



# MAX9719A Evaluation Kit

**Evaluates: MAX9719A/B/C/D**

## General Description

The MAX9719A evaluation kit (EV kit) is a fully assembled and tested circuit board that uses the MAX9719A stereo, differential audio amplifier to drive a pair of bridge-tied-load (BTL) speakers in portable audio applications. Designed to operate from a 2.7V to 5.5V DC power supply, the EV kit is capable of delivering 2 x 1.1W into a pair of 8Ω speakers.

The MAX9719A inputs can accept a common-mode input voltage of 0.5V through ( $V_{CC} - 1.2V$ ) from a DC-coupled source, therefore eliminating the need for input-signal coupling capacitors. The EV kit provides an option to bypass the input-signal coupling capacitors when the DC offset level of the input signals is within an acceptable range. The MAX9719A EV kit also evaluates the MAX9719B, MAX9719C, and MAX9719D.

## Component List

DESIGNATION	QTY	DESCRIPTION
A1	0	MAX9719AEBE (16-pin UCSP)
C1–C4	4	0.47μF ±20%, 16V film chip capacitors (1206) Panasonic ECPU1C474MA5
C5	1	10μF ±20%, 6.3V X5R ceramic capacitor (0805) TDK C2012X5R0J106M
C6, C7	2	1μF ±10%, 10V X5R ceramic capacitors (0603) TDK C1608X5R1A105K
C8	1	0.1μF ±10%, 25V X7R ceramic capacitor (0603) TDK C1608X7R1E104K
C9–C12	0	Not installed, capacitors (0603)
R1–R8	8	10kΩ ±1% resistors (0603)
U1	1	MAX9719AETE (16-pin TQFN)
JU1–JU4	4	2-pin headers
JU5	1	3-pin header
None	5	Shunts
None	1	MAX9719A PC board

## Features

- ◆ Also Evaluates the MAX9719B/C/D (IC and Component Replacement Required)
- ◆ 2.7V to 5.5V Single-Supply Operation
- ◆ Drives 2 x 1.1W Into Stereo 8Ω Speakers at 1% THD+N
- ◆ Differential Inputs
- ◆ 100nA Shutdown Current (typ)
- ◆ Small 16-Pin TQFN (4mm x 4mm) Package
- ◆ Also Available in 16-Bump UCSP and 16-Pin TSSOP-EP Packages
- ◆ Fully Assembled and Tested

## Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX9719AEVKIT	0°C to +70°C	16-TQFN-EP* (4mm x 4mm)

\*EP = Exposed paddle.

## Quick Start

The MAX9719A EV kit is fully assembled and tested. Follow the steps listed below to verify board operation. **Do not turn on the power supply until all connections are completed.**

### Recommended Equipment

- 2.7V to 5.5V, 3A power supply
  - Audio signal source with stereo outputs
  - Two 8Ω speakers
- 1) Verify that no shunts are installed on jumpers JU1–JU4 (input-signal coupling capacitors are in circuit).
  - 2) Verify that a shunt is installed across pins 1 and 2 of jumper JU5 (EV kit ON).
  - 3) Connect the first 8Ω speaker across the OTR+ and OTR- PC board pads.
  - 4) Connect the second 8Ω speaker across the OUTL+ and OUTL- PC board pads.

## Component Suppliers

SUPPLIER	PHONE	FAX	WEBSITE
Panasonic	714-373-7366	714-737-7323	www.panasonic.com
TDK	847-803-6100	847-390-4405	www.component.tdk.com

**Note:** Indicate that you are using the MAX9719AEVKIT when contacting these component suppliers.



**For pricing, delivery, and ordering information, please contact Maxim/Dallas Direct! at 1-888-629-4642, or visit Maxim's website at [www.maxim-ic.com](http://www.maxim-ic.com).**

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- 5) Connect the positive terminal of the power supply to the VCC pad and the power-supply ground terminal to the GND pad.
- 6) Connect the first output of the stereo audio source across the INPUTR+ and INPUTR- pads.
- 7) Connect the second output of the stereo audio source across the INPUTL+ and INPUTL- pads.
- 8) Turn on the power supply.
- 9) Turn on the audio source.

## Detailed Description

The MAX9719A EV kit features the MAX9719A stereo differential audio amplifier, designed to drive a pair of 8Ω speakers in portable audio applications. The EV kit operates from a DC power supply that can provide 2.7V to 5.5V and 3A of current.

As configured, the EV kit is set for a gain of 1V/V (0dB) by gain-setting resistors R1–R8. To set the EV kit to a different gain, select other gain-setting resistors. Refer to the *Applications Information* section in the MAX9718/MAX9719 data sheet for selecting the resistors. Capacitors C9–C12 are used for optionally limiting the audio signal bandwidth.

## Jumper Selection

### Shutdown Mode (SHDN)

The MAX9719A features a shutdown mode that reduces the MAX9719A quiescent current to 100nA (typ). Jumper JU5 controls the shutdown pin (SHDN) of the MAX9719A IC. See Table 1 for shunt positions.

