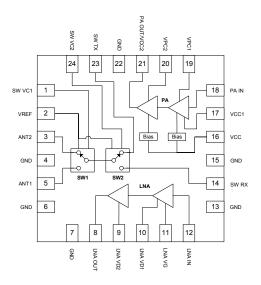


### Applications

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



## 🗹 Functional Block Diagram

# Advanced RFSF5150

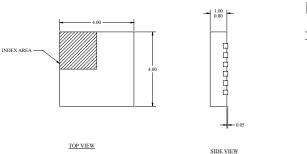
#### 5.15-5.85 GHz U-NII PA/LNA/Switch

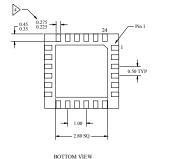
### Product Description

The RFSF5150 PA/LNA/Switch is a high-performance GaAs IC designed for use in transmit/receive applications in the 5.15-5.85 GHz frequency band. With a P1dB of 23 dBm in the PA, the part is ideal as a final stage for wireless LAN applications requiring high transmit linearity. The LNA has both high gain and high input IP3 for systems requiring high front-end linearity. The switch optimizes performance of the LNA and PA with very low insertion loss and a high P1dB. The PA input, LNA input and output, and switches are all matched to 50 ohms. The part operates off a single positive supply.

#### Product Features

- 18 dBm cascaded TX P1dB@3.3V
- 15 dB cascaded TX gain
- 11 dBm cascaded RX P1dB@3.0V
- 9 dB cascaded RX gain
- Low switch loss of 1.5 dB
- 20 dB isolation per switch
- Single positive supply
- PA power on/off logic





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.

4x4 mm Package Outline



# Advanced RFSF5150

## 5.15-5.85 GHz U-NII PA/LNA/Switch

Parameter Frequency Range	Min.				
		arameter Min. Typ. Max.	Unit	Condition	
Transmit Dath	5150		5850		
Transmit Path					
Cascaded Gain		15		dB	
Cascaded Output P1dB		18		dBm	
Receive Path					
Cascaded Gain		9	! 	dB	
Cascaded Output P1dB		11		dBm	
Cascaded Noise Figure		4.8		dB	
PA¹		1.0		uD.	
Output P1dB	1	23	l 	dBm	
Gain		18		dB	
Gain Flatness		±1.0		dB	Across 200 MHz Band
Harmonics		±1.0		ub.	ACIOSS 200 WIIIZ Balla
2 <sup>nd</sup> Harmonic		-30		dBc	@ P1dB
3 <sup>rd</sup> Harmonic		-30		dBc	@ PldB
Spurious (Stability) <sup>2</sup>	l I	-60	! !	dBc/30 kHz	$ P_{IN}  = -20 \text{ dBm to P1dB}$
Reverse Isolation		35		dBC/30 kHz	$r_{\rm IN} = -20$ ubili to Flub
Noise Figure		6		dB	
Input Return Loss		14		dB	With matching capacitor
Output Return Loss		10		dB	With matching capacitor
Current Consumption		100		mA	P <sub>OUT</sub> = 18 dBm
LNA <sup>3</sup>		100		IIIA	1007 - 10 dBm
Noise Figure		1.8		dB	
Gain		1.8		dBm	
Input IP3		9		dBm	
Gain Flatness		±0.5		dB	Across 200 MHz Band
Reverse Isolation	l I	25	l I	dB	Across 200 MHZ Balld
Input Return Loss		10		dB	
Output Return Loss		10		dB	
Current Consumption		10		mA	
Switch <sup>4</sup>		10		1117 \$	
Insertion Loss		1.5		dB	per switch
Input P1dB	l I	27	! !	dBm	per switch
Isolation		20		dB	per switch
Return Loss (all SW ports)		14		dB	per switch
Switch Control		14		uD	
High State		2		V	
Low State		0		V	
SW VC1 setting		3		V	ANT2 selection
Sw vCi setting		0		V	ANT1 selection
SW VC2 setting		0		V	SW Rx selection
5 Transfer of the second		3		v	SW_Tx selection
Current Consumption		50		uA	
Power Supply					
Operating Voltage		3.3		V	l PA
Operating voltage		3.0		v	LNA & Switches

Note 1: PA Test Conditions:  $V_{CC} = 3.3V$ ,  $P_{OUT} = +18$  dBm, Freq. = 5250 MHz, T = 25°C.



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

Note 3: LNA Test Conditions:  $V_{CC}=3.0V,\ P_{IN}=-20\ dBm,\ Freq.=5250\ MHz,\ T=25^{\circ}C.$  Note 4: Switch Test Conditions:  $V_{CC}=3.0V,\ P_{IN}=-20\ dBm,\ Freq.=5250\ MHz,\ T=25^{\circ}C.$ 



# Advanced RFSF5150

### 5.15-5.85 GHz U-NII PA/LNA/Switch

### **Absolute Maximum Ratings**

Parameter	Rating	Unit
DC Power Supply	6.0	V
DC Supply Current	600	mA
Maximum PA RF input level	+9	dBm
Maximum LNA RF input level	+2	dBm
Operating Ambient Temperature	-40 to +85	°C
Storage Temperature	-55 to +150	°C



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