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Evaluating the ADG854, 0.5 Ω CMOS, 1.8 V to 5.5 V, Dual SPDT/2:1 Mux in Mini LFCSP Package

FEATURES

Full-featured evaluation board for the ADG854
On-board audio connectors

GENERAL DESCRIPTION

This user guide describes the EVAL-ADG854EBZ evaluation board for the ADG854, which is a low voltage CMOS device that contains two independently selectable, single-pole, double-throw (SPDT) switches. The ADG854 offers an ultralow on resistance of less than 1 Ω over the full temperature range.

Figure 1 shows the EVAL-ADG854EBZ. The ADG854 is soldered onto the EVAL-ADG854EBZ evaluation board in a tiny 1.3 mm × 1.6 mm ultrathin LFCSP located in the center of the board and is designated as U1.

CONNECTING SIGNALS TO THE BOARD

The EVAL-ADG854EBZ evaluation board is fitted with three audio connectors that allow switching between audio devices. All signals applied to the switch can be monitored using the test points provided on the evaluation board.

EVAL-ADG854EBZ EVALUATION BOARD

Figure 1.

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REVISION HISTORY

8/2016—Rev. 0 to Rev. A

Changes to Title 1
Changes to Evaluation Board Hardware Description Section and Table 1 3
Changes to Table 4 7

5/2012—Revision 0: Initial Version

EVALUATION BOARD HARDWARE DESCRIPTION

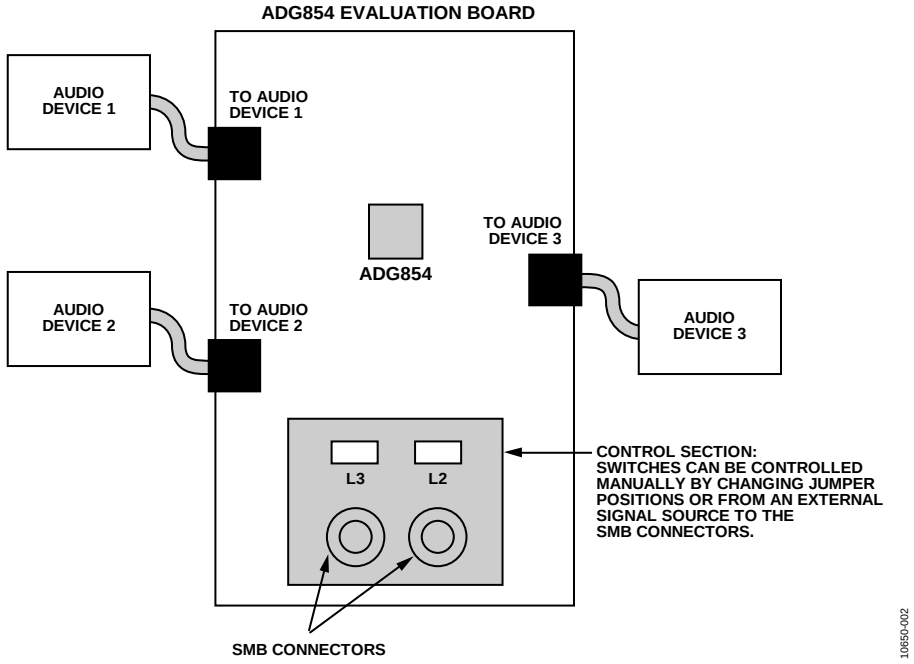

Figure 2. EVAL-ADG854EBZ Evaluation Board Block Diagram

The EVAL-ADG854EBZ evaluation kit contains a fully fitted printed circuit board (PCB). For full details on the ADG854, see the ADG854 data sheet, which should be consulted in conjunction with this user guide when using these evaluation boards.

The EVAL-ADG854EBZ evaluation board allows the user to switch between two audio sources or to switch an audio source between two speakers by using the on-board jumpers or by applying the correct control signals to the appropriate connectors.

POWER SUPPLY

The ADG854 can operate from a 1.8 V to 5.5 V single supply and is fully specified for 5.5 V and 3.3 V supply operation.

SWITCH CONTROL CONNECTORS

The ADG854 device offers a standard CMOS/LVTTL parallel interface consisting of two IN inputs. The IN1 and IN2 input pins control the switch state and operation mode of the ADG854. The EVAL-ADG854EBZ evaluation board allows the user to control the signals required to set the logic levels applied to these pins by using the L2 and L3 links as described in Table 1 or by applying external signals to the SMB connectors, IN1 and IN2, as described in Table 2.

To control the ADG854 using the SMB connectors, L2 and L3 must be set to Position B. Note that there are 51 Ω termination resistors at the IN1 and IN2 SMB connectors to GND.

