



RFS1003

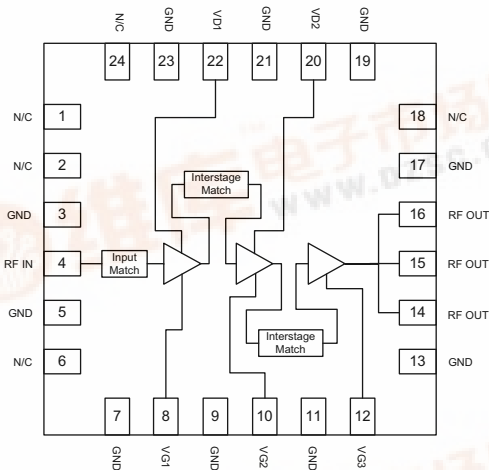
5.1-5.9 GHz U-NII Power Amplifier

Applications

- U-NII fixed-wireless CPE
- 5 GHz ISM band wireless equipment
- WLAN/802.11a/HIPERLAN/2

Product Description

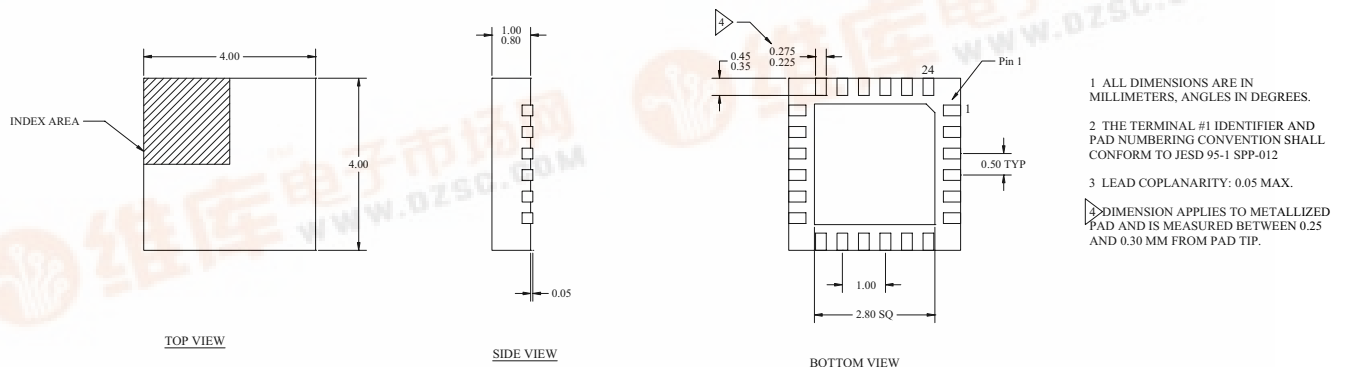
The RFS1003 power amplifier is a high-power, high-performance GaAs MESFET IC designed for use in transmit applications in the 5.1-5.9 GHz frequency band. With a P1dB of 29 dBm, the device is ideal as a final stage for wireless applications requiring high transmit linearity. The input of the PA is matched to 50 ohms and the output can be easily matched for optimum linearity and power performance at the desired frequency of operation between 5.1 and 5.9 GHz.



Product Features

- 29 dBm P1dB@7V
- 24 dBm P1dB@3V
- 20 dB gain
- Input matched to 50 ohms
- Simple output matching

Functional Block Diagram



4x4 mm Package Outline



RFS1003

5.1-5.9 GHz U-NII Power Amplifier

| Parameter ¹ | Specification | | | Unit | Condition |
|-----------------------------------|---------------|------|------|------------|---|
| | Min. | Typ. | Max. | | |
| Overall | | | | | |
| Frequency Range | 5150 | | 5850 | MHz | |
| Output P1dB | | 29 | | dBm | V _{DD} = 7V |
| | | 24 | | dBm | V _{DD} = 3V |
| Efficiency at P1dB | | 28 | | % | |
| Small Signal Gain | | 20 | | dB | P _{IN} = -20 dBm; V _{DD} = 7V |
| | | 21 | | dB | P _{IN} = -20 dBm; V _{DD} = 3V |
| Gain Flatness | | ±0.5 | | dB | Across 100 MHz Band |
| Harmonics | | | | | |
| 2 nd Harmonic | | -35 | | dBc | |
| 3 rd Harmonic | | -35 | | dBc | |
| Spurious (Stability) ² | | -60 | | dBc/30 kHz | P _{IN} = -30 to +10 dBm |
| Reverse Isolation | | 50 | | dB | |
| Noise Figure | | 8.7 | | dB | |
| Input Return Loss | 10 | 15 | | dB | |
| Output Return Loss | | 11 | | dB | |
| Power Supply | | | | | |
| Drain Operating Voltage | 3 | | 7 | V | |
| Gate Operating Voltage | | -1.1 | | V | |
| Current Consumption | | 400 | | mA | V _{DD} = 7V |
| | | 350 | | mA | V _{DD} = 3V |
| Gate Leakage Current | | 25 | | µA | |

Note 1: Test Conditions: V_{DD} = 7.0V, P_{IN} = +10dBm, Freq. = 5850MHz, V_{GG} = -1.1 V, T = 25C.

Note 2: Load VSWR is set to 7:1 and the angle is varied 360 degrees.

Absolute Maximum Ratings

| Parameter | Rating | Unit |
|-------------------------------|--------------------|------|
| DC Power Supply | 8.0 | V |
| DC Gate Voltage | -5.0 min, -0.5 max | V |
| DC Supply Current | 1000 | mA |
| Maximum RF input level | +13 | dBm |
| Operating Ambient Temperature | -40 to +85 | °C |
| Storage Temperature | -55 to +150 | °C |



Ordering Information

| Part Number | Temp. Range (°C) | Package Description | Quantity |
|----------------|------------------|---------------------------|------------|
| PRFS-1003-0EVL | -40 to +85 | Evaluation Board | 1 |
| PRFS-1003-0005 | -40 to +85 | 13" Reverse Tape/Reel | 2500 pcs. |
| PRFS-1003-0006 | -40 to +85 | 13" Tape/Reel | 2500 pcs. |
| PRFS-1003-0007 | -40 to +85 | 7" Reverse Tape/Reel | 1000 pcs. |
| PRFS-1003-0008 | -40 to +85 | 7" Tape/Reel | 1000 pcs. |
| PRFS-1003-0009 | -40 to +85 | Bulk – 4x4 mm 24-pin LPCC | 1-999 pcs. |

NOTES



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