



# MAX4159 Evaluation Kit

Evaluates: MAX4159/MAX4259

## General Description

The MAX4159 evaluation kit (EV kit) simplifies evaluation of the MAX4159 two-channel, 350MHz video multiplexer (mux) amplifier. The EV kit circuit demonstrates the MAX4159 in the noninverting unity-gain configuration. RF connectors (SMA) and 50Ω terminating resistors are included.

The EV kit comes with the MAX4159 installed. To evaluate the MAX4259, simply order a free sample (MAX4259ESD), replace the MAX4159 with the MAX4259 on the EV board, and change the gain-setting resistors for the desired gain. The MAX4259's minimum closed-loop gain is 2V/V (6db).

## Component List

DESIGNATION	QTY	DESCRIPTION
C1, C4	2	0.1μF, 10% ceramic capacitors
C2, C3	2	10μF, 10V, 20% tantalum capacitors AVX TAJB106M010 or Sprague 293D106X0010B
IN0, IN1, OUT	3	SMA connectors
R1, R2, R3	3	49.9Ω, 1% resistors
RF	1	430Ω, 1% resistor
RG	0	Open
SW1	1	DIP switch
U1	1	MAX4159ESD
None	1	MAX4159 data sheet
None	1	MAX4159 PC board

## Component Suppliers

SUPPLIER	PHONE	FAX
AVX	(803) 946-0690	(803) 626-3123
Sprague	(603) 224-1961	(603) 224-1430

## Features

- ◆ 350MHz -3dB Bandwidth
- ◆ 100MHz 0.1dB Gain Flatness
- ◆ 700V/μs Slew Rate
- ◆ 0.01%/0.01° Differential Gain/Phase Error
- ◆ Directly Drives 50Ω Cables
- ◆ Fully Assembled and Tested
- ◆ Low Power: 100mW
- ◆ 20ns Settling Time to 0.1%
- ◆ 20ns Channel-Switching Time

## Ordering Information

PART	TEMP. RANGE	BOARD TYPE
MAX4159EVKIT-SO	-40°C to +85°C	Surface Mount

## Quick Start

The MAX4159 EV kit is fully assembled and tested. Follow these steps to verify board operation.

- 1) Set all switches on DIP switch SW1 to the logic-low (off) position.
- 2) Connect the power-supply grounds to the pad marked GND. Connect a +5V supply to the pad marked V+ and a -5V supply to the pad marked V-.
- 3) Connect the output marked OUT to a 50Ω terminated oscilloscope input.
- 4) Turn on the power supply. Apply a signal of ±2.5V (max) to the SMA connector marked IN0.
- 5) Verify the output signal on the oscilloscope. The output amplitude will be half that on the input, due to the voltage divider formed by the 49.9Ω back-terminating resistor (R3) and the oscilloscope input termination.



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## Detailed Description

### Evaluating the MAX4259

The MAX4159 EV kit can also be used to evaluate the MAX4259. Simply replace the MAX4159 with the MAX4259 and change the gain-setting resistors for the desired gain ( $2V/V$  min). Refer to the *Choosing Feedback and Gain Resistors* section of the MAX4158/MAX4159/MAX4258/MAX4259 data sheet for more information.

### Logic Controls

The MAX4159 EV kit has control logic for input channel address (A0), input latch enable (LE), and output enable ( $\overline{EN}$ ). DIP switch SW1 provides simple manual control of these inputs by switching each input to  $V+$  (logic inputs default low when the circuit is open). Table 1 lists the options available with SW1. An external controller can be used by connecting the controller to the appropriate user pad and opening the corresponding switch (SW1<sub>i</sub>). A0, LE, and  $\overline{EN}$  are TTL/CMOS-compatible logic-level inputs.

### Layout Considerations

The MAX4159 EV kit layout is optimized for high-speed signals and low distortion, with careful attention given to grounding, power-supply bypassing, and signal-path layout. The small, surface-mount, ceramic bypass capacitors (C1, C4) are located as close to the MAX4159 supply pins as possible. The ground plane has been removed around and under  $R_F$  and  $R_G$  to reduce stray capacitance. Removing the ground plane around the input SMA connectors reduces distortion.