**Table 1. JU5 Jumper Selection**

SHUNT POSITION	EV KIT FUNCTION
1-2 (SHDN = high)	EV kit enabled
2-3 (SHDN = low)	Shutdown mode
None. <b>External logic connected to SHDN pad.</b>	SHDN driven by external logic. Shutdown is active low.

### Bypassing the Input-Signal Coupling Capacitors (C1–C4)

Jumpers JU1–JU4 provide an option to bypass the input-signal coupling capacitors C1–C4, respectively, on the MAX9719A EV kit. See Table 2 for the various shunt positions. Refer to the *Input Filter* section of the MAX9718/MAX9719 data sheet

**Table 2. JU1–JU4 Jumper Selection**

SHUNT POSITION	INPUT-SIGNAL COUPLING CAPACITORS
Not Installed (default)	In circuit
Installed	DC-coupled inputs

### Evaluating MAX9719B/MAX9719C/MAX9719D

The MAX9719A EV kit can evaluate the MAX9719B, MAX9719C, and MAX9719D. To evaluate a different IC, replace U1 with the desired part, and replace the components as outlined in Table 3. Refer to the MAX9718/MAX9719 data sheet for additional information.

**Table 3. Component Values for Evaluating Different Versions of the MAX9719**

COMPONENT	EVALUATING THE MAX9719A	EVALUATING THE MAX9719B	EVALUATING THE MAX9719C	EVALUATING THE MAX9719D
U1	MAX9719A	MAX9719B	MAX9719C	MAX9719D
R1, R3, R5, R7	10kΩ	0Ω	0Ω	0Ω
R2, R4, R6, R8	10kΩ	OPEN	OPEN	OPEN

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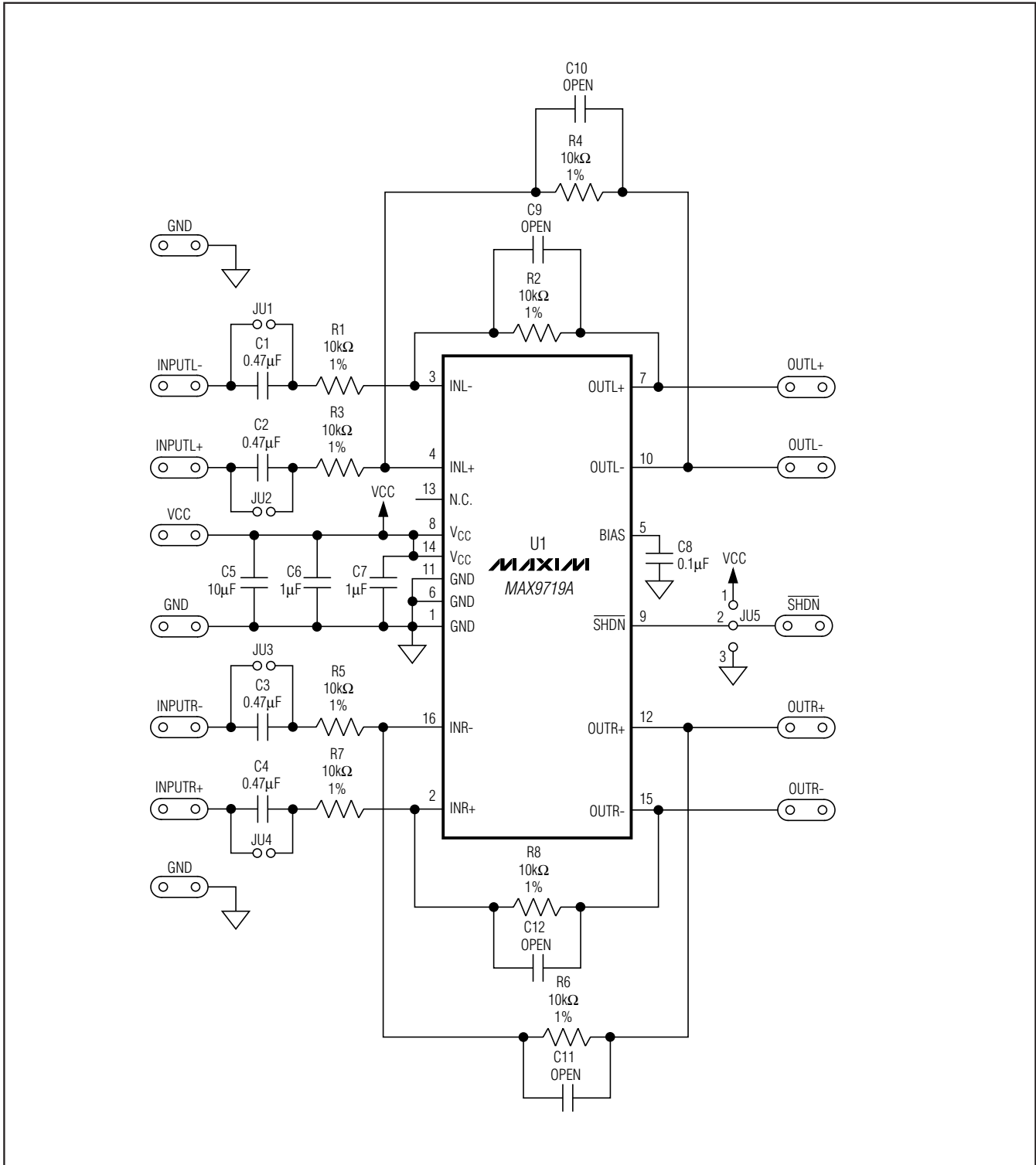


