



# WZA302

## 0.8 – 1.5 GHz LOW NOISE WIDE BAND AMPLIFIER

REV A  
January 2011

### Key Features

- 0.8 ~ 1.5 GHz
- 1.3 dB Noise Figure
- 13.0 dBm Output IP<sub>3</sub>
- 27.0 dB Gain
- 0.0 dBm P<sub>1dB</sub>
- 1.25:1 VSWR
- Single Power Supply
- RoHS Compliant
- **MADE IN USA**



### Applications

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



### Absolute Maximum Ratings

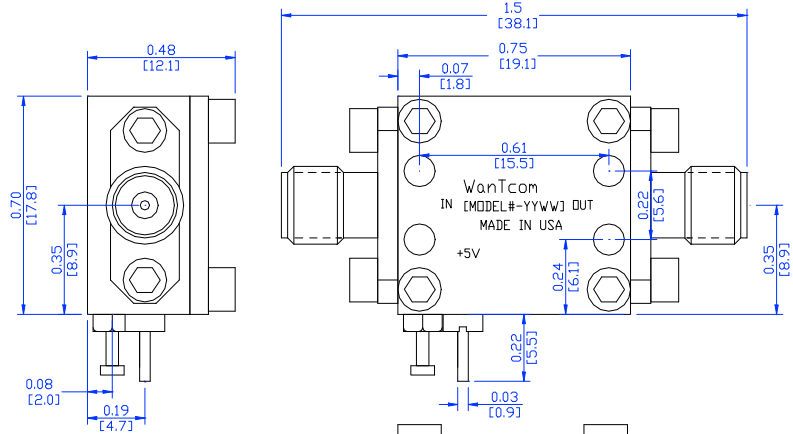
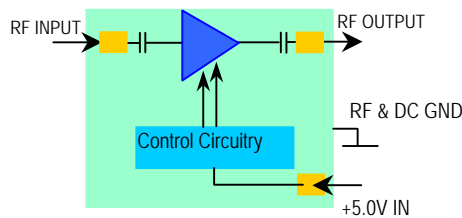
| Parameters              | Units | Rating  |
|-------------------------|-------|---------|
| DC Power Supply Voltage | V     | 6.0     |
| Drain Current           | mA    | 90      |
| Total Power Dissipation | mW    | 500     |
| RF Input Power          | dBm   | 10      |
| Channel Temperature     | °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 WZA302 at room temperature

| Index | Testing Item                          | Symbol              | Test Constraints  | Min  | Nom     | Max   | Unit  |
|-------|---------------------------------------|---------------------|---|------|---------|-------|-------|
| 1     | Gain                                  | S <sub>21</sub>     | 0.8 – 1.5 GHz   | 25   | 27      |       | dB    |
| 2     | Gain Variation                        | ΔG                  | 0.8 – 1.5 GHz   |      | +/- 0.2 |       | dB    |
| 3     | Input VSWR                            | SWR <sub>1</sub>    | 0.8 – 1.5 GHz   |      | 1.25:1  | 1.5:1 | Ratio |
| 4     | Output VSWR                           | SWR <sub>2</sub>    | 0.8 – 1.5 GHz   |      | 1.25:1  | 1.5:1 | Ratio |
| 5     | Reverse Isolation                     | S <sub>12</sub>     | 0.8 – 1.5 GHz   |      | 40      |       | dB    |
| 6     | Noise figure                          | NF                  | 0.8 – 1.5 GHz   |      | 1.3     | 1.5   | dB    |
| 7     | Output Power 1dB compression Point    | P <sub>1dB</sub>    | 0.8 – 1.5 GHz   |      | 0       |       | dBm   |
| 8     | Output-Third-Order Interception point | IP <sub>3</sub>     | Two-Tone, P <sub>out</sub> = 0 dBm each, 1 MHz separation | 10   | 13      |       | dBm   |
| 9     | Current Consumption                   | I <sub>dd</sub>     | @ 25 °C   |      | 20      |       | 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.

