WZA306

3.0 – 3.7 GHz LOW NOISE WIDE BAND AMPLIFIER

REV A
January 2011

Key Features

- 3.0 ~ 3.7 GHz
- 1.2 dB Noise Figure
- 25.0 dBm Output IP_3
- 25.0 dB Gain
- 13.0 dBm P_{1dB}
- 1.45:1 VSWR
- Single Power Supply
- RoHS Compliant
- **MADE IN USA**

Applications

- 50 Ohm Impedance
- Mobile Infrastructures
- S-Band
- C Band
- Measurement
- Fixed Wireless

Absolute Maximum Ratings

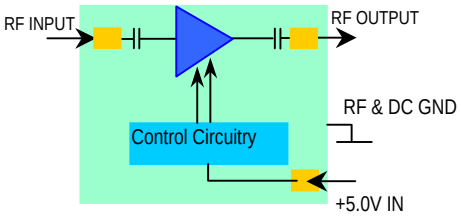
Parameters	Units	Rating
DC Power Supply Voltage	V	6.0
Drain Current	mA	90
Total Power Dissipation	mW	500
RF Input Power	dBm	10
Channel Temperature	°C	150
Storage Temperature	°C	-55~125
Operating Temperature	°C	-40~85
Thermal Resistance	°C/W	220

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

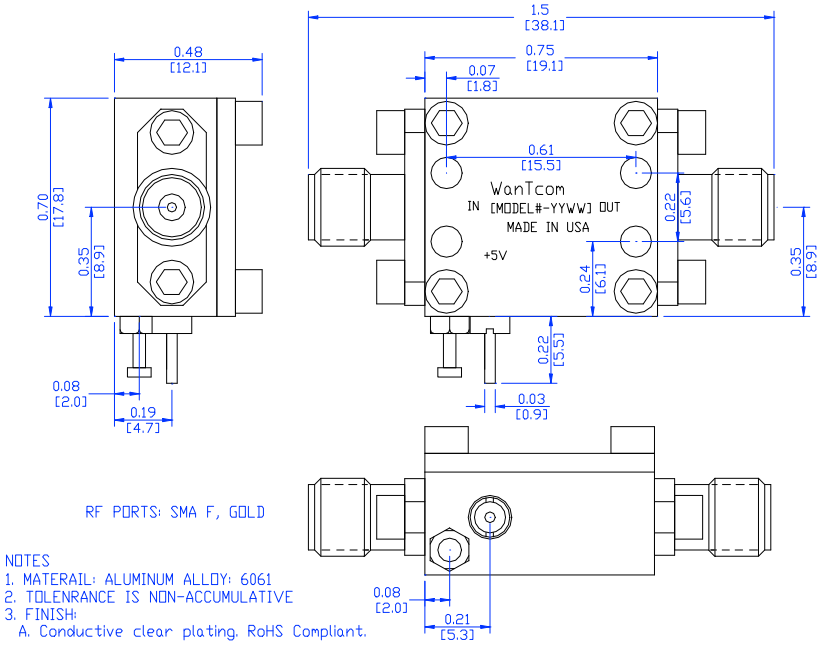
Specifications

Summary of the electrical specifications WZA306 at room temperature

Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	3.0 – 3.7 GHz	23	25		dB
2	Gain Variation	ΔG	3.0 – 3.7 GHz		+/- 0.5		dB
3	Input VSWR	SWR_1	3.0 – 3.7 GHz		1.45:1	1.6:1	Ratio
4	Output VSWR	SWR_2	3.0 – 3.7 GHz		1.45:1	1.6:1	Ratio
5	Reverse Isolation	S_{12}	3.0 – 3.7 GHz		40		dB
6	Noise figure	NF	3.0 – 3.7 GHz		1.2	1.5	dB
7	Output Power 1dB compression Point	P_{1dB}	3.0 – 3.7 GHz	10	13		dBm
8	Output-Third-Order Interception point	IP_3	Two-Tone, P_{out} = 0 dBm each, 1 MHz separation	20	25		dBm
9	Current Consumption	I_{dd}	@ 25 °C		50		mA
10	Power Supply Voltage	V_{dd}		+4.7	+5.0	+5.3	V
11	Thermal Resistance	$R_{th,c}$	Junction to case			220	°C/W
12	Operating Temperature	T_o	Case temperature at the bottom of the housing	-40		+85	°C
13	Maximum Average RF Input Power	$P_{IN, MAX}$	DC – 13 GHz			10	dBm
14	Spurious	P_{spur}	DC – 13 GHz	-70			dBc



Outline, WP-30 Housing



Ordering Information

Model Number	WZA306

Specifications and information are subject to change without notice.

