



# MAX9568 Evaluation Kit

Evaluates: MAX9568

## General Description

The MAX9568 evaluation kit (EV kit) is a fully assembled and tested surface-mount PCB that contains a MAX9568 IC. The MAX9568 is a video sync separator that extracts sync timing information from standard-definition (SDTV), extended-definition (EDTV), and high-definition (HDTV) component video signals.

The MAX9568 is a stand-alone device that requires no external components for timing or biasing. The high-impedance video input prevents loading of the input signal and eliminates the need for buffering. The MAX9568 operates from a 2.7V to 5.5V DC power supply.

## Features

- ◆ Single 2.7V to 5.5V DC Power-Supply Operation
- ◆ Stand-Alone Operation (No Timing Components Required)
- ◆ Covers All Major Video Standards: SDTV, EDTV, and HDTV
- ◆ Loss of Video Signal Detection
- ◆ Coast and Clamp Pulse Output
- ◆ High-Impedance Video Input
- ◆ Surface-Mount Components
- ◆ Evaluates the MAX9568 in a 16-Pin QSOP Package
- ◆ Fully Assembled and Tested

## Component List

DESIGNATION	QTY	DESCRIPTION
CVID_IN	1	50Ω BNC PCB-mount jack connector
CVIDIN	0	Not installed, test point
C1, C3	2	0.1μF ±10%, 16V X7R ceramic capacitors (0603) Murata GRM188R71C104K
C2	1	10μF ±20%, 6.3V X5R ceramic capacitor (0603) Murata GRM188R60J106M
C4	0	Not installed, capacitor (0603)
R1	1	75Ω ±1% resistor (0603)
R2	0	Not installed, resistor—short (PC trace) (0603)
U1	1	Video sync separator (16 QSOP) Maxim MAX9568EEE+
—	1	PCB: MAX9568 Evaluation Kit+

## Ordering Information

PART	TYPE
MAX9568EVKIT+	EV Kit

+Denotes lead-free and RoHS compliant.

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## Component Supplier

SUPPLIER	PHONE	WEBSITE
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com

**Note:** Indicate that you are using the MAX9568 when contacting this component supplier.

## Quick Start

### Required Equipment

Before beginning, the following equipment is needed:

- MAX9568 EV kit
- 3.3V, 150mA DC power supply (VCC)
- Video signal generator (e.g., Tektronix TG-2000 or similar)

### Procedure

The MAX9568 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) Set the power-supply output to 3.3V and turn off the power supply.
- 2) Connect the power-supply ground to the GND pad on the EV kit.
- 3) Connect the power-supply output to the VCC pad on the EV kit.
- 4) Connect the output of the video signal generator to the CVID\_IN BNC connector on the EV kit.
- 5) Set the video signal generator for the desired video input signal.
- 6) Turn on the power supply and enable the video signal generator.
- 7) To identify the video signal standard, use the silkscreen table on the EV kit, or see Table 1 and verify the logic level of the SDTV, HDTV, and HL pads on the EV kit.

## Detailed Description of Hardware

The MAX9568 EV kit contains a MAX9568 IC. The MAX9568 is a video sync separator that extracts sync timing information from SDTV, EDTV, and HDTV component video signals. The MAX9568 is a stand-alone device that requires no external components for timing or biasing. The MAX9568 has a high-impedance input that eliminates the need for buffering.

The MAX9568 EV kit's input is terminated at 75 $\Omega$  by resistor R1 and AC-coupled by capacitor C3. The EV kit also provides PCB footprints R2 and C4 for a lowpass filter at the video input. When a lowpass filter is

required at the input, cut open the PCB trace between the R2 PCB pad and install the appropriate filtering components on the R2 and C4 PCB pads. Refer to the *Chroma Filter* section in the MAX9568 IC data sheet for additional information.

### Composite Sync Output (CSYNCOUT)

The MAX9568 EV kit provides a composite sync output (CSYNCOUT) PCB pad to access the composite sync waveform of the video input signal. The composite sync waveform is the video input waveform with the active video removed. The CSYNCOUT outputs a logic-low whenever sync is detected.

