WPM0913C

0.95- 1.30 GHz POWER AMPLIFIER

REV B
November 2012

Key Features

- 0.95 ~ 1.30 GHz
- 2.5 dB Noise Figure
- 51.0 dBm Output IP_3
- 28.0 dB Gain
- 38.0 dBm P_{1dB}
- 1.3:1 VSWR
- 1.0/4.0 uS ON/OFF Timing
- TTL On/Off Control
- >34 Years MTBF
- Unconditional Stable
- RoHS Compliant

Product Description

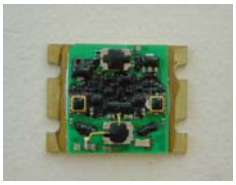
WPM0913C integrates WanTcom proprietary power amplifier technology, high frequency micro electronic assembly techniques, and high reliability design to realize optimum power added efficiency, wideband, high linearity, and unconditional stable performances together. With single +10.0V DC operation, the 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

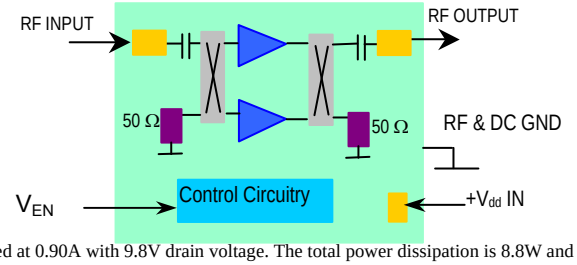
Summary of the electrical specifications WPM0913C at room temperature

Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	0.95 – 1.3 GHz	26	28	30	dB
2	Gain Variation	ΔG	0.95 – 1.3 GHz		+/- 0.3	+/-0.5	dB
3	Input VSWR	SWR_1	0.95 – 1.3 GHz		1.3:1	1.5:1	Ratio
4	Output VSWR	SWR_2	0.95 – 1.3 GHz		1.3:1	1.5:1	Ratio
5	Reverse Isolation	S_{12}	0.95 – 1.3 GHz	40	45		dB
6	Noise figure	NF	0.95 – 1.3 GHz		2.5	4.0	dB
7	Output Power 1dB compression Point	P_{1dB}	0.95 – 1.3 GHz	37	39		dBm
8	Output-Third-Order Interception point	IP_3	Two-Tone, P_{out} +27 dBm each, 1 MHz separation	48	51		dBm
9	Spurious	IM_s	Po = 37 dBm, 0.95 – 1.3 GHz	-60			dBc
10	Power Added Efficiency	η	Po = 37 dBm, 0.95 – 1.3 GHz	26			%
11	Current Consumption	I_{dd}	V_{dd}= +10 V		1.8		A
12	Power Supply Voltage	V_{dd}	--	9.7	+10.0	11.0	V
13	TTL On/Off Control	V_{EN}	ON	3.7	5.0	5.5	V
			OFF	NC	0	0.2	V
14	Turn ON Time	T_{ON}	10 % to 90 %		1.0		uS
15	Turn OFF Time	T_{OFF}	90% to 10 %		4.0		uS
16	Thermal Resistance	$R_{th,c}$	Junction to case, one last stage power transistor[1]		5	8	°C/W
17	Operating Temperature	T_o	With sufficient heat dissipation	-40		+85	°C
18	Maximum Average RF Input Power	$P_{IN, MAX}$	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

Functional Block Diagram



[1] 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.

