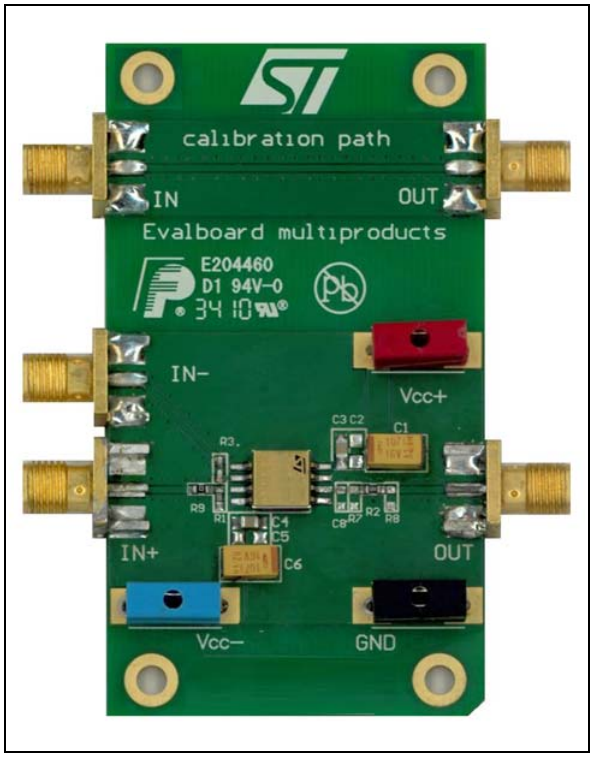
EVAL-RHF330V1

EVAL-RHF330V1 evaluation board

Data brief

Features

- Mounted Engineering Model RHF330K1: Rad-hard, 1.0 GHz, operational amplifier (see RHF330 datasheet for further information)
- Mounted components (ready-to-use)
- Material: two-layered FR-4
- PCB thickness: 1.6 mm
- Copper thickness: 35 µm
- Analog connections: SMA
- Supply connections: banana 2 mm



Description

This data brief describes the EVAL-RHF330V1 evaluation board.

This evaluation board is a ready-to-use, configurable hardware which allows designers to efficiently test a target device. A unique PCB is used in different configurations to support the radiation-hardened (rad-hard), operational amplifier devices.

This document shows the components incorporated on the EVAL-RHF330V1 evaluation board and suggests several ways to use the board.

The EVAL-RHF330V1 evaluation board is intended only for evaluation purposes.

Table 1. Evaluation board summary

Evaluation board part number	Device part number	Operation amplifier
EVAL-RHF330V1	RHF330	1.0 GHz high-speed signal conditioning

Contents

1 Bill of material

Table 2. Bill of material

Designator	Footprint	Part type	Description
C1	1210	100 µF	Bypass ceramic capacitor on V_{CC}
C3	0805		
C4			
C6	1210		
IC1	FLAT 8	RHF330	DUT
J1	Banana 2 mm	Red	Banana 2 mm supply connectors
J2		Black	
J3		Blue	
J4	SMA	SMA	SMA connector
J5			
J6			
J7			
J8			
R1	0603	50 Ω - 1 %	SMD resistor
R2			
R4		300 Ω - 1 %	
R6			
R8		NC	
R9		0 Ω	
C8		NC(1)	-
C2	0805		
C5			
C7	0603		
R3			
R5			
R7			

