# WPM0913L

## 950 - 1300 MHz 4 WATTS WIDE BAND POWER AMPLIFIER

**REV D**
**February 2017**

## Key Features

- 950 ~ 1300 MHz
- 2.5 dB Noise Figure
- 48.0 dBm Output $IP_3$
- 28.0 dB Gain
- +/-0.50 dB Gain Flatness
- 36.0 dBm $P_{sat}$
- 1.5:1 VSWR
- 2.0 uS Turn On Time
- Single Power Supply
- >34 Years MTBF
- Unconditional Stable

## Product Description

CAUTION: ELECTROSTATIC DISCHARGE SENSITIVE

WPM0913L 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 standard WanTcom WPM-3 Gold plated pallet.

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

## Applications

- Mobile Infrastructures
- UHF
- Avionics
- Security System
- Measurement
- PA Driver

## Specifications

Summary of the electrical specifications WPM0913L at room temperature

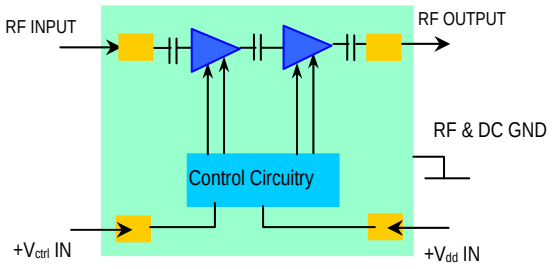
| Index | Testing Item | Symbol | Test Constraints | Min | Nom | Max | Unit |
|---|---|---|---|---|---|---|---|
| 1 | Gain | $S_{21}$ | 0.95 – 1.30 GHz | | 28 | | dB |
| 2 | Gain Variation | $\Delta G$ | 0.95 – 1.30 GHz | | +/- 0.5 | +/-1.0 | dB |
| 3 | Input VSWR | $SWR_1$ | 0.95 – 1.30 GHz | | 1.5:1 | 2:1 | Ratio |
| 4 | Output VSWR | $SWR_2$ | 0.95 – 1.30 GHz | | 1.5:1 | 2:1 | Ratio |
| 5 | Reverse Isolation | $S_{12}$ | 0.95 – 1.30 GHz | | 50 | | dB |
| 6 | Noise Figure | NF | 0.95 – 1.30 GHz | | 2.5 | 4.0 | dB |
| 7 | Output 1dB Gain Compression Point | $P_{1dB}$ | 0.95 – 1.30 GHz | 34 | 35 | | dBm |
| 8 | Output Saturated Power | $P_{sat}$ | 0.95 – 1.30 GHz | 35 | 36 | | dBm |
| 9 | Output-Third-Order Interception Point | $IP_3$ | Two-Tone, $P_{out}$ +25 dBm each, 1 MHz sep. | 45 | 49 | | dBm |
| 10 | Current Consumption | $I_{dd}$ | $V_{dd}$= +10 V, $V_{ctrl}$ = +5.0 V | | 950 | | mA |
| 11 | Power Supply Voltage | $V_{dd}$ | | +9.5 | +10 | +10.5 | V |
| 12 | Enable | $V_{ctrl}$ | TTL, High for ON | 3.7 | +5.0 | +6.0 | V |
| 13 | Disable | | TTL, Low for OFF | -0.2 | 0.0 | +0.7 | |
| 14 | ON/OFF Speed | $T_t$ | 10% to 90% / 90% to 10% | | 0.5/2.0 | 1.0/4.0 | uS |
| 15 | Thermal Resistance | $R_{th,c}$ | Junction to case | | | 8 | °C/W |
| 16 | Operating Temperature | $T_o$ | | -40 | | +85 | °C |
| 17 | Maximum CW RF Input Power | $P_{IN, MAX}$ | DC – 6 GHz | | | 20 | dBm |

## Absolute Maximum Ratings

| Parameters | Units | Ratings |
|---|---|---|
| DC Power Supply Voltage | V | 12 |
| Drain Current | A | 1.1 |
| Total Power Dissipation | W | 12 |
| RF Input Power | dBm | 20 |
| Channel Temperature | °C | 150 |
| Storage Temperature | °C | -55 ~ 125 |
| Operating Temperature | °C | -40 ~ 85 |
| Thermal Resistance, last stage | °C/W | 8 |

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

## Functional Block Diagram




## Ordering Information

| Model Number | WPM0913L |
|---|---|

Specifications and information are subject to change without notice.