Figure 1. MAX9719A EV Kit Schematic

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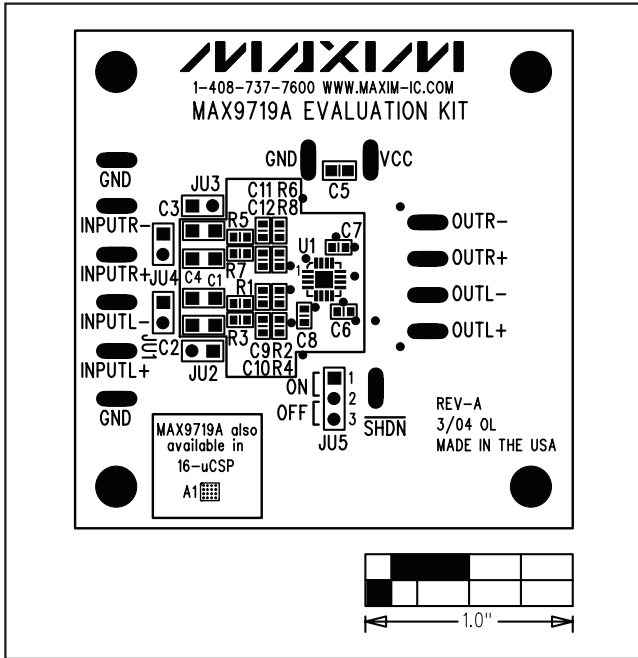


Figure 2. MAX9719A EV Kit Component Placement Guide—Component Side

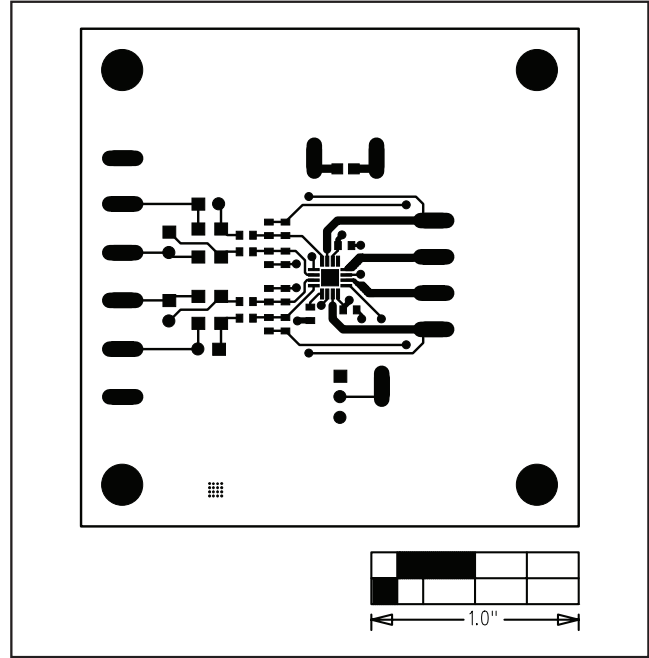


Figure 3. MAX9719A EV Kit PC Board Layout—Component Side

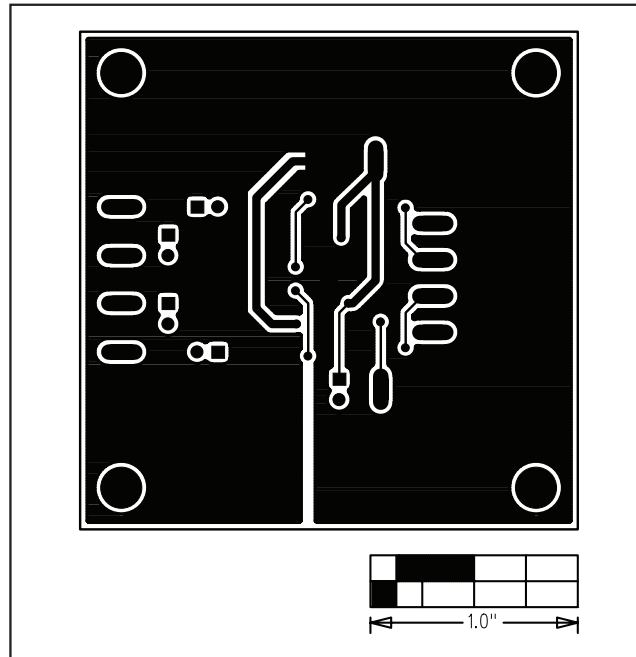


Figure Figure 4. MAX9719A EV Kit PC Board Layout—Solder Side

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