19-5087; Rev 0; 12/09

MAX4231 Evaluation Kit

Evaluates: MAX4231

General Description

The MAX4231 evaluation kit (EV kit) is a fully assembled and tested PCB that evaluates the MAX4231 single, high-output-drive CMOS operational amplifier (op amp) in a 6-bump chip-scale package (UCSP™).

Features

- **Flexible Input and Output Configurations**
- **Single 2.7V to 5.5V Power Supply**
- **Fully Assembled and Tested**

Ordering Information

PART	TYPE
MAX4231EVKIT+	EV Kit

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

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	33µF ±20%, 10V bipolar electrolytic aluminum capacitors (D size) Panasonic EEE-1AA330NP
C3	0	Not installed, ceramic capacitor (2220)
C4	0	Not installed, ceramic capacitor (1210)
C5	1	10µF ±10%, 10V tantalum capacitor (A size) AVX TAJA106K010R
C6, C7	2	0.1µF ±10%, 16V X7R ceramic capacitors (0603) Murata GRM188R71C104K
C8	0	Not installed, ceramic capacitor (0603)

DESIGNATION	QTY	DESCRIPTION
D1	1	2V, 5mA zener diode (0603)
JU1, JU2, JU6	3	2-pin headers
JU3, JU4, JU5, JU7, JU8	5	3-pin headers
OUT, VIN1, VIN2	3	White multipurpose test points
R1–R4	4	1kΩ ±5% resistors (0603)
R5	1	0Ω ±5% resistor (0603)
R6	0	Not installed, resistor (1210)
R7	1	150Ω ±5% resistor (0603)
U1	1	CMOS op amp (6 UCSP) Maxim MAX4231ART+
VDD	1	Red multipurpose test point
VSS1–VSS4	4	Black multipurpose test points
—	8	Shunts
—	1	PCB: MAX4231 EVALUATION KIT+

Component Suppliers

SUPPLIER	PHONE	WEBSITE
AVX Corporation	843-946-0238	www.avxcorp.com
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com
Panasonic Corp.	800-344-2112	www.panasonic.com

Note: *Indicate that you are using the MAX4231 when contacting these component suppliers.*

UCSP is a trademark of Maxim Integrated Products, Inc.

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Quick Start

Required Equipment

- MAX4231 EV kit
- 5V, 1A power supply
- Waveform generator
- Oscilloscope

Procedure

The MAX4231 EV kit is fully assembled and tested. Follow the steps below to verify board operation. VSS1–VSS4 connectors are connected to the ground on the EV board.

1) Verify that all jumpers are in their default positions, as shown in Table 1.
2) Set the power-supply output to 5V. Disable the output.
3) Set the waveform-generator output to 1kHz sine wave, V_{P-P} = 4V, offset = 2V. Disable the output.
4) Connect the power-supply output to the VDD connector.
5) Connect the power-supply ground to the VSS4 connector.
6) Connect the waveform-generator output to the VIN1 connector.
7) Connect the waveform-generator ground to the VSS1 connector.
8) Connect the positive input of the oscilloscope (channel 1) to the VIN1 connector.
9) Connect the negative input of the oscilloscope (channel 1) to the VSS1 connector.
10) Connect the positive input of the oscilloscope (channel 2) to the VOUT connector.
11) Connect the negative input of the oscilloscope (channel 2) to the VSS3 connector.
12) Enable the power-supply output.
13) Enable the waveform-generator output.
14) Verify that channel 1 and channel 2 have the identical waveform, both amplitude and phase.

Detailed Description of Hardware

The MAX4231 EV kit provides a proven layout for the MAX4231 single, high-output-drive CMOS op amp. The MAX4231 features 200mA of peak output current, rail-to-rail input and output capability from a single 2.7V to 5.5V supply. The amplifier exhibits a high slew rate of 10V/µs and a gain-bandwidth product (GBWP) of 10MHz. The MAX4231 also offers a $\overline{SHDN}$ feature that drives the output low.

