



# MAX4090 Evaluation Kit

Evaluates: MAX4090

## General Description

The MAX4090 evaluation kit (EV kit) provides a proven design to evaluate the MAX4090 3V/5V, 6dB video buffer with sync-tip clamp. The MAX4090 video input terminals have a 75Ω termination resistor to ground, and the output terminals have a 75Ω back-termination resistor. The EV kit operates from a single 2.7V to 5V DC power supply.

The MAX4090 EV kit uses the sag correction configuration. The video input and output signals on the EV kit are AC-coupled.

The MAX4090 can also be used to drive DC-coupled, 150Ω back-terminated video loads in portable video applications. See the *Output Signal* section to use the MAX4090 as a DC-coupled output driver.

The MAX4090 EV kit PCB comes with the MAX4090AAUT+ installed. The MAX4090 EV kit can also be used to evaluate the MAX4090EUT+. Contact the factory for free samples of the pin-compatible MAX4090EUT+ device.

## Features

- ◆ Output Amplifiers with a +6dB Gain
- ◆ Single 2.7V to 5V Supply Operation
- ◆ Jumper-Selectable Enable/Shutdown
- ◆ AC-Coupled Inputs
- ◆ DC- or AC-Coupled Outputs
- ◆ Standard 75Ω Input/Output Terminations
- ◆ Surface-Mount Components
- ◆ Lead(Pb)-Free and RoHS Compliant
- ◆ Fully Assembled and Tested

## Ordering Information

PART	TYPE
MAX4090EVKIT+	EV Kit

+Denotes lead(Pb)-free and RoHS compliant.

## Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	0.1μF ±10%, 16V X7R ceramic capacitors (0603) TDK C1608X7R1C104K
C3, C4	2	22μF ±10%, 16V X5R ceramic capacitors (1210) Murata GRM32ER61C226K
C5	1	Not installed, capacitor (6.3mm x 6mm)
C6	1	10μF ±10%, 6.3V X5R ceramic capacitor (0603) Murata GRM188R60J106K

DESIGNATION	QTY	DESCRIPTION
IN, OUT	2	75Ω BNC female jacks
JU1	1	3-pin header
R1, R2	2	75Ω ±1% resistors (0603)
U1	1	Video buffer with sync-tip clamp (6 SOT23) Maxim MAX4090AAUT+
—	1	Shunt
—	1	MAX4090 Evaluation Kit+

## Component Suppliers

SUPPLIER	PHONE	WEBSITE
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com
TDK Corp.	847-803-6100	www.component.tdk.com

**Note:** Indicate that you are using the MAX4090 when contacting these component suppliers.

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## Quick Start

### Recommended Equipment

- 5V, 50mA DC power supply (VCC)
- Video signal generator (e.g., Tektronix TG-700 or similar)
- Video measurement equipment (e.g., Tektronix VM-700T or similar)

### Procedure

The MAX4090 EV kit is fully assembled and tested. Follow the steps below to verify board operation.

**Caution: Do not turn on the power supply until all connections are completed.**

- 1) Verify that a shunt is installed on jumper JU1 in the 1-2 position (MAX4090A enabled).
- 2) Connect the output of the video signal generator to the IN BNC connector on the MAX4090 EV kit.
- 3) Connect the OUT BNC connector on the EV kit to the input of the video measurement equipment.
- 4) Connect the power-supply ground to the GND pad on the EV kit.
- 5) Connect the 5V DC power supply to the VCC pad on the EV kit.
- 6) Set the video signal generator for the desired video input signal.
- 7) Turn on the power supply and enable the video signal generator.
- 8) Analyze the video output signal with the video measurement equipment.

## Detailed Description of Hardware

The MAX4090 evaluation kit (EV kit) provides a proven design to evaluate the MAX4090 3V/5V, 6dB video buffer with sync-tip clamp. The MAX4090 video input terminals have a  $75\Omega$  termination resistor to ground, and the output terminals have a  $75\Omega$  back-termination resistor.

The MAX4090 EV kit uses the sag correction configuration. The video input and output signals on the EV kit are AC-coupled.

