WPM1822A

1.8 – 2.2 GHz 4 Watts WIDE BAND POWER AMPLIFIER

REV B
March 2017

Key Features

- 50 Ohm Impedance
- 1.8 ~ 2.2 GHz
- 1.5 dB Noise Figure
- 48.0 dBm Output IP_3
- 24.0 dB Gain
- 36.0 dBm P_{1dB}
- 1.5:1 VSWR
- Single Power Supply
- >34 years MTBF
- Unconditional Stable
- RoHS Compliant

Product Description

CAUTION: ELECTROSTATIC DISCHARGE SENSITIVE

WPM1822A is integrated with 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 +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 standard WPM-5 Gold plated pallet.

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

Applications

- Mobile Infrastructures
- PCS & 3G
- PA Driver
- Defense
- Security System
- Measurement
- Fixed Wireless

Specifications

Summary of the electrical specifications WPM1822A at room temperature

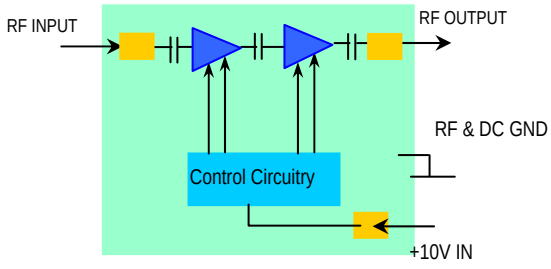
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	1.8 – 2.2 GHz	22	24	26	dB
2	Gain Variation	ΔG	1.8 – 2.2 GHz		+/- 0.2	+/-0.5	dB
3	Input VSWR	SWR_1	1.8 – 2.2 GHz		1.5:1	2:1	Ratio
4	Output VSWR	SWR_2	1.8 – 2.2 GHz		1.5:1	2:1	Ratio
5	Reverse Isolation	S_{12}	1.8 – 2.2 GHz	40	45		dB
6	Noise Figure	NF	1.8 – 2.2 GHz		1.5	2.0	dB
7	Output Gain 1dB Compression Point	P_{1dB}	1.8 – 2.2 GHz	34	36		dBm
8	Output-Third-Order Interception Point	IP_3	Two-Tone, P_{out} +24 dBm each, 1 MHz separation	45	48		dBm
9	DC Current Consumption	I_{dd}	V_{dd} = +10 V		1.1		A
10	Power Supply Voltage	V_{dd}		+9.5	+10	+10.5	V
11	Thermal Resistance	$R_{th,c}$	Junction to case			9	°C/W
12	Operating Temperature	T_o		-40		+85	°C
13	Maximum Input CW RF Power	$P_{IN, MAX}$	DC – 6 GHz			20	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	-0.5, +12
Drain Current	A	1.3
Total Power Dissipation	W	12
Input CW RF Power	dBm	20
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85
Thermal Resistance	°C/W	9

