



# MAX9730 Evaluation Kit

Evaluates: MAX9730

## General Description

The MAX9730 evaluation kit (EV kit) is a fully assembled and tested PCB that uses the MAX9730 Class G power amplifier to drive a bridge-tied-load (BTL) speaker in portable audio applications. Designed to operate from a 2.7V to 5.5VDC power supply, the EV kit accepts a single-ended or differential input signal. The EV kit provides a fully differential output capable of delivering 2.4W into an 8Ω speaker.

## Component List

DESIGNATION	QTY	DESCRIPTION
C1–C4	4	0.1μF ±10%, 6.3V X5R ceramic capacitors (0402) Murata GRM155R60J104K
C5, C6	2	1μF ±10%, 6.3V X5R ceramic capacitors (0402) Murata GRM155R60J105K
C7	1	4.7μF ±10%, 6.3V X5R ceramic capacitor (1206) Murata GRM31CR60J475K
C8, C9, C10	3	10μF ±20%, 6.3V X5R ceramic capacitors (0603) Murata GRM188R60J106M
JU1	1	3-pin header
R1–R4	4	10kΩ ±0.5% precision-thick film-chip resistors (0603) Panasonic ERJ3RBD1002V
R5	1	100kΩ ±1% resistor (0603)
U1	1	MAX9730ETI+ (28-pin TQFN, 4mm x 4mm x 0.8mm)
—	1	Shunt
—	1	PCB: MAX9730 evaluation kit

## Component Suppliers

SUPPLIER	PHONE	WEBSITE
Murata Mfg. Co., Ltd.	770-436-1300	www.murata.com
Panasonic Corp.	714-373-7366	www.panasonic.com

**Note:** Indicate that you are using the MAX9730 when contacting these component suppliers.

## Features

- ◆ 5V Single-Supply Operation
- ◆ Fully Differential Output
- ◆ Delivers 2.4W into an 8Ω Speaker
- ◆ Configurable Switching Frequency
- ◆ Evaluates the MAX9730 in a 28-Pin TQFN (4mm x 4mm x 0.8mm) Package
- ◆ MAX9730 IC Available in a 20-Bump UCSP (2mm x 2.5mm) Package
- ◆ Fully Assembled and Tested

## Ordering Information

PART	TEMP RANGE	IC PACKAGE
MAX9730EVKIT+	0°C to +70°C*	28 TQFN-EP** (4mm x 4mm x 0.8mm)

+ Denotes a lead-free and RoHS-compliant EV kit.

\* This limited temperature range is for the EV kit PCB only. The MAX9730 IC temperature range is -40°C to +85°C.

\*\* EP = Exposed paddle.

## Quick Start

### Recommended Equipment

- 5V, 2A power supply
- Audio source (i.e., CD player, MP3 player, etc.)
- One 8Ω speaker

### Procedure

The MAX9730 EV kit is fully assembled and tested. Follow the steps listed below to verify board operation.

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

- 1) Install a shunt across pins 1-2 of jumper JU1 (EV kit ON).
- 2) Connect the 8Ω speaker across the OUT- and OUT+ pads.
- 3) Connect the ground terminal of the power supply to the GND pad and the positive terminal to the VCC pad.
- 4) Connect the positive terminal of the audio source to the IN+ pad.
- 5) Connect the negative terminal of the audio source to the IN- pad. Connect the IN- pad to the GND pad if the audio source is single-ended.
- 6) Connect the ground terminal of the audio source to the GND pad.
- 7) Turn on the audio source.
- 8) Turn on the power supply.

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## Detailed Description

The MAX9730 EV kit features the MAX9730 Class G power amplifier IC, designed to drive a dynamic speaker in BTL configuration. The EV kit operates from a DC power supply that provides 2.7V to 5.5V and 2A of current. The EV kit accepts single-ended or differential audio input and provides a fully differential output. The audio input source is amplified to drive 2.4W into an 8Ω speaker with a 5V power supply.

### Customizing the Gain

The MAX9730 EV kit is shipped with a gain of +12dB and is set by resistors R1–R4. Change resistors R1–R4 to reconfigure the gain of the EV kit. Refer to the MAX9730 IC data sheet for more detail.

### Charge-Pump Frequency Set Resistor

The charge-pump frequency is set by resistor R5. The charge pump's normal operation frequency is 330kHz. Change R5 to change the charge-pump frequency. Refer to the MAX9730 IC data sheet for more information.