1. NC = not connected

2 Device pin connections and description

Figure 1. RHF330 pin connections,

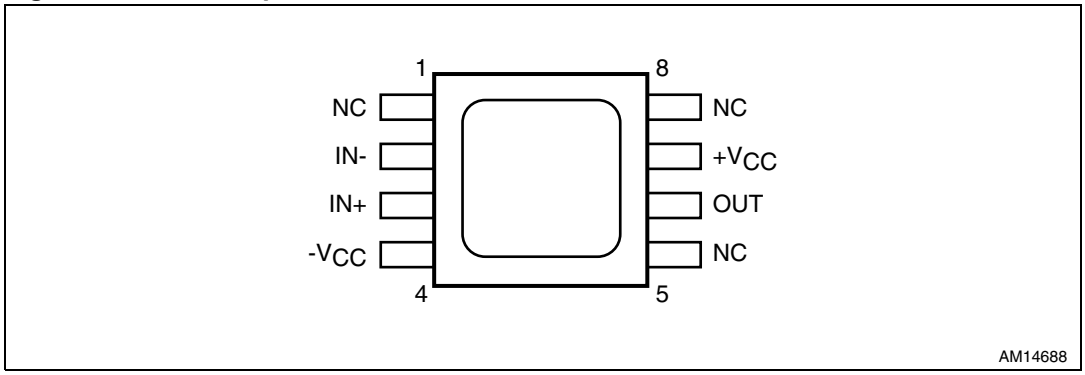
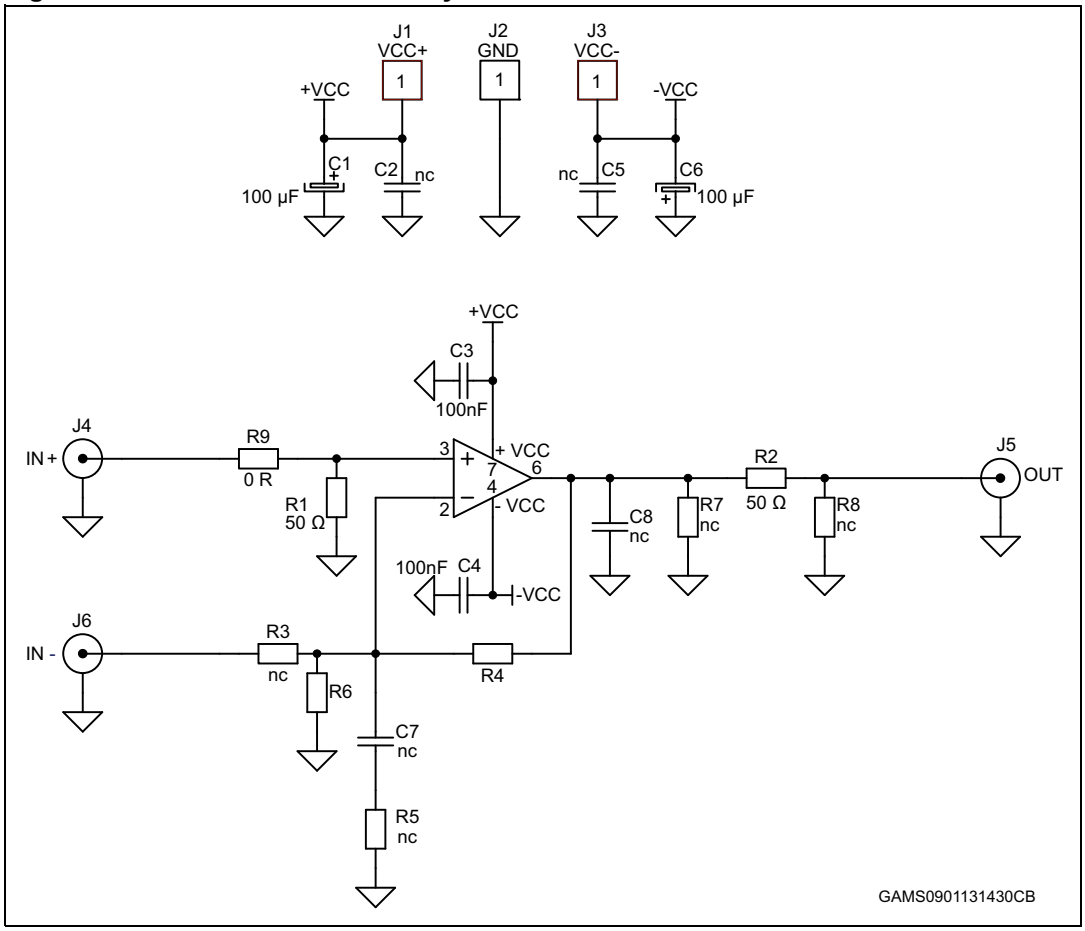