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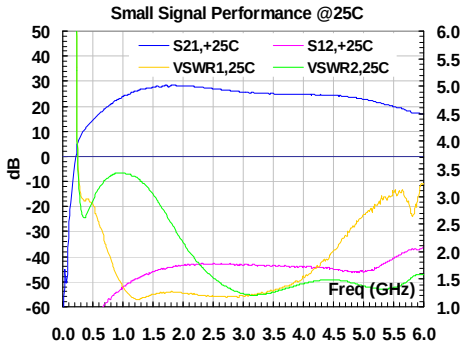
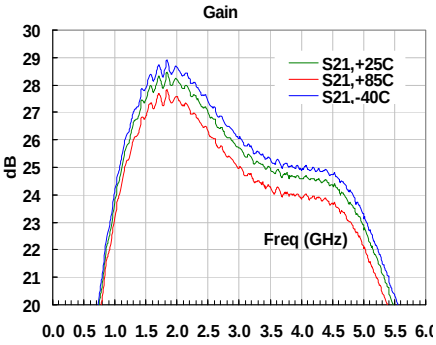
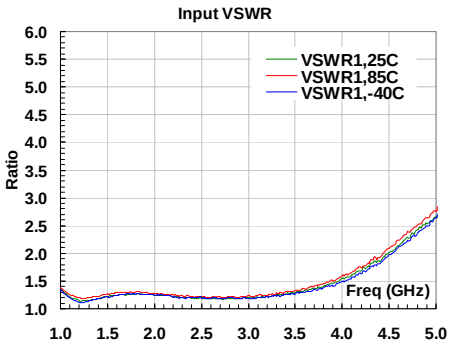
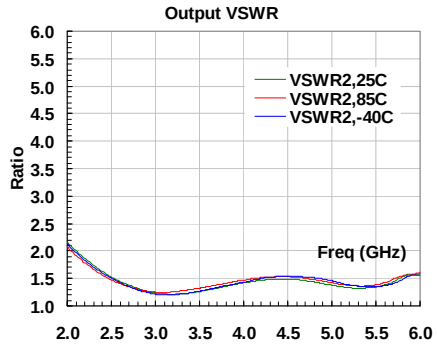
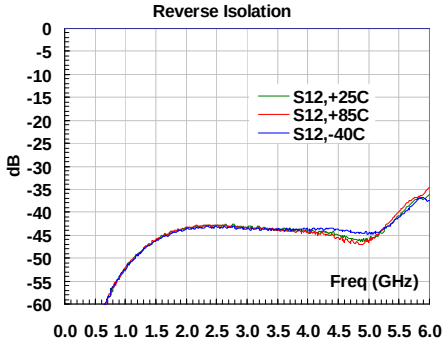
Typical Performance

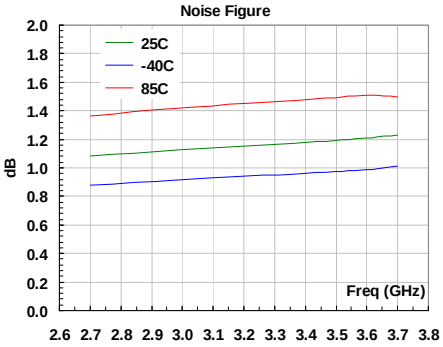


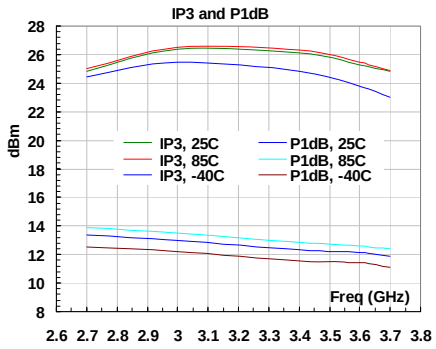


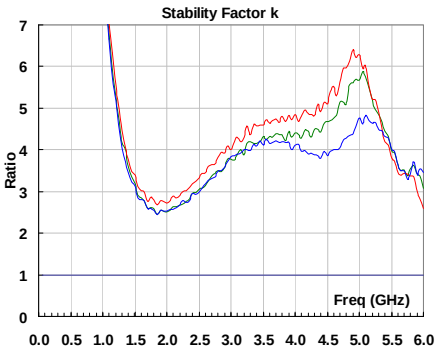












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Application Notes

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 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 ^{0}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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