



# WPM0521A

## 0.5 – 2.1 GHz POWER AMPLIFIER

REV B  
February 2017

### Key Features



- 50 Ohm Impedance
- 0.50 – 2.10 GHz
- 2.2 dB Noise Figure
- 45.0 dBm Output IP<sub>3</sub>
- 36.0 dB Gain
- +/- 0.5 dB Gain Flatness
- 32.0 dBm P<sub>1dB</sub>
- 1.5:1 VSWR
- Single Power Supply
- >34 Years MTBF
- Unconditional Stable
- RoHS Compliant

### Product Description

WPM0521A is integrated by WanTcom proprietary power amplifier technology, high frequency micro electronic assembly techniques, and high reliability design to realize optimum power added efficiency, wideband, high linearity, and unconditional stable performances together. With single +10.0V DC operation, the amplifier has optimal input and output matching in the specified frequency range at 50-Ohm impedance system. The amplifier has the Gold plated standard flange package structure.

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

CAUTION:



ELECTROSTATIC DISCHARGE SENSITIVE

### Applications

- Frequency Hopping
- UHF, GPS, 3G
- Security System
- Defense
- Measurement
- Fixed Wireless



### Specifications

**Additional Heat Sink Is Required For Normal operation!!**

Summary of the electrical specifications WPM0521A at room temperature

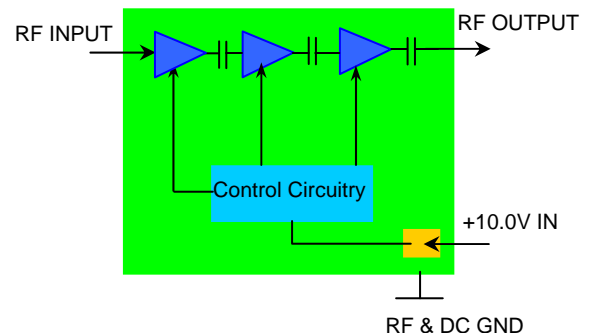
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	0.5 – 2.1 GHz	34	36	38	dB
2	Gain Variation	ΔG	0.5 – 2.1 GHz		+/- 0.5	+/-1.0	dB
3	Input VSWR	SWR <sub>1</sub>	0.5 – 2.1 GHz		1.5:1	2:1	Ratio
4	Output VSWR	SWR <sub>2</sub>	0.5 – 2.1 GHz		1.5:1	2:1	Ratio
5	Reverse Isolation	S <sub>12</sub>	0.5 – 2.1 GHz		70		dB
6	Noise Figure	NF	0.5 – 2.1 GHz		2.2	2.8	dB
7	Output Power 1dB Compression Point	P <sub>1dB</sub>	0.5 – 2.1 GHz	31	32		dBm
8	Output-Third-Order Interception Point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> +20 dBm each, 1 MHz separation	40	45		dBm
9	Current Consumption	I <sub>dd</sub>	V <sub>dd</sub> = +10 V		600		mA
10	Power Supply Voltage	V <sub>dd</sub>		+9.5	+10	+10.5	V
11	Thermal Resistance <sup>1</sup>	R <sub>th,c</sub>	Junction to case			18	°C/W
12	Operating Temperature	T <sub>o</sub>		-40		+85	°C
13	Maximum CW RF Input Power	P <sub>IN,MAX</sub>	DC – 6.0 GHz			10	dBm

### Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	-0.5, 12.0
Drain Current	A	0.80
Total Power Dissipation	W	8
CW RF Input Power	dBm	10
Channel Temperature	°C	170
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85
Thermal Resistance	°C/W	20