Table 1. MAX4231 EV Kit Jumper Descriptions (JU1–JU8)

JUMPER	SHUNT POSITION	DESCRIPTION
JU1	1-2*	DC-blocking capacitor C1 bypassed
	Open	DC-blocking capacitor C1 applied
JU2	1-2*	DC-blocking capacitor C2 bypassed
	Open	DC-blocking capacitor C2 applied
JU3	1-2*	VIN1 applied to IN+ through R1
	2-3	GND applied to IN+ through R1
	Open	No signal applied to IN+ through R1
JU4	1-2*	VIN2 applied to IN- through R3
	2-3	GND applied to IN- through R3
	Open	No signal applied to IN- through R3
JU5	1-2	Zener voltage (2V nominal) applied to IN+ through R2
	2-3*	GND applied to IN+ through R2
	Open	No signal applied to IN+ through R2
JU6	1-2*	DC-blocking capacitor C3 bypassed
	Open	DC-blocking capacitor C3 applied
JU7	1-2*	MAX4231 in normal operation mode
	2-3	MAX4231 in shutdown mode
JU8	1-2*	VDD applied to the output through R6
	2-3	GND applied to the output through R6

**Default position.*

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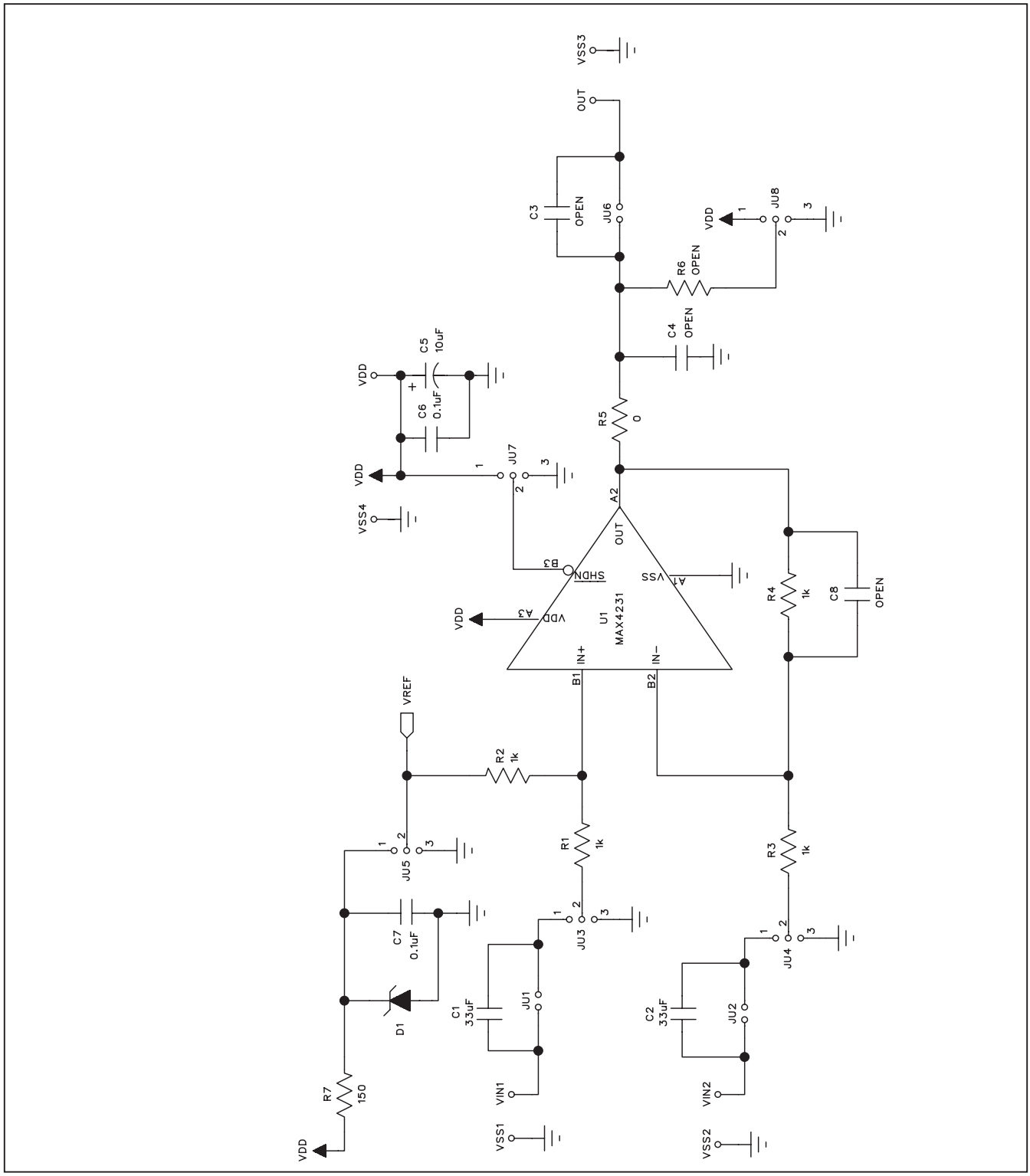