## Jumper Selection

### Shutdown Mode (SHDN)

Jumper JU1 controls the shutdown pin (SHDN) of the MAX9730 IC. The shutdown pin can also be controlled by an external logic controller connected to the EV kit SHDN pad. Remove the shunt from jumper JU1 before connecting an external controller to the SHDN pad. See Table 1 for shunt positions.

**Table 1. JU1 Jumper Selection (Shutdown Mode)**

SHUNT POSITION	SHDN PIN CONNECTED TO	EV KIT FUNCTION
1-2*	VDD	EV kit enabled
2-3	GND	Shutdown mode
None	External logic controller	SHDN driven by external logic controller. Shutdown is active-low and is 1.8V logic compliant.

\*Default position.

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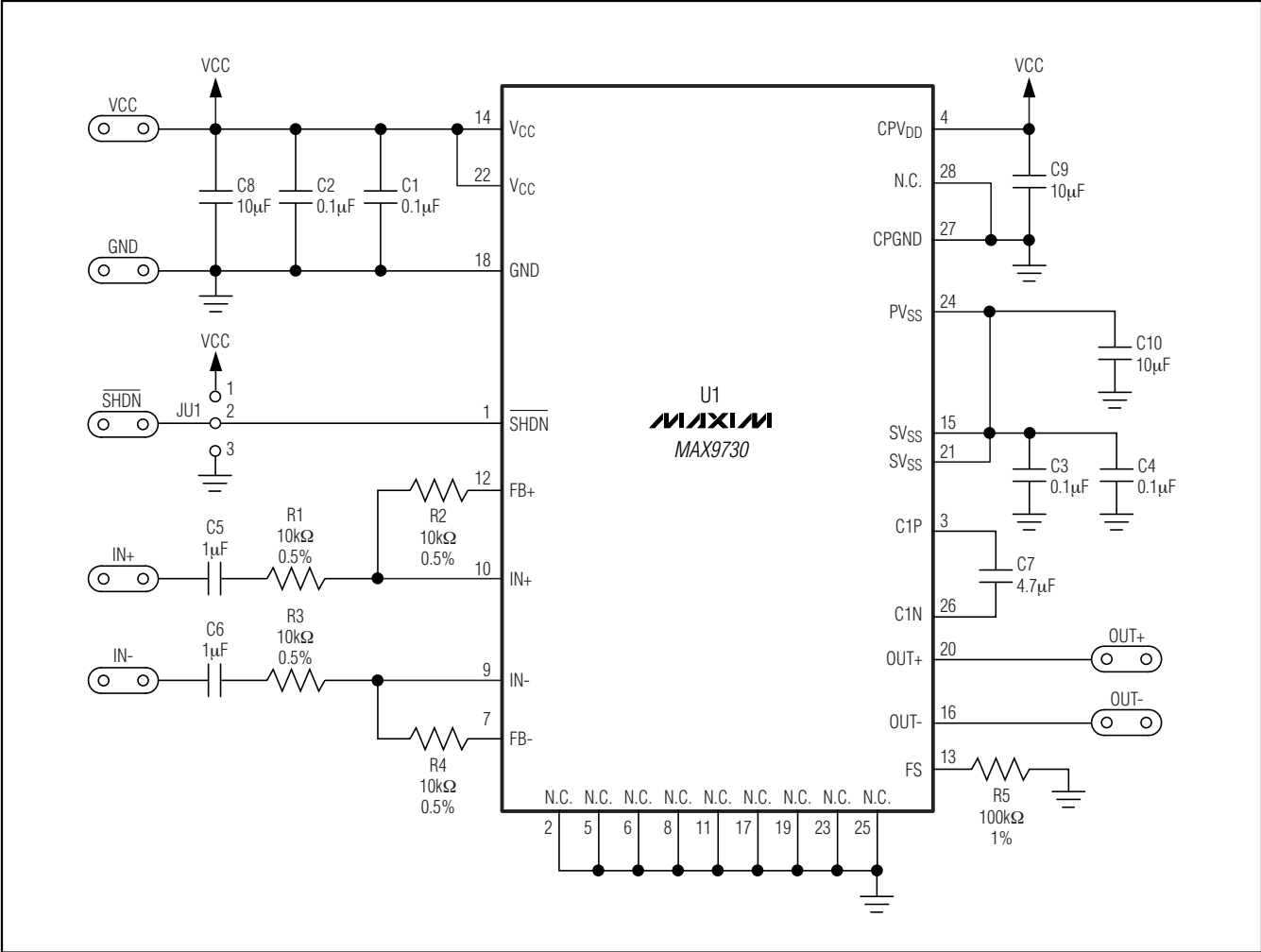