The MAX4090 can also be used to drive DC-coupled,  $150\Omega$  back-terminated video loads in portable video applications. See the *Output Signal* section to use the MAX4090 as a DC-coupled output driver.

### Output Signal

By default, the MAX4090 EV kit is configured in the sag correction configuration and the output is AC-coupled. To DC-couple the outputs, short the C3 and C4 capacitors. To AC-couple the output without using the sag correction configuration, short the C3 and C4 capacitors, cut the short on C5, and install a  $220\mu\text{F}$  capacitor on C5.

### Jumper Selection

#### Shutdown Mode ( $\overline{\text{SHDN}}$ )

Jumper JU1 controls the shutdown pin ( $\overline{\text{SHDN}}$ ) of the MAX4090A IC. See Table 1 for shunt positions.

**Table 1. JU1 Jumper Selection ( $\overline{\text{SHDN}}$ )**

SHUNT POSITION	DESCRIPTION
1-2*	$\overline{\text{SHDN}}$ pin connected to VCC MAX4090A enabled
2-3	$\overline{\text{SHDN}}$ pin connected to GND MAX4090A in shutdown mode

\*Default position.

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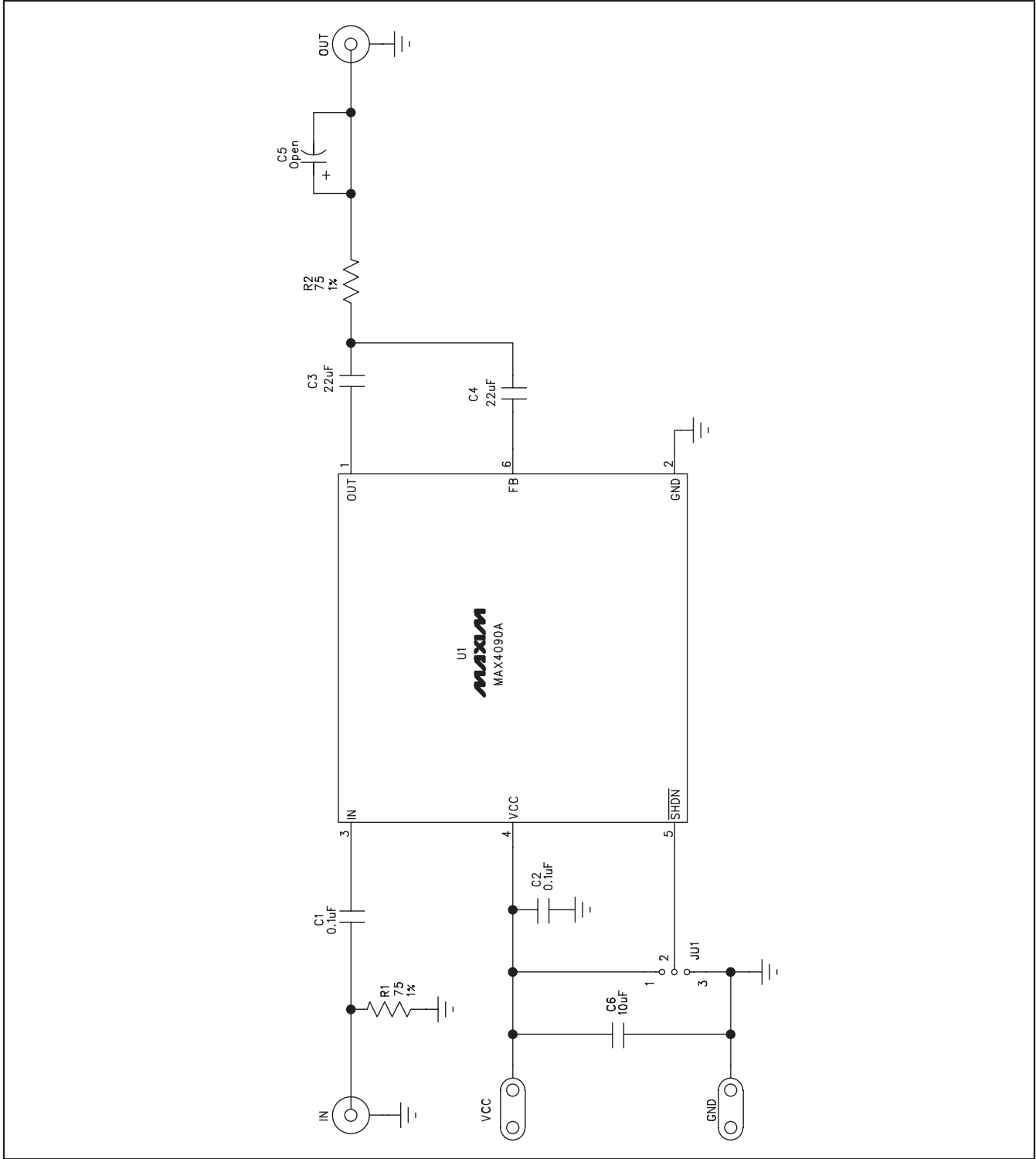