### Vertical Sync Output (VSYNCOUT)

The MAX9568 EV kit provides a vertical sync output (VSYNCOUT) PCB pad to access the vertical sync waveform of the video input signal. The vertical sync waveform defines the beginning of a new frame in the video input signal. The VSYNCOUT outputs a logic-low whenever a vertical sync pulse interval is detected.

### Horizontal Sync Output (HSYNCOUT)

The MAX9568 EV kit provides a horizontal sync output (HSYNCOUT) PCB pad to access the horizontal sync waveform of the video input signal. The horizontal sync waveform defines the beginning of a new line in the video input signal. The HSYNCOUT outputs a logic-low whenever a horizontal sync pulse is detected.

### Television Standard Detection (SDTV, HDTV, HL)

The MAX9568 EV kit provides three PCB pads to indicate the standard of the component video signal at the input. They are the standard-definition television (SDTV), high-definition television (HDTV), and the number of horizontal lines (HL).

The SDTV PCB pad outputs a logic-high to indicate standard-definition television, while SDTV output low indicates extended-definition or high-definition television.

The HDTV PCB pad outputs a logic-high to indicate high-definition television, while HDTV output low indicates standard-definition or extended-definition television.

The HL PCB pad outputs a logic-high to indicate 625i, 625p/576p, and 1080i standards, while HL output low indicates 525i, 525p/480p, and 720p standards (see Table 1).

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**Table 1. Video Standard Output Decoding**

TV STANDARD	CLASSIFICATION	MAX9568 EV KIT OUTPUT PADS			
		FR	SDTV	HDTV	HL
525i	SDTV	High	High	Low	Low
625i	SDTV	Low	High	Low	High
525p/480p	EDTV	High	Low	Low	Low
625p/576p	EDTV	Low	Low	Low	High
720p	HDTV	High	Low	High	Low
1080i/60	HDTV	High	Low	High	High
1080i/50	HDTV	Low	Low	High	High

## **Frame Rate Output (FR)**

The MAX9568 EV kit provides a frame rate output (FR) PCB pad to indicate the frame rate of the video input signal. The FR PCB pad outputs a logic-high when the frame rate is 60Hz, and a logic-low when the frame rate is 50Hz (see Table 1).

## **Loss-of-Sync Output (LOS)**

The MAX9568 EV kit provides a loss-of-sync output (LOS) PCB pad to indicate the presence of a valid video input signal. The LOS PCB pad outputs a logic-low when there is no valid sync or video signal at the input, and a logic-high when a valid video sync pulse is detected.

## **Clamp Pulse Output (CLAMP)**

The MAX9568 EV kit provides a clamp pulse output (CLAMP) PCB pad to output a black-level clamping signal. The CLAMP PCB pad outputs a logic-low when the clamp signal is present.

## **Coast (COAST)**

The MAX9568 EV kit provides a coast (COAST) PCB pad for the coast output signal. The COAST PCB pad outputs a logic-low during the vertical interval to control a phase-locked loop (PLL) oscillator to enable it to coast through the vertical interval.

## **Odd and Even Field Detection (ODD/EVEN)**

The MAX9568 EV kit provides an odd and even field detection (ODD/EVEN) PCB pad to indicate the odd or even field of an interlaced video signal. The ODD/EVEN PCB pad outputs a logic-high to indicate an even field, and a logic-low to indicate an odd field.

