

MAXIM

MAX4106 Evaluation Kit

General Description

The MAX4106 evaluation kit (EV kit) simplifies evaluation of the MAX4106 high-speed amplifier. The EV kit circuit demonstrates the MAX4106 in the noninverting configuration set to a gain of +5V/V. RF-style connectors (SMA) and 75Ω terminating resistors are included for video test equipment compatibility.

The EV kit comes with the MAX4106 installed. To evaluate the MAX4107, simply order a free sample (MAX4107ESA), replace the MAX4106 with the MAX4107 on the EV board, and change the gain-setting resistors for the desired gain. The minimum closed-loop gain for the MAX4107 is +10V/V.

Component List

DESIGNATION	QTY	DESCRIPTION
U1	1	Maxim MAX4106ESA
C1, C6	2	10μF, 10V, 20% tantalum capacitors AVX TAJB106M010 or Sprague 293D106X0010B
C2, C5	2	0.1μF, 10% ceramic capacitors Vitramon VJ1206Y104KXX
C3, C4	2	1000pF, 10% ceramic capacitors Vitramon VJ1206Y102KXX
R1, R2	2	75Ω, 5% resistors
R _F	1	120Ω, 5% resistor
R _G	1	30Ω, 5% resistor
IN, OUT	1	SMA connectors
None	1	High-frequency-amplifier PC board
None	1	MAX4106/MAX4107 data sheet
None	1	Shunt
J1	1	3-pin jumper

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

- ♦ 350MHz Bandwidth ($A_{VCL} = +5V/V$)
- ♦ Optional Adjustable Gain
- ♦ Fully Assembled and Tested

Ordering Information

PART	TEMP. RANGE	BOARD TYPE
MAX4106EVKIT-SO	+25°C	Surface Mount

Note: To evaluate the MAX4107, request a MAX4107ESA free sample.

Quick Start

The MAX4106 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 ±5V. Connect these supplies to the corresponding pads marked V+ and V-. Connect the power-supply ground to the pad marked GND.
- 2) Verify that the J1 shunt is across pins 2 and 3 of the 3-pin jumper J1.
- 3) Apply a signal no greater than ±0.64V_{PK} (4.4dBm) to the SMA connector marked IN.
- 4) Connect the output marked OUT to an oscilloscope through a terminated 75Ω cable.
- 5) Turn on the power supply and verify the output signal on the oscilloscope.

Evaluates: MAX4106/MAX4107

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Detailed Description

Voltage-Gain Adjustment

The MAX4106's gain can be adjusted with the following minor modifications to the EV board:

- 1) Referring to Table 1, select the feedback (R_F) and gain-setting (R_G) resistors with the desired gain.
- 2) Install R_F and R_G .

Table 1. Gain-Setting Resistors

DEVICE	GAIN	R_F (Ω)	R_G (Ω)	SMALL-SIGNAL BANDWIDTH (MHz)
MAX4106	5	120	30	350
MAX4107	10	240	27	275
MAX4107	20	560	30	120

Shutdown Control

The MAX4106/MAX4107 EV kit is a standard EV kit used for many of Maxim's high-speed op amps. As a result, a shutdown (SHDN) function is incorporated on the EV kit, but does not apply to the MAX4106/MAX4107. Because the shutdown control is not applicable to the MAX4106/MAX4107, verify that a shunt is connected to pins 2 and 3 of jumper J1.

Layout Considerations

The MAX4106 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 C2–C5 have been placed as close to the MAX4106 supply pins as possible. The unused pins have been grounded to prevent unwanted noise from coupling into the circuit.