Table 1. Control via Link L2/Link L3

	Switch Status	
L2 and L3 Position	**Audio Device 1 Status**	**Audio Device 2 Status**
A	Active	Inactive
B	Inactive	Active

Table 2. Control via SMB Connector Settings

L2 and L3 Position	Switch Status—Audio Device Status
B	SMB high = Audio Device 2 active SMB low = Audio Device 1 active

EVALUATION BOARD SCHEMATICS AND ARTWORK

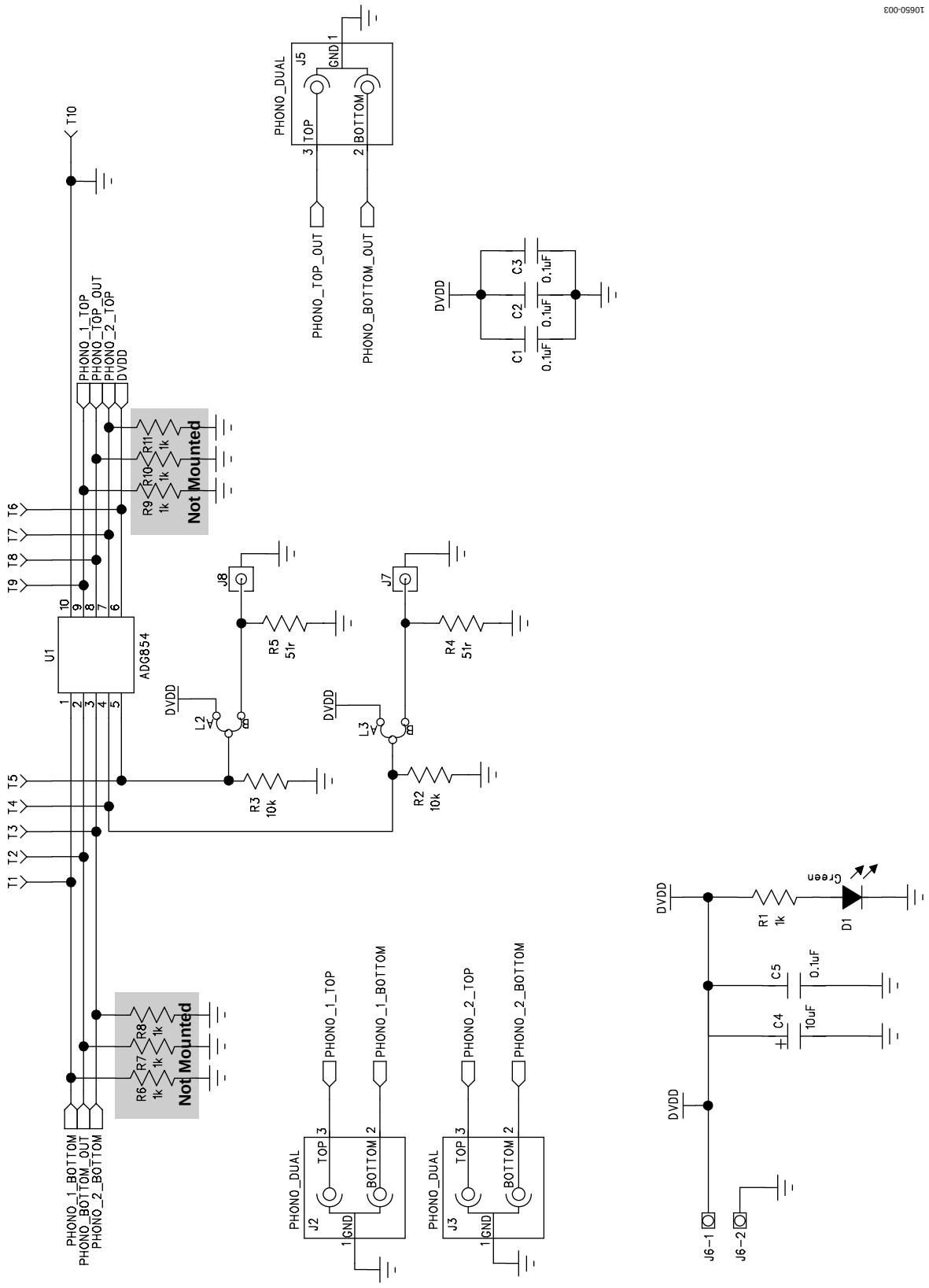

Figure 3. EVAL-ADG854EBZ Evaluation Board Schematic

EVAL-ADG854EBZ SWITCH PINS, TEST POINTS, AND CONNECTIONS

Table 3.