Table 3. RHF330 pin description

Name	Pin number	Description
NC	1, 5, 8	Non connected pins
IN-	2	Negative input pin
IN+	3	Positive input pin
$-V_{CC}$	4	Negative supply
OUT	6	Output pin
$+V_{CC}$	7	Positive supply

3 Evaluation board schematic

Figure 2. EVAL-RHF330V1 full layout schematic



4 PCB print out

The PCB is a two-layered FR-4 material which is 1.6 mm thick. The copper thickness is 35 µm.

Figure 3. Front layer

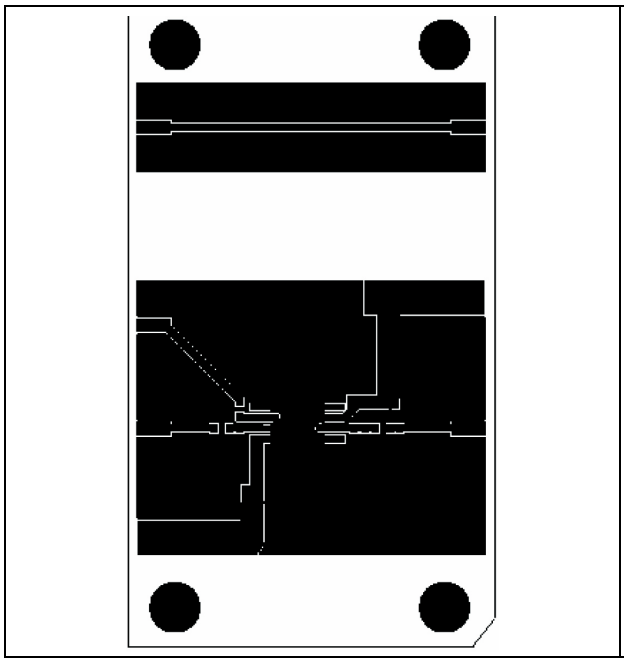