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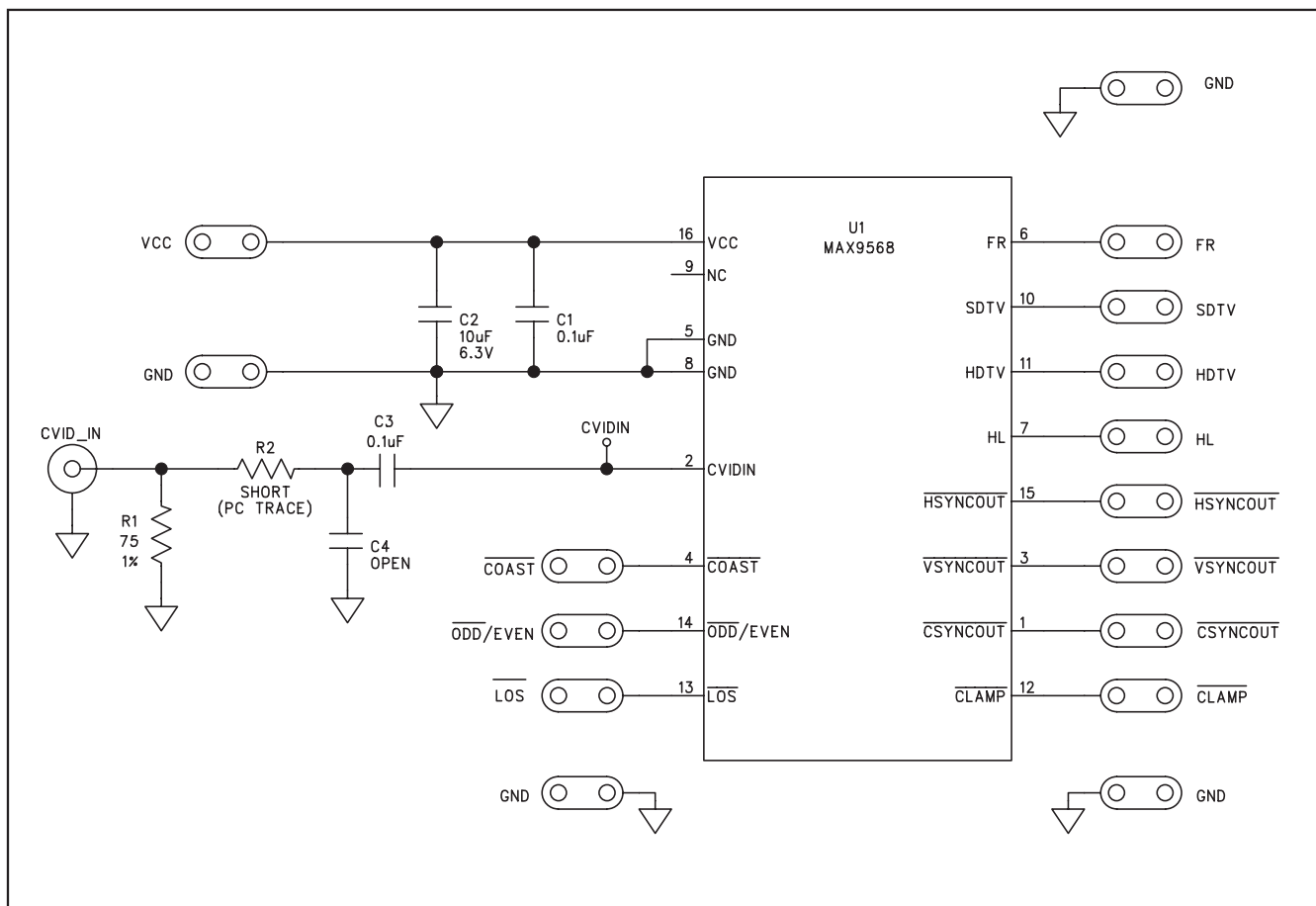


Figure 1. MAX9568 EV Kit Schematic

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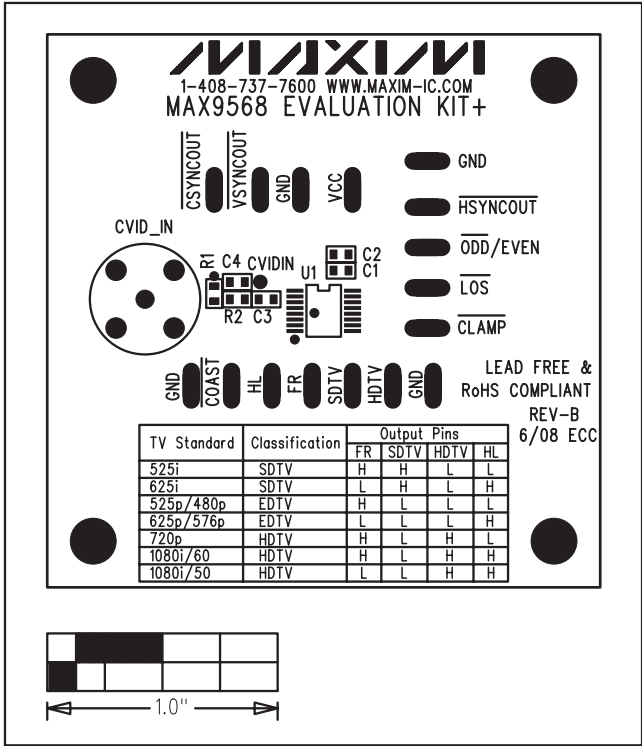


