RFS5001

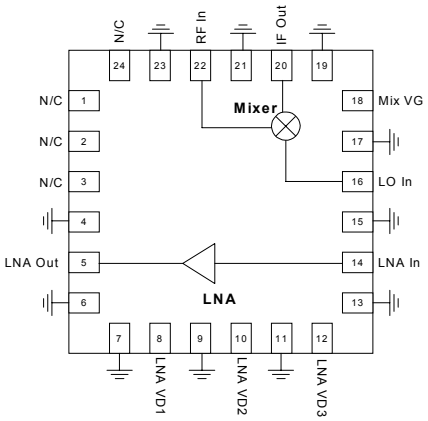
5.1-5.9 GHz U-NII Downconverter

Applications

- U-NII Band RF downconverter for fixed-wireless applications
- ISM Band RF receiver
- WLAN/802.11a RF receiver

Product Description

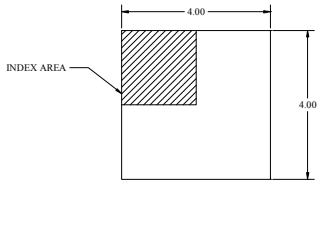
The RFS5001 downconverter is a high-performance GaAs MESFET IC designed for receiver applications in the 5.1-5.9 GHz U-NII and ISM frequency bands. With a low-noise figure and high input IP3, the part is ideal for fixed wireless applications requiring high front-end-linearity. The RFS5001 combines a low-noise amplifier and mixer in a single low-cost surface-mount package. The input of the LNA is matched to 50 ohms and the IC operates with a 3V or 5V supply.

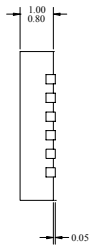


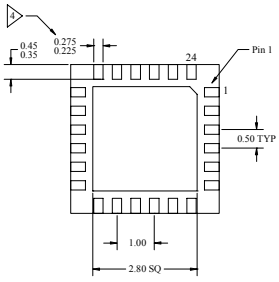
Functional Block Diagram

Product Features

- Single-chip RF U-NII downconverter
- RF downconverter gain of 8 dB
- Input matched to 50 ohms
- 0 dBm Input IP3







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.

4mm Package Outline

RF Solutions, Inc.
1201 West Peachtree Street, Suite 1100, Atlanta, Georgia 30309
www.rf-solutions.com 404-876-7707p x4741 404-876-7484f

5.1-5.9 GHz U-NII Downconverter

Parameter [1]	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					
RF Frequency Range	5150		5850	MHz	
LO Frequency Range	5000		6000	MHz	
IF Frequency Range	100		900	MHz	
Cascaded Gain		8.0		dB	
Cascaded Gain Var vs Temp		±2		dB	-40 to +85 °C
Cascaded Input IP3		0		dBm	
Cascaded Noise Figure		3.1		dB	Single sideband
LO-RF Isolation		33		dB	
LO-IF Isolation		20		dB	
LNA					
Noise Figure		2.6		dB	
Gain		16		dB	
Input IP3		2		dBm	
Gain Flatness		±0.5		dB	Over 200 MHz band
Reverse Isolation		35		dB	
Input Return Loss	10			dB	
Output Return Loss	10			dB	
Current Consumption		20		mA	
Mixer					
Noise Figure		8		dB	Single sideband
Input IP3		20		dBm	
Conversion Gain		-8.0		dB	
Gain Flatness		±0.25		dB	Over 200 MHz band
IF Return Loss	10			dB	
RF Return Loss	10			dB	
LO Input					
LO Level		9		dB	
LO Input Return Loss	10			dB	
Power Supply					
Operating Voltage	2.7		6.0	V	
Current Consumption		20		mA	

Note 1: Test Conditions: V_{D1}=2.1V, $V_{D2,3}$=2.7V, V_G=0.4V, RF=5775MHz, LO=5375MHz, IF=400MHz, LO input=9 dBm, T=25C, unless otherwise specified.

Absolute Maximum Ratings

Parameter	Rating	Unit
DC Power Supply	8.0	V
Operating Ambient Temperature	-40 to +85	°C
Storage Temperature	-55 to +150	°C
Maximum RF Input Level	+10	dBm