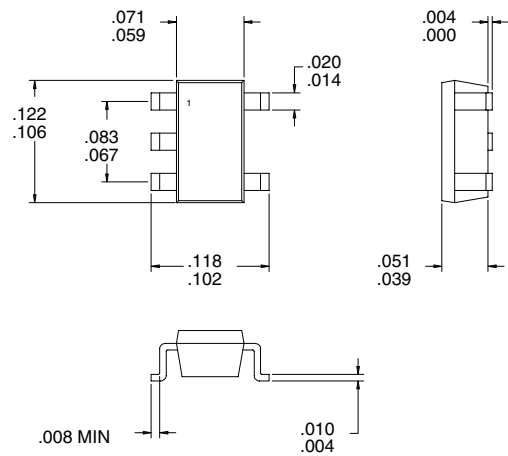


Typical Applications

- 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.



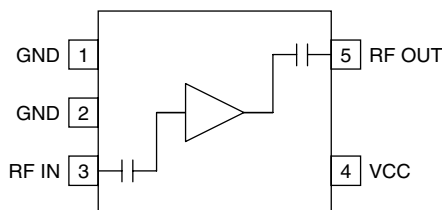
Optimum Technology Matching® Applied

- | | | |
|-------------------------------------|--|--------------------------------------|
| <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 IP₃ 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>

RF2314

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



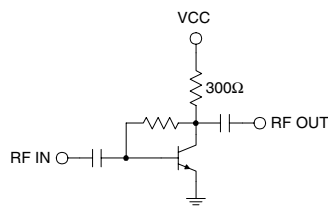
Caution! ESD sensitive device.

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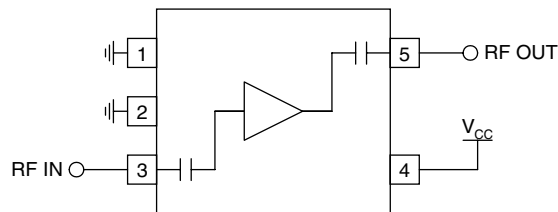
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GENERAL PURPOSE
AMPLIFIERS

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

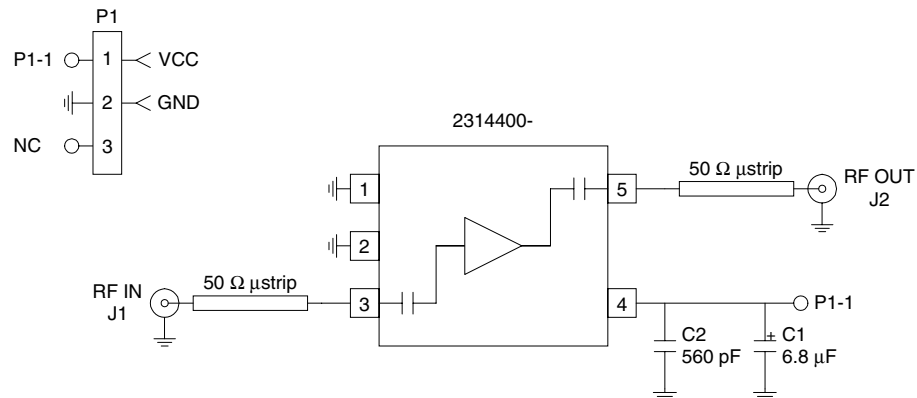
Pin	Function	Description	Interface Schematic
1	GND	Ground connection. Keep traces physically short and connect immediately to ground plane for best performance.	
2	GND	Same as pin 1.	
3	RF IN	RF input pin. This pin is internally DC blocked and thus does not require an external blocking capacitor. The 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.)



Evaluation Board Layout Board Size 1.0" x 1.0"

