



# WZA309

## 1.8 – 4.0 GHz LOW NOISE WIDE BAND AMPLIFIER

REV A

January 2011

### Key Features

- 1.80 ~ 4.0 GHz
- 1.2 dB Noise Figure
- 25.0 dBm Output IP<sub>3</sub>
- 25.0 dB Gain
- 13.0 dBm P<sub>1dB</sub>
- 1.5:1 VSWR
- Single Power Supply
- RoHS Compliant
- **MADE IN USA**



### Applications

- 50 Ohm Impedance
- Mobile Infrastructures
- PCS
- 3G
- Measurement
- Fixed Wireless



### Absolute Maximum Ratings

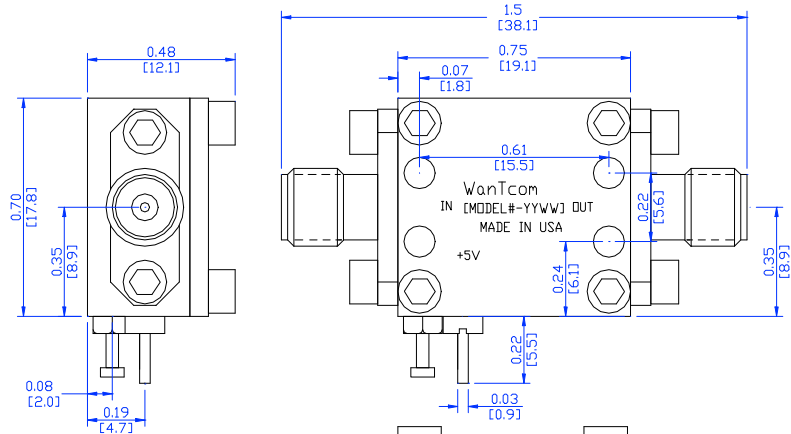
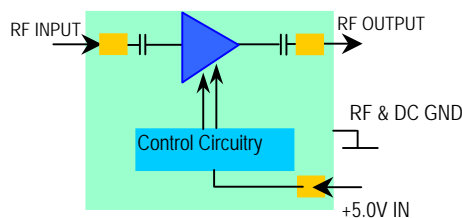
Parameters	Units	Rating
DC Power Supply Voltage	V	6.0
Drain Current	mA	90
Total Power Dissipation	mW	500
RF Input Power	dBm	10
Channel Temperature	°C	150
Storage Temperature	°C	-55~125
Operating Temperature	°C	-40~85
Thermal Resistance	°C/W	220

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

### Specifications

Summary of the electrical specifications WZA309 at room temperature

Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	1.8 – 4.0 GHz	23	25		dB
2	Gain Variation	ΔG	1.8 – 4.0 GHz		+/- 1.0		dB
3	Input VSWR	SWR <sub>1</sub>	1.8 – 4.0 GHz		1.5:1	1.8:1	Ratio
4	Output VSWR	SWR <sub>2</sub>	1.8 – 4.0 GHz		1.5:1	1.8:1	Ratio
5	Reverse Isolation	S <sub>12</sub>	1.8 – 4.0 GHz		45		dB
6	Noise figure	NF	1.8 – 4.0 GHz		1.2	1.5	dB
7	Output Power 1dB compression Point	P <sub>1dB</sub>	1.8 – 4.0 GHz	10	13		dBm
8	Output-Third-Order Interception point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> = 0 dBm each, 1 MHz separation	20	25		dBm
9	Current Consumption	I <sub>dd</sub>	@ 25 °C		55		mA
10	Power Supply Voltage	V <sub>dd</sub>		+4.7	+5.0	+5.3	V
11	Thermal Resistance	R <sub>th,c</sub>	Junction to case			220	°C/W
12	Operating Temperature	T <sub>o</sub>	Case temperature at the bottom of the housing	-40		+85	°C
13	Maximum Average RF Input Power	P <sub>IN,MAX</sub>	DC – 13 GHz			10	dBm
14	Spurious	P <sub>spur</sub>	DC – 13 GHz	-70			dBc



### Outline, WP-30 Housing

RF PORTS: SMA F, GOLD

- NOTES
1. MATERIAL: ALUMINUM ALLOY: 6061
  2. TOLERANCE IS NON-ACCUMULATIVE
  3. FINISH:
    - A. Conductive clear plating. RoHS Compliant.

