



WBPA2127A

2.1 – 2.7 GHz LOW NOISE WIDE BAND POWER AMPLIFIER

REV C
December 2013

Key Features



- 2.1 ~ 2.7 GHz
- 1.50 dB Noise Figure
- 48.0 dBm Output IP₃
- 40.0 dB Gain
- 39.0 dBm P_{1dB}
- 1.25:1 VSWR
- Single Power Supply
- >34 Years MTBF
- Unconditional Stable
- RoHS Compliant
- ∞:1 Maximum Load Mismatch

Product Description

WBPA2127A 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
- WiMax
- GPS
- CATV/DBS
- Defense
- Security System
- Measurement
- Fixed Wireless



Specifications

Additional heat sink required for continuous operation

Summary of the electrical specifications WBPA2127A at room temperature

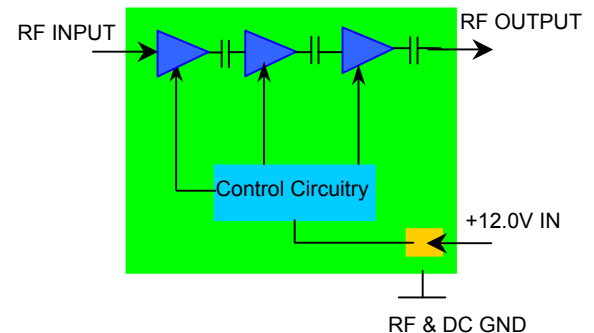
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S ₂₁	2.1 – 2.7 GHz	38	40	42	dB
2	Gain Variation	ΔG	2.1 – 2.7 GHz		+/- 0.5	+/- 1.5	dB
3	Input VSWR	SWR ₁	2.1 – 2.7 GHz		1.25:1	1.5:1	Ratio
4	Output VSWR	SWR ₂	2.1 – 2.7 GHz		1.25:1	1.5:1	Ratio
5	Reverse Isolation	S ₁₂	2.1 – 2.7 GHz	60	70		dB
6	Noise figure	NF	2.1 – 2.7 GHz		1.5	1.8	dB
7	Output P _{1dB} compression	P _{1dB}	2.1 – 2.7 GHz	37	39		dBm
8	Output-Third-Order Interception Point	TOIP ₃	Two-Tone, P _o = 24 dBm each, 1 MHz separation	46	48		dBm
9	Maximum RF Input Power	P _{IN,MAX}	2.1 – 2.7 GHz			13	dBm
10	Maximum Load Mismatch Handling	SWR _{2,MAX}	2.1 – 2.7 GHz			∞:1	Ratio
11	Current Consumption	I _{dd}	V _{dd} = +12 V		2.2		A
12	Power Supply Voltage	V _{dd}		+11.7	+12.0	+12.3	V
13	Operating Temperature	T _o		-40		+85	°C

Absolute Maximum Ratings

Symbol	Parameters	Units	Absolute Maximum
V _{dd}	DC Power Supply Voltage	V	0 < V _{dd} < 13
I _{dd}	Drain Current	A	2.5
P _{diss}	Total Power Dissipation	W	25
P _{in,Max}	RF Input Power	dBm	13
T _{ch}	Channel Temperature	°C	175
T _{STG}	Storage Temperature	°C	-55 ~ 125
T _{O,MAX}	Maximum Operating Temperature	°C	-40 ~ + 85
R _{th,c}	Thermal Resistance	°C/W	2.5
SWR _{2,MAX}	Maximum Load Mismatch	Ratio	∞:1

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

Functional Block Diagram



Ordering Information

Model Number	WBPA2127A
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Specifications and information are subject to change without notice.

