

# MAXIM

## MAX4112 Evaluation Kit

### General Description

The MAX4112 evaluation kit (EV kit) simplifies evaluation of the MAX4112 high-speed amplifier. The EV kit circuit demonstrates the MAX4112 in the noninverting configuration, set to a gain of 2V/V.

The EV kit comes with the MAX4112 installed. To evaluate the MAX4113, simply order a free sample (MAX4113ESA), replace the MAX4112 with the MAX4113 on the EV board, and change the gain-setting resistor for the desired gain. The minimum closed-loop gain for the MAX4113 is 8V/V.

### Component List

DESIGNATION	QTY	DESCRIPTION
U1	1	Maxim MAX4112ESA
C1, C2	2	10 $\mu$ F, 10V, 20% tantalum capacitors AVX TAJB106M010 or Sprague 293D106X0010B
C3, C4	2	0.1 $\mu$ F, 10% ceramic capacitors Vitramon VJ1206Y104KXX
C5, C6	2	1000pF, 10% ceramic capacitors Vitramon VJ1206Y102KXX
R1, R2	2	49.9 $\Omega$ , 1% resistors
R <sub>F</sub> , R <sub>G</sub>	2	499 $\Omega$ , 1% resistors
IN, OUT	2	SMA connectors
None	1	MAX4112/MAX4113 data sheet

### Component Suppliers

SUPPLIER	PHONE	FAX
AVX	(803) 946-0690	(803) 626-3123
Sprague	(603) 224-1961	(603) 224-1430
Vishay/Vitramon	(203) 268-6261	(203) 452-5670

### Features

- ◆ 500MHz Unity-Gain Bandwidth
- ◆ Optional Adjustable Gain
- ◆ Fully Assembled and Tested

### Ordering Information

PART	TEMP. RANGE	BOARD TYPE
MAX4112EVKIT-SO	+25°C	Surface Mount

Note: To evaluate the MAX4113, request a MAX4113ESA free sample.

### Quick Start

The MAX4112 EV kit is fully assembled and tested. Follow these steps to verify board operation. **Do not turn on the power supply until all connections are completed.**

- 1) The circuit requires supply voltages of  $\pm 5$ V. Connect these supplies to the corresponding pads marked V+ and V-. Connect the power-supply ground to the pad marked GND.
- 2) Apply a signal no greater than  $\pm 1.75$ V<sub>PK</sub> (11.8dBm) to the SMA connector marked IN.
- 3) Connect the output marked OUT to an oscilloscope through a terminated 50 $\Omega$  cable.
- 4) Turn on the power supply and verify the output signal on the oscilloscope.

Evaluates: MAX4112/MAX4113

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## Detailed Description

### Voltage-Gain Adjustment

The MAX4112's gain can be adjusted with the following minor modifications to the EV board:

- 1) Referring to the section *Choosing Feedback and Gain Resistors* in the MAX4112/MAX4113 data sheet, select the gain-setting resistor ( $R_G$ ) for the desired gain.
- 2) Install  $R_G$ .

## Layout Considerations

The MAX4112 EV kit layout has been optimized for high-speed signals, with careful attention given to grounding, power-supply bypassing, and signal-path layout. The small, surface-mount, ceramic bypass capacitors C3–C6 have been placed close to the MAX4112 supply pins. The unused pins have been grounded to prevent unwanted noise from coupling into the circuit. The best performance from the MAX4112 was obtained using high-speed design techniques. Refer to the *Layout and Power-Supply Bypassing* section of the MAX4112/MAX4113 data sheet for details.