Figure 1. MAX4090 EV Kit Schematic

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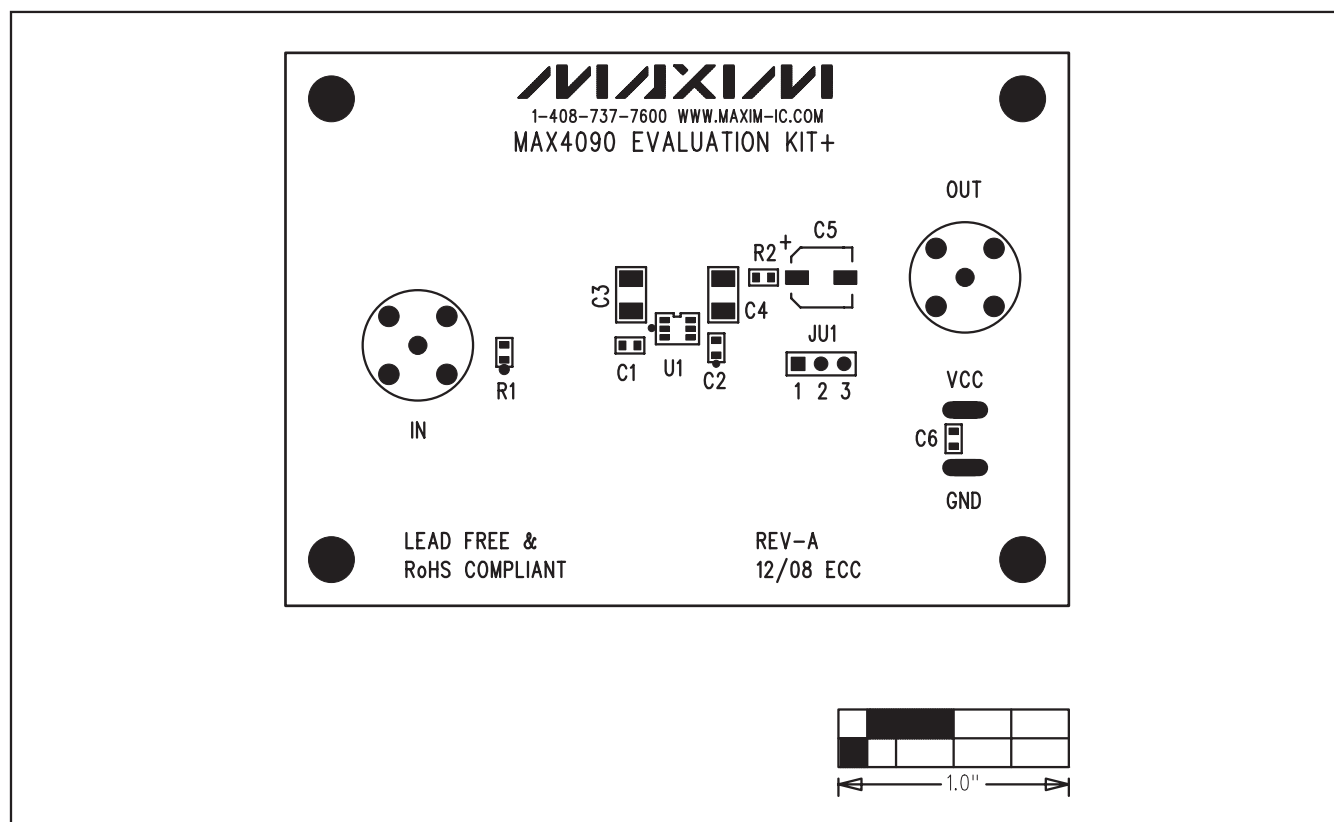