**Table 1. SW1 Settings**

LOGIC INPUTS	SW1 SETTINGS	
	LOGIC LOW	LOGIC HIGH
A0	Input channel 0 selected	Input channel 1 selected
LE	Input address transparent	Input address latched
$\overline{EN}$	Output enabled	Output disabled (high impedance)

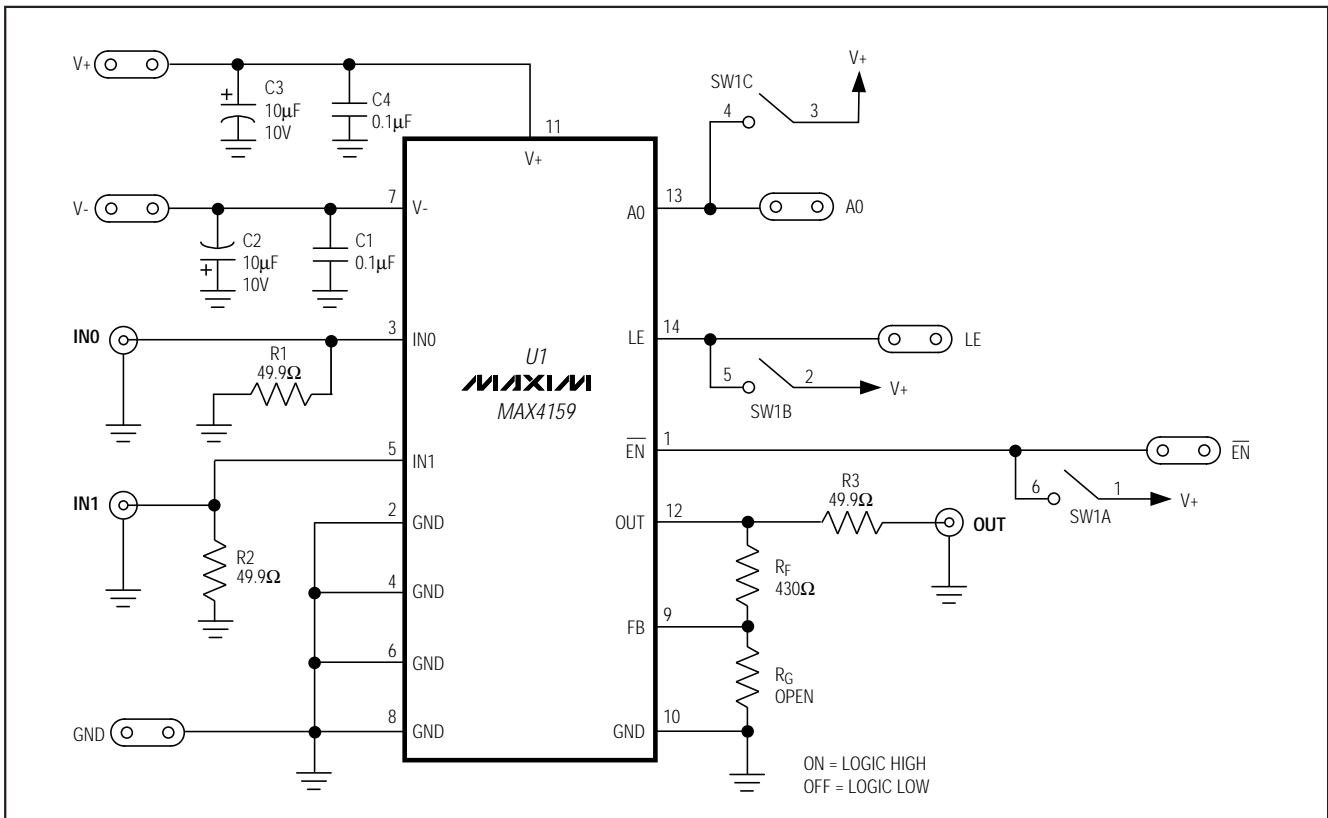


Figure 1. MAX4159 EV Kit Schematic

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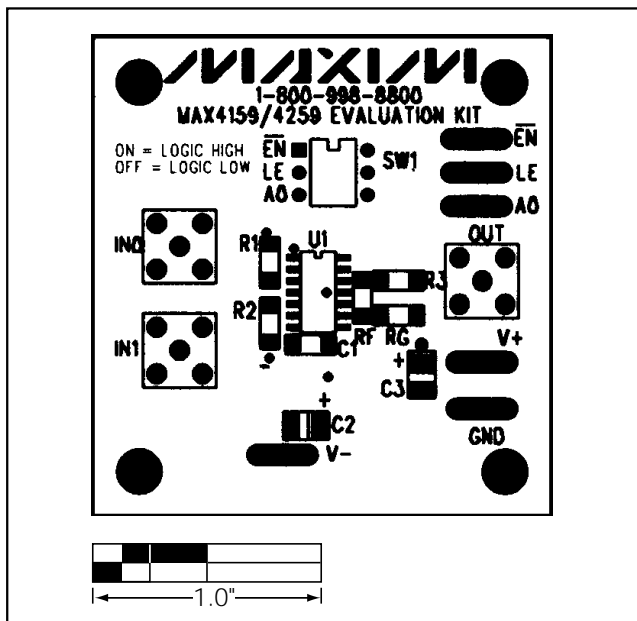


