

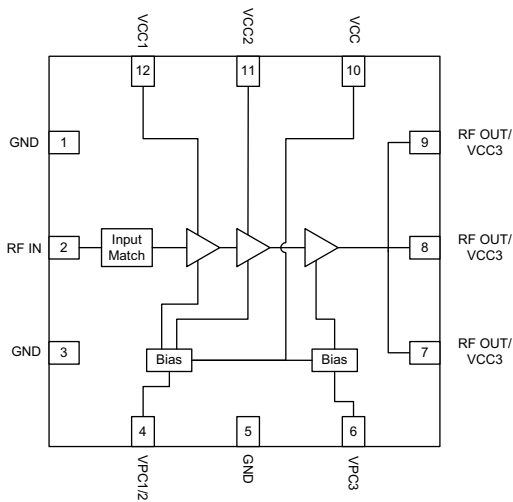


# Preliminary RFSP5022

## 5.15-5.85 GHz U-NII Power Amplifier

### Applications

- 802.11a WLAN
- HiperLAN/2 WLAN
- U-NII fixed wireless equipment



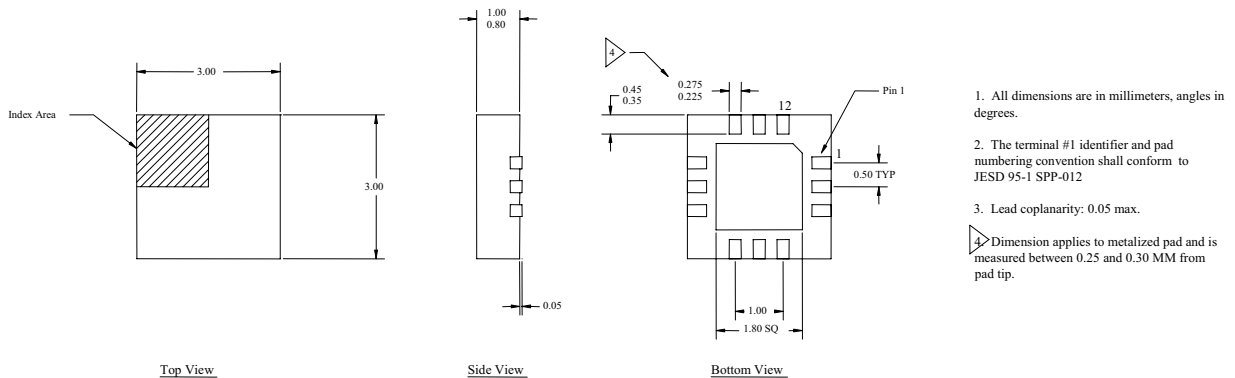
Functional Block Diagram

### Product Description

The RFSP5022 power amplifier is a high-performance GaAs HBT IC designed for use in transmit applications in the 5.15-5.85 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. The part demonstrates very low error vector magnitude (EVM) at the full 54 Mbps data rate for 802.11a. 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 5.15 and 5.85 GHz. The part operates off a single +3.3V supply.

### Product Features

- 25 dBm P1dB@3.3V
- 23 dB gain
- 3.0 % EVM @ P<sub>OUT</sub> = +19 dBm with 54 Mbps OFDM signal
- 175 mA @ P<sub>OUT</sub> = +19 dBm with 54 Mbps OFDM signal
- Single +3.3V supply voltage
- Input matched to 50 ohms
- PA power on/off logic



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 metallized pad and is measured between 0.25 and 0.30 mm from pad tip.

3x3 mm Package Outline

## RFSP5022

## 5.15-5.85 GHz U-NII Power Amplifier

Parameter <sup>1</sup>	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					
Frequency Range	5150		5850	MHz	
Output P1dB		25		dBm	
Gain		23		dB	P <sub>OUT</sub> = +19 dBm
Error Vector Magnitude (EVM) <sup>2</sup>		3.0		%	P <sub>OUT</sub> = +19 dBm; 54 Mbps OFDM signal
Gain Flatness		±0.5		dB	Across 200 MHz Band
Harmonics					
2 <sup>nd</sup> Harmonic		-30		dBc	@ P1dB
3 <sup>rd</sup> Harmonic		-30		dBc	@ P1dB
Spurious (Stability) <sup>3</sup>		-60		dBc/30 kHz	P <sub>OUT</sub> = -20 dBm to P1dB
Reverse Isolation		35		dB	
Noise Figure		7.5		dB	
Input Return Loss		8		dB	
Output Return Loss		11		dB	With matching capacitor
Power Supply					
Operating Voltage		3.3		V	
Current Consumption		175		mA	P <sub>OUT</sub> = +19 dBm; 54 Mbps OFDM signal
Shutdown Control					
Device On Logic High		3.3		V	
Device Off Logic Low			0.7	V	
Device Off Current			1	uA	
Turn-On Time			500	ns	With 50Ω source
Turn-Off Time			500	ns	With 50Ω source

Note 1: Test Conditions: V<sub>CC</sub> = 3.3V, Freq. = 5250 MHz, T = 25°C, Small Signal Conditions unless otherwise stated.

Note 2: Measured EVM with 1.2% 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	500	mA
Maximum RF input level	+6	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-P5022-EVL	-40 to +85	Evaluation Board	1
PRFS-P5022-005	-40 to +85	13" Reverse Tape/Reel	2500 pcs.
PRFS-P5022-006	-40 to +85	13" Tape/Reel	2500 pcs.
PRFS-P5022-007	-40 to +85	7" Reverse Tape/Reel	1000 pcs.
PRFS-P5022-008	-40 to +85	7" Tape/Reel	1000 pcs.
PRFS-P5022-009	-40 to +85	Bulk – 4x4 mm 24-pin LPCC	1-999 pcs.

**NOTES**

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