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

Functional Block Diagram

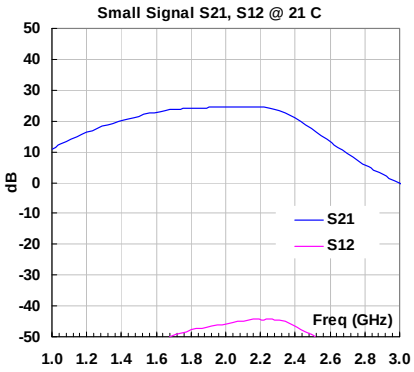


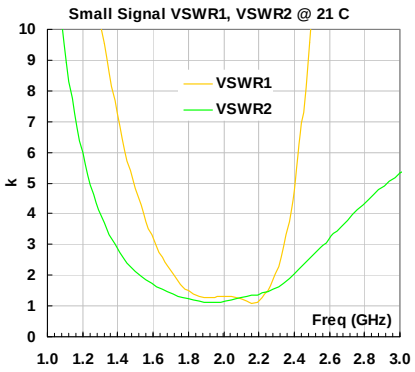
Ordering Information

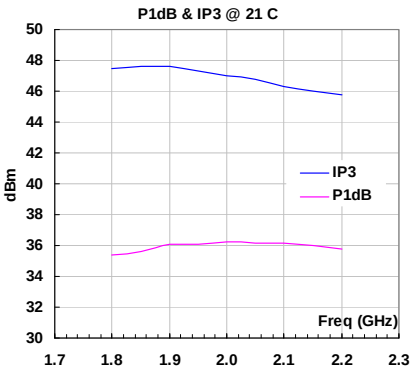
Model	WPM1822A

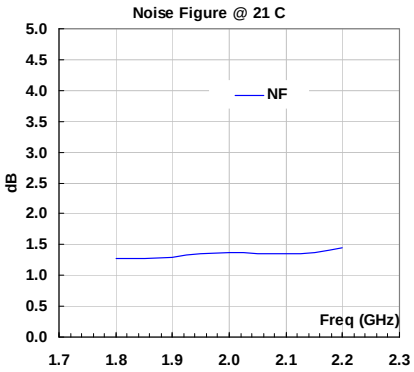
WanTcom, Inc ∗ Phone 01 952 448 6088 ∗ FAX: 01 952 448 7188 ∗ e-mail: sales@wantcominc.com ∗ Web site: www.wantcominc.com

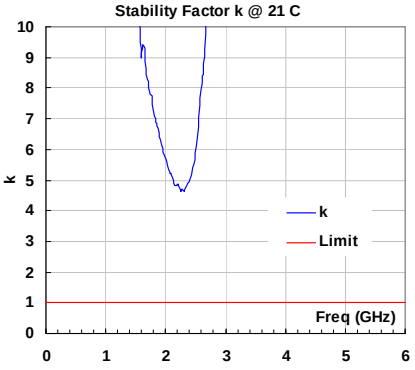
Typical Data





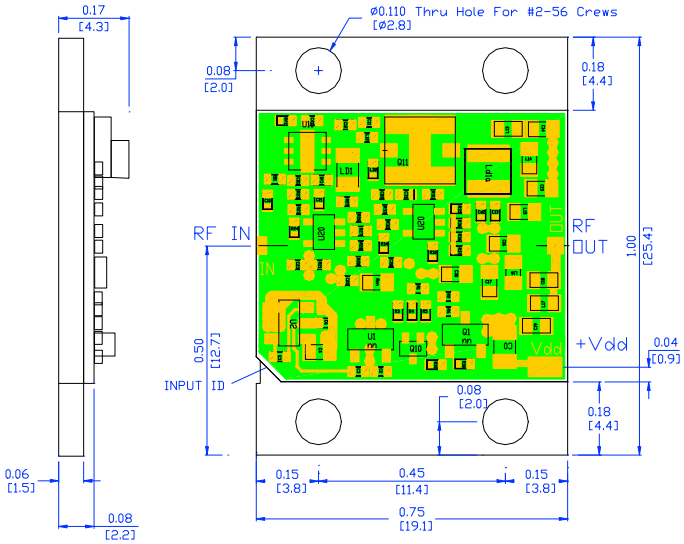






Outline, WPM-5

UNITS:	INCH [mm]
BODY:	Brass
Finish:	Gold Plating
RF I/O:	Microstrip
V_{dd} PWR:	Microstrip



NOTES
1. BASE MATERAIL: BRASS
2. FINISH:
   A. GOLD PLATING.

UNIT: INCH [mm]

Tolerance:
X.XX - +/- 0.015"
X.XXX - +/- 0.005"

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Application Notes:

A. Mounting the Amplifier

Use four pieces of #2-56 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. Thermal film such as T-gon is required between the bottom of the PA and the top of the heat sink for maximum heat dissipation.

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

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