

## Evaluation Board for the **ADG884** 0.5 $\Omega$ CMOS Dual 2:1 Mux/SPDT Audio Switch

### FEATURES

Evaluation board

Probe test points on all switch channels

Logic control input always tied either high/low to prevent a floating voltage

### INTRODUCTION

The [EVAL-ADG884EBZ](#) was designed to test the [ADG884](#) dual, single pole, double throw (SPDT) switch in the WLCSP package.

The [ADG884](#) is a low voltage CMOS device containing two independently selectable SPDT switches. It has been optimized for high performance audio switching, and due to its low power and small physical size, it is ideal for portable devices.

This device offers ultralow on resistance of less than 0.38  $\Omega$  over the full temperature range. All channels exhibit break-before-make switching action, preventing momentary shorting when switching channels.

Full data on the [ADG884](#) is available in the [ADG884](#) data sheet available from Analog Devices, Inc., and should be consulted in conjunction with this user guide when using the evaluation board.

### EVALUATION BOARD PICTURE

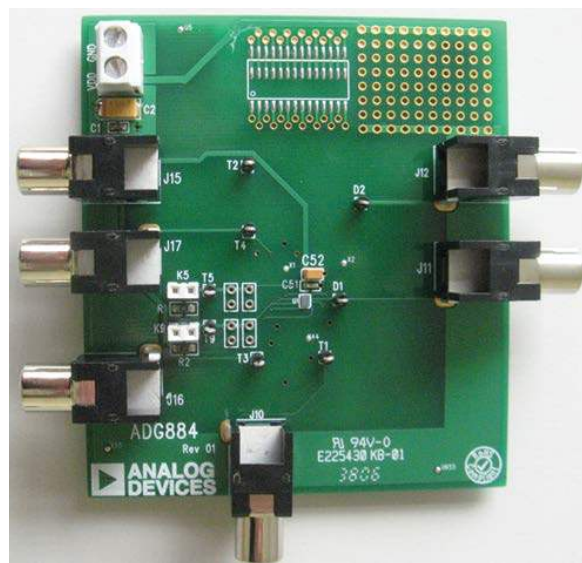


Figure 1.

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**REVISION HISTORY**

**8/12—Revision 0: Initial Version**

## EVALUATION BOARD HARDWARE

The [EVAL-ADG884EBZ](#) evaluation board has been designed for testing the functionality of the device. The board comes with many options for adding loads to each of the channels and offers the option of probing each channel through a test point.

The [EVAL-ADG884EBZ](#) evaluation board allows designers to evaluate the high performance dual, SPDT switches with a minimum of effort. There is a test point on each audio jack, as well as two logic control inputs, to check the voltage level at each pin.

### OPERATING THE [EVAL-ADG884EBZ](#) EVALUATION BOARD

#### Power Supplies

The evaluation board has one analog power supply input,  $V_{DD}$ .  $V_{DD}$  can equal 1.8 V to 5.5 V and is decoupled to ground using a 10  $\mu$ F tantalum capacitor and a 0.1  $\mu$ F ceramic capacitor at the input of the evaluation board. The  $V_{DD}$  supply can be connected to the board using the power block pin, VDD, and a ground connection is made using the power block pin, GND.

#### Source and Drain Pins

There are six audio jacks available on the [EVAL-ADG884EBZ](#) to test the capabilities of the [ADG884](#) chip. The [ADG884](#) chip is bidirectional; therefore, each jack can be used as an input or an output. The connection between each audio jack and the associated switch pin is given in Table 1.

Signals can be applied to the source and drain pins of the [ADG884](#) through the audio jack connectors. The source and drain pins offer the user the option of a test point to allow for easy probing of the switch channels.

#### IN Pins

Two link options are available when using the [EVAL-ADG884EBZ](#) evaluation board. K5 and K9 offer the user the ability to tie the control lines, IN1 and IN2, respectively, high or low. When the jumper is removed from the link, the control line is set logic high, and when the jumper is inserted, the control line is set logic low. The control lines are used to set the configuration of the switch. Table 2 shows the association between the state of the link headers and the connection between the audio jacks.

### TESTING THE PARAMETERS OF THE [ADG884](#)

The [EVAL-ADG884EBZ](#) can be used to test the electrical parameters of the [ADG884](#). The data sheet for the [ADG884](#) comes with a complete set of test circuits for testing the various switch specifications.

