

**WZA113L****2 – 50 MHz LOW NOISE WIDE BAND AMPLIFIER****REV B**
December 2023

Key Features

- 2 ~ 50 MHz
- 1.0 dB Noise Figure
- 22.0 dBm Output IP_3
- 23.0 dB Gain
- 9.0 dBm P_{1dB}
- 1.5:1 VSWR
- Single Power Supply
- RoHS Compliant
- **MADE IN USA**



Applications

- 50 Ohm Impedance
- SW Communication
- MRI
- Measurement
- Fixed Wireless



Absolute Maximum Ratings

Parameters	Units	Rating
DC Power Supply Voltage	V	6.0/12
Drain Current	mA	70
Total Power Dissipation	mW	400
Input CW RF Power	dBm	30
Junction Temperature	°C	150
Storage Temperature	°C	-55~125
Operating Temperature	°C	-40~85
Thermal Resistance	°C/W	220

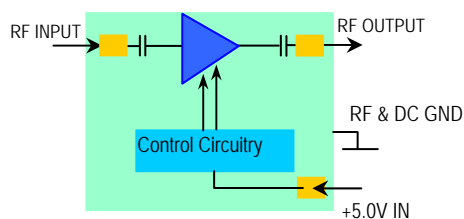
Operation of this device above any one of these parameters may cause permanent damage.



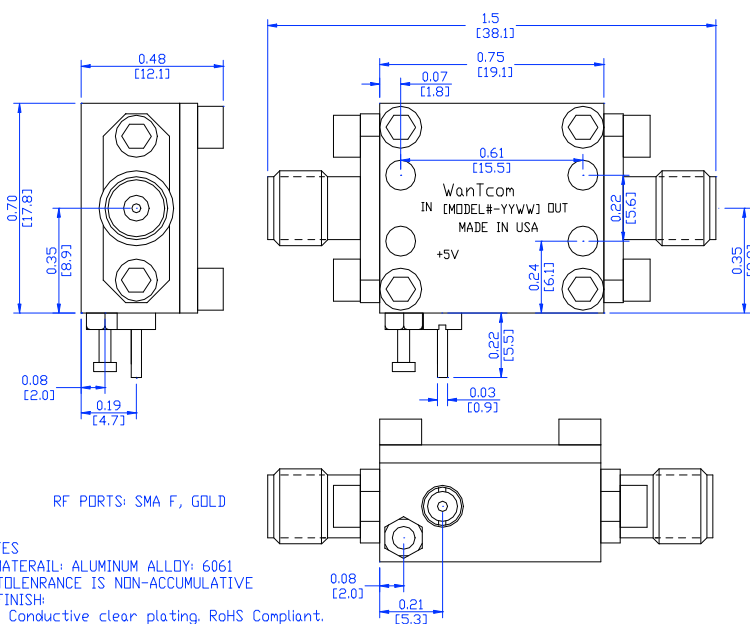
Specifications

Summary of the electrical specifications WZA113 at room temperature

Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	2 – 50 MHz		23		dB
2	Gain Variation	ΔG	2 – 50 MHz		+/- 0.3		dB
3	Input VSWR	SWR_1	2 – 50 MHz		1.5:1	1.8:1	Ratio
4	Output VSWR	SWR_2	2 – 50 MHz		1.35:1	1.5:1	Ratio
5	Reverse Isolation	S_{12}	2 – 50 MHz		20		dB
6	Noise Figure	NF	10 – 20 MHz		1.0	1.5	dB
			20 – 50 MHz		0.7	1.2	
7	Output 1dB Gain Compression Point	P_{1dB}	20 – 50 MHz	6	9		dBm
8	Output-Third-Order Interception Point	IP_3	Two-Tone, $P_{out} = 0$ dBm each, 1 MHz separation	18	22		dBm
9	DC Current Consumption	I_{dd}	@ 21 °C		40		mA
10	DC Power Supply Voltage	V_{dd}	WZA113L	+4.7	+5.0	+5.3	V
			WZA113L-10	+7	+10	+12	
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 Input CW RF Power	$P_{IN, MAX}$	DC – 13 GHz			30	dBm
14	Spurious	P_{spur}	DC – 13 GHz	-70			dBc



Outline, WP-30 Housing



Specifications and information are subject to change without notice.



WZA113L

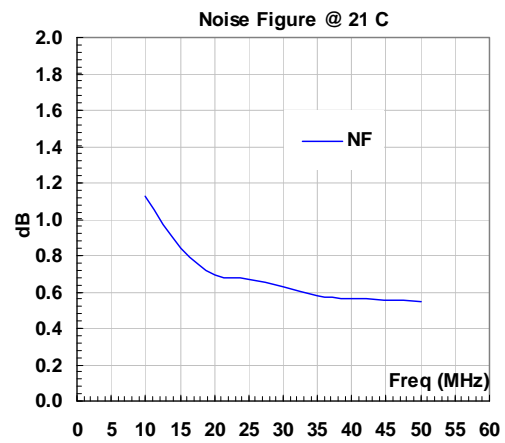
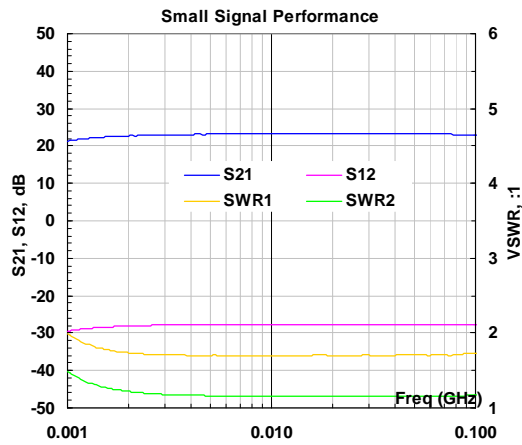
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Ordering Information

WZA113L	+5V
WZA113L-10	+10V

Typical Performance



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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



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 Keysight 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 for 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 V_{dd} when connect the DC cables to the amplifier. Only turn on the power supply after the correct connections and DC voltage are confirmed. Any accidentally short the live V_{dd} 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 V_{dd} 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.

Do not use large soldering iron tip with more than 750 degree Fahrenheit to solder the wire and feed thru pin. Damage may occur to the feed thru. 0.010" size tip with 750 degree Fahrenheit temperature setting is suitable for the soldering works.

Repeat the process to solder the DC return wire on the ground turret. Higher temperature and larger tip can be used for this ground soldering.