WanTcom, Inc ∗ Phone 01 952 448 6088 ∗ FAX: 01 952 448 7188 ∗ e-mail: sales@wantcominc.com ∗ Web site: www.wantcominc.com

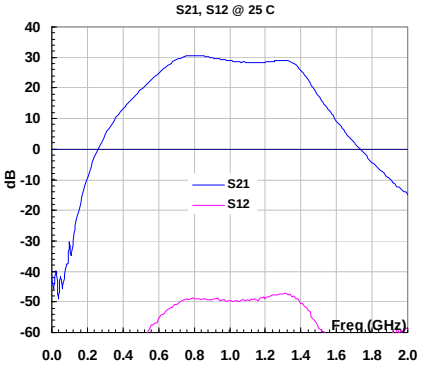
Operating Temperature	°C	-40 ~ 85
Thermal Resistance	°C/W	8

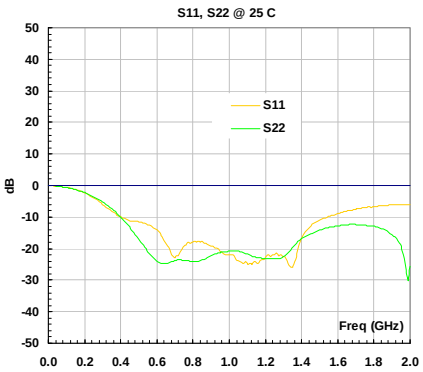
Operation of this device above any one of these parameters may cause permanent damage.

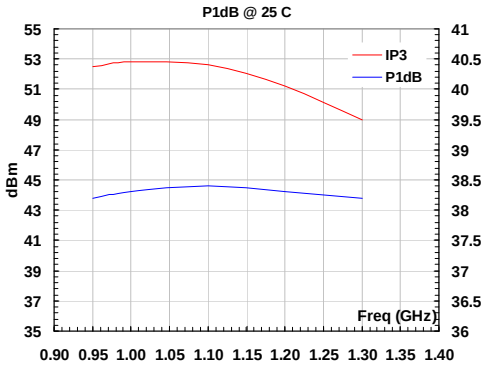
Ordering Information

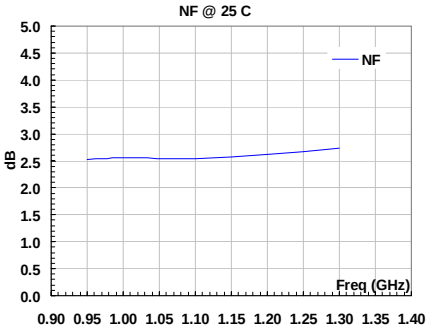
Model Number	WPM0913C

Typical Data

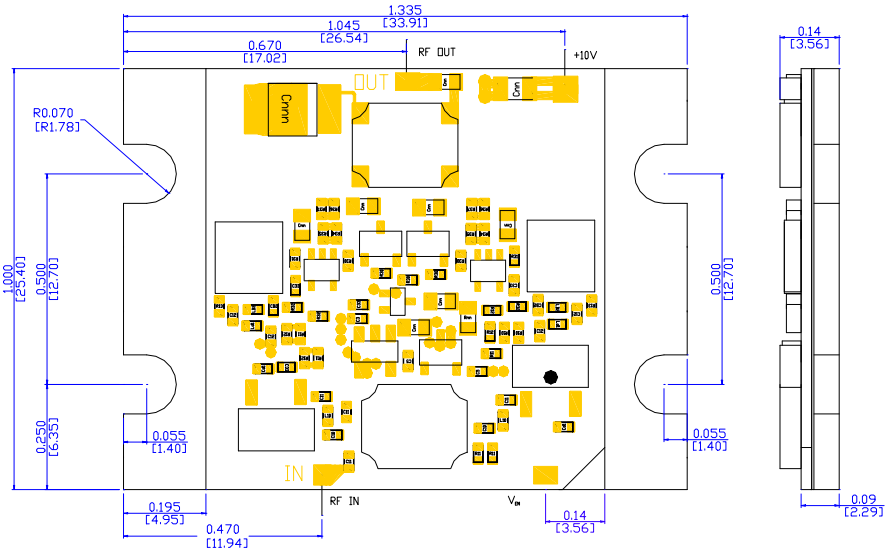








Outline



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.

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

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