

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 75 Ω 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.

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.
- 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 75Ω termination resistor to ground, and the output terminals have a 75Ω 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, 150Ω 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 220µF capacitor on C5.

Jumper Selection

Shutdown Mode (SHDN)

Jumper JU1 controls the shutdown pin (SHDN) of the MAX4090A IC. See Table 1 for shunt positions.

Table 1. JU1 Jumper Selection (SHDN)

SHUNT POSITION	DESCRIPTION
1-2*	SHDN pin connected to VCC MAX4090A enabled
2-3	SHDN pin connected to GND MAX4090A in shutdown mode

^{*}Default position.

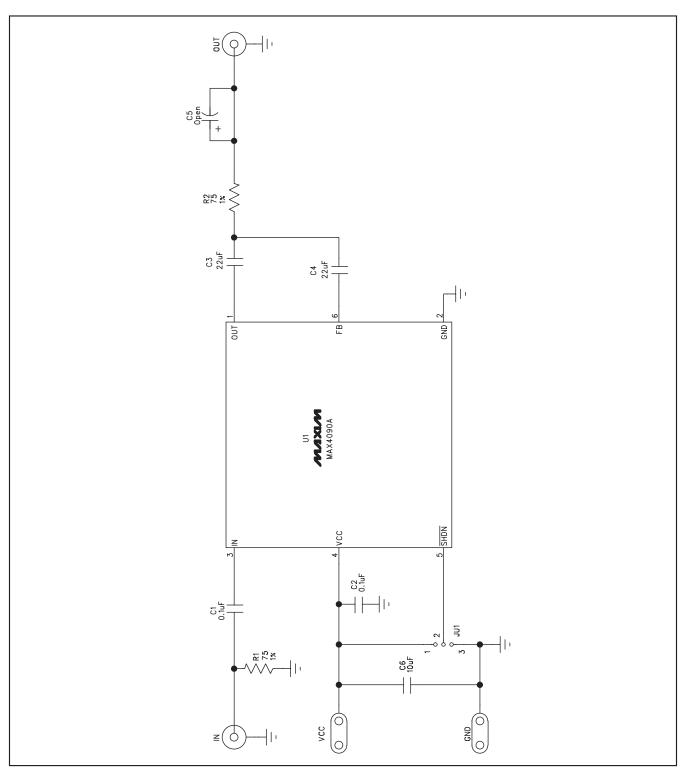


Figure 1. MAX4090 EV Kit Schematic

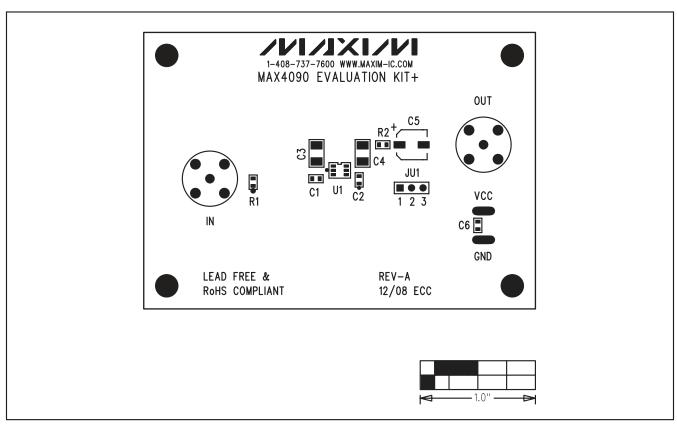


Figure 2. MAX4090 EV Kit Component Placement Guide—Component Side

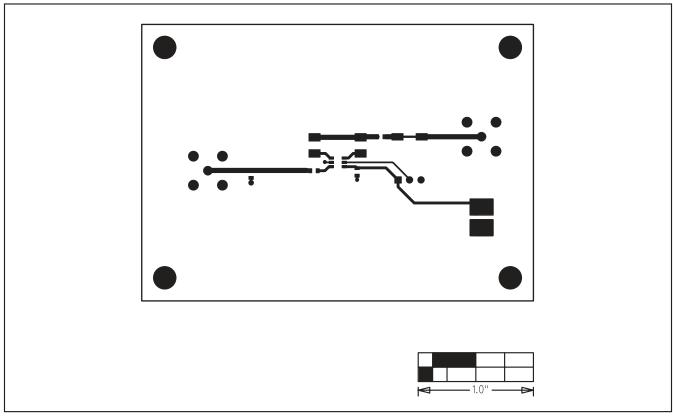


Figure 3. MAX4090 EV Kit PCB Layout—Component Side

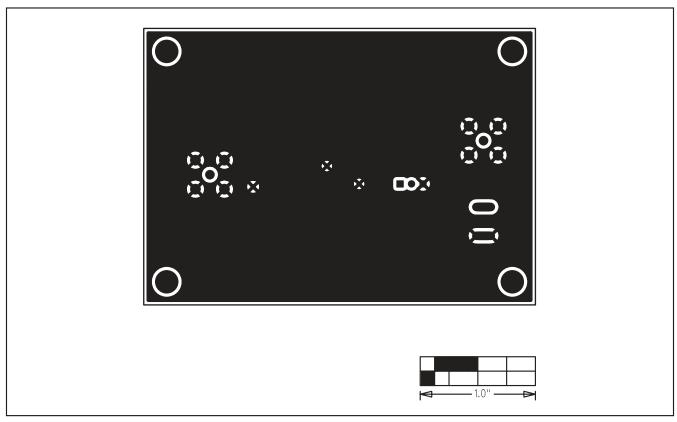


Figure 4. MAX4090 EV Kit PCB Layout—Solder Side

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