Figure 1. MAX9730 EV Kit Schematic

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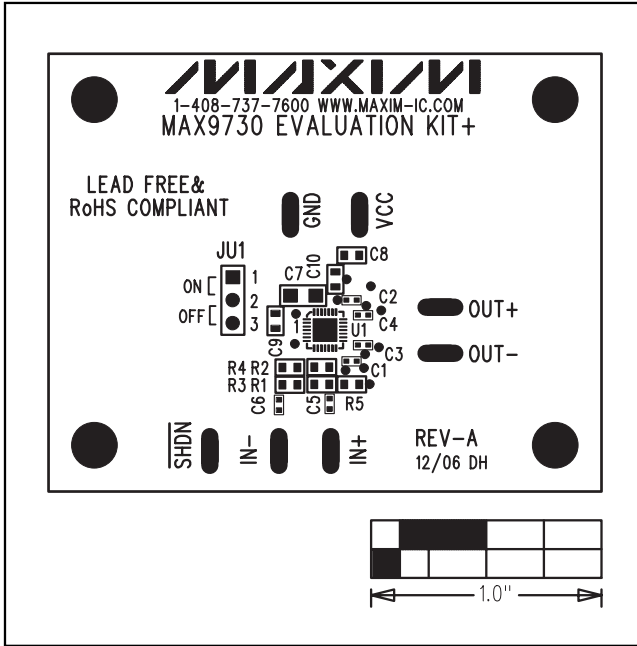


Figure 2. MAX9730 EV Kit Component Placement Guide—Component Side

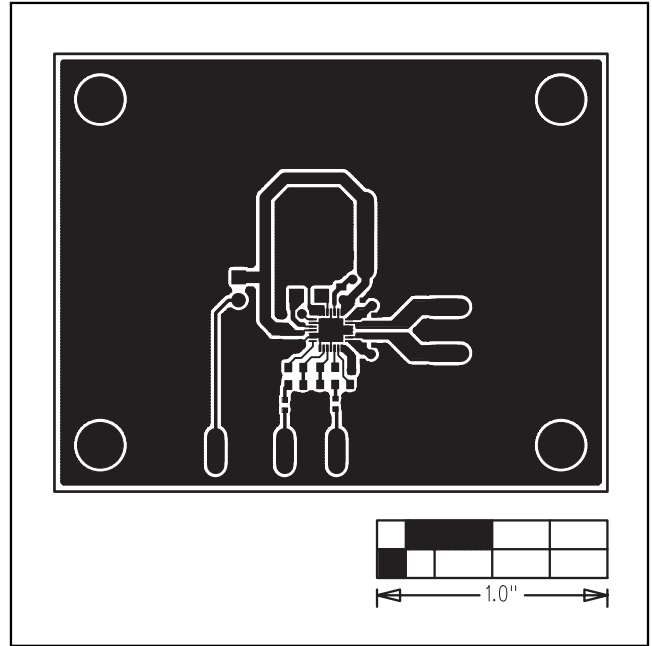


Figure 3. MAX9730 EV Kit PCB Layout—Component Side

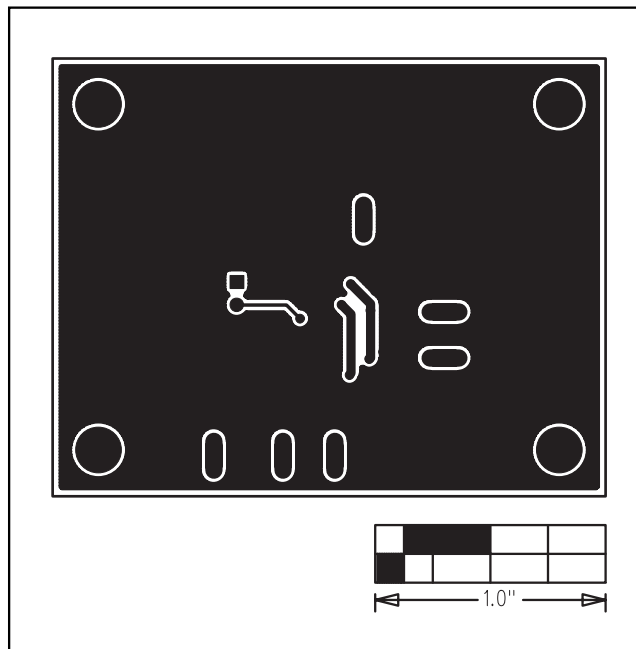


Figure 4. MAX9730 EV Kit PCB Layout—Solder Side

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