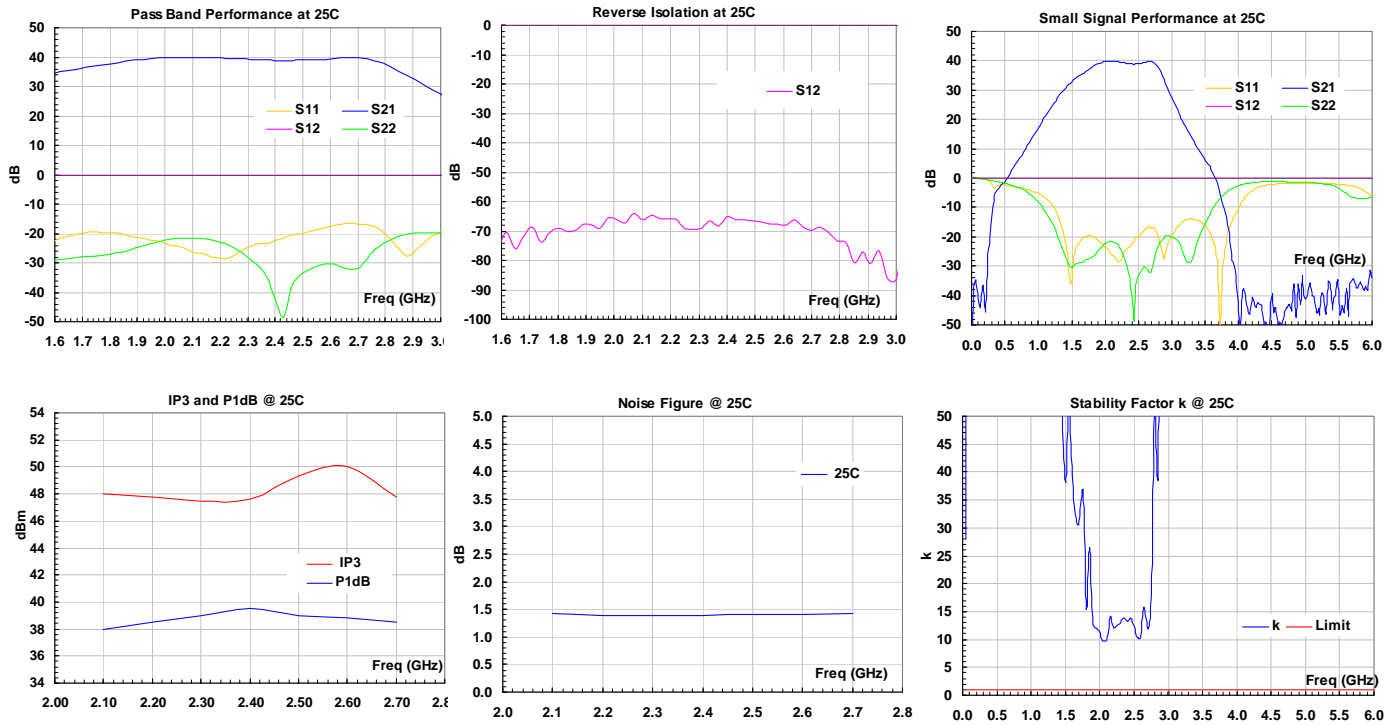


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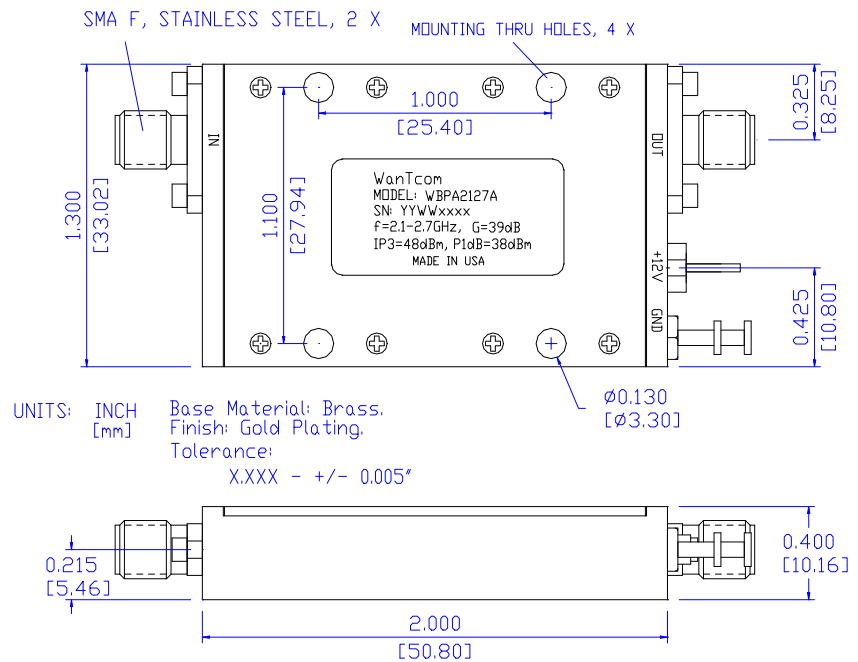
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Typical Data



Outline, WP-9L Housing



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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 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 22 ~ 24 American Wire Gauge wire is suitable. Wound the stripped terminal wire about 1 turn 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. Due to high current consumption, the DC voltage drop on the DC power wires may not be neglected. Insufficient DC power voltage will result lower performance on output power, IP_3 , and other electrical performance.

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. The thermal compound is needed between the bottom of the PA and top surface of the heat sink for proper heat dissipation.
