

## Evaluating the **AD8244** Quad FET Input Buffer

### FEATURES

Enables quick evaluation of the **AD8244**

Enables quick prototyping

Allows for various circuit configurations

SMA/SMB or test loop inputs and outputs

Easy connection to test equipment and other circuits

RoHS compliant

### GENERAL DESCRIPTION

The **AD8244-EVALZ** makes it easy for designers to obtain quick performance results for their particular application circuit using the **AD8244** quad, FET input, unity-gain buffer.

The evaluation board design is flexible to allow for common circuit options, including source impedance and space for output loading and filtering. Most resistors and capacitors use 0805 packages.

This 4-layer evaluation board comes installed with color-coded test loops, mainly intended for use with mini-clip type connectors. The board also has pads for end-launch SMA or SMB connectors on inputs and outputs, recommended for tests that require higher signal integrity than the mini-clip can provide. The inputs are guarded to avoid leakage and maximize the input impedance. The ground plane, component placement, and power supply bypassing have been optimized for maximum circuit flexibility and performance.

Figure 1 shows the primary side of the evaluation board.

Figure 2 shows the evaluation board schematic.

The evaluation board accommodates the **AD8244** quad FET-input buffer in a 10-lead MSOP. The **AD8244** data sheet should be consulted in conjunction with this evaluation board user guide.

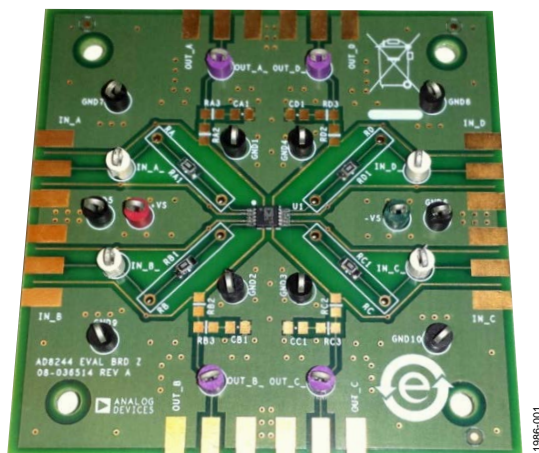


Figure 1. **AD8244-EVALZ** Primary Side

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REVISION HISTORY

12/13—Revision 0: Initial Version

## EVALUATION BOARD HARDWARE

### POWER SUPPLIES

Power is applied to the board through test points +VS and –VS (see Figure 2). The board accommodates single or dual supplies. For single-supply operation, connect the negative supply to ground.

It is very important that the power supply pins of the [AD8244](#) have decoupling circuitry. The board layout facilitates this with 0.1  $\mu$ F, 0805 ceramic capacitors (C3 and C4) on each supply. Lower frequency decoupling is provided by C1 and C2, which are D-size, 10  $\mu$ F tantalum capacitors.

### BOARD OPTIONS

The [AD8244-EVALZ](#) board comes installed with the default components listed in Table 1. The default configuration has no added source impedance or output load. In addition to the default, the board is easily configurable to test the [AD8244](#) with source impedance and load impedance.

The user may remove the zero  $\Omega$  resistor in series with the [AD8244](#) input and install SMD or through-hole components to represent the source impedance.

The user may load the [AD8244](#) with resistance or capacitance using 0805 components at RX2 (which refers to RA2, RB2, RC2, and RD2 depending upon whether it is in channel A, B, C, or

D), RX3, and CX1. RX2 is in series with the outputs. RX3 and CX1 may be used to form a snubber, which is an RC network placed between the output of an amplifier and ground to improve step response and stability with capacitive loads.

Before installing any components at RX2 or at RX3, be sure to cut the short between the pads with a box cutter or similar tool.

