RF2364

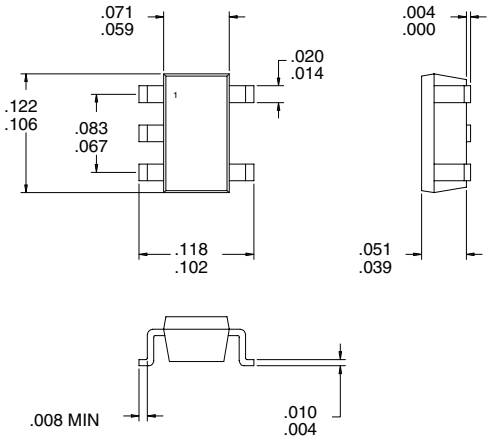
3V PCS LOW NOISE AMPLIFIER

Typical Applications

- CDMA PCS LNA
- TDMA PCS LNA
- WCDMA/CDMA2000 LNA
- General Purpose Amplification
- Commercial and Consumer Systems

Product Description

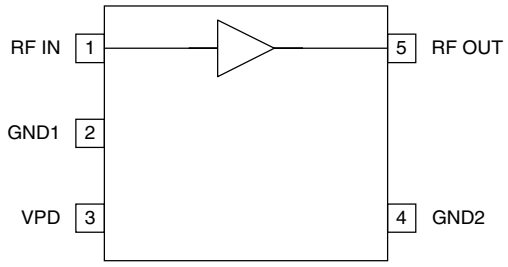
The RF2364 is a low noise amplifier with a high dynamic range designed for CDMA and TDMA PCS, as well as WCDMA/CDMA2000 applications. The device functions as an outstanding front end low noise amplifier and the bias current can be set externally. Includes a power down feature that can be used to completely turn-off the device. The IC is featured in a standard SOT23-5 plastic package.



Package Style: SOT23-5

Optimum Technology Matching® Applied

- ☐ Si BJT
- ☑ GaAs HBT
- ☐ GaAs MESFET
- ☐ Si Bi-CMOS
- ☐ SiGe HBT
- ☐ Si CMOS



Functional Block Diagram

Features

- Low Noise and High Intercept Point
- 19dB Gain
- Power Down Control
- Single 3.0V Power Supply
- PCS and WCDMA Band Operation
- Extremely Small SOT23-5 Package

Ordering Information

RF2364	3V PCS Low Noise Amplifier
RF2364 PCBA	Fully Assembled Evaluation Board

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Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage	-0.5 to +8.0	V_{DC}
Input RF Level	+10	dBm
Operating Ambient Temperature	-40 to +85	°C
Storage Temperature	-40 to +150	°C

Caution! ESD sensitive device.

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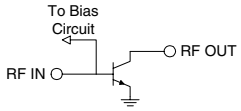
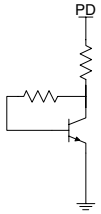
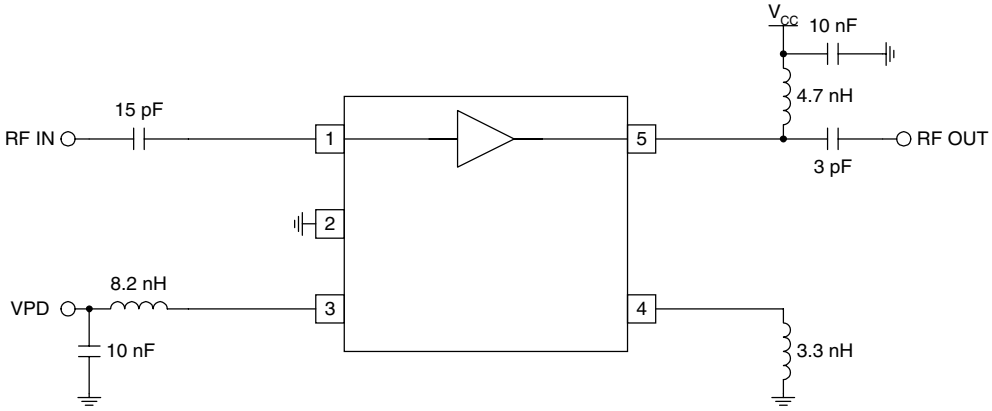
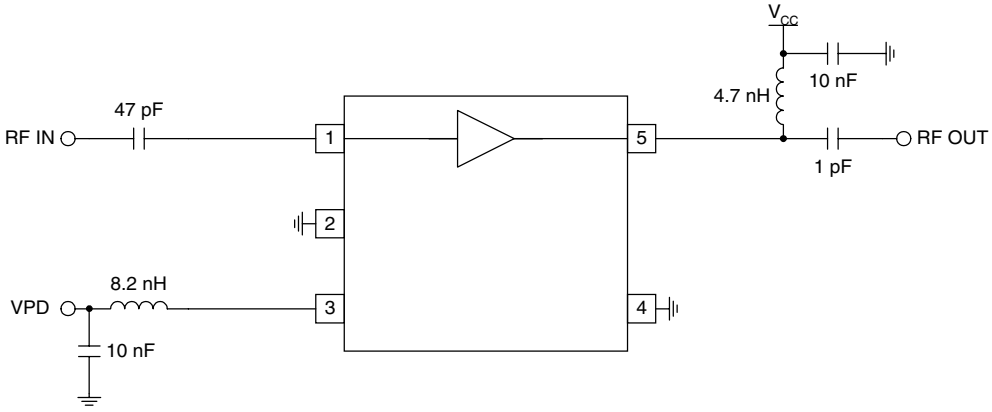
Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Overall					
RF Frequency Range	1930		1990	MHz	
Low Noise Amplifier Performance					Schematic per LNA Application T=25°
Power Gain		19	21	dB	V_{CC}=3.0V, I_{CC}=17mA
Noise Figure		1.8		dB	
Input IP3		+5		dBm	V_{CC}=3.0V
Input VSWR			2:1		
Output VSWR			2:1		With external matching components.
Isolation		27		dB	At 1950MHz
Input P1dB		8.5		dBm	
Power Supply					T=25 °C
Voltage (V_{CC})	2.7	3.0	3.3	V	
Current Consumption		17.0	22.5	mA	V_{CC}=3.0V
Power Down			10	µA	V_{CC}=3.0V; $V_{PD} \leq 0.9$ V

