www.DataSheet4U.com

ANADIGICS

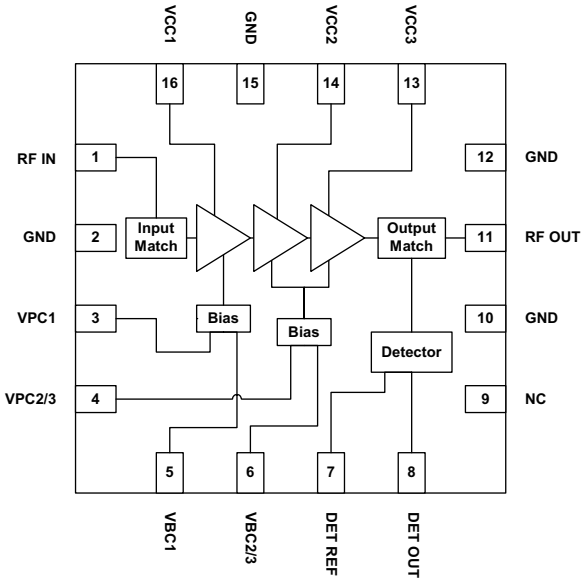
*Preliminary*

# RFSP2020

## 2.4–2.5 GHz Power Amplifier

### Applications

- 802.11b/g WLAN
- 2.4 GHz ISM band wireless equipment



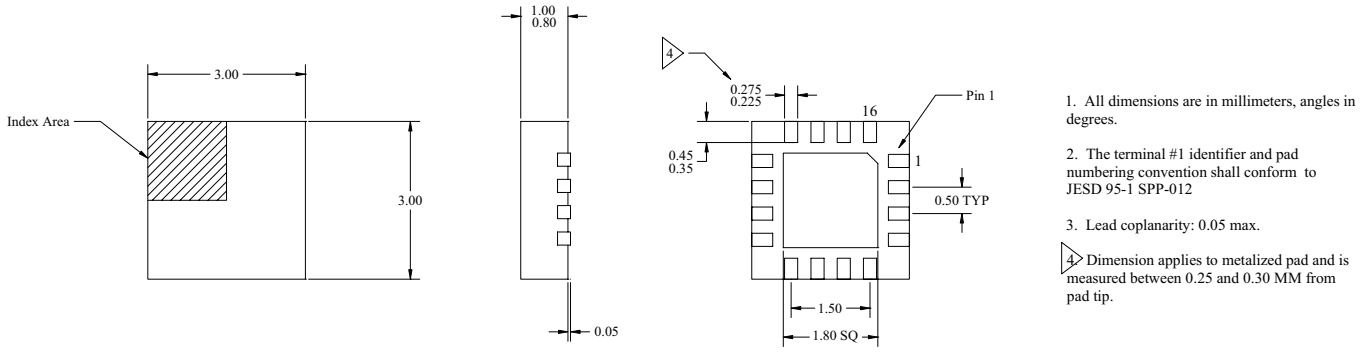

Functional Block Diagram

### Product Description

The RFSP2020 power amplifier is a high-performance GaAs HBT IC designed for use in transmit applications in the 2.4-2.5 GHz frequency band. With a P1dB of 25 dBm, the device is ideal as a final stage for wireless LAN applications requiring high transmit linearity. Designed with advanced linearizing techniques, the device achieves a specific error vector magnitude (EVM) with lesser backoff than conventional PA designs. The PA exhibits unparalleled linearity and efficiency for both 802.11b- and 802.11g-based WLAN systems. The on-chip detector is perfect for systems where power sensing is necessary. The part operates off a single +3.3V supply.

### Product Features

- 25 dBm P1dB@3.3V
- 30 dB gain
- 1.5 % EVM @ $P_{OUT}$ = +18 dBm with 54 Mbps OFDM signal
- 110 mA @ $P_{OUT}$ = +18 dBm with 54 Mbps OFDM signal
- Single +3.3V supply voltage
- PA power on/off logic
- Input and output matched to 50 ohms




Top View  Side View  Bottom View

1. All dimensions are in millimeters, angles in degrees.
2. The terminal #1 identifier and pad numbering convention shall conform to JESD 95-1 SPP-012
3. Lead coplanarity: 0.05 max.
4. Dimension applies to metalized pad and is measured between 0.25 and 0.30 MM from pad tip.