Table 1. Audio Jack Functions

Jack Number	Function
J10	S1A
J11	D1
J12	D2
J15	S1B
J16	S2A
J17	S2B

Table 2. Link Options

Link No.	Link State	ADG884 Switch States		Board Connections
K5	Inserted	S1A (off)	S1B (on)	J15 to J11
	Removed	S1A (on)	S1B (off)	J10 to J11
K9	Inserted	S2A (off)	S2B (on)	J17 to J12
	Removed	S2A (on)	S2B (off)	J16 to J12

EVALUATION BOARD SCHEMATICS AND ARTWORK

10829-001

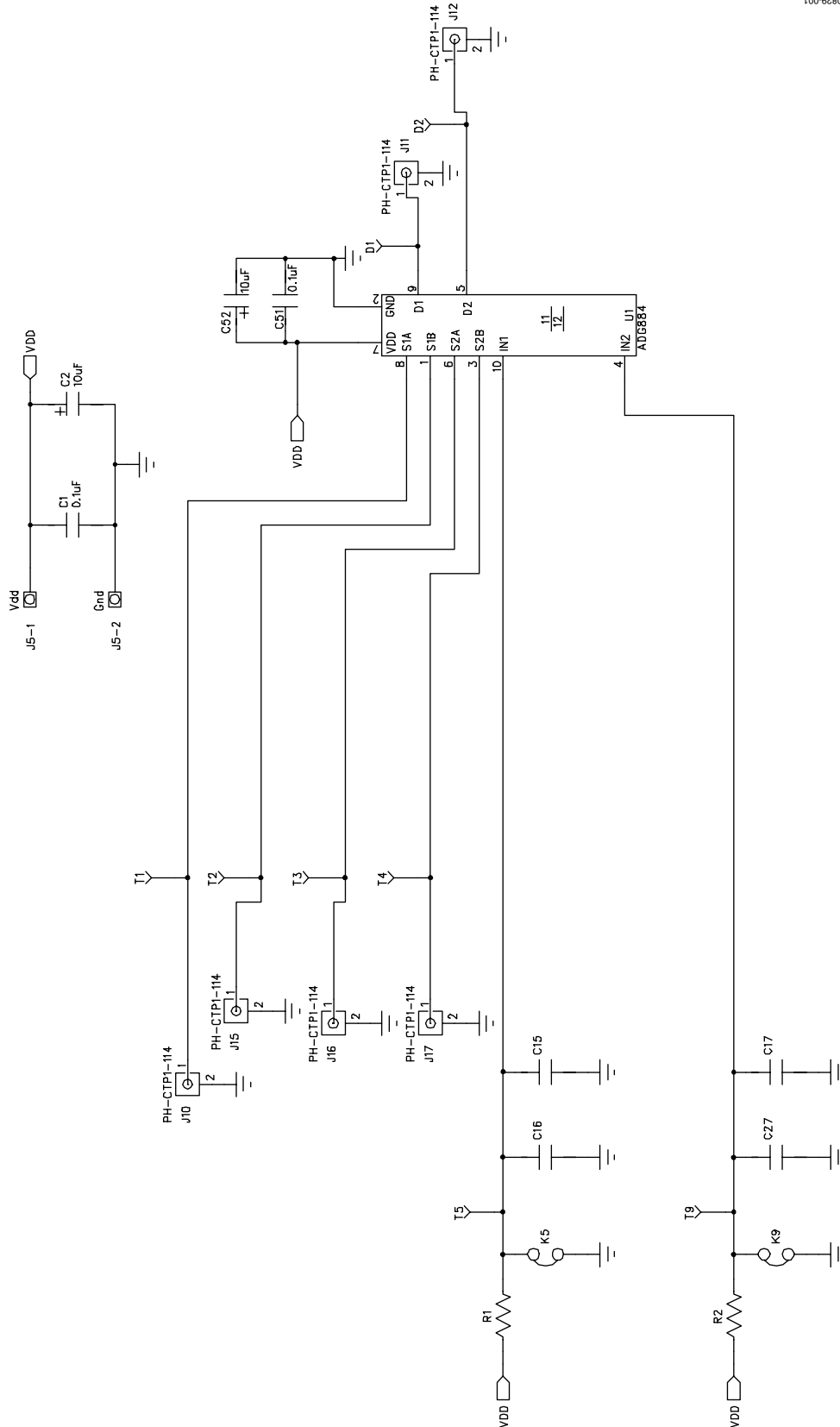


Figure 2. EVAL-ADG884EBZ Evaluation Board Schematic

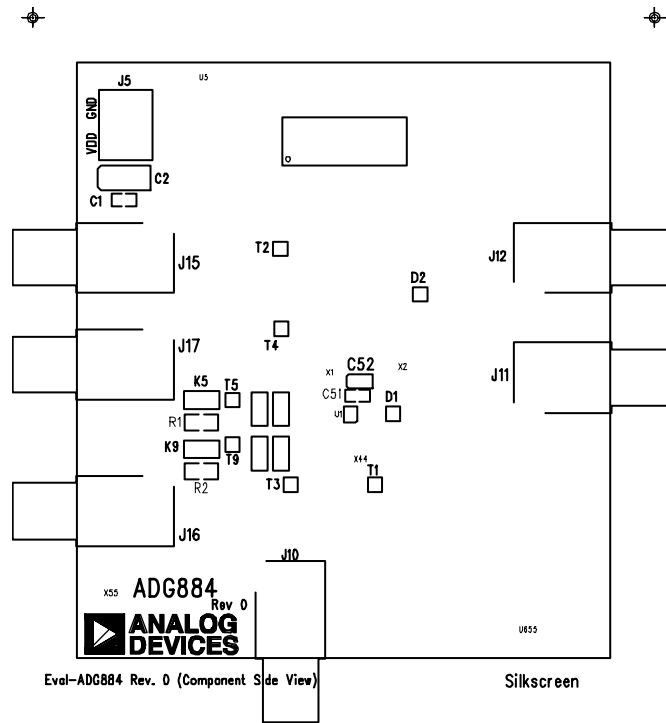


Figure 3. EVAL-ADG884EBZ Evaluation Board, Component Placement Drawing

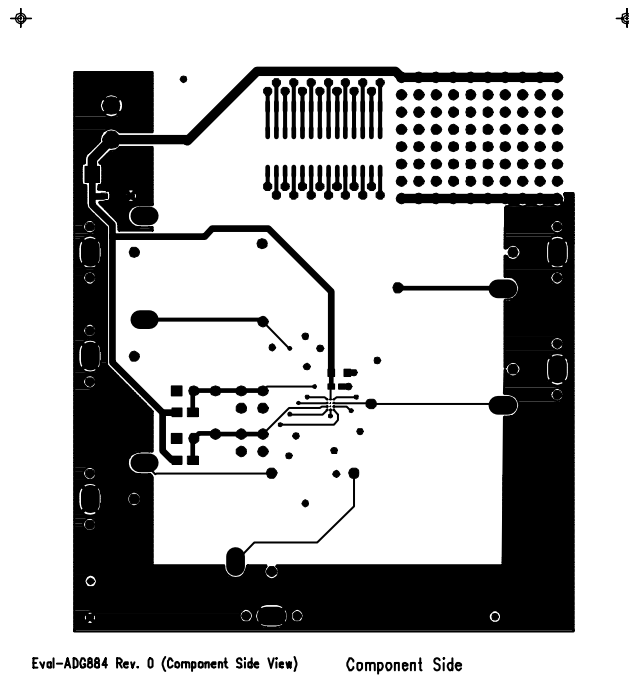
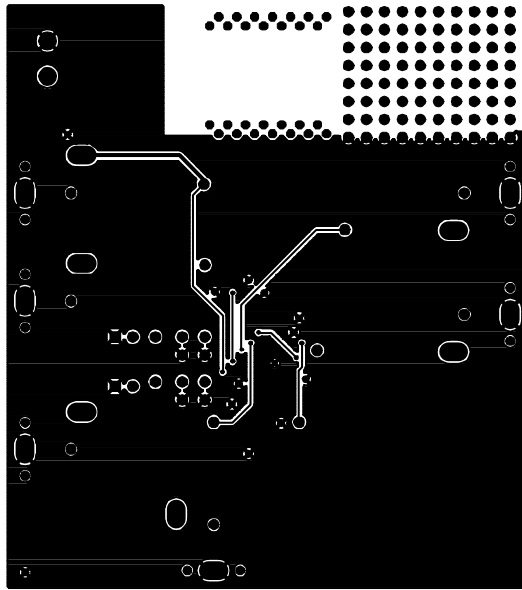


Figure 4. EVAL-ADG884EBZ Evaluation Board, Component Side PCB Drawing



Eval-ADG884 Rev. 0 (Component Side View)

Solder Side

10825-004

Figure 5. EVAL-ADG884EBZ Evaluation Board, Solder Side PCB Drawing

**COMPONENT LIST**

Table 3.

Item	Quantity	Reference	Description	Supplier Number
1	2	C1, C51	0.1 $\mu$ F capacitors	FEC 753-567
2	1	C2	10 $\mu$ F capacitor	FEC 197-518
3	4	C15, C16, C17, C27	CAP\MR04	Low profile sockets
4	1	C52	10 $\mu$ F CAP\TAJ_A	FEC 197-130
5	2	D1, D2	Test points	FEC 873-1128
6	1	J5	CON\POWER	FEC 151-789
7	6	J10 to J12, J15 to J17	Phono sockets	PH-CTP1-114
8	2	K5, K9	Jumpers	FEC 1022247 and FEC 150-411
9	2	R1, R2	10 k $\Omega$ resistors	FEC 1160203
10	6	T1 to T5, T9	Test points	FEC 873-1128
11	1	U1	<a href="#">ADG884</a>	<a href="#">ADG884BCBZ-REEL\ADG884BCBZ-REEL7</a>
12	1	U3	SO28WB_NB	Pads to be kept free of solder

## NOTES

**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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