Pin	Function	Description	Interface Schematic
1	RF IN	RF input pin. This pin is DC coupled and matched to 50Ω.	
2	GND1	Ground connection. Keep traces physically short and connect immediately to ground plane for best performance.	
3	VPD	For low noise amplifier applications, this pin is used to control the bias current. See plots for bias current settings. An external resistor (R1) can be used to set the bias current for any V_{PD} voltage. For driver amplifier applications, this is the Power Down pin for the IC. V_{PD}=2.8V +/- 0.1V is required for proper operation. V_{PD}< 0.9V turns off the Part. External RF bypassing is required. The trace length between the pin and the bypass capacitors should be minimized. The ground side of the bypass capacitors should connect immediately to ground plane. Nominal current required for V_{PD}=2.8V is 2.0mA typical and 3.0mA Max (@ V_{PD}=2.9V).	
4	GND2	Ground connection. Keep traces physically short and connect immediately to ground plane for best performance.	
5	RF OUT	Amplifier Output pin. This pin is an open-collector output. It must be biased to either V_{CC} or pin 4 through a choke or matching inductor. This pin is typically matched to 50Ω with a shunt bias/matching inductor and series blocking/matching capacitor. Refer to application schematics.	

Application Schematic PCS Band

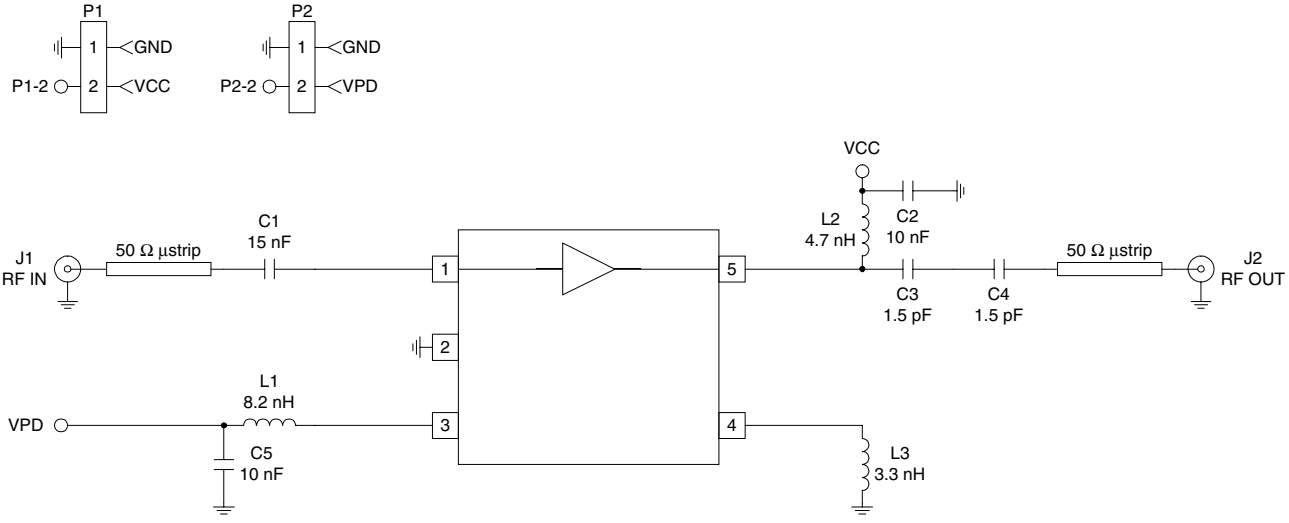


Application Schematic WCDMA Band



Evaluation Board Schematic

(Download Bill of Materials from www.rfmd.com.)



Evaluation Board Layout
Board Size 1” x 1”

Board Thickness 0.031”; Board Material FR-4