One Technology Way • P.O. Box 9106 • Norwood, MA 02062-9106, U.S.A. • Tel: 781.329.4700 • Fax: 781.461.3113 • www.analog.com

Evaluation Board for the ADA4433-1, Fully Differential Video Filter Amplifier Offered in 8-Lead LFCSP

FEATURES

Fully assembled and tested
Enables quick customer evaluation
Edge-mounted SMA connector provisions
Easy connection to test equipment and other circuits

GENERAL DESCRIPTION

The ADA4433-1BCP-EBZ evaluation board makes it easy for designers to quickly observe the performance of the ADA4433-1 video filter in real-world applications. Input signals are applied through the SMA jacks (+IN, −IN), and outputs are taken from SMA jacks (+OUT, −OUT). Power is applied through the red +VS test point. Ground the black GND test point. The ADA4433-1 operates on a single-supply voltage ranging from 2.6 V to 3.6 V, and draws approximately 14 mA.

The evaluation board is configured with an input termination resistor (R1) of 75 Ω. Chose this resistor to provide the correct termination or load for the input signal source. For example, current-mode video digital-to-analog converter (DAC) outputs that require a 300 Ω load resistance. In this case, replace R1 with a 300 Ω resistor.

The ADA4433-1 inputs can be driven by either a balanced or an unbalanced source. For unbalanced signals, bias the unused input (−IN) to approximately 0.5 V. For a 3.3 V supply, this can be achieved by using the on-board voltage divider by setting R2 = 1.33 kΩ and R3 = 7.5 kΩ. Populate the decoupling capacitor (C3) with 0.1 µF to help eliminate noise.

By default, the ADA4433-1BCP-EBZ is configured for single-ended input operation where the input signal is applied to SMA (+IN). For a balanced input configuration, R4 provides placement for the differential termination resistor.

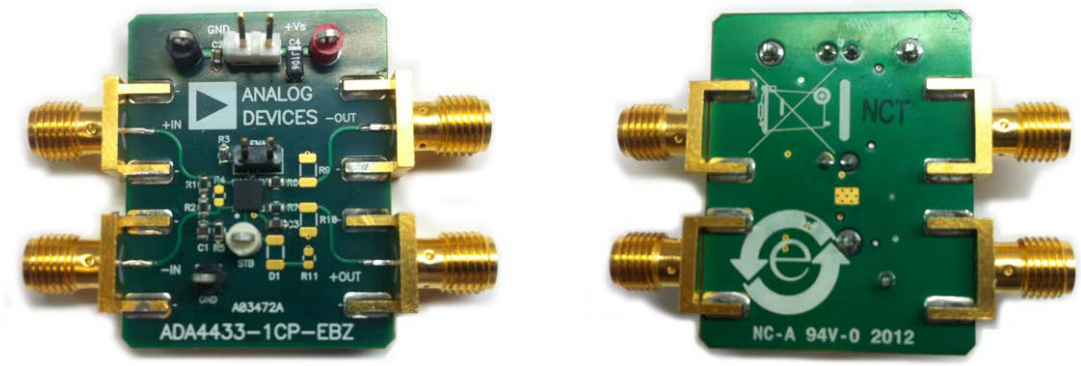
The ADA4433-1BCP-EBZ evaluation board is configured to drive a back terminated 150 Ω differential load. Series back-termination resistors (37.5 Ω each) are installed on both outputs. These can be changed to match the actual differential load impedance.

The ADA4433-1 can be powered down (disabled) by grounding the green ENA test point at the top left of the evaluation board. On the evaluation board, this pin is pulled up to +VS through the 4.7 kΩ resistor (R7).

In normal operation, the short-to-battery output flag (STB) is held at a logic low. During a short-to-battery fault condition (where a voltage ranging from 5 V to 18 V is applied to either or both outputs), the STB output voltage is driven to a logic high state. The STB yellow test point (lower left side of the evaluation board) can be used to monitor the short-to-battery output flag function.

Figure 1 shows the evaluation board, primary side and secondary side. Figure 2 shows the evaluation board schematic. The printed circuit board (PCB) layout pattern for the primary side and secondary side are shown in Figure 3 and Figure 4.

DIGITAL PICTURE OF EVALUATION BOARD



PRIMARY SIDE SECONDARY SIDE

NOTES
1. THE EVALUATION BOARD SILKSCREEN PART NUMBER LABELING ON YOUR BOARD MAY BE DIFFERENT FROM WHAT IS SHOWN HERE.