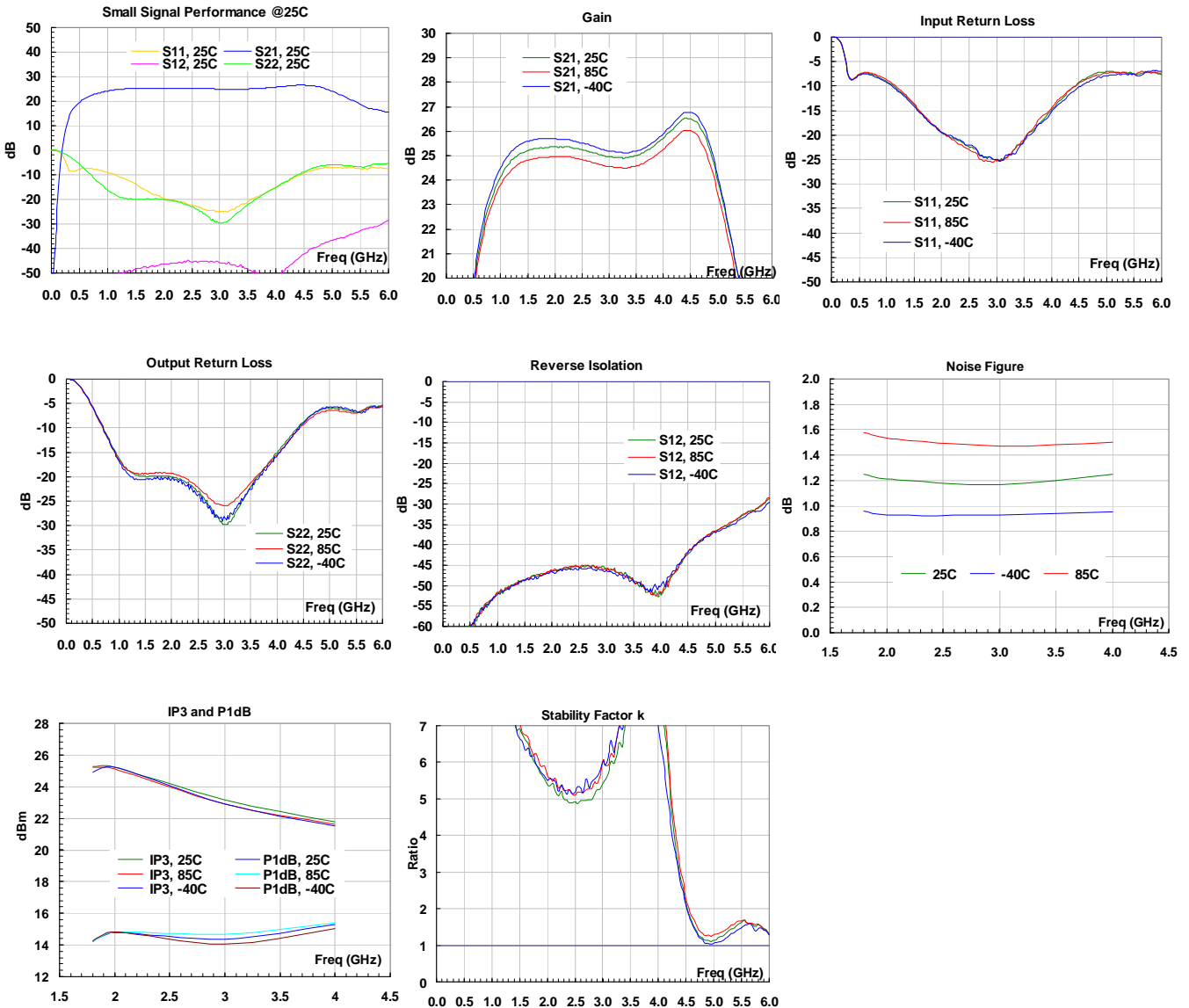
### Ordering Information

Model Number	WZA309
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Specifications and information are subject to change without notice.



### Typical Performance



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 connector to the amplifier 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 #2-56 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 after any shock and vibration. Always use the appropriate torque setting of the power screwdriver to mount the screws.

### C. Soldering DC Power Supply Wires

Always turn off the DC power supply of +5.0V when connect the DC cables to the amplifier. Only turn on the power supply after the correct connections are confirmed. Any accidentally short the live +5.0V to the ground while applying DC cable to the DC feed thru pin may damage the amplifier.

The AWG of 18 ~ 24 insulated wires are recommended for the DC cables. Red and Black color wires are recommended for +5.0V and its return for easier identification of the polarity to avoid the wrong DC bias. Only ¾ to 1 turn wrap around the feed thru pin and ground turret per the IPC standard. The soldering iron tip size between 0.010" to 0.020" is recommended. The temperature of the tip shall be set around 700 °F in order to avoid too high temperature. The DC Pin will be damaged if it is exposed too high temperature for too long.

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