



# WBPA0006A

## 5 W 20 MHz – 600 MHz LOW NOISE POWER AMPLIFIER

REV D  
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### Key Features



- 20 MHz ~ 600 MHz
- 3.0 dB Noise Figure
- 37.0 dBm Output P<sub>1dB</sub>
- 47.0 dBm Output IP<sub>3</sub>
- 18.0 dB Gain
- +/-0.30 dB Gain Flatness
- 1.5:1 VSWR
- Single DC Voltage Operation
- >34 Years MTBF
- Unconditional Stable
- RoHS Compliant

### Product Description

WBPA0006A is integrated with WanTcom proprietary power amplifier technology, high frequency micro electronic assembly techniques, and high reliability design to realize optimum output power, wideband, high linearity, and unconditional stable performances together. With single +28.0V 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-11 Gold plated housing or WPM-3M pallet.

CAUTION:



ELECTROSTATIC DISCHARGE SENSITIVE

### Applications

- FM Communications
- Land Mobiles
- Broadcast
- Security System
- Measurement
- Fixed Wireless



### Specifications

**Additional Heat Sink Is Required For Continuous Operation!**

Summary of the electrical specifications WBPA0006A at room temperature

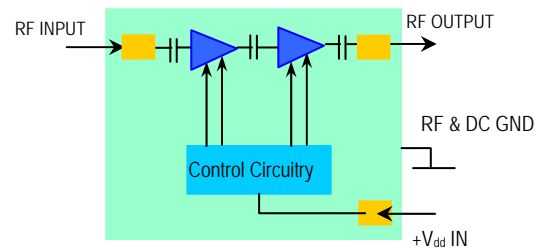
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	20 MHz – 600 MHz	16	18	20	dB
2	Gain Variation	ΔG	20 MHz – 600 MHz		+/- 0.3	+/-0.5	dB
3	Input VSWR	SWR <sub>1</sub>	20 MHz – 600 MHz		1.5:1	2:1	Ratio
4	Output VSWR	SWR <sub>2</sub>	20 MHz – 600 MHz		1.5:1	2:1	Ratio
5	Noise Figure	NF	20 MHz – 600 MHz		3.0	4.5	dB
6	Reverse Isolation	S <sub>12</sub>	20 MHz – 600 MHz	20			dB
7	Output 1dB Gain Compression Point	P <sub>1dB</sub>	20 MHz – 600 MHz	35	37		dBm
8	Output IP <sub>3</sub>	IP <sub>3</sub>	20 – 600 MHz, 28 dBm each Tone, 1 MHz separation	45	47		dBm
9	DC Power Added Efficiency	η	@ Output P <sub>1dB</sub>	40	45		%
10	Current Consumption at No RF Input	I <sub>dd</sub>	V <sub>dd</sub> = +28V		50		mA
11	Power Supply Voltage	V <sub>dd</sub>		24	+28	+30	V
12	Thermal Resistance	R <sub>th,c</sub>	Junction to case			9	°C/W
13	Operating Case Temperature	T <sub>o</sub>		-10		+70	°C
14	Maximum Input CW RF Power	P <sub>IN,MAX</sub>	DC – 6 GHz			24	dBm

### Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	32
Drain Current	mA	500
Total Power Dissipation	W	15
RF Input Power	dBm	24
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-20 ~ 85
Thermal Resistance	°C/W	9