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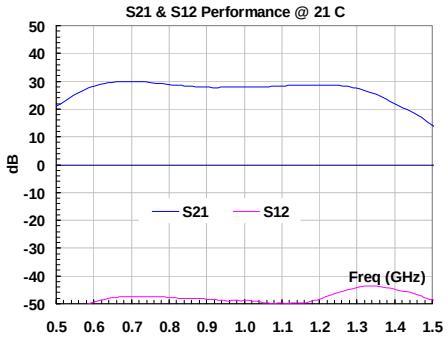
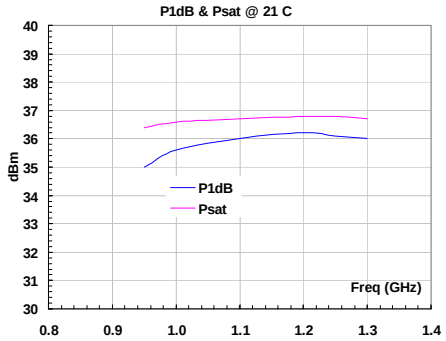
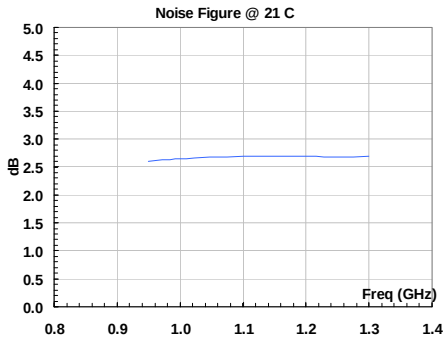
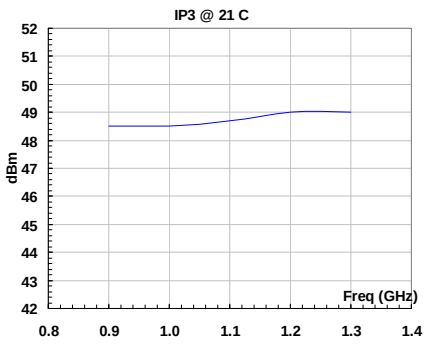
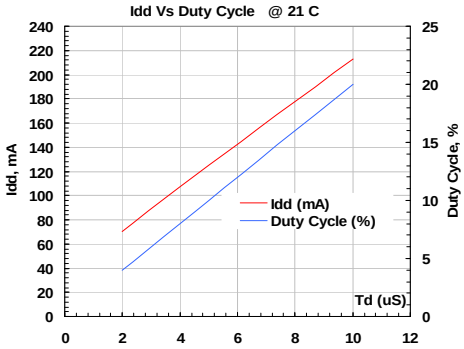
## Typical Data

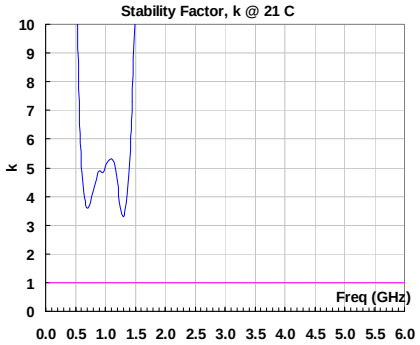


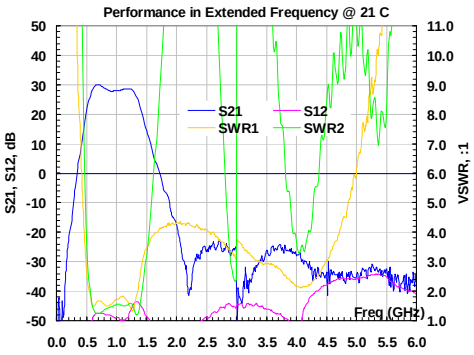



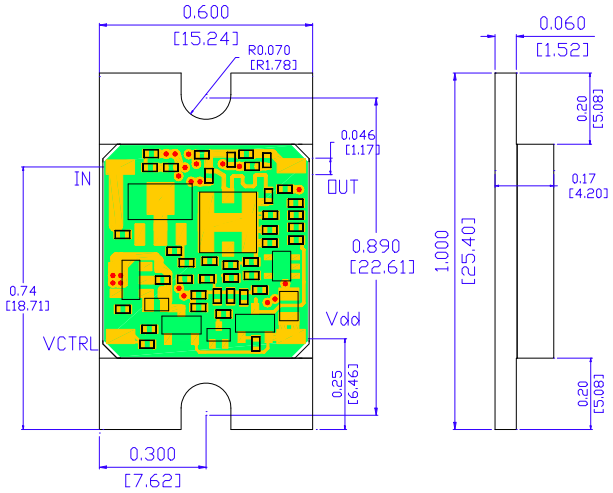




## Outline,

### 1. WPM-3




| | |
|---|---|
| UNITS: | INCH<br>[mm] |
| BODY: | Brass |
| Finish: | Gold Plating |
| RF Launches: | Pins |
| $V_{dd}$ PWR: | Pin |

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## Application Notes:

### A. Mounting the Amplifier

Use two pieces of #4-40 or M3 with longer than 3/8" screws for mounting the amplifier on a metal-based chase or heat sink. The thermal compound or thermal film such as T-gon is recommended between the bottom of the pallet and heat sink for maximum heat dissipation. The sufficient heat sink is required. 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 the amplifier.

Always be very careful to solder the RF and DC connections to the amplifier. Use 0.01" diameter soldering iron tip to solder the connections. Do not touch any components of the amplifier.

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