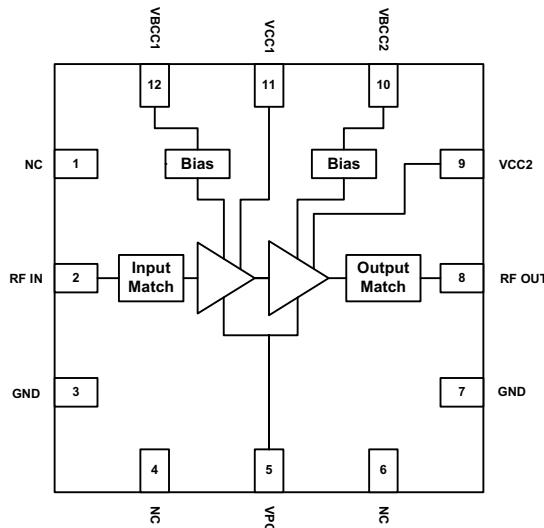


**Applications**

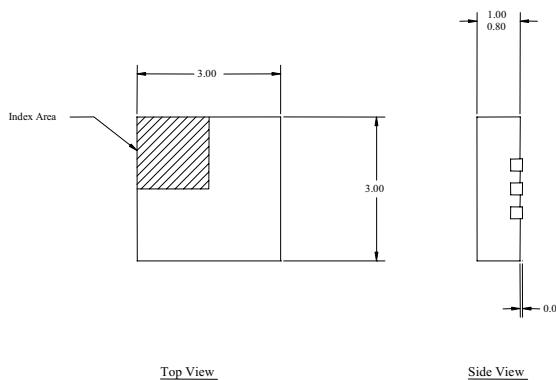
- 802.11b/g WLAN
- 2.4 GHz ISM band wireless equipment


**Functional Block Diagram**
**Product Description**

The RFSP2010 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 proprietary linearizing techniques, the part is operable closer to P-1dB, which enables the device to achieve a specific error vector magnitude (EVM) with less backoff. The PA exhibits unparalleled linearity and efficiency for both 802.11b- and 802.11g-based WLAN systems. The part operates off a single +3.3V supply.

**Product Features**

- 25 dBm P1dB@3.3V
- 21.5 dB gain
- 1.5 % EVM @  $P_{OUT} = +18$  dBm with 54 Mbps OFDM signal
- 95 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



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**

Parameter <sup>1</sup>	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					
Frequency Range	2400		2500	MHz	
Output P1dB		25		dBm	
Gain		21.5		dB	$P_{OUT} = +18 \text{ dBm}$
Error Vector Magnitude <sup>2</sup>		1.5		%	$P_{OUT} = +18 \text{ dBm}; 54 \text{ Mbps OFDM signal}$
Gain Flatness		$\pm 0.5$		dB	Across 100 MHz Band
Harmonics					
2 <sup>nd</sup> Harmonic		-27		dBc	@ P1dB
3 <sup>rd</sup> Harmonic		-45		dBc	@ P1dB
Spurious (Stability) <sup>3</sup>		-60		dBc/30 kHz	$P_{OUT} = -20 \text{ dBm to P1dB}$
Reverse Isolation	35			dB	
Input Return Loss	10			dB	
Output Return Loss	10			dB	With matching capacitor
Power Supply					
Operating Voltage		3.3		V	
Current Consumption		95		mA	$P_{OUT} = +18 \text{ dBm}; 54 \text{ Mbps OFDM signal}$
		180		mA	$P_{OUT} = +24 \text{ dBm}; \text{meets 802.11b ACPR spec}$
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. = 2450 MHz,  $T = 25^\circ\text{C}$ , 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	+7	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-P2010-EVL	-40 to +85	Evaluation Board	1
PRFS-P2010-005	-40 to +85	13" Reverse Tape/Reel	2500 pcs.
PRFS-P2010-006	-40 to +85	13" Tape/Reel	2500 pcs.
PRFS-P2010-007	-40 to +85	7" Reverse Tape/Reel	1000 pcs.
PRFS-P2010-008	-40 to +85	7" Tape/Reel	1000 pcs.
PRFS-P2010-009	-40 to +85	Bulk – 4x4 mm 24-pin LPCC	1-999 pcs.

## NOTES



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