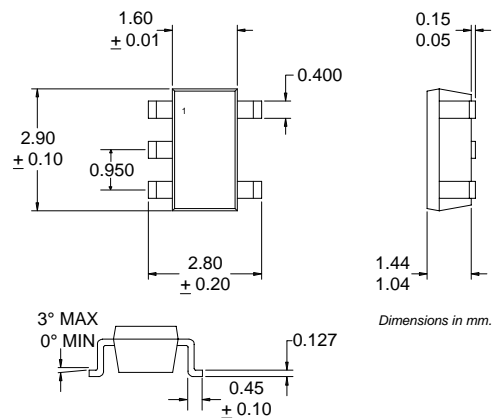


### Typical Applications

- Broadband, Low Noise Gain Blocks
- IF or RF Buffer Amplifiers
- Driver Stage for Power Amplifiers
- Final PA for Low Power Applications
- Broadband Test Equipment

### Product Description

The RF2335 is a general purpose, low-cost RF amplifier IC. The device is manufactured on an advanced Gallium Arsenide Heterojunction Bipolar Transistor (HBT) process, and has been designed for use as an easily-cascadable 50Ω gain block. Applications include IF and RF amplification in wireless voice and data communication products operating in frequency bands up to 6000MHz. The device is self-contained with 50Ω input and output impedances and requires only two external DC biasing elements to operate as specified. The RF2335 is available in a very small industry-standard SOT23 5-lead surface mount package, enabling compact designs which conserve board space.



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GENERAL PURPOSE AMPLIFIERS

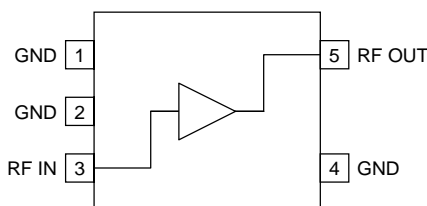
### Optimum Technology Matching® Applied

- |                                     |  |                                      |
|-------------------------------------|--|--------------------------------------|
| <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 5 Lead

### Features

- DC to 6000MHz Operation
- Internally matched Input and Output
- 12dB Small Signal Gain
- +33dBm Output IP3
- +17dBm Output Power
- Good Gain Flatness



Functional Block Diagram

### Ordering Information

RF2335	General Purpose Amplifier
RF2335 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>

# RF2335

## Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Current	120	mA
Input RF Power	+20	dBm
Operating Ambient Temperature	-40 to +70	°C
Storage Temperature	-60 to +150	°C



Caution! ESD sensitive device.

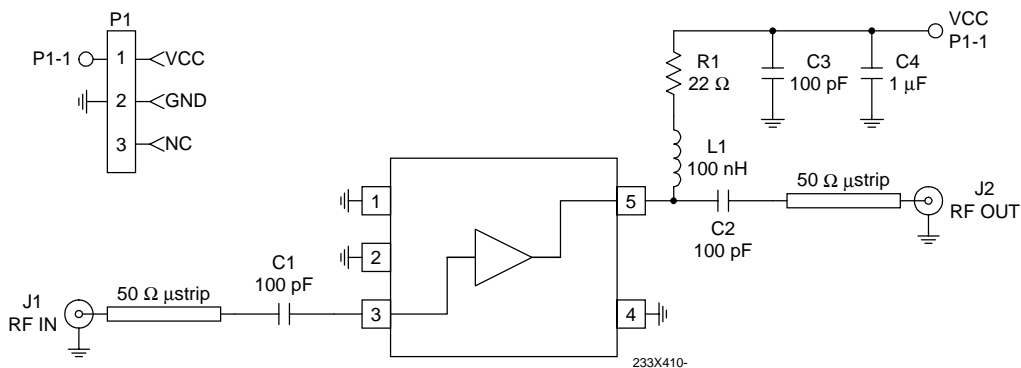
RF Micro Devices believes the furnished information is correct and accurate at the time of this printing. However, RF Micro Devices reserves the right to make changes to its products without notice. RF Micro Devices does not assume responsibility for the use of the described product(s).

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Overall</b>					T=25°C, I <sub>CC</sub> =65mA
Frequency Range		DC to 6000		MHz	
3dB Bandwidth		3		GHz	
Gain		13.7		dB	Freq=100MHz
		13.1		dB	Freq=1000MHz
		12.4		dB	Freq=2000MHz
		11		dB	Freq=3000MHz
		10.6		dB	Freq=4000MHz
		10		dB	Freq=5000MHz
		9.8		dB	Freq=6000MHz
Gain Flatness		±1		dB	100MHz to 2000MHz
Noise Figure		5.6		dB	Freq=1000MHz
Input VSWR		1.8:1			In a 50Ω system, DC to 2000MHz
Output VSWR		1.7:1			In a 50Ω system, DC to 2000MHz
Output IP <sub>3</sub>		+33		dBm	Freq=1000MHz±50kHz, P <sub>TONE</sub> =-10dBm
Output P <sub>1dB</sub>		+17.3		dBm	Freq=1000MHz
Reverse Isolation		17.2		dB	Freq=2000MHz
<b>Power Supply</b>					With 22Ω bias resistor
Device Operating Voltage		5.0		V	At pin 5 with I <sub>CC</sub> =65mA
Operating Current		65		mA	

Pin	Function	Description	Interface Schematic
1	<b>GND</b>	Ground connection. Keep traces physically short and connect immediately to ground plane for best performance.	
2	<b>GND</b>	Same as pin 1.	
3	<b>RF IN</b>	RF input pin. This pin is NOT internally DC blocked. A DC blocking capacitor, suitable for the frequency of operation, should be used in most applications. DC coupling of the input is not allowed, because this will override the internal feedback loop and cause temperature instability.	
4	<b>GND</b>	Same as pin 1.	
5	<b>RF OUT</b>	RF output and bias pin. Biasing is accomplished with an external series resistor and choke inductor to $V_{CC}$ . The resistor is selected to set the DC current into this pin to a desired level. The resistor value is determined by the following equation: $R = \frac{(V_{SUPPLY} - V_{DEVICE})}{I_{CC}}$ Care should also be taken in the resistor selection to <b>ensure that the current into the part never exceeds 120 mA over the planned operating temperature.</b> This means that a resistor between the supply and this pin is always required, even if a supply near 5.0V is available, to provide DC feedback to prevent thermal runaway. Because DC is present on this pin, a DC blocking capacitor, suitable for the frequency of operation, should be used in most applications. The supply side of the bias network should also be well bypassed.	

## Evaluation Board Schematic

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



# RF2335

## Evaluation Board Layout Board Size 1" x 1"

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