Figure 1. MAX4231 EV Kit Schematic

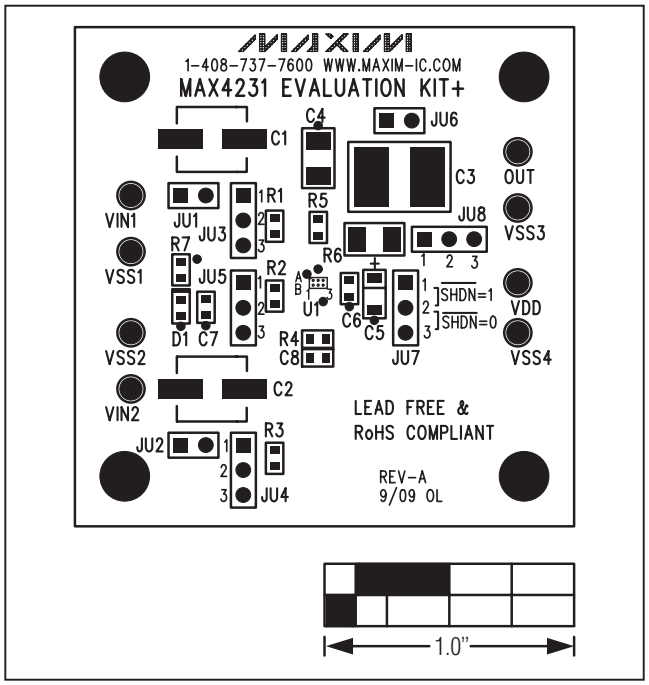

Figure 2. MAX4231 EV Kit Component Placement Guide—Component Side

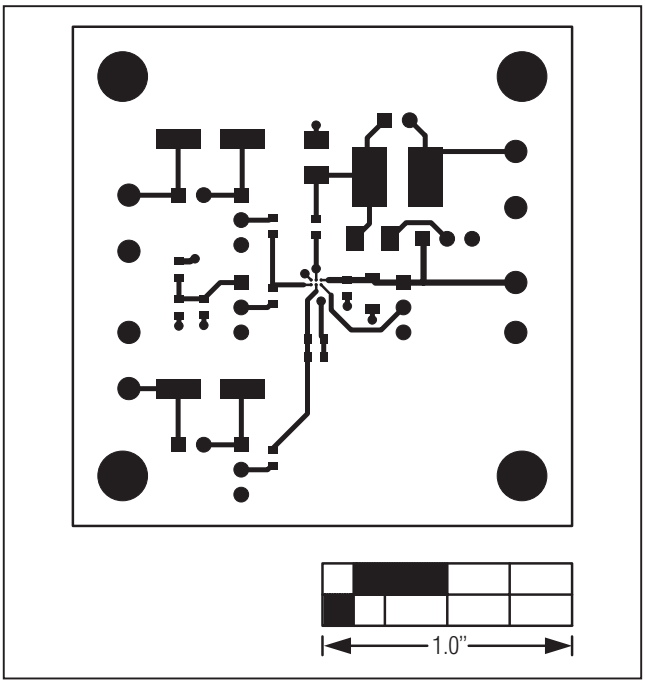

Figure 3. MAX4231 EV Kit PCB Layout—Component Side

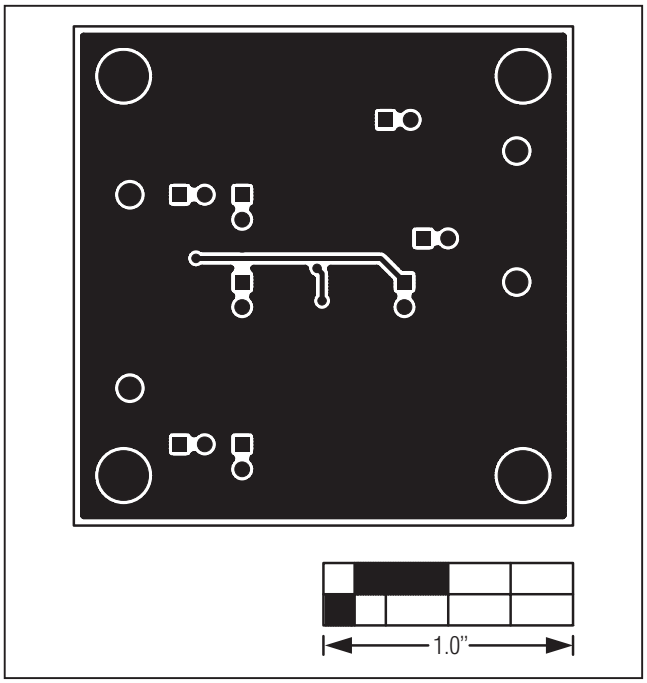

Figure 4. MAX4231 EV Kit PCB Layout—Solder Side