



# WBPA1722A

## 1.7 – 2.2 GHz LOW NOISE WIDE BAND POWER AMPLIFIER

REV A  
August 2012

### Key Features



- 1.7 ~ 2.2 GHz
- 1.20 dB noise figure
- 48.0 dBm output IP<sub>3</sub>
- 36.0 dB Gain
- 39.0 dBm P<sub>1dB</sub>
- 1.35:1 VSWR
- ∞:1 Load Capability
- Single Power Supply
- >34 Years MTBF
- Unconditional Stable
- RoHS Compliant

### Product Description

WBPA1722A integrates 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 unconditional stable 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-9L gold plated housing.

The amplifier is designed to meet the rugged standard of MIL-STD-202.

### Applications

- Mobile Infrastructures
- DCS
- PCS
- 3G
- Defense
- Security System
- Measurement
- Fixed Wireless

### Specifications

# Preliminary

Summary of the electrical specifications WBPA1722A at room temperature

Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	1.7 – 2.2 GHz		36		dB
2	Gain Variation	ΔG	1.7 – 2.2 GHz		+/- 0.5	+/-1.0	dB
3	Input VSWR	SWR <sub>1</sub>	1.7 – 2.2 GHz		1.25:1	1.5:1	Ratio
4	Output VSWR	SWR <sub>2</sub>	1.7 – 2.2 GHz		1.25:1	1.5:1	Ratio
5	Reverse Isolation	S <sub>12</sub>	1.7 – 2.2 GHz		50		dB
6	Noise figure	NF	1.7 – 2.2 GHz		1.2	1.80	dB
7	Output Power 1dB compression Point	P <sub>1dB</sub>	1.7 – 2.2 GHz	37	39		dBm
8	Output-Third-Order Interception point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> +10 dBm each, 1 MHz separation	45	48		dBm
9	Current Consumption	I <sub>dd</sub>	V <sub>dd</sub> = +10 V		2.2		A
10	Power Supply Voltage	V <sub>dd</sub>		+9.5	+10	+10.5	V
11	Thermal Resistance	R <sub>th,c</sub>	Junction to case, last stage transistor			4.0	°C/W
12	Operating Temperature	T <sub>o</sub>		-40		+85	°C
13	Maximum CW RF Input Power	P <sub>IN, MAX</sub>	DC – 6 GHz			13	dBm

### Absolute Maximum Ratings

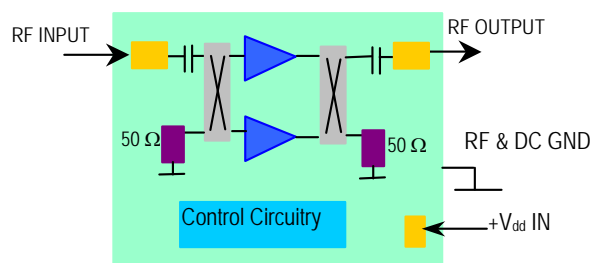
Parameters	Units	Ratings
DC Power Supply Voltage	V	12
Drain Current	A	2.6
Total Power Dissipation	W	26
RF Input Power, CW	dBm	13
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85

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

### Ordering Information

Model Number	WBPA1722A
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### Functional Block Diagram



Specifications and information are subject to change without notice.



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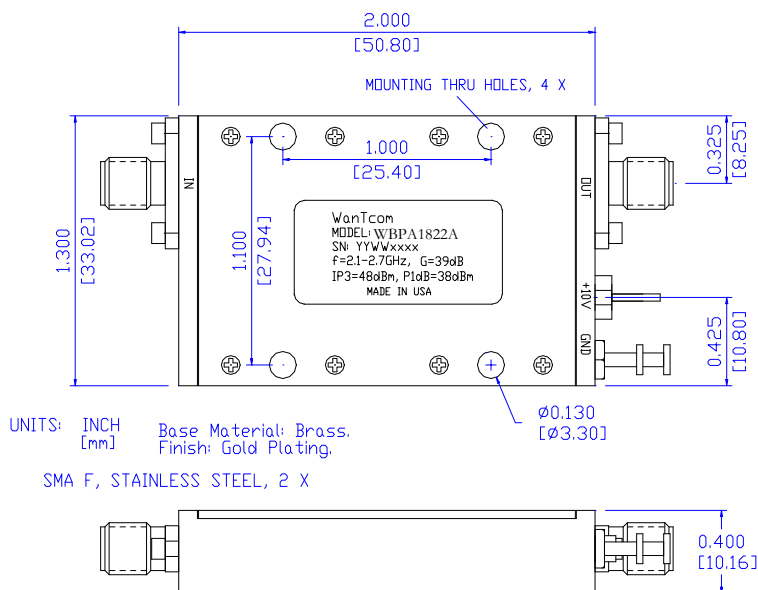
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## Typical Data

## Outline, WP-9L Housing

UNITS: INCH  
[mm]  
BODY: Brass  
Finish: Gold Plating  
RF Connector: SMA F Stainless Steel  
V<sub>dd</sub> PWR: Feed through



## 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 good 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.

Additional heat sink and thermal compound are required for the continuous operation of the PA.

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