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

### Functional Block Diagram



### Ordering Information

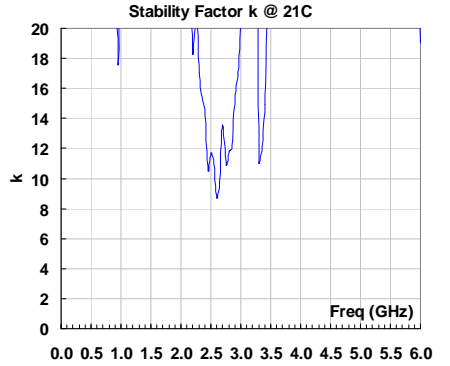
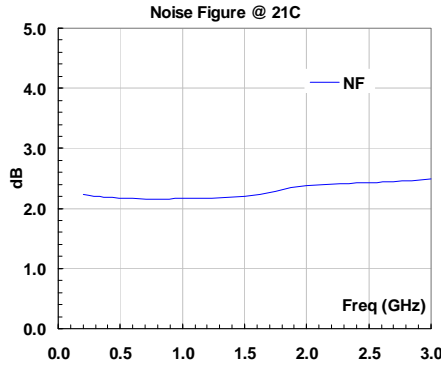
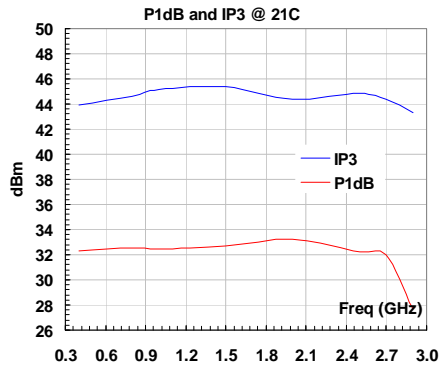
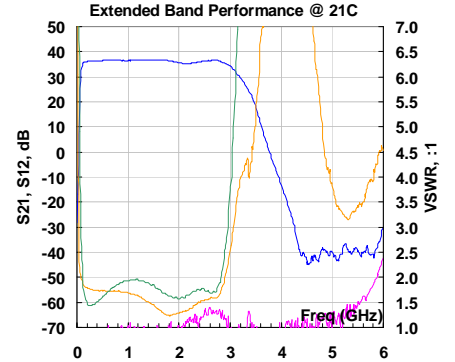
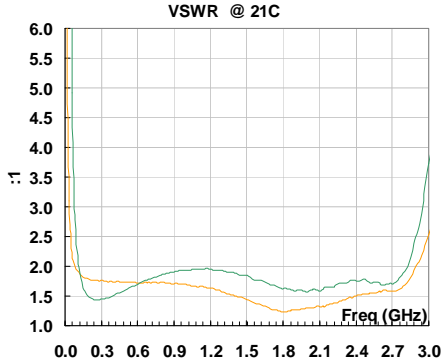
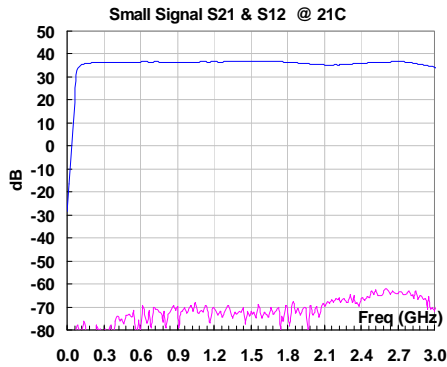
Model Number	WPM0521A
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<sup>1</sup> Last stage transistor biased at I<sub>ds</sub> = 420 mA @ V<sub>ds</sub> = 10.0V. The total maximum junction temperature at 85 °C case temperature thus is 10 x 0.42 x 18 + 85 = 161°C

Specifications and information are subject to change without notice.

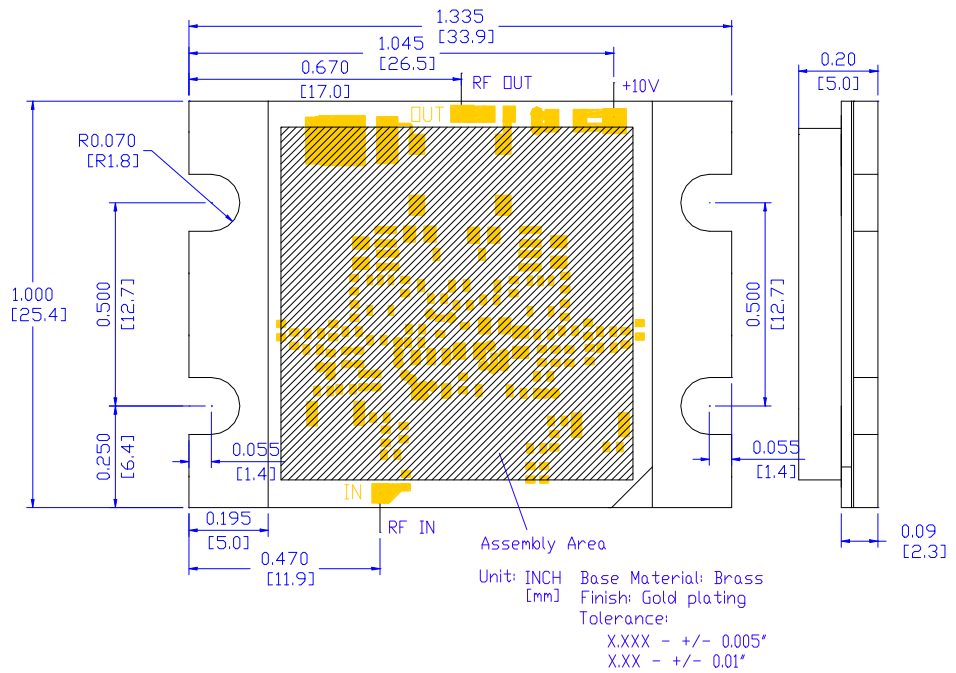


**Typical Data**



**Outline, WPM-4**

UNITS: INCH  
[mm]  
BODY: Brass  
Finish: Gold Plating



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## **Application Notes:**

### **A. Mounting the Amplifier**

Use four 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 conducting film such T-gon is required between the bottom of the PA and heat sink for maximum heat dissipation. Failing to do so could result hard failure of the PA.

Always have stress release structure in the connection of the RF and DC I/Os to the system level.

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