



WPM2225F

2.2- 2.5 GHz LOW NOISE 4.0 WATTS POWER AMPLIFIER

REV B

February 2017

Key Features



- 2.2 ~ 2.5 GHz
- 1.50 dB Noise Figure
- 49.0 dBm Output IP₃
- 23.0 dB Gain
- 36.0 dBm P_{1dB}
- 1.5:1 VSWR
- Single Power Supply
- >34 Years MTBF
- Unconditional Stable
- RoHS Compliant

Product Description

WPM2225F is integrated by 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 gold plated pallet.

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

CAUTION:



ELECTROSTATIC DISCHARGE SENSITIVE

Applications

- Mobile Infrastructures
- 3G
- ISM
- Defense
- Security System
- Measurement
- Fixed Wireless

Specifications

Summary of the electrical specifications WPM2225F at room temperature

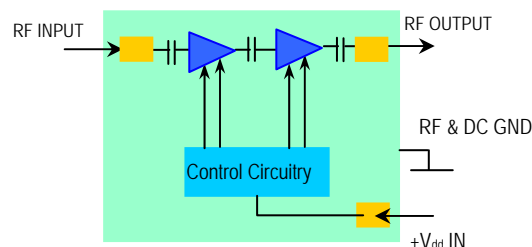
| Index | Testing Item | Symbol | Test Constraints | Min | Nom | Max | Unit |
|-------|---------------------------------------|----------------------|---|-----|----------|--------|-------|
| 1 | Gain | S ₂₁ | 2.2 – 2.5 GHz | 22 | 23 | 25 | dB |
| 2 | Gain Variation | ΔG | 2.2 – 2.5 GHz | | +/- 0.25 | +/-0.5 | dB |
| 3 | Input VSWR | SWR ₁ | 2.2 – 2.5 GHz | | 1.5:1 | 2:1 | Ratio |
| 4 | Output VSWR | SWR ₂ | 2.2 – 2.5 GHz | | 1.5:1 | 2:1 | Ratio |
| 5 | Reverse Isolation | S ₁₂ | 2.2 – 2.5 GHz | 40 | 43 | | dB |
| 6 | Noise Figure | NF | 2.2 – 2.5 GHz | | 1.5 | 2.0 | dB |
| 7 | Output 1dB Gain Compression Point | P _{1dB} | 2.2 – 2.5 GHz | 34 | 36 | | dBm |
| 8 | Output-Third-Order Interception Point | IP ₃ | Two-Tone, P _{out} +20 dBm each, 1 MHz separation | 46 | 49 | | dBm |
| 9 | Current Consumption | I _{dd} | V _{dd} = +10 V | | 1.05 | 1.1 | A |
| 10 | Power Supply Voltage | V _{dd} | | +9 | +10 | +11 | 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 | 1.15 |
| 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 | °C/W | 9 |

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

Functional Block Diagram



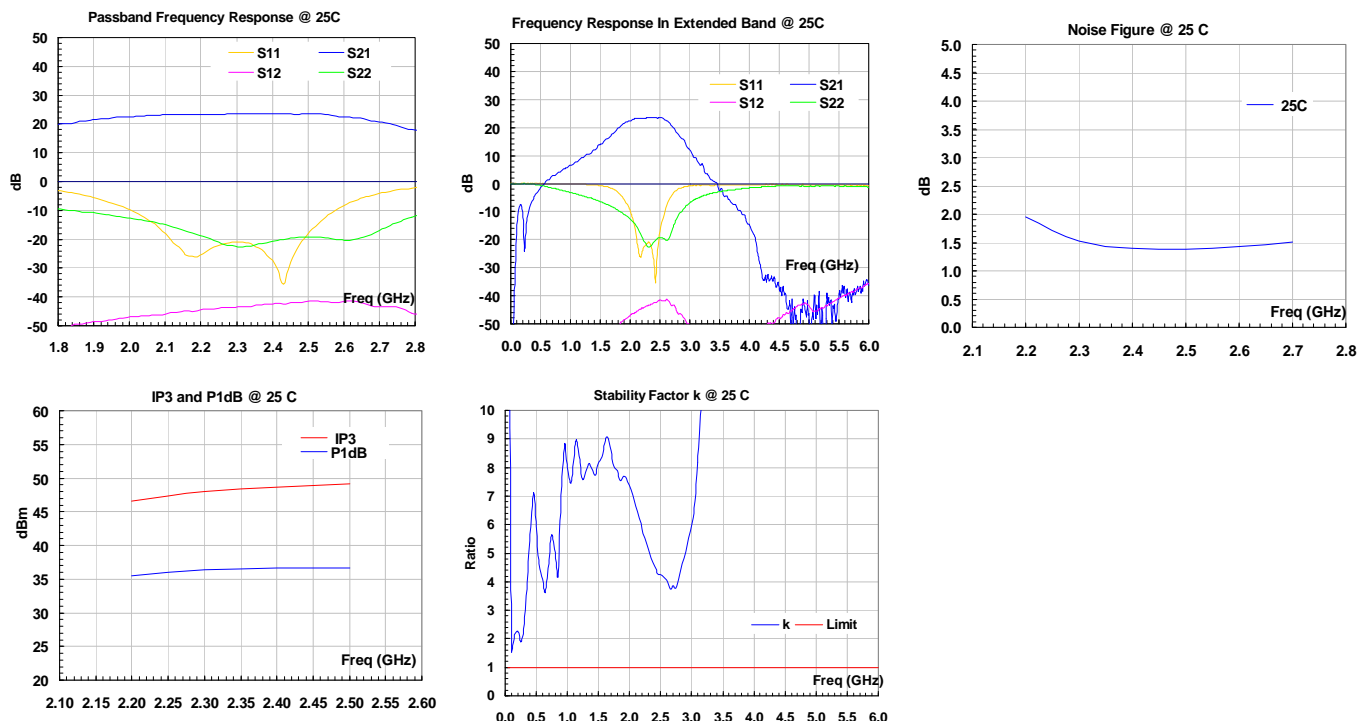
Ordering Information

| | |
|--------------|----------|
| Model Number | WPM2225F |
|--------------|----------|

Specifications and information are subject to change without notice.

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Typical Data



Outline, WPM-5

UNITS: INCH
[mm]

BODY: Brass

Finish: Gold Plating

RF I/O: Microstrip

V_{dd} PWR: Microstrip

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. 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 structure in the connection of the RF and DC I/Os to the system level.

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