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19-5662; Rev 0; 12/10

MAX97220A Evaluation Kit

General Description

The MAX97220A evaluation kit (EV kit) is a fully assembled and tested circuit board that evaluates the MAX97220A differential input DirectDrive® line driver/headphone amplifier. The device is capable of driving 125mW into 32Ω, or $3V_{RMS}$ into 600Ω load, with a 5V supply.

The EV kit provides an externally set gain, is powered from a 2.5V to 5.5V single power supply, and includes a shutdown input. The EV kit also evaluates the MAX97220B, MAX97220C, and MAX97220D devices. Request a free MAX97220B, MAX97220C, and/or MAX97220D IC sample from the factory when ordering the EV kit.

Features

- **2.5V to 5.5V Single-Supply Operation**
- **$3V_{RMS}$ Output Drive Into 600Ω Load**
- **125mW Headphone Amplifier**
- **Fully Differential Inputs**
- **Externally Adjustable Gain**
- **Low-Power Shutdown Input**
- **Evaluates the MAX97220B, MAX97220C, and MAX97220D (with IC Replacement)**
- **Fully Assembled and Tested**

Ordering Information

PART	TYPE
MAX97220AEVKIT+	EV Kit

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

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2, C7	3	0.1µF ±10%, 25V X7R ceramic capacitors (0603) Murata GRM188R71E104K TDK C1608X7R1E104K
C3–C6	4	0.47µF ±10%, 25V X7R ceramic capacitors (0603) Murata GRM188R71E474K TDK C1608X5R1E474K
C8, C9	2	1µF ±10%, 10V X7R ceramic capacitors (0603) Murata GRM188R71C105K TDK C1608X7R1C105K
C10	1	10µF ±20%, 6.3V X5R ceramic capacitor (0603) Murata GRM188R60J106M TDK C1608X5R0J106M

DESIGNATION	QTY	DESCRIPTION
C11–C16	0	Not installed, ceramic capacitors (0603)
HP_OUT	1	3.5mm stereo headphone jack
JU1	1	2-pin header
OUTL, OUTR, GND	3	Test points
OUTL	1	White headphone jack
OUTR	1	Red headphone jack
R1–R8	8	10kΩ ±1% resistors (0603)
R9	1	100kΩ ±5% resistor (0603)
U1	1	Differential input headphone amplifier (16 TQFN) Maxim MAX97220AETE+
—	1	Shunts
—	1	PCB MAX97220A 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 MAX97220_ when contacting these component suppliers.*

DirectDrive is a registered trademark of Maxim Integrated Products, Inc.

Quick Start

Recommended Equipment

- MAX97220A EV kit
- 2.5V to 5.5V DC supply
- Stereo audio signal source
- Pair of stereo headphones

Procedure

The 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 across jumper JU1 (device enabled).
2) Set the power-supply output to 5V.
3) Disable the power-supply output.
4) Connect the power-supply ground to the GND pad and the power-supply positive output to the VDD pad on the EV kit.
5) Connect headphones to the stereo headphone jack (HP_OUT) provided on the EV kit.
6) Verify that the audio source output is disabled.
7) Connect the left output of the audio source to the INL- pad.
8) Connect the ground of the audio source to the INL+ pad.
9) Connect the right output of the audio source to the INR- pad.
10) Connect the ground of the audio source to the INR+ pad.
11) Enable the stereo audio source.
12) Enable the power-supply output.
13) Verify that the headphones are playing the audio source signal.

Detailed Description

The MAX97220A EV kit features the MAX97220A differential stereo headphone driver with DirectDrive, designed to directly drive a 125mW into a 32Ω stereo headphone. The EV kit operates from a DC power supply that can provide 2.5V to 5.5V and accepts two sets of differential audio inputs.

Headphone Amplifier Shutdown

Jumper JU1 enables or disables the headphone amplifier. See Table 1 for jumper JU1 configuration.

MAX97220C/MAX97220D Usage

When replacing the MAX97220A with either the MAX97220C or MAX97220D, several external components must be changed. R1–R4 should be replaced with 0Ω resistors. R5–R8 should be removed from the PCB. C11–C16 should be left uninstalled (same as the default EV kit setting).