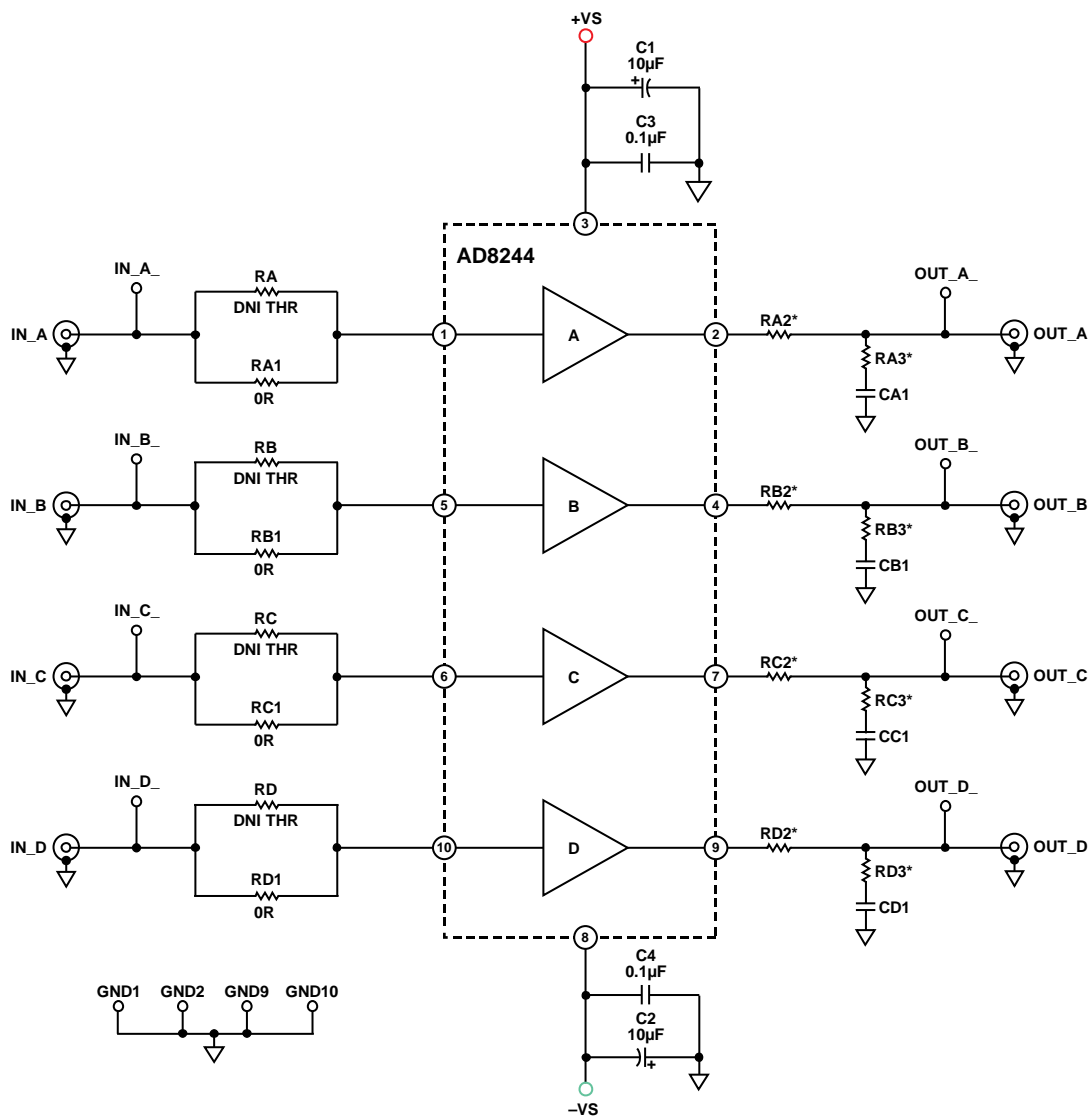
### SMA INPUT/OUTPUT CONNECTORS

The inputs and outputs of every channel have end-launch SMA connector footprints (which are also compatible with some SMB connector footprints) for convenient connection to coaxial cables. The recommended connectors are Johnson/Emerson 142-0701-851 (SMA jack), 142-0801-811 (SMA plug), 131-3701-801 (SMB jack), or equivalent footprint connectors.

### GUARDING

The inputs of each channel of the [AD8244](#) are guarded to reduce leakage and parasitic capacitance at the inputs. In order for the guard to be effective against leakage contamination on the surface of the board, the solder mask is removed from the top of the guard traces. During rework, take care that the guard does not accidentally become shorted to a nearby node. See the [AD8244](#) data sheet for more information about guarding.

## SCHEMATIC



\*THIS COMPONENT IS PRESHORTED. THE SHORT MUST BE CUT BEFORE INSTALLING A COMPONENT IN THIS LOCATION.

Figure 2. AD8244-EVALZ Schematic

11986-002

## ORDERING INFORMATION

### BILL OF MATERIALS

Table 1.

Qty	Reference Designator	Package	Description	Default
2	C1, C2	C7343	10 $\mu$ F capacitor, tantalum	Yes
2	C3, C4	C0805	Capacitor, 0.1 $\mu$ F, X7R	Yes
8	IN_A, IN_B, IN_C, IN_D, OUT_A, OUT_B, OUT_C, OUT_D	SMA/SMB PCM	SMA/SMB connector	No
4	RA1, RB1, RC1, RD1	R0805	Resistor, 0 $\Omega$	Yes
8	RA2, RB2, RC2, RD2, RA3, RB3, RC3, RD3	R0805	Resistor, user defined value (pre-shortcd)	No
4	CA1, CB1, CC1, CD1	C0805	Capacitor, user defined value	No
20	+VS, -VS, IN_A_, IN_B_, IN_C_, IN_D_, OUT_A_, OUT_B_, OUT_C_, OUT_D_, GND1 to GND10	TP1	Test point	Yes
1	U1	10-lead MSOP	<a href="#">AD8244</a> ARMZ quad JFET-input buffer IC	Yes
1	—		PC board	N/A

### RELATED LINKS

Table 2.

Resource	Description
<a href="#">AD8244</a>	Product page; single supply, low power, precision FET input quad buffer

## **NOTES**

## NOTES

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**ESD Caution**

**ESD (electrostatic discharge) sensitive device.** Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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