3x3 mm Package Outline

www.DataSheet4U.com

www.DataSheet4U.com

| Parameter [1] | Specification | | | Unit | Condition |
|---|---|---|---|---|---|
| | Min. | Typ. | Max. | | |
| **Overall** | | | | | |
| Frequency Range | 2400 | | 2500 | MHz | |
| Output P1dB | | 25 | | dBm | |
| Gain | | 30 | | dB | $P_{OUT}$ = +18 dBm |
| Error Vector Magnitude[2] | | 1.5 | | % | $P_{OUT}$ = +18 dBm; 54 Mbps OFDM signal |
| Gain Flatness | | ±0.75 | | dB | Across 100 MHz Band |
| Harmonics | | | | | |
| 2nd Harmonic | | -27 | | dBc | @ P1dB |
| 3rd Harmonic | | -50 | | dBc | @ P1dB |
| Spurious (Stability)[3] | | -60 | | dBc/30 kHz | $P_{OUT}$ = -20 dBm to P1dB |
| Reverse Isolation | 40 | | | dB | |
| Input Return Loss | 10 | | | dB | |
| Output Return Loss | 10 | | | dB | |
| **Power Supply** | | | | | |
| Operating Voltage | | 3.3 | | V | |
| Current Consumption | | 110<br>215 | | mA<br>mA | $P_{OUT}$ = +18 dBm; 54 Mbps OFDM signal<br>$P_{OUT}$ = +23 dBm; 802.11b ACPR compliant |
| **Detector Characteristics** | | | | | |
| Output Voltage | | 0.5 | | V | $P_{OUT}$ = +25 dBm; RL = 5 k |
| Output Voltage | | 0.1 | | V | $P_{OUT}$ = +19 dBm; RL = 5 k |
| Reference Diode | | | | | Available as part of matched pair |
| **Shutdown Control** | | | | | |
| Device On Logic High | | 3.3 | | V | |
| Device Off Logic Low | | | 0.7 | V | |
| Device Off Current | | | 1 | µA | |
| Turn-On Time | | | 0.8 | µs | With 50Ω source |
| Turn-Off Time | | | 1.0 | µs | With 50Ω source |

***Note 1: Test Conditions: $V_{CC}$ = 3.3V, Freq. = 2450 MHz, T =25°C, Small Signal Conditions unless otherwise stated.***
***Note 2: Increase in EVM over system EVM floor.***
***Note 3: Load VSWR is set to 7:1 and the angle is varied 360 degrees.***

## Absolute Maximum Ratings

| Parameter | Rating | Unit |
|---|---|---|
| DC Power Supply | 6.0 | V |
| DC Supply Current | 400 | mA |
| Maximum RF input level | -1 | 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-P2020-EVL | -40 to +85 | Evaluation Board | 1 |
| PRFS-P2020-005 | -40 to +85 | 13" Reverse Tape/Reel | 2500 pcs. |
| PRFS-P2020-006 | -40 to +85 | 13" Tape/Reel | 2500 pcs. |
| PRFS-P2020-007 | -40 to +85 | 7" Reverse Tape/Reel | 1000 pcs. |
| PRFS-P2020-008 | -40 to +85 | 7" Tape/Reel | 1000 pcs. |
| PRFS-P2020-009 | -40 to +85 | Bulk – 4x4 mm 24-pin LPCC | 1-999 pcs. |

www.DataSheet4U.com

**NOTES**

www.DataSheet4U.com

www.DataSheet4U.com

www.DataSheet4U.com

**ANADIGICS, Inc.**
141 Mount Bethel Road
Warren, New Jersey 07059,U.S.A.
Tel: +1(908)668-5000
Fax: +1(908)668-5132

URL: http://www.anadigics.com
E-mail: Mktg@anadigics.com

**IMPORTANT NOTICE**

ANADIGICS, Inc. reserves the right to make changes to its products or to discontinue any product at any time without notice. The product specifications contained in Advanced Product Information sheets and Preliminary Data Sheets are subject to change prior to a product's formal introduction. Information in Data Sheets have been carefully checked and are assumed to be reliable; however, ANADIGICS assumes no responsibilities for inaccuracies. ANADIGICS strongly urges customers to verify that the information they are using is current before placing orders.

**WARNING**

ANADIGICS products are not intended for use in life support appliances, devices or systems. Use of an ANADIGICS product in any such application without written consent is prohibited.

www.DataSheet4U.com