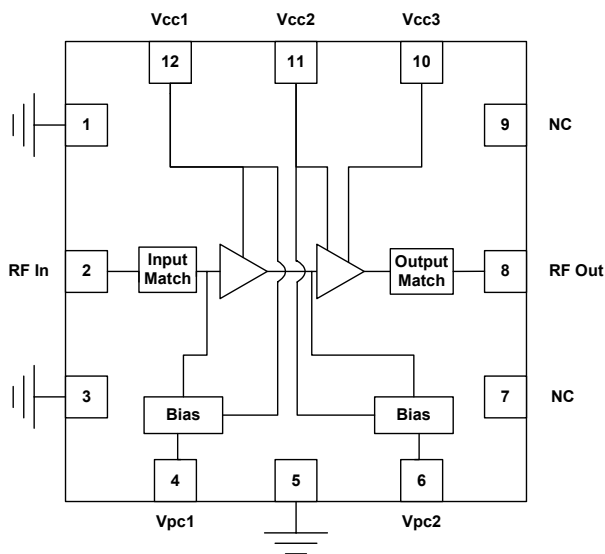


Applications

- 802.11a WLAN
- HiperLAN/2 WLAN
- U-NII fixed wireless equipment
- HiSWAN (Japan)



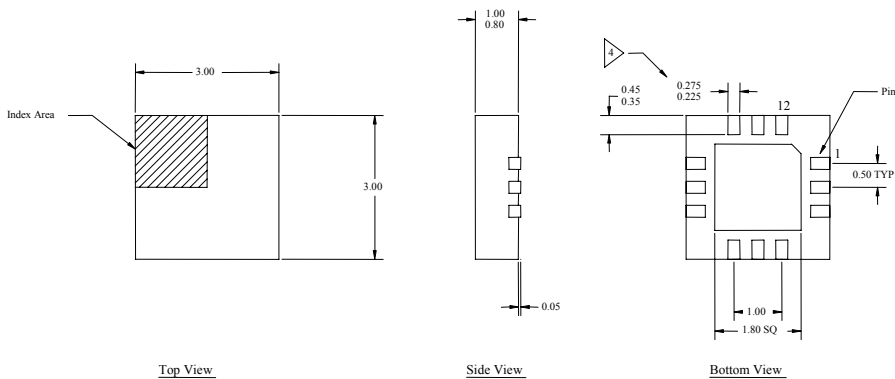
Functional Block Diagram

Product Description

The RFSP5010 power amplifier is a high-performance GaAs HBT IC designed for use in transmit applications in the 4.9-5.9 GHz frequency band. With a P1dB of +23 dBm, the device is ideal for wireless LAN applications requiring high transmit linearity. Designed with special linearizing techniques, the part is operable closer to P-1dB, which enables the device to achieve lower error vector magnitude (EVM) with less backoff. The input and output of the PA are matched for optimum linearity and power performance at the desired frequency of operation between 4.9 and 5.9 GHz. The part operates off a single +3.3V supply.

Product Features

- +23 dBm P1dB@3.3V
- 18 dB gain
- 2.9 % EVM @ P_{OUT} = +15 dBm with 54 Mbps OFDM signal
- 110 mA @ P_{OUT} = +15 dBm with 54 Mbps OFDM signal
- Single +3.3V supply voltage
- PA power on/off logic
- Very low external component count (4)
- Input and output matched to 50 Ω



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.

Dimension applies to metalized pad and is measured between 0.25 and 0.30 mm from pad tip.

3x3 mm Package Outline

Parameter ¹	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					
Frequency Range	4900		5900	MHz	
Output P1dB		23		dBm	
Gain		18		dB	P _{OUT} = +15 dBm
Error Vector Magnitude ²		2.9		%	P _{OUT} = +15 dBm; 54 Mbps OFDM signal
Gain Flatness		±1.0		dB	Across 200 MHz Band
Harmonics					
2 nd Harmonic		-30		dBc	@ P1dB
3 rd Harmonic		-30		dBc	@ P1dB
Spurious (Stability) ³		-60		dBc/30 kHz	P _{OUT} = -20 dBm to P1dB
Reverse Isolation		35		dB	
Noise Figure		6		dB	
Input Return Loss	10			dB	
Output Return Loss	12			dB	
Power Supply					
Operating Voltage		3.3		V	
Current Consumption		110		mA	P _{OUT} = +15 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_{CC} = 3.3V, Freq. = 5250 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	300	mA
Maximum RF input level	+8	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-P5010-EVL	-40 to +85	Evaluation Board	1
PRFS-P5010-005	-40 to +85	13" Reverse Tape/Reel	2500 pcs.
PRFS-P5010-006	-40 to +85	13" Tape/Reel	2500 pcs.
PRFS-P5010-007	-40 to +85	7" Reverse Tape/Reel	1000 pcs.
PRFS-P5010-008	-40 to +85	7" Tape/Reel	1000 pcs.
PRFS-P5010-009	-40 to +85	Bulk – 4x4 mm 24-pin LPCC	1-999 pcs.

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