



# WPM114C

## 1.2- 1.4 GHz POWER AMPLIFIER

REV A  
February 2010

### Key Features



- 1.2 ~ 1.4 GHz
- 4.0 dB Noise Figure
- 51.0 dBm Output IP<sub>3</sub>
- 28.0 dB Gain
- 39.0 dBm P<sub>1dB</sub>
- 1.3:1 VSWR
- TTL ON/OFF Control
- Single Power Supply
- >34 Years MTBF
- Unconditional Stable
- RoHS Compliant

### Product Description

WPM114C integrates 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.

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

### Applications

- Mobile Infrastructures
- GPS
- Security System
- Defense
- Measurement
- Fixed Wireless



### Specifications

Summary of the electrical specifications WPM114C at room temperature

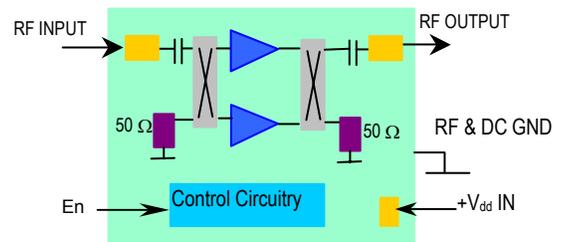
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	1.2 – 1.4 GHz	27	28	29	dB
2	Gain Variation	ΔG	1.2 – 1.4 GHz		+/- 0.3	+/-0.40	dB
3	Input VSWR	SWR <sub>1</sub>	1.2 – 1.4 GHz		1.3:1	1.4:1	Ratio
4	Output VSWR	SWR <sub>2</sub>	1.2 – 1.4 GHz		1.3:1	1.4:1	Ratio
5	Reverse Isolation	S <sub>12</sub>	1.2 – 1.4 GHz	40	45		dB
6	Noise figure	NF	1.2 – 1.4 GHz		3.5	4.5	dB
7	Output Power 1dB compression Point	P <sub>1dB</sub>	1.2 – 1.4 GHz	38	39		dBm
8	Output-Third-Order Interception point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> +27 dBm each, 1 MHz separation	49	51		dBm
9	Spurious	IM <sub>s</sub>	P <sub>o</sub> = 37 dBm, 1.2 – 1.4 GHz	-60			dBc
10	Power Added Efficiency	η	P <sub>o</sub> = 37 dBm, 1.2 – 1.4 GHz	26			%
11	Current Consumption	I <sub>dd</sub>	V <sub>dd</sub> = +10 V		1.8		A
12	TTL ON/OFF Control	V <sub>EN</sub>	PA Turned ON	3.7	5.0	5.5	V
			PA Turned OFF	0	NC	0.2	
13	Power Supply Voltage	V <sub>dd</sub>	--	9.7	+10.0	10.5	V
14	Thermal Resistance	R <sub>th,c</sub>	Junction to case, one last stage power transistor <sup>1</sup>		5	8	°C/W
15	Operating Temperature	T <sub>o</sub>	With sufficient heat dissipation	-40		+85	°C
16	Maximum Average RF Input Power	P <sub>IN, MAX</sub>	DC – 6.0 GHz			20	dBm

### Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	12.0
Drain Current	A	2.0
Total Power Dissipation	W	20
RF Input Power	dBm	20
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85
Thermal Resistance	°C/W	8

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

### Functional Block Diagram



<sup>1</sup> The maximum junction temperature is calculated by one last stage power transistor which is biased at 0.90A with 9.8V drain voltage. The total power dissipation is 8.8W and the total junction temperature increase is 8.8 x 8 = 70 C at the worst case.

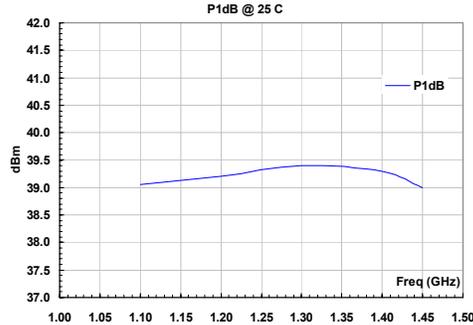
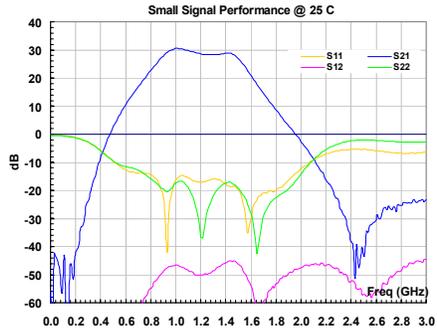
Specifications and information are subject to change without notice.



## Ordering Information

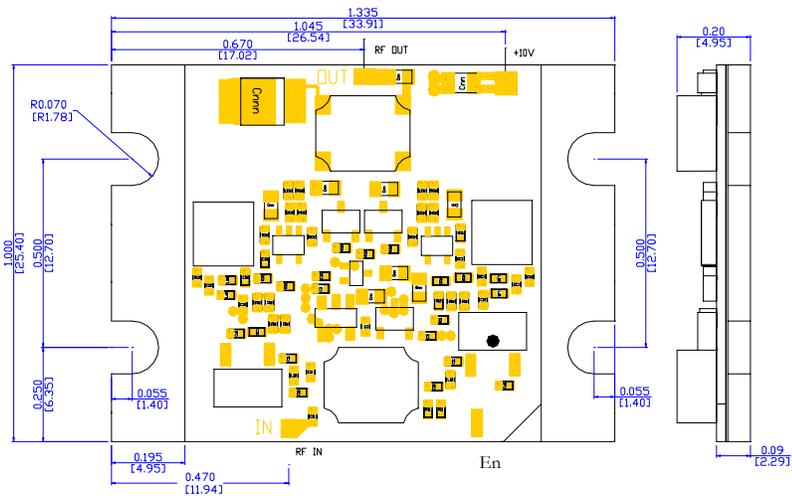
Model Number	WPM114C
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## Typical Data



## Outline

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



## 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.

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

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