Figure 4. Front drawing

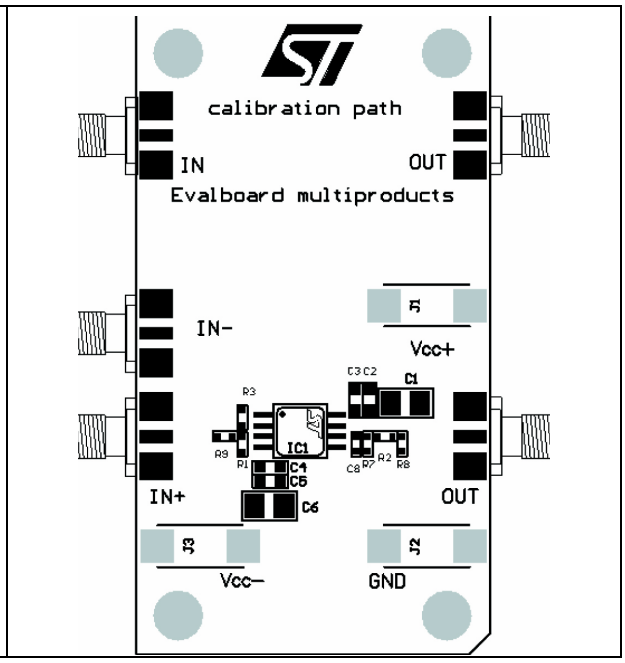


Figure 5. Bottom layer

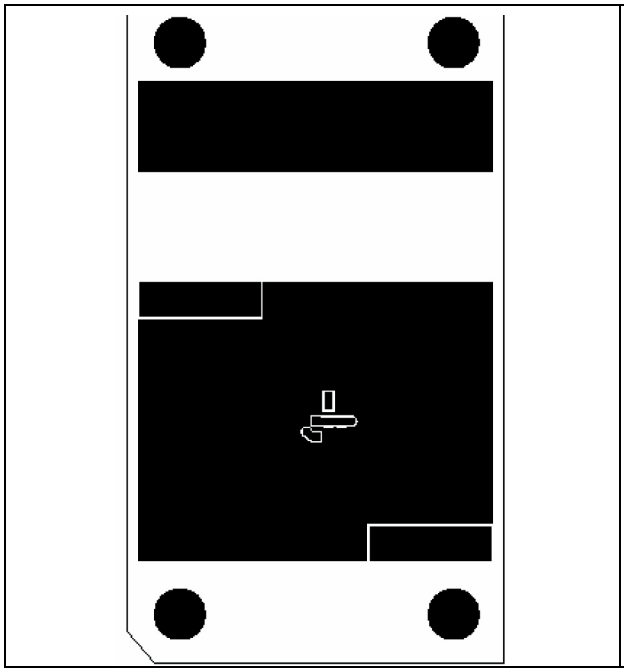
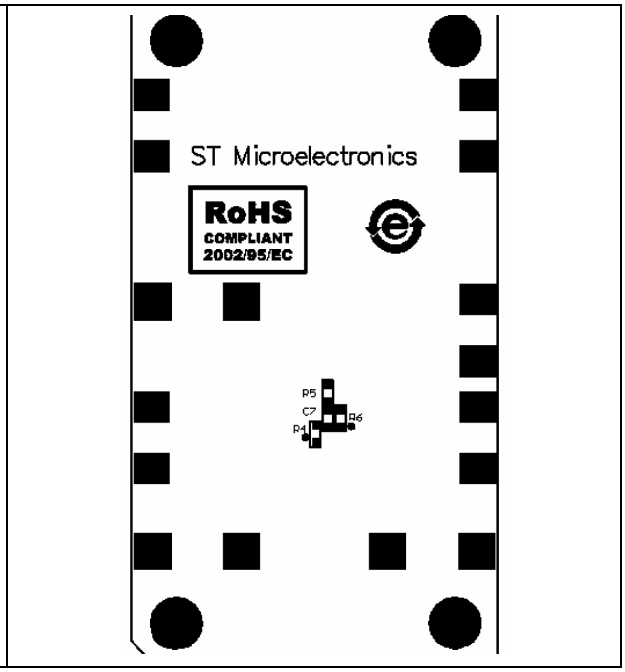


Figure 6. Bottom drawing



5 Evaluation board description

The PCB is designed for 50-ohm generators and receivers. A 50-ohm calibration path can be used for high speed products.

Capacitor C8 can be used to load the output. Capacitor C7 and resistor R5 can be used to stabilize the product.