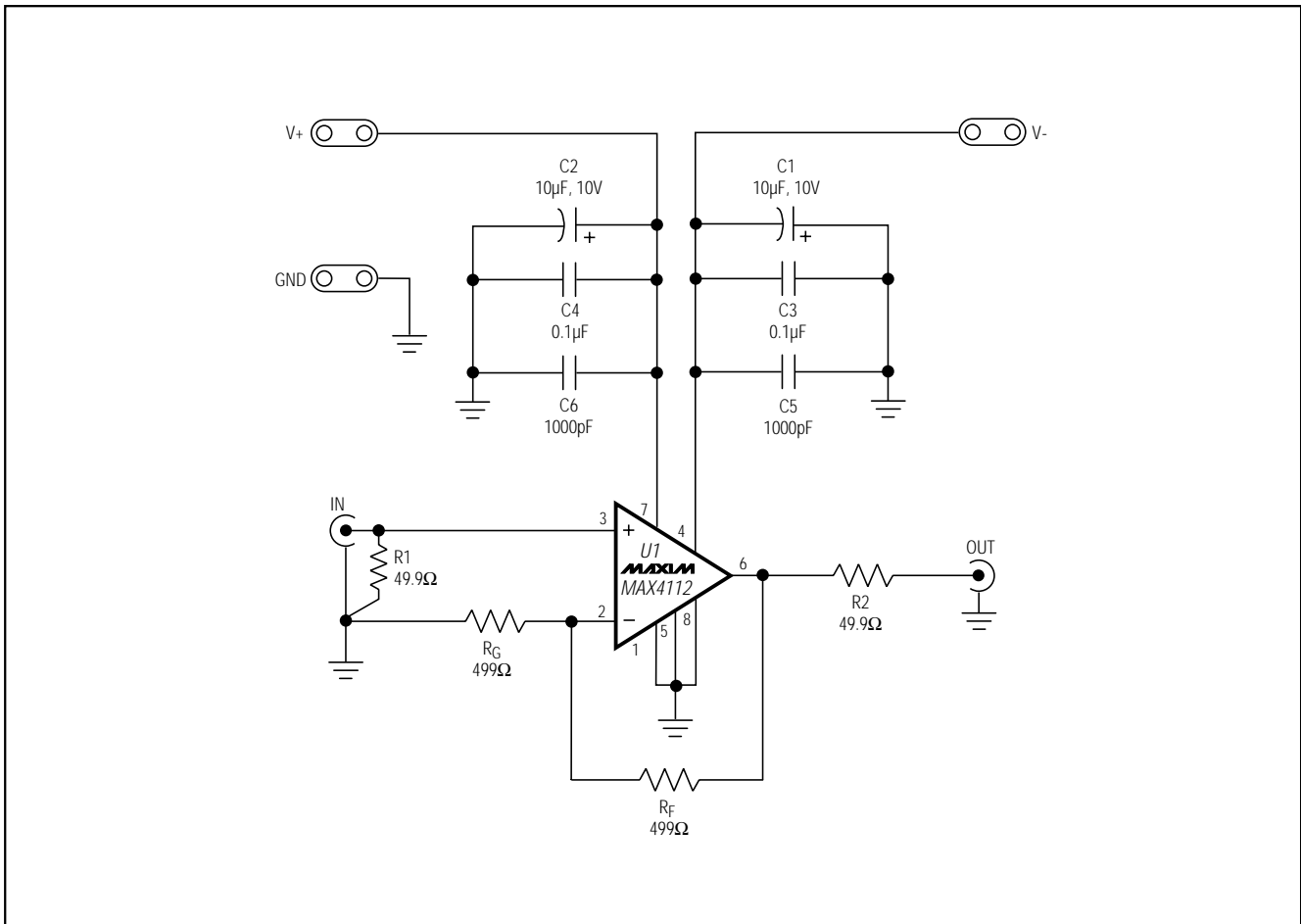


Figure 1. MAX4112 EV Kit Schematic

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Evaluates: MAX4112/MAX4113

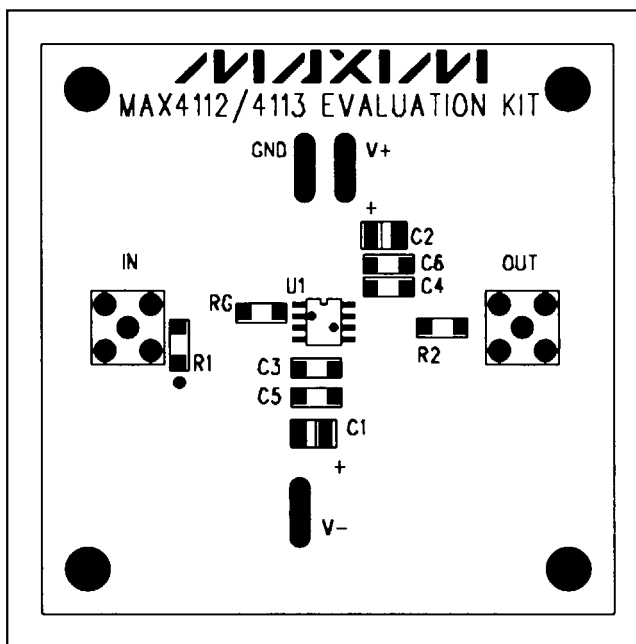


Figure 2. MAX4112 EV Kit Component Placement Guide—Component Side

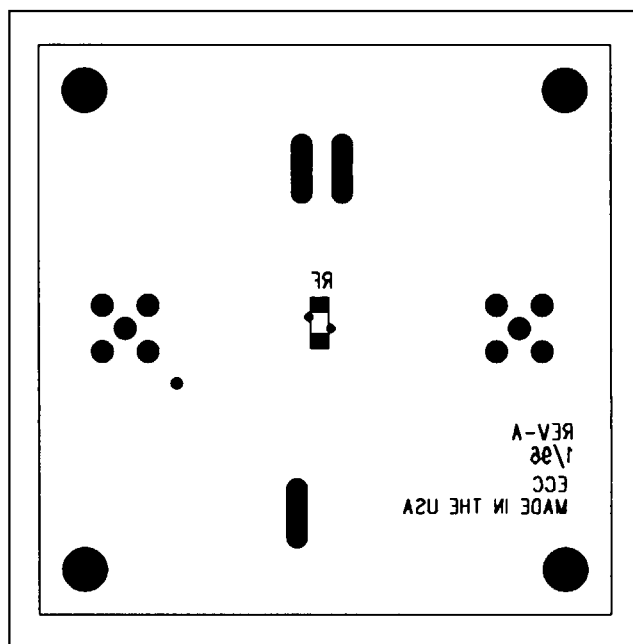


Figure 3. MAX4112 EV Kit Component Placement Guide—Solder Side