Table 1. Shutdown Input (JU1)

SHUNT POSITION	$\overline{\text{SHDN}}$ PIN	AMPLIFIER
Installed*	Connected to VDD	Enabled
Not installed	Connected to GND through R9	Disabled

**Default position.*

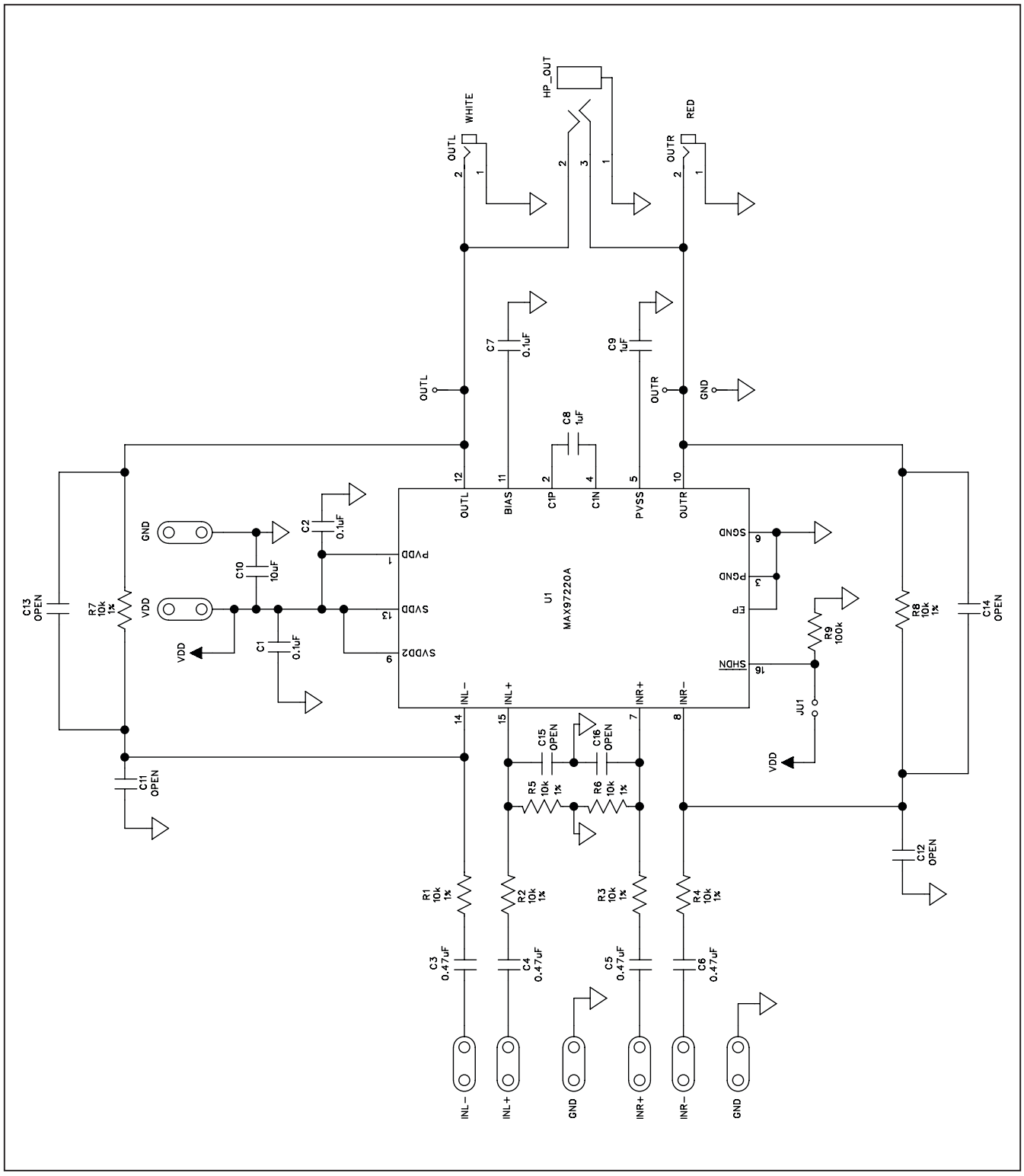

Figure 1. MAX97220A EV Kit Schematic

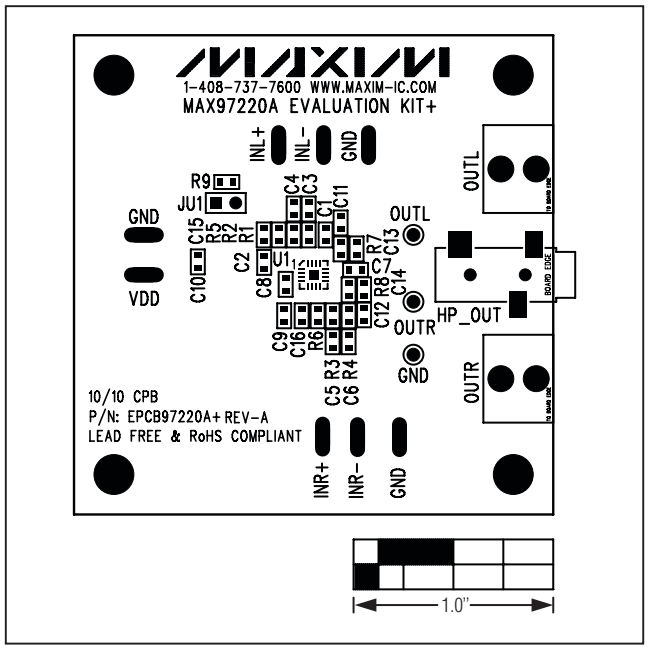

