

## AMC-ADA4945-1EBZ Amplifier Mezzanine Card

### FEATURES

- Amplifier mezzanine card for ADC evaluation boards**
- Compatible with 10-lead, PulSAR® evaluation boards and select  $\Sigma$ - $\Delta$  ADCs**
- Enables change of ADC driver circuits**
- User defined circuit configuration**

### GENERAL DESCRIPTION

The Analog Devices, Inc., AMC-ADA4945-1EBZ evaluation board allows the user to evaluate the [ADA4945-1](#) fully differential amplifier as an analog-to-digital converter (ADC) driver for specified ADCs. The AMC-ADA4945-1EBZ evaluation board mounts onto compatible ADC evaluation boards via the 7-pin J1 and J2 headers, enables quick evaluation of multiple amplifier and ADC combinations, and can be configured to accept either a single-ended or differential input signal.

The evaluation board uses several 2-pin and 3-pin headers to control various features of the [ADA4945-1](#). Apply the proper jumpers to set the [ADA4945-1](#) high and low output clamp levels, set the [ADA4945-1](#) output common-mode voltage, choose the high or low power mode for the [ADA4945-1](#), and set the [ADA4945-1](#) digital ground level.

Optimized power and ground planes ensure low noise and high speed operation. Component placement and power supply bypassing provide maximum circuit flexibility and performance. The AMC-ADA4945-1EBZ evaluation board accepts 0402 surface mount technology (SMT) components, 0805 bypass capacitors, and 2.54 mm headers.

Full specifications on the [ADA4945-1](#) are available in the [ADA4945-1](#) data sheet. Consult the data sheet in conjunction with this user guide when working with the AMC-ADA4945-1EBZ evaluation board.

### EVALUATION BOARD PHOTOGRAPH

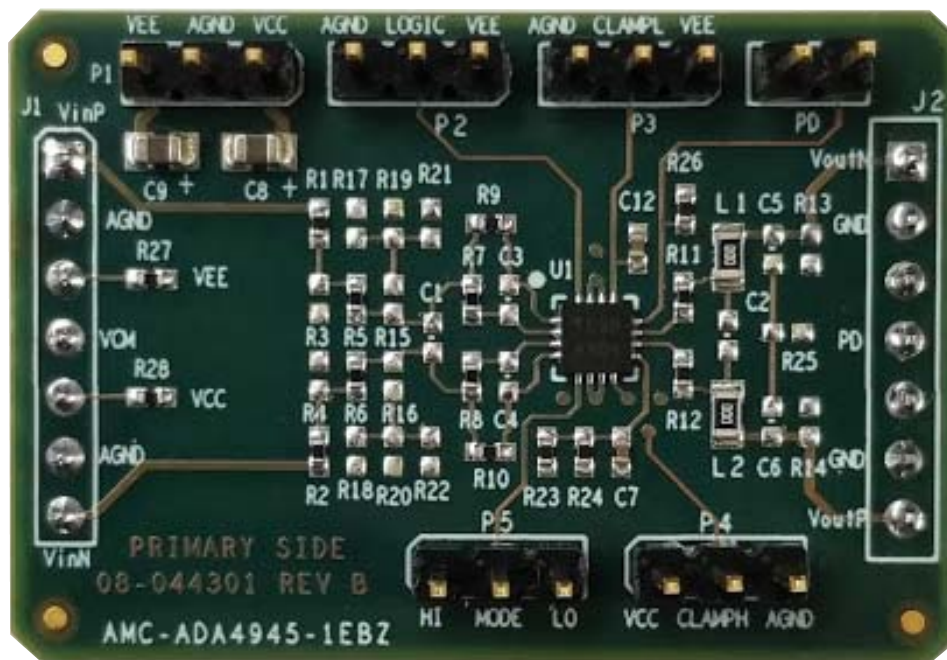


Figure 1.

20113-001

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**REVISION HISTORY**

**8/2020—Rev. 0 to Rev. A**

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**3/2019—Revision 0: Initial Version**

## FUNCTIONALITY AND CONTROL

### OUTPUT CLAMPS

Use the 3-pin P3 and P4 headers to set the [ADA4945-1](#) output clamp voltage levels at the  $+V_{CLAMP}$  pin and the  $-V_{CLAMP}$  pin (see Figure 2 and Figure 3). To set the  $+V_{CLAMP}$  voltage level to the positive supply (VCC), place a jumper across Pin 1 and Pin 2 of the P4 header. To set the  $+V_{CLAMP}$  voltage level to any user defined level, apply an external voltage at Pin 2 of the P4 header. Pin 3 is connected to analog ground (AGND). Use the P3 header to set the  $-V_{CLAMP}$  voltage level to the negative supply (VEE) or a user defined level.