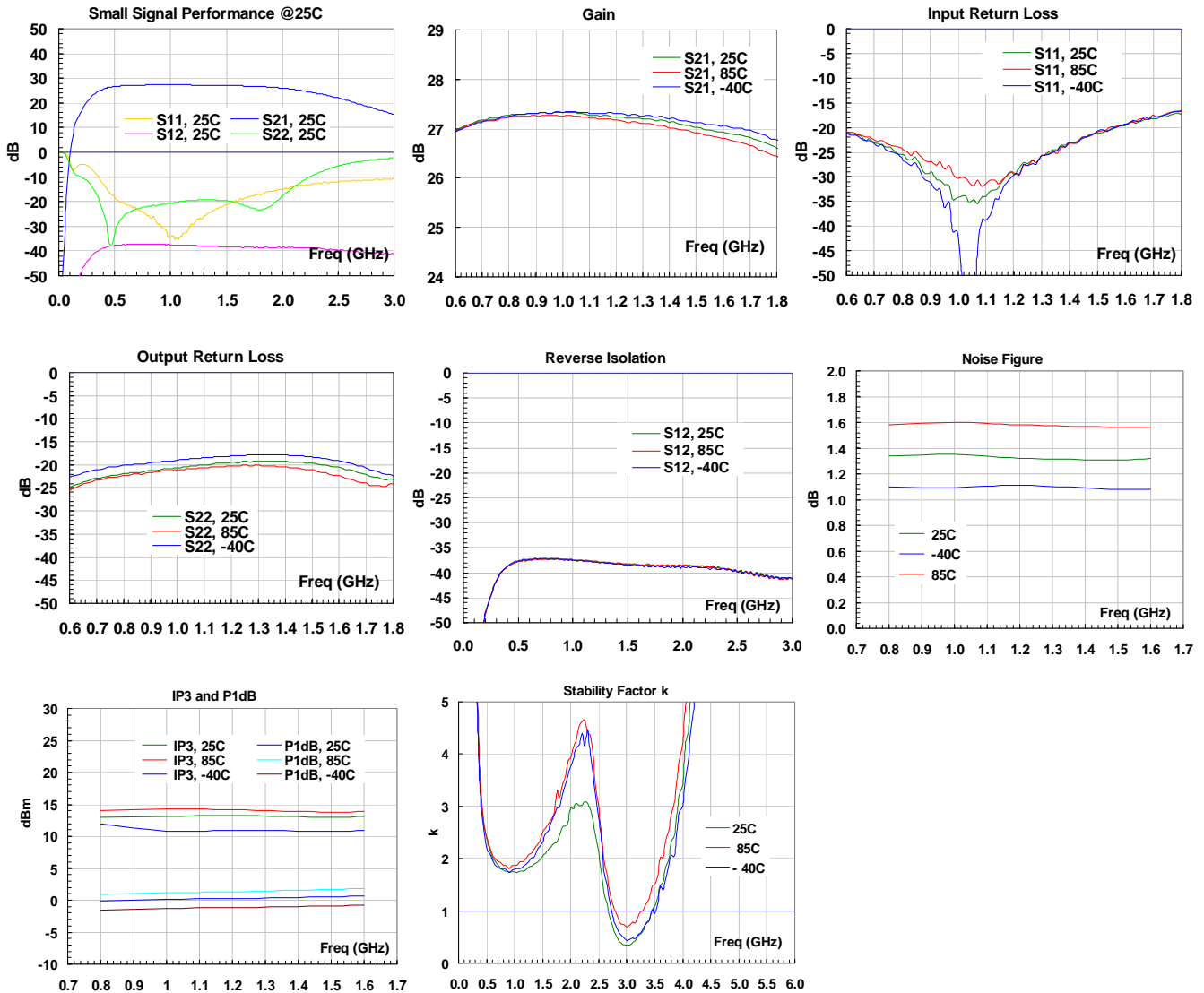
### Ordering Information

|              |        |
|--------------|--------|
| Model Number | WZA302 |
|--------------|--------|

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.

\*\*\*\*\*