Figure 2. MAX97220A EV Kit Component Placement Guide—Component Side

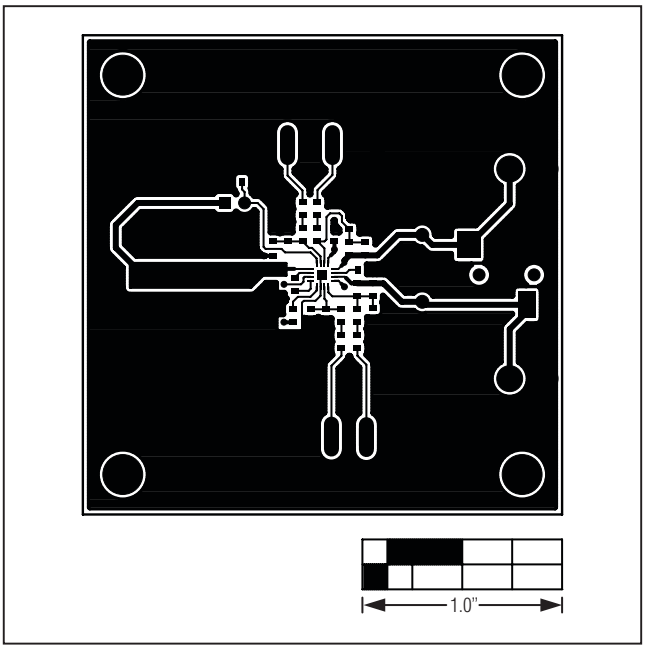

Figure 3. MAX97220A EV Kit PCB Layout—Component Side

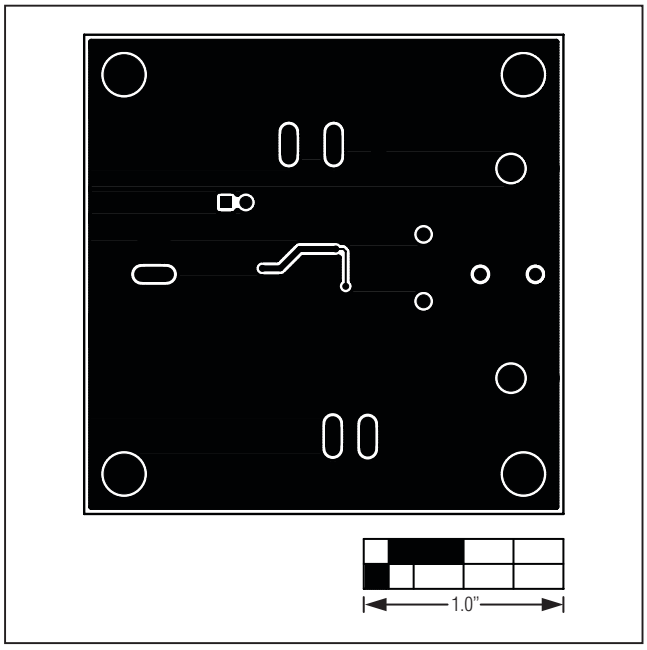

Figure 4. MAX97220A EV Kit PCB Layout—Solder Side

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	12/10	Initial release	—