



### Key Features



- 50 Ohm Impedance
- 0.5 ~ 2.7 GHz
- 1.3 dB Noise Figure
- 42.0 dBm Output IP<sub>3</sub>
- 27.0 dB Gain
- +/-0.50 dB Gain Flatness
- 27.0 dBm P<sub>1dB</sub>
- 1.35:1 VSWR
- Single DC Power Supply
- >68 Years MTBF
- Unconditional Stable
- RoHS Compliant

### Product Description

WBPA0527B is integrated with 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 +12.0V 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-5 Gold plated housing.

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

CAUTION:



ELECTROSTATIC DISCHARGE SENSITIVE

### Applications

- Mobile Infrastructures
- GPS
- Astronomy
- PCS & 3G
- WiMAX
- Measurement
- Fixed Wireless



### Specifications

Additional heat sink is required!

Summary of the electrical specifications WBPA0527B at room temperature

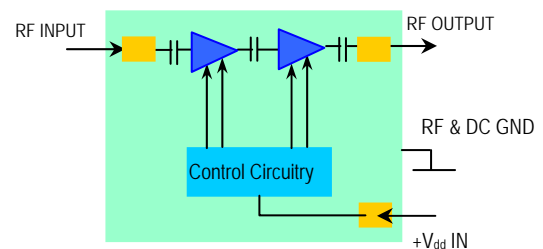
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	0.5 – 2.7 GHz		27		dB
2	Gain Variation	ΔG	0.5 – 2.7 GHz		+/- 0.5	+/-1.0	dB
3	Input VSWR	SWR <sub>1</sub>	0.5 – 2.7 GHz		1.35:1	1.5:1	Ratio
4	Output VSWR	SWR <sub>2</sub>	0.5 – 2.7 GHz		1.35:1	1.5:1	Ratio
5	Reverse Isolation	S <sub>12</sub>	0.5 – 2.7 GHz		42		dB
6	Noise Figure	NF	0.5 – 2.7 GHz		1.3	1.5	dB
7	Output 1dB Gain Compression Point	P <sub>1dB</sub>	0.5 – 2.7 GHz	25	27		dBm
8	Output-Third-Order Interception Point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> +10 dBm each, 1 MHz separation	37	42		dBm
9	Current Consumption	I <sub>dd</sub>	V <sub>dd</sub> = +12 V		220		mA
10	Power Supply Voltage	V <sub>dd</sub>		+11.5	+12	+12.5	V
11	Thermal Resistance, Junction to case	R <sub>th,c</sub>	Last stage transistor, V <sub>ds</sub> = 9V, I <sub>ds</sub> = 150 mA			50	°C/W
12	Operating Temperature	T <sub>o</sub>		-40		+85	°C
13	Maximum Input CW RF Power	P <sub>IN, MAX</sub>	DC – 6 GHz			13	dBm

### Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	-0.5,13.0
Drain Current	mA	250
Total Power Dissipation	W	3
Input CW RF Power	dBm	13
Channel Temperature	°C	170
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85
Thermal Resistance, last stage power transistor	°C/W	50

