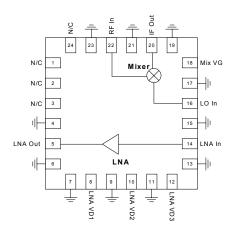




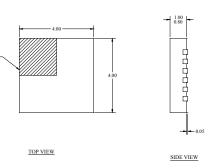
#### 5.1-5.9 GHz U-NII Downconverter

## Applications

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



# ☐ Functional Block Diagram



# 0.45 0.275 Pin 1 0.35 0.225 Pin 1 0.50 TYP 1.00 Pin 1

BOTTOM VIEW

## 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.

## 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

INDEX AREA



# 5.1-5.9 GHz U-NII Downconverter

	Specification			Unit	Condition
Parameter <sup>1</sup>	Min.	Тур.	Max.	Oilit	Condition
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	4		A = dB	
Output Return Loss	10	<b>→</b> ,		dB	
Current Consumption		20		mA =	
Mixer					
Noise Figure		8		dB	Single sideband
Input IP3		20		dBm	e e
Conversion Gain		<u>₹8.0</u>		dB	
Gain Flatness — $\Rightarrow$		±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 =2.1V			DE_5775MU		IE_400MUz I O input=0 dPm

Note 1: Test Conditions: V<sub>D1</sub>=2.1V, V<sub>D2,3</sub>=2.7V, V<sub>G</sub>=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



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