Connector Name	Evaluation Board Pin Mnemonic	Pin Number	ADG854 Mnemonic	Test Point
J2	PHONO_1_TOP	1	S2A	T9
	PHONO_1_BOTTOM	2	S1A	T1
J3	PHONO_2_TOP	1	S2B	T7
	PHONO_2_BOTTOM	2	S1B	T3
J5	PHONO_TOP_OUT	3	D2	T8
	PHONO_BOTTOM_OUT	2	D1	T2
J6-1	External 5 V	1	VDD	T6
J6-2	GND	2	GND	T10

PCB DRAWINGS

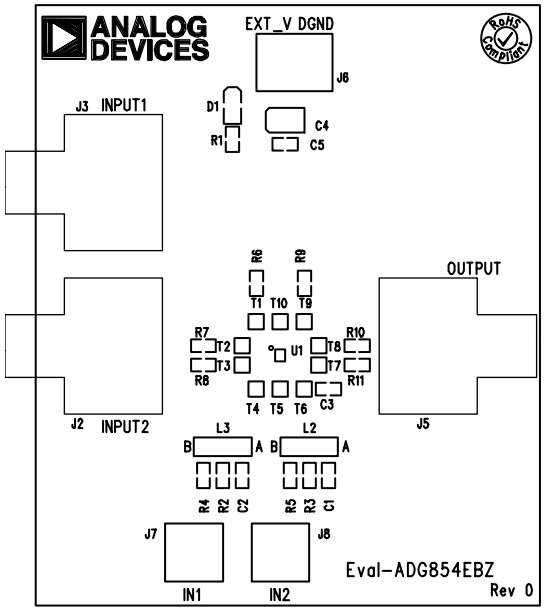

Figure 4. Silkscreen Image of the EVAL-ADG854EBZ Evaluation Board

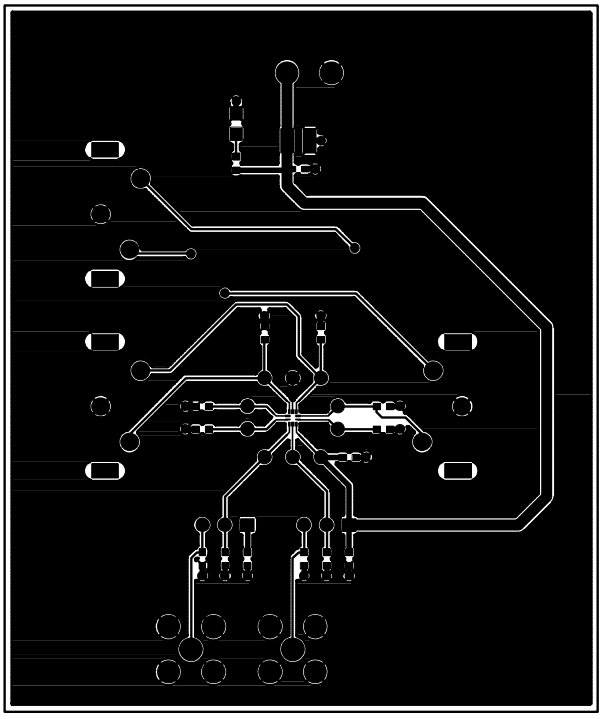

Figure 5. PCB Drawing Layer 1 (Top Layer of the EVAL-ADG854EBZ Evaluation Board)

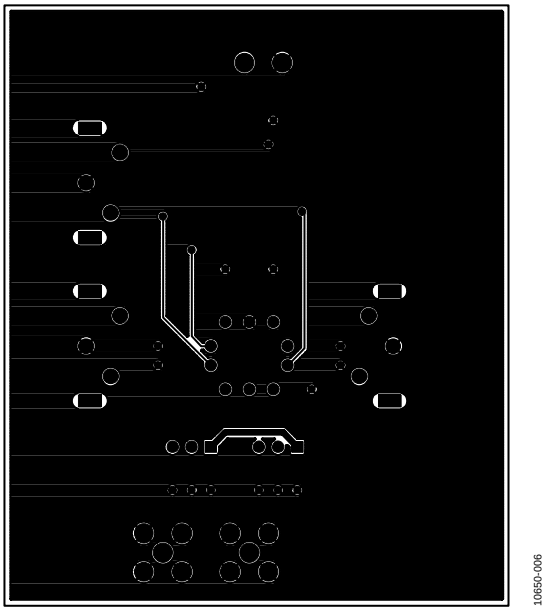

Figure 6. PCB Drawing Layer 2 (Bottom Layer of the EVAL-ADG854EBZ Evaluation Board)

COMPONENTS LIST

Table 4.

Reference Designator	Description	Supplier/Number
C1, C2, C3, C5	0.1 µF capacitors	FEC 9406140
C4	10 µF capacitors+	FEC 1190117
D1	Green LED	FEC 359-9681
J2, J3	Phono jumpers	Digi-Key CP-1435-ND
J5	Phono jumper	Digi-Key CP-1435-ND
J6	CON\power jumper	FEC 151785
J7, J8	SMB jumpers	FEC 1019324
L2 to L3	JUMPER2\SIP3	FEC 3291698 and FEC 150411
R1	1 kΩ resistor	FEC 1160322
R2, R3	10 kΩ resistors	FEC 1160359
R4, R5	51 Ω resistors	FEC 9331336
T1 to T10	Test points	FEC 8731128
U1	ADG854 0.5 Ω CMOS, 1.8 V to 5.5 V, dual SPDT/2:1 mux in mini LFCSP package	Analog Devices, Inc., ADG854