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

### Functional Block Diagram



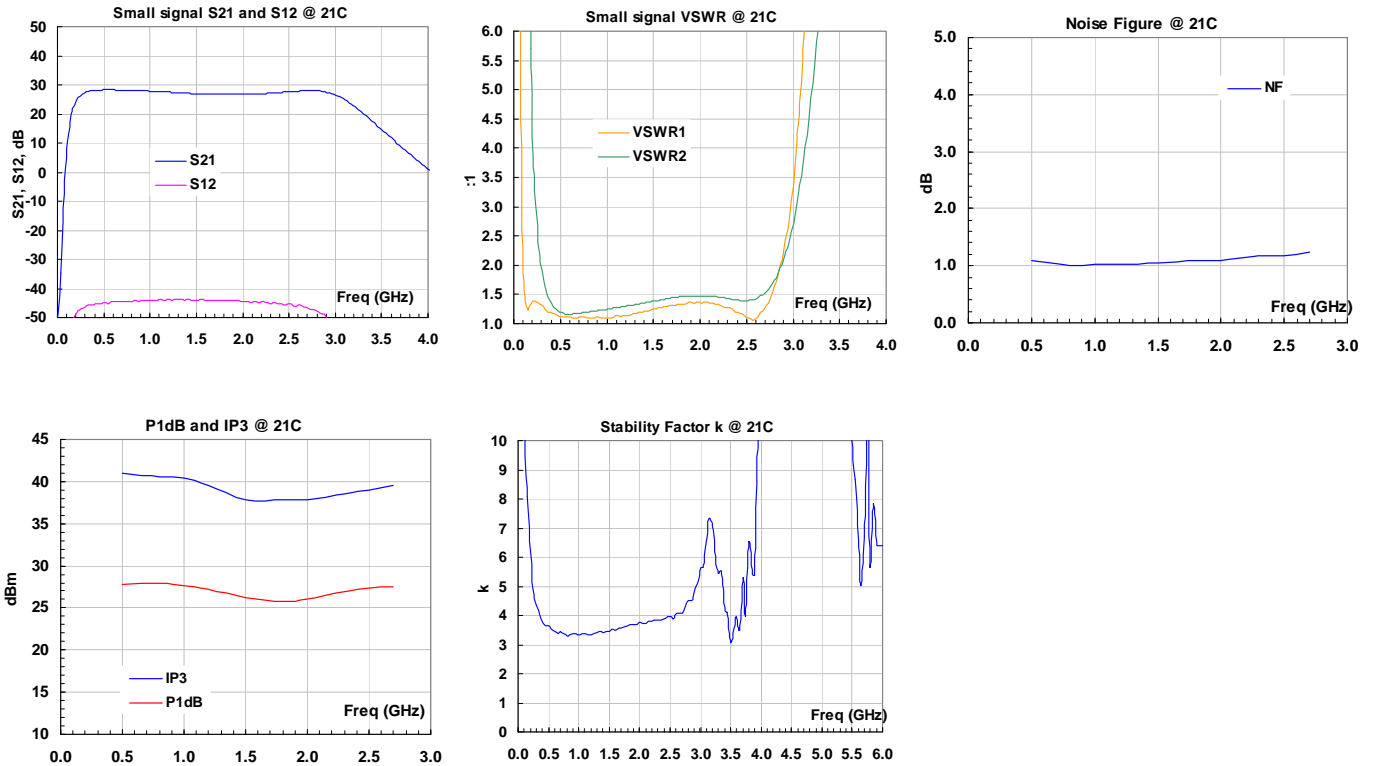
### Ordering Information

Model Number	WBPA0527B
--------------	-----------

Specifications and information are subject to change without notice.

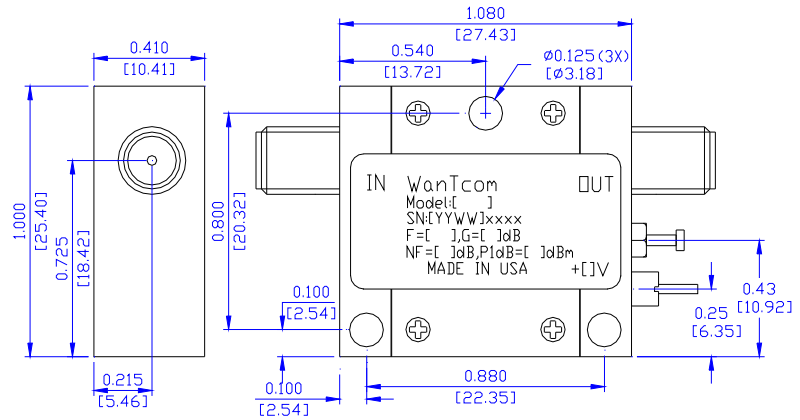


**Typical Data**



**Outline, WP-5 Housing**

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



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 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.

High thermal conductivity thermal film such as T-gon is needed between the bottom of the PA and the heat sink surface. Refer to AN-155 for heat sink design, [http://wantcominc.com/engineering\\_tools.htm](http://wantcominc.com/engineering_tools.htm).

\*\*\*\*\*