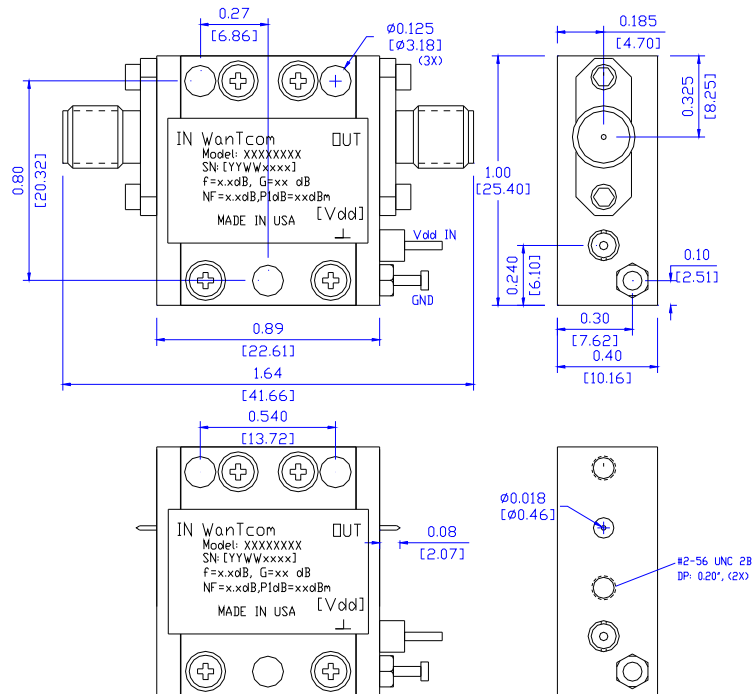
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Typical Data:



Outline, WP-11 Housing

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



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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. 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.