Figure 2. MAX4090 EV Kit Component Placement Guide—Component Side

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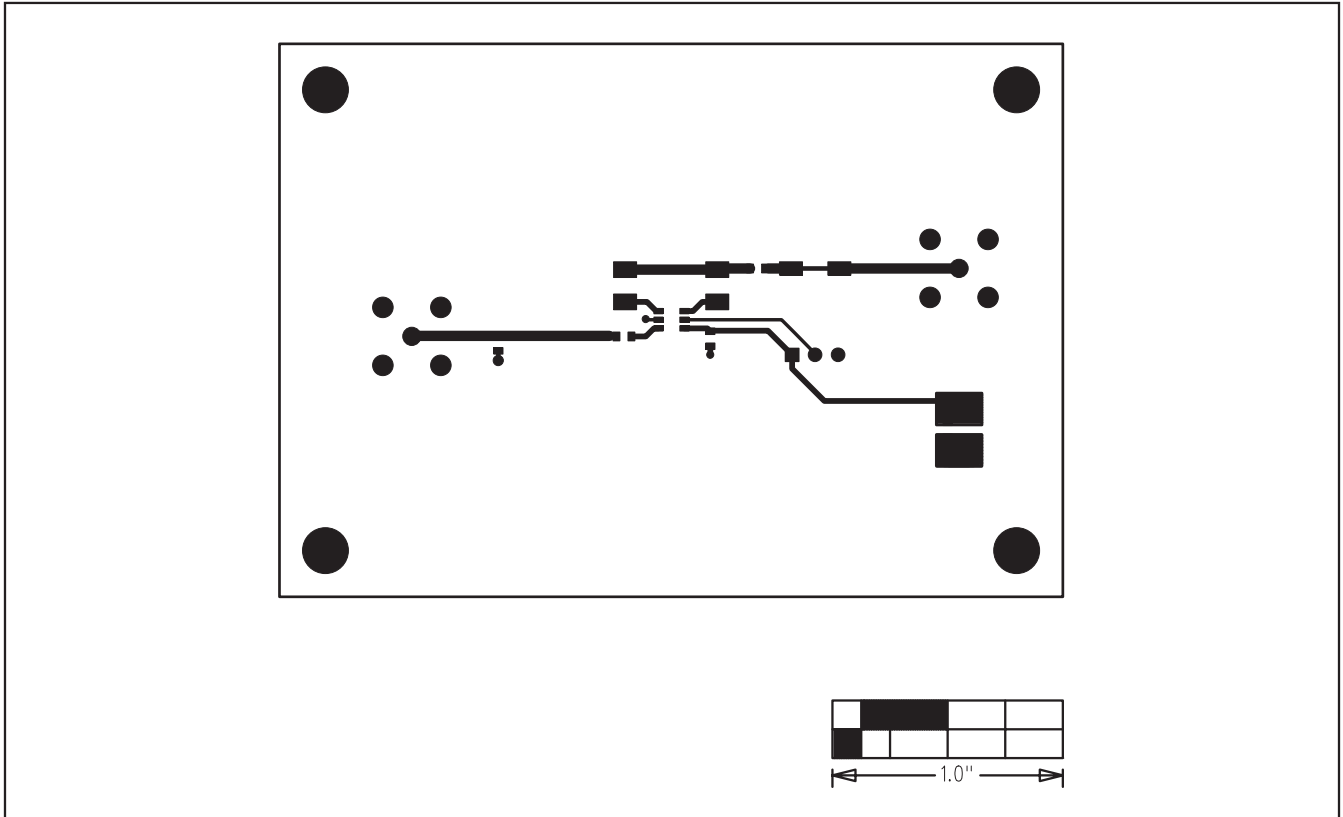