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Evaluates: MAX4112/MAX4113

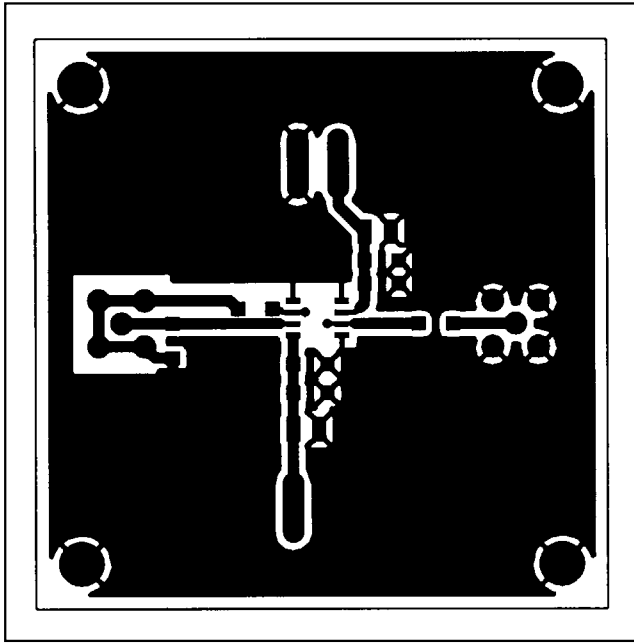


Figure 4. MAX4112 EV Kit PC Board Layout—Component Side

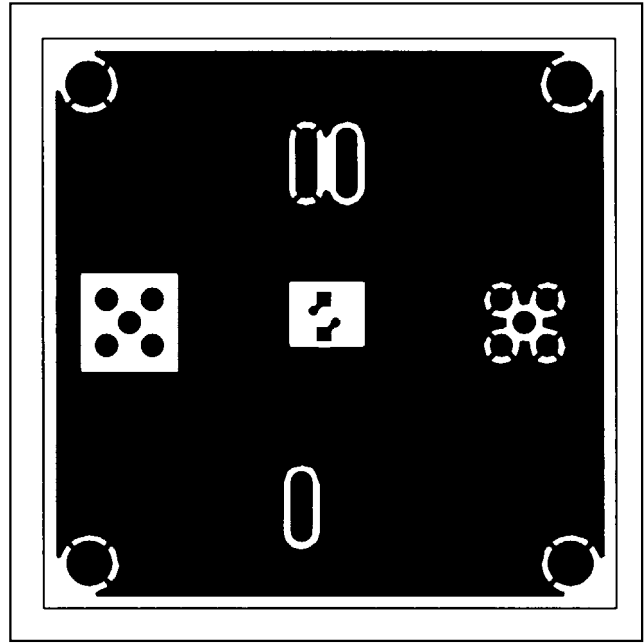


Figure 5. MAX4112 EV Kit PC Board Layout—Solder Side

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