Advance Information
RFS5004

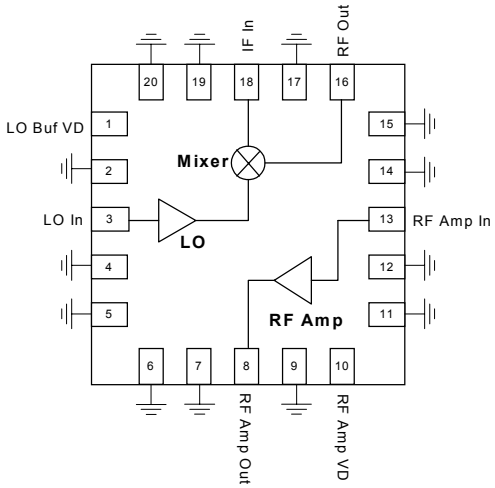
2.4-2.7 GHz Upconverter

Applications

- MMDS RF upconverter for CPE
- WLAN, 802.11b, ISM RF transmitter

Product Description

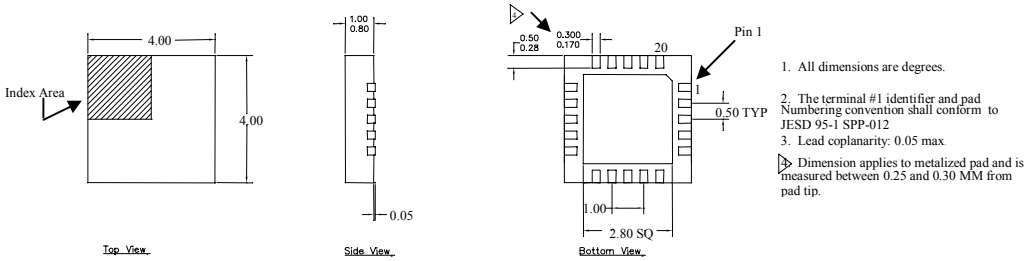
The RFS5004 upconverter is a high-performance GaAs MESFET IC designed for transmitter applications in the 2.4-2.7 GHz ISM and MMDS frequency bands. With high LO to RF isolation and high input IP3 the part is ideal for fixed wireless applications. The RFS5004 combines a double balanced mixer, LO buffer and RF amplifier in a single low-cost surface-mount package. All RF, IF and LO ports are internally matched to 50 ohms and the IC operates off of a single 5V supply.



Functional Block Diagram

Product Features

- Single-chip RF MMDS or ISM upconverter
- RF upconverter gain of 3.0 dB
- Matched to 50 ohms
- 15 dBm input IP3



4mm Package Outline

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Parameter [1]	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					
IF Frequency Range	200		500	MHz	
LO Frequency Range	2200		2400	MHz	
RF Frequency Range	2400		2700	MHz	
Cascaded Gain		3		dB	
Cascaded Output P_{1dB}		8		dBm	
Cascaded Input IP3		15		dBm	
Mixer					
Conversion Gain		-8		dB	
Noise Figure		8		dB	
Input 1dB Compression		5		dBm	
Input IP3		15		dBm	
Gain Flatness		±0.5		dB	Over a 200 MHz band
IF Return Loss	10			dB	
RF Return Loss	10			dB	
Current Consumption		45		mA	
LO Input					
LO Input level		5		dBm	
LO-IF Isolation		14		dB	
LO-RF Isolation		27		dB	
LO Input Return Loss	10			dB	
RF Amplifier					
Gain		11		dB	
Output IP3		25		dBm	
Gain Flatness		±0.5		dB	Over a 200 MHz band
Reverse Isolation		25		dB	
Input Return Loss	10			dB	
Output Return Loss	10			dB	
Current Consumption		45		mA	
Power Supply					
Operating Voltage		5.0		V	
Current Consumption		90		mA	

Note 1: Test Conditions: V_{DD}=5.0V, RF=2593MHz, LO=2278MHz, IF=315MHz, LO input=5dBm, 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