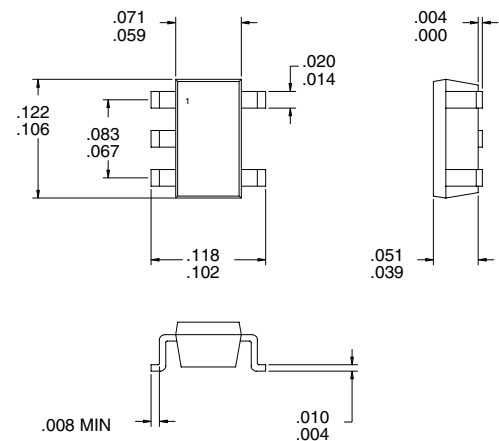


**Typical Applications**

- Broadband Gain Blocks
- Final PA for Low-Power Applications
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Oscillator Loop Amplifiers

**Product Description**

The RF2314 is a general purpose, low-cost, high performance amplifier designed for operation from a 2.7V to 6V supply with low current consumption. The circuit configuration with resistive feedback allows for broadband cascadable amplification. Feedback with capacitive compensation extends the bandwidth of the amplifier, and is designed for optimized noise figure. The device is unconditionally stable and internally matched to 50Ω. **No external components** are required. The RF2314 is available in a very small industry-standard SOT-23 5-lead surface mount package, enabling compact designs which conserve board space.



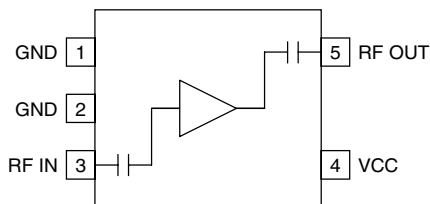
**Optimum Technology Matching® Applied**

- |                                     |  |                                      |
|-------------------------------------|--|--------------------------------------|
| <input type="checkbox"/> Si BJT     | <input checked="" type="checkbox"/> GaAs HBT | <input type="checkbox"/> GaAs MESFET |
| <input type="checkbox"/> Si Bi-CMOS | <input type="checkbox"/> SiGe HBT            | <input type="checkbox"/> Si CMOS     |

**Package Style: SOT-23-5**

**Features**

- 150MHz to 2500MHz Operation
- 2.7V to 6.0V Single Supply
- +18dBm Output IP<sub>3</sub> at 5V
- 14dB Gain at 900MHz
- 8.6dB Gain at 1900MHz
- Low Current Consumption of 5mA at 3V



**Functional Block Diagram**

**Ordering Information**

- |             |                                     |
|-------------|-------------------------------------|
| RF2314      | General Purpose Low Noise Amplifier |
| RF2314 PCBA | Fully Assembled Evaluation Board    |

RF Micro Devices, Inc.  
7625 Thorndike Road  
Greensboro, NC 27409, USA

Tel (336) 664 1233  
Fax (336) 664 0454  
<http://www.rfmd.com>

## Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage	8.0	V
Supply Current	32	mA
Operating Ambient Temperature	-40 to +85	°C
Storage Temperature	-40 to +150	°C



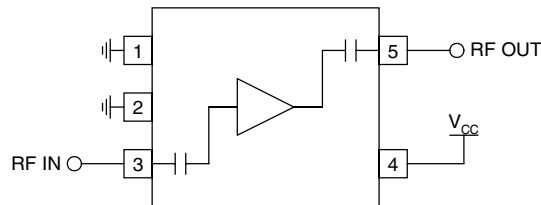
**Caution!** ESD sensitive device.

RF Micro Devices believes the furnished information is correct and accurate at the time of this printing. However, RF Micro Devices reserves the right to make changes to its products without notice. RF Micro Devices does not assume responsibility for the use of the described product(s).

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Overall</b>					
Frequency Range		150 to >2500		MHz	T=27 °C, V <sub>CC</sub> =3.0V, Freq=900MHz NOTE: Lower frequencies can be obtained with inductive coupling.
<b>3.0V Performance</b>					T=27 °C, V <sub>CC</sub> =3.0V, Freq=900MHz
Gain		12.9 16.6		dB dB	Freq=150MHz
Noise Figure		7.9 1.4		dB dB	Freq=1900MHz
Output IP3		+9.0		dBm	
Output P <sub>1dB</sub>		-1.0		dBm	
Input Return Loss		10		dB	
Output Return Loss		17		dB	
Isolation		20		dB	
<b>5.0V Performance</b>					T=27 °C, V <sub>CC</sub> =5.0V, Freq=900MHz
Gain		14.2 19.1		dB dB	Freq=150MHz
Noise Figure		8.6 1.5		dB dB	Freq=1900MHz
Output IP3		+18.0		dBm	
Output P <sub>1dB</sub>		+8.0		dBm	
Input Return Loss		13		dB	
Output Return Loss		28		dB	
Isolation		20		dB	
<b>Power Supply</b>					
Operating Voltage		2.7 to 6.0		V	
Operating Current		5.7		mA	V <sub>CC</sub> =3.0V
		12.5		mA	V <sub>CC</sub> =5.0V

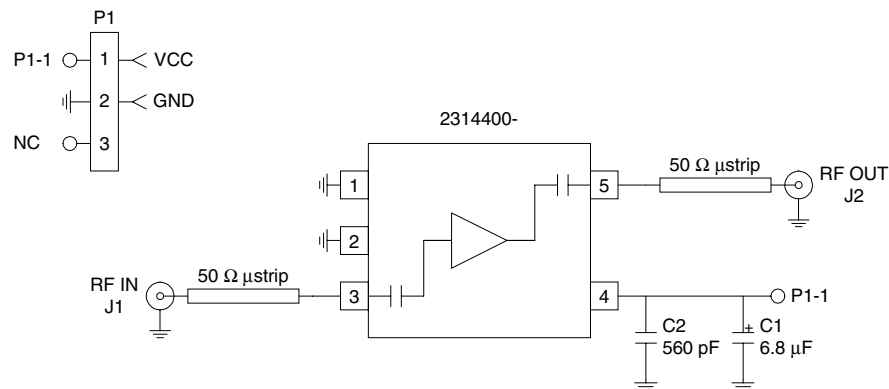
Pin	Function	Description	Interface Schematic
1	GND	Ground connection. Keep traces physically short and connect immediately to ground plane for best performance.	
2	GND	Same as pin 1.	
3	RF IN	RF input pin. This pin is internally DC blocked and thus does not require an external blocking capacitor. The input impedance of this pin is internally matched to 50Ω using resistive feedback.	
4	VCC	Supply connection. Generally, there is no need for an external bypass capacitor.	See pin 3 schematic.
5	RF OUT	RF output pin. The output impedance of this pin is internally matched to 50Ω using resistive feedback.	See pin 3 schematic.

## Application Schematic



## Evaluation Board Schematic

(Download [Bill of Materials](http://www.rfmd.com) from [www.rfmd.com](http://www.rfmd.com).)



## Evaluation Board Layout Board Size 1.0" x 1.0"