Figure 2. MAX4159 EV Kit Component Placement Guide—Component Side

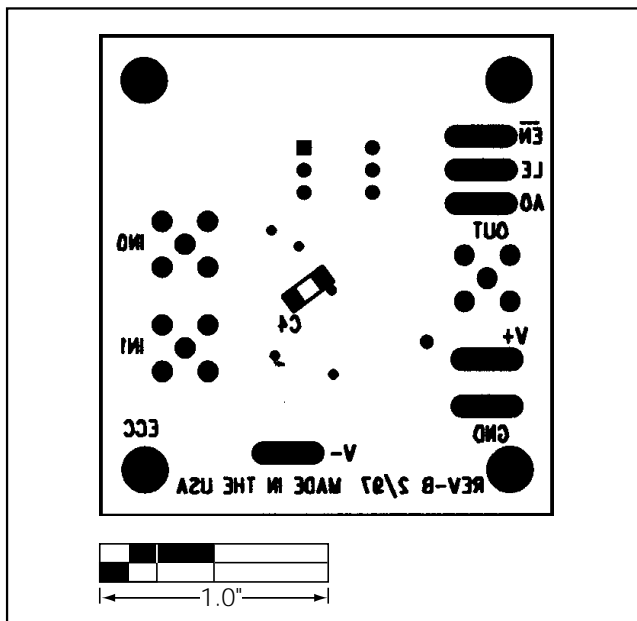


Figure 3. MAX4159 EV Kit Component Placement Guide—Solder Side

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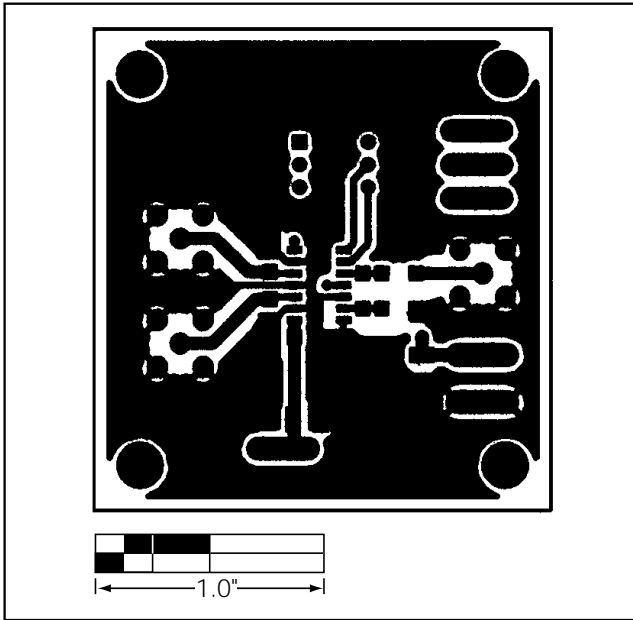


Figure 4. MAX4159 EV Kit PC Board Layout—Component Side

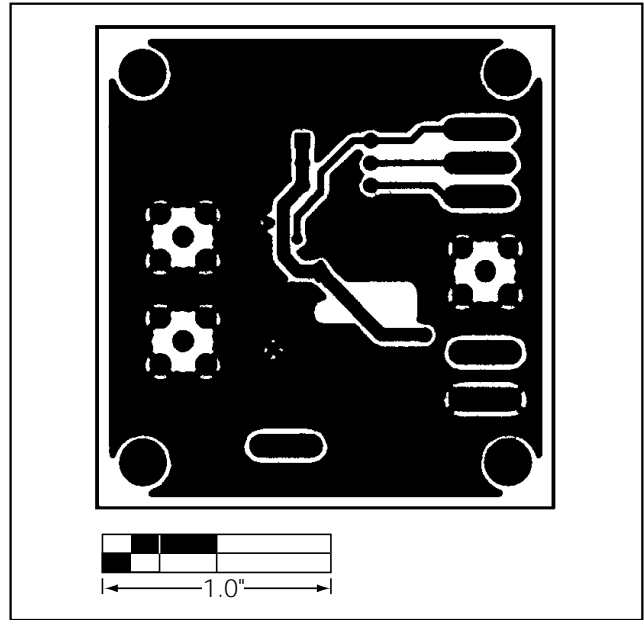


Figure 5. MAX4159 EV Kit PC Board Layout—Solder Side

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