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

### Functional Block Diagram



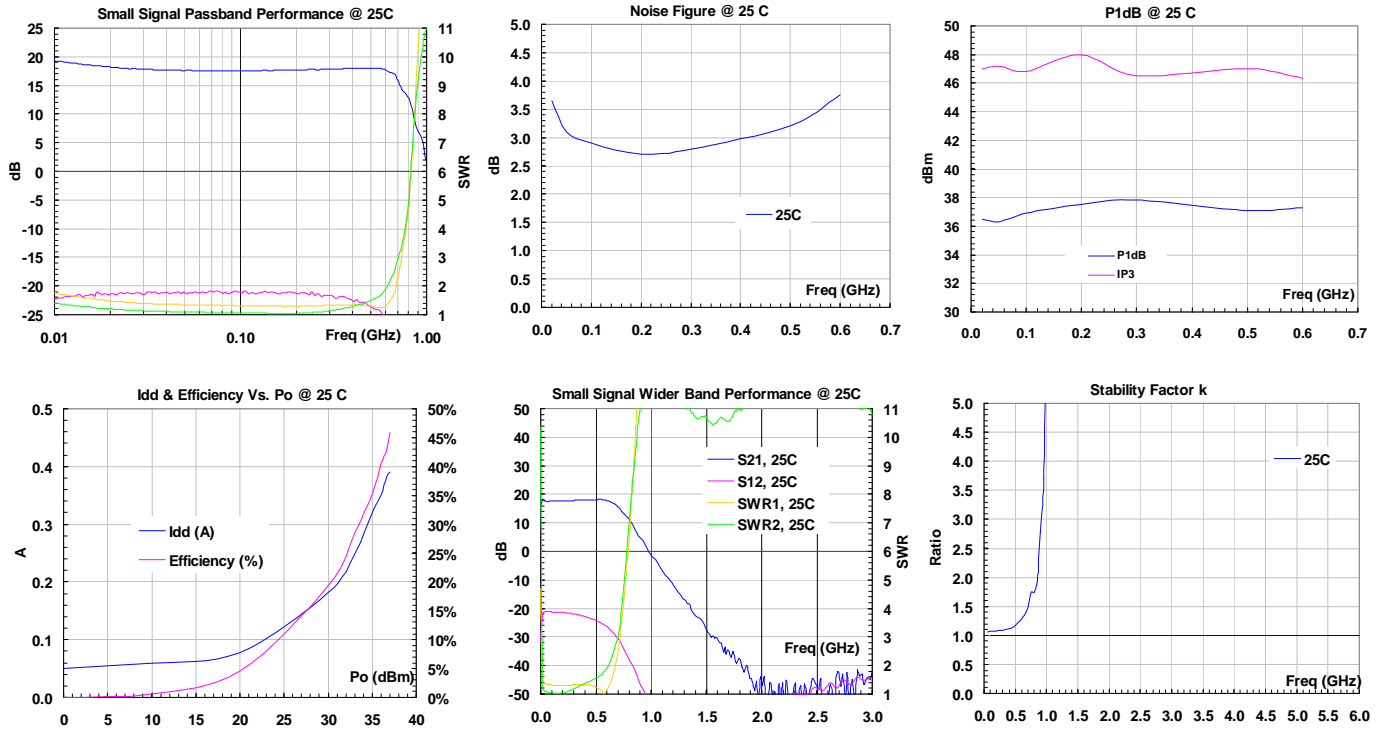
### Ordering Information

Model Number	WBPA0006A	WPM0006A
Housing	WP-11	WPM-3M

Specifications and information are subject to change without notice.

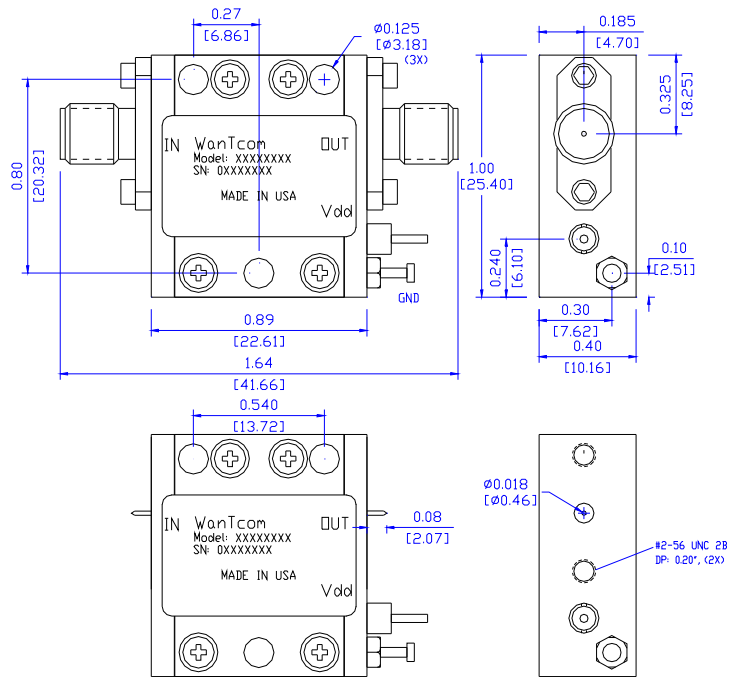
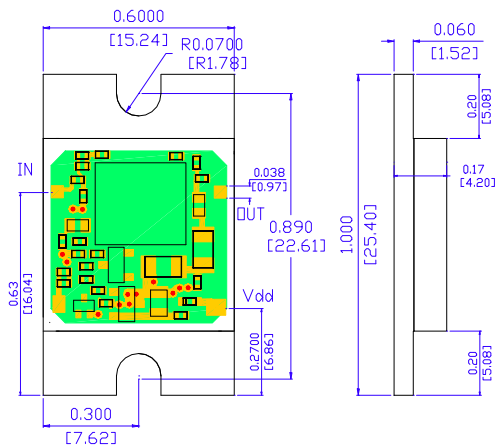


### Typical Data:



### Outline, WP-11 Housing

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



### WPM-3M Outline

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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 ideal 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. Sufficient heat sink is required for the continuous operation. Always place a thermal film such as T-gon between the bottom of the PA and the top of the heat sink for maximum heat dissipation.

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