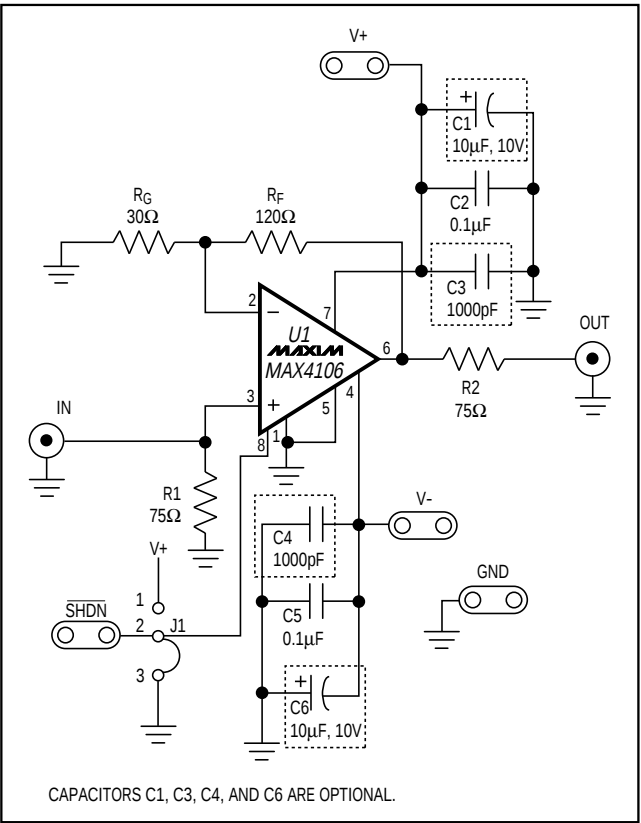


Figure 1. MAX4106 EV Kit Schematic

MAX4106 Evaluation Kit

Evaluates: MAX4106/MAX4107

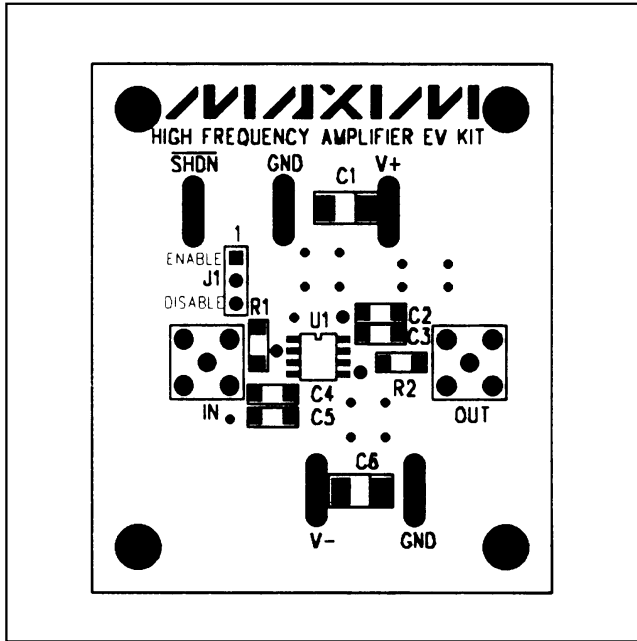


Figure 2. MAX4106 EV Kit Component Placement Guide—Component Side

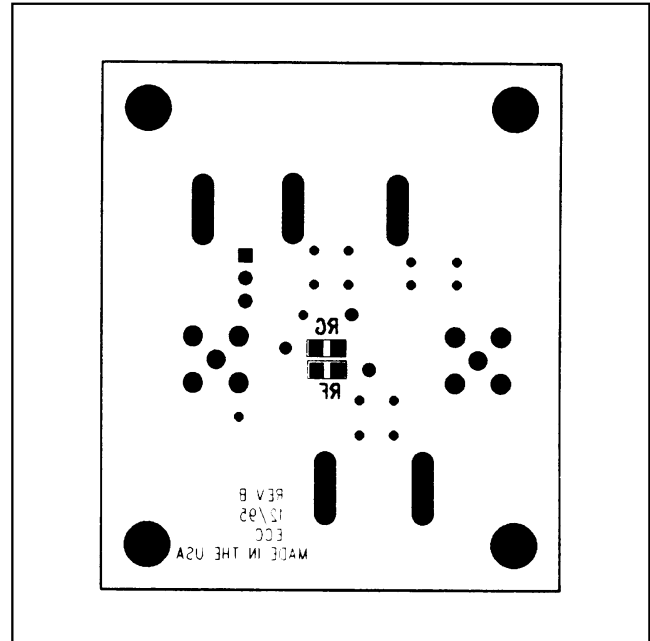


Figure 3. MAX4106 EV Kit Component Placement Guide—Solder Side

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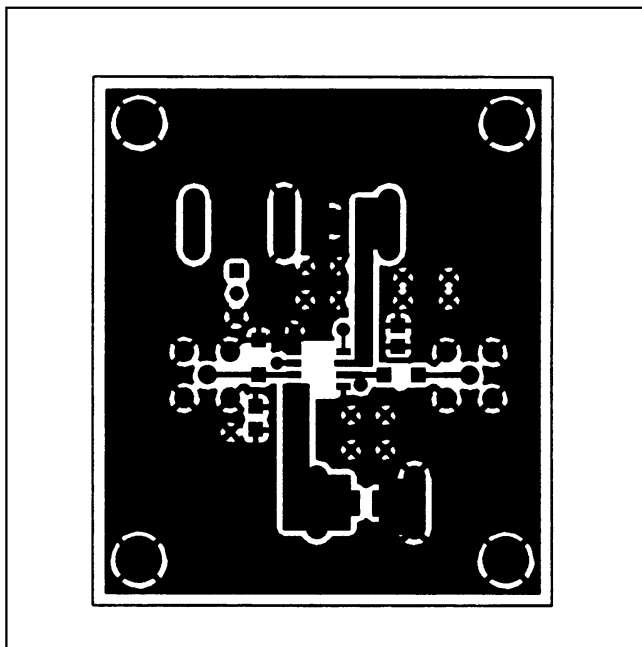


Figure 4. MAX4106 EV Kit PC Board Layout—Component Side

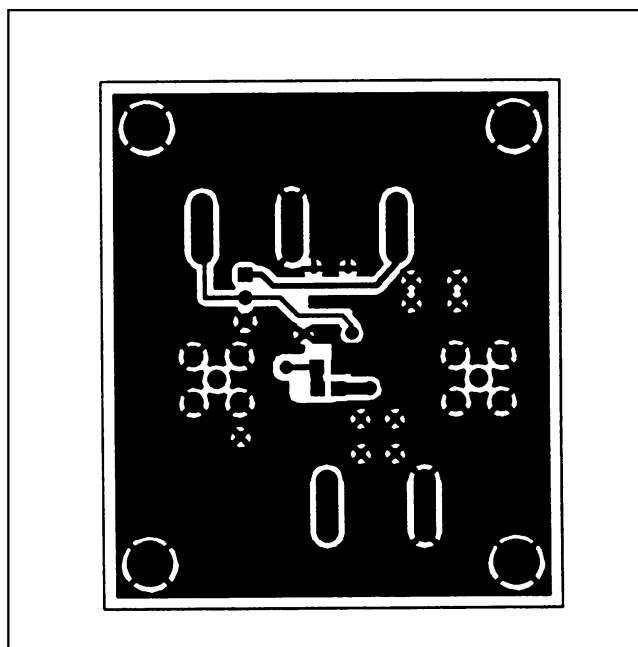


Figure 5. MAX4106 EV Kit PC Board Layout—Solder Side

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