Figure 2. MAX9568 EV Kit Component Placement Guide—Component Side

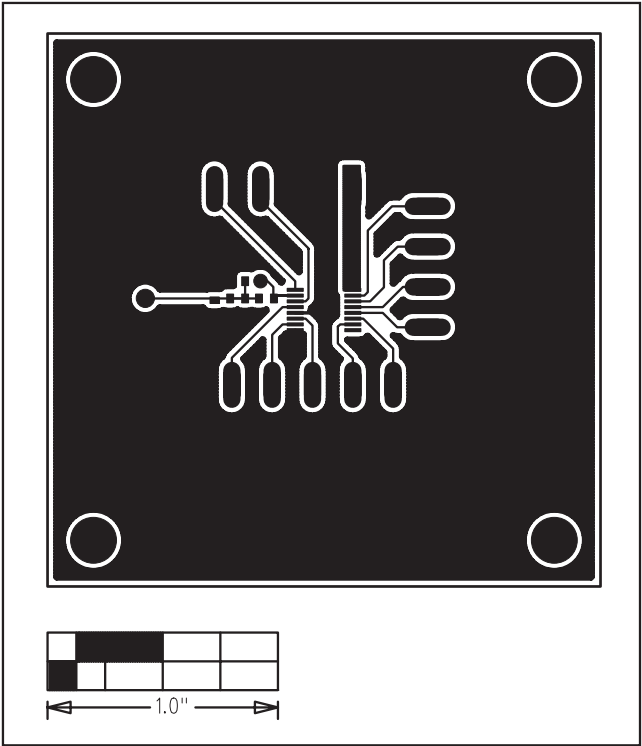


Figure 3. MAX9568 EV Kit PCB Layout—Component Side

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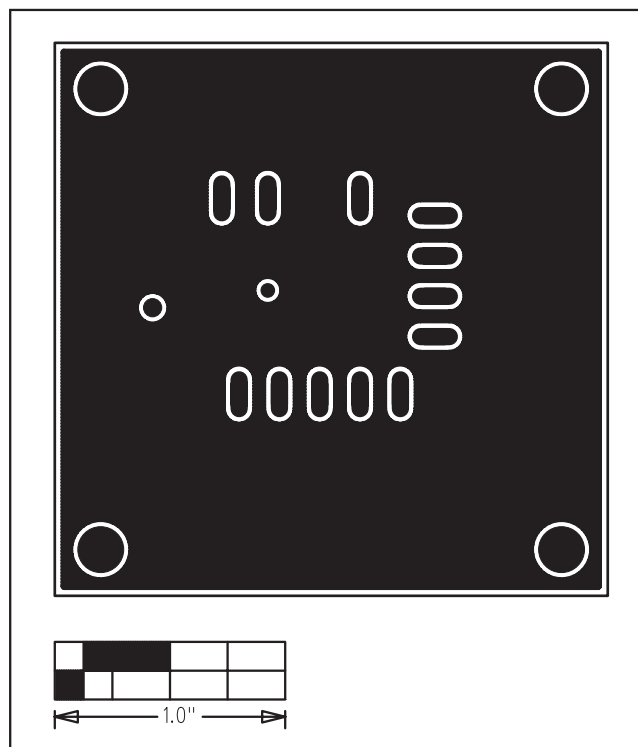


Figure 4. MAX9568 EV Kit PCB Layout—Solder Side

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