Figure 3. MAX4090 EV Kit PCB Layout—Component Side

# **MAX4090 Evaluation Kit**

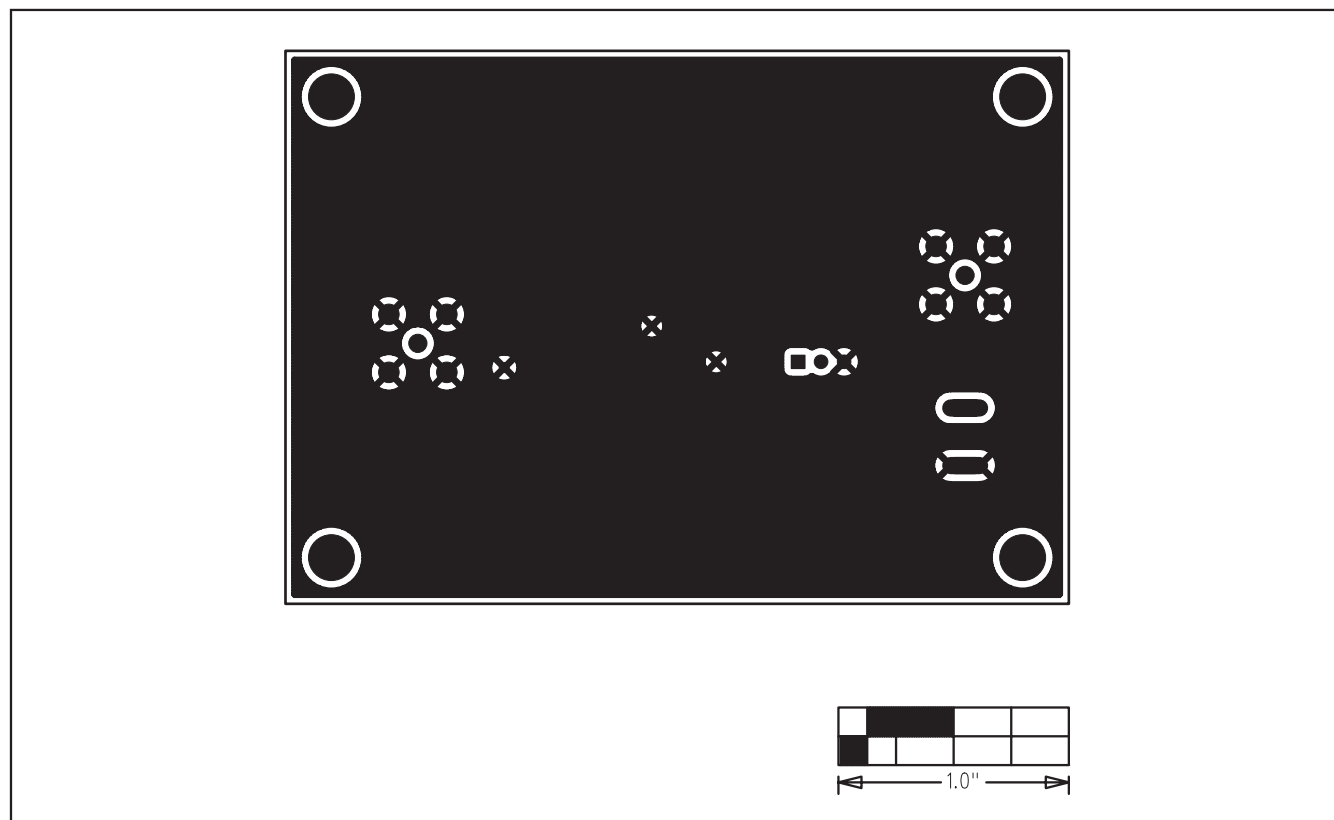


Figure 4. MAX4090 EV Kit PCB Layout—Solder Side

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