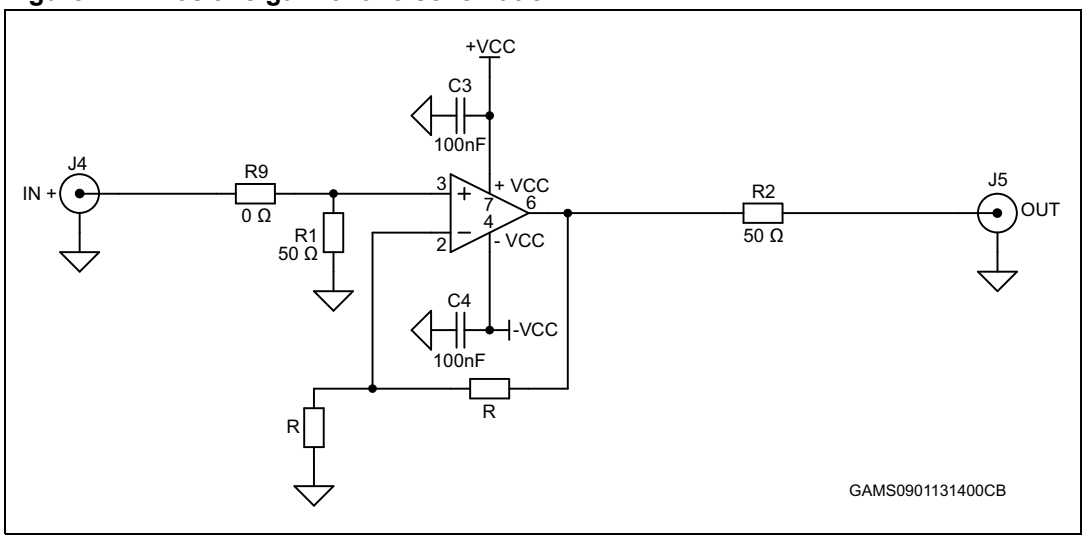
Pi resistors R7, R2, and R8 are used to adapt impedance between the output load and the hardware tool. For example, to load the device under test (DUT) with 150 Ω when the analyzer is 50 Ω input impedance, use the following equations for each respective resistor:

- R7 = 2.2 kΩ
- R2 = 130 Ω
- R8 = 82 Ω

A 100-nF and a 100-µF capacitor are soldered onto each supply. A third supply place is kept free in case an additional bypass capacitor is needed.

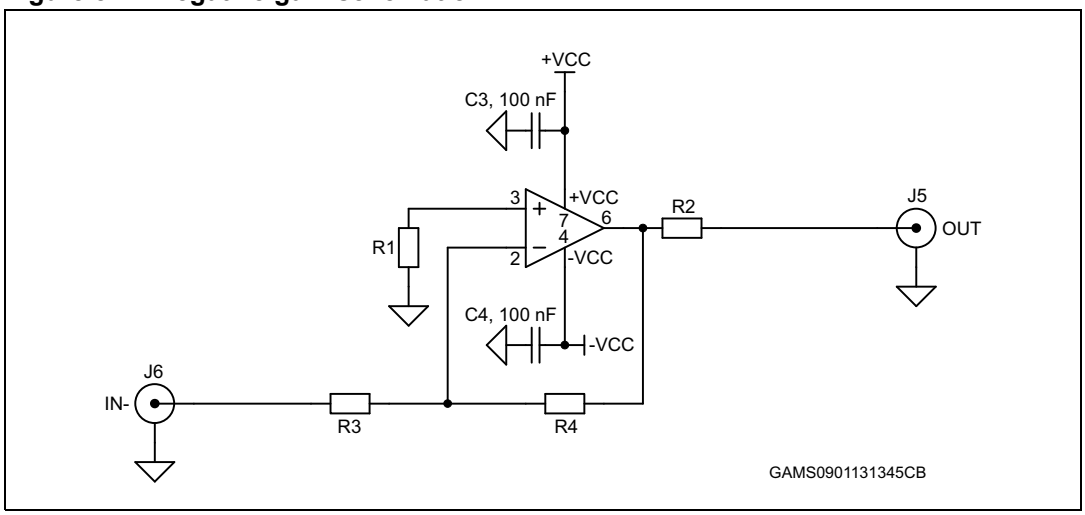
Resistors (R) mounted on the board are placed to get a positive gain of two by the DUT as shown in *Figure 7*.

Figure 7. Positive gain of two schematic



The layout in *Figure 8* allows the DUT to be tested with a negative gain.

Figure 8. Negative gain schematic



Other configurations such as an integrator or a differentiator can also be used.

6 Revision history

Table 4. Document revision history

Date	Revision	Changes
25-Jan-2013	1	Initial release.

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