10786-001

Figure 1. ADA4433-1BCP-EBZ Primary Side and Secondary Side of PCB

TABLE OF CONTENTS

REVISION HISTORY

5/12—Revision 0: Initial Version

EVALUATION BOARD SCHEMATIC AND ARTWORK

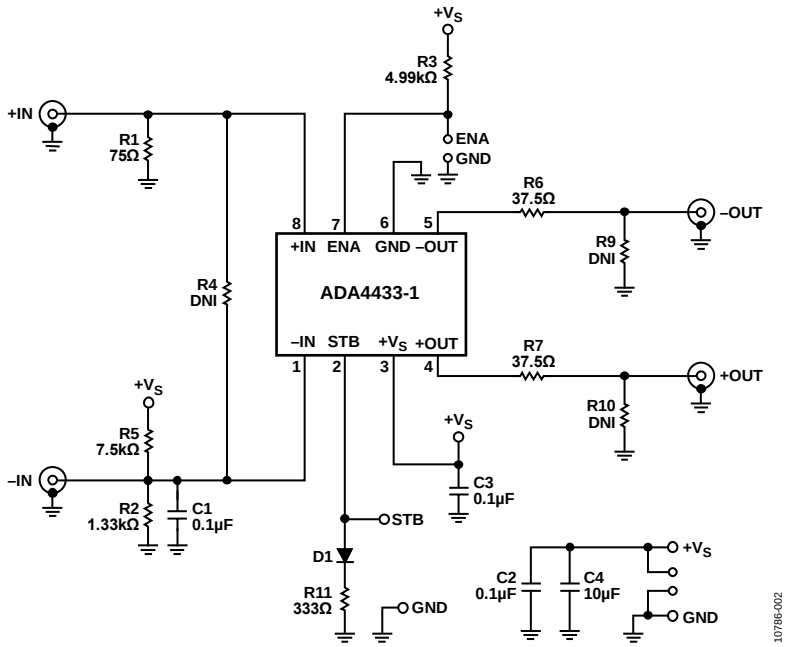


Figure 2. ADA4433-1BCP-EBZ Evaluation Board Circuit Schematic

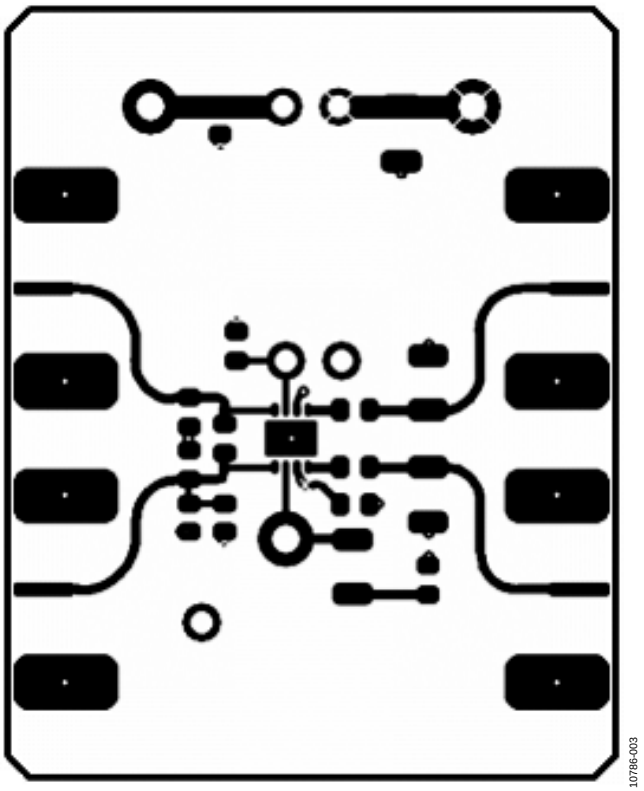


Figure 3. ADA4433-1BCP-EBZ Board Layout Pattern, Primary Side

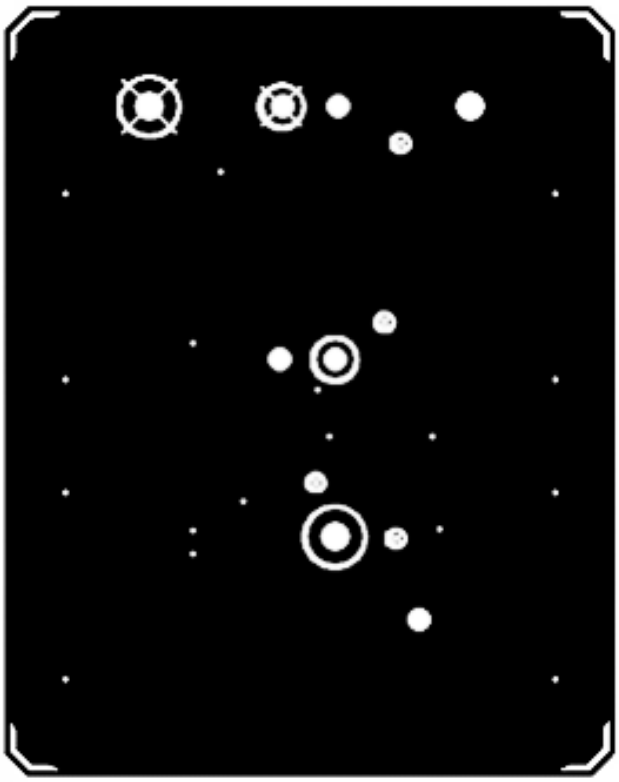


Figure 4. ADA4433-1BCP-EBZ Board Layout Pattern, Secondary Side

ORDERING INFORMATION

BILL OF MATERIALS

Table 1.

Quantity	Reference Designator	Description	Package
1	U1	ADA4433-1	8-Lead LFCSP
1	+VS	Red test point loop connector	TP1
3	C1, C2, C3	0.1 µF chip capacitors	0603
1	C4	10 µF chip capacitor	1206
1	ENA	2-Pin BERG connector	
2	GND	Black test point loop connector	TP1
4	+IN, −IN, −OUT, +OUT	SMA coaxial end launch connectors	
1	R1	75 Ω resistor	0603
1	R2	1.33 kΩ resistor	0603
1	R3	4.99 kΩ resistor	0603
1	R5	7.5 kΩ resistor	0603
2	R6, R7	37.5 Ω resistors	0603
1	R11	333 Ω resistor	0603
1	STB	Yellow test point loop connector	TP1
1	R4	Do not install resistors	0603
1	D1	Surface mount LED diode red	1206
2	R9, R10	Do not install resistors	1206