### SETTING THE DIGITAL GROUND (DGND) LEVEL

Use the 3-pin P2 header to set the logic reference level (DGND) to VEE, AGND, or a user defined level (see Figure 2 and Figure 3). To set the DGND level to VEE, place a jumper across Pin 1 and Pin 2 of the P2 header. To set the DGND level to AGND, place a jumper across Pin 2 and Pin 3 of the P2 header. If a different logic reference level is required, apply the desired voltage directly to Pin 2.

### SUPPLIES, POWER MODES, AND DISABLE

The VCC and VEE power supplies are connected at the 3-pin P1 header.

Use the 3-pin P5 header to select full power operating mode or low power operating mode (see Figure 2 and Figure 3). Short Pin 1 and Pin 2 to place the [ADA4945-1](#) in full power operating mode. Short Pin 2 and Pin 3 to place the [ADA4945-1](#) in low power operation mode.

Short across the 2-pin PD header to place the [ADA4945-1](#) in disable mode.

### OUTPUT COMMON-MODE VOLTAGE

The AMC-ADA4945-1EBZ evaluation board receives a reference voltage from the ADC evaluation board through Pin 4 of the J1 connector (see Figure 2 and Figure 3). This reference voltage is divided in half via the R23 and R24 resistor divider, and applied to the  $V_{OCM}$  pin of the [ADA4945-1](#). Certain ADC evaluation boards provide a reference voltage that is already divided down. If the common-mode voltage is already divided down, change R23 to  $0\ \Omega$  and remove R24. When R23 and R24 are removed,  $V_{OCM}$  defaults to an internally generated level midway between  $+V_{CLAMP}$  and  $-V_{CLAMP}$ .

EVALUATION BOARD SCHEMATIC AND ARTWORK

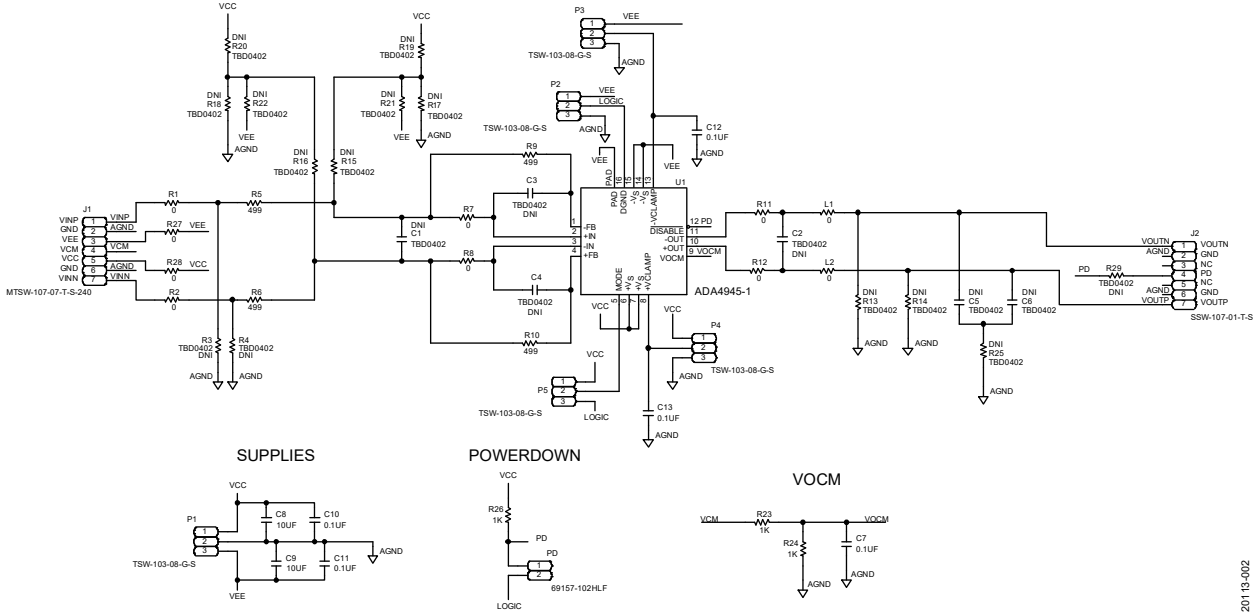


Figure 2. AMC-ADA4945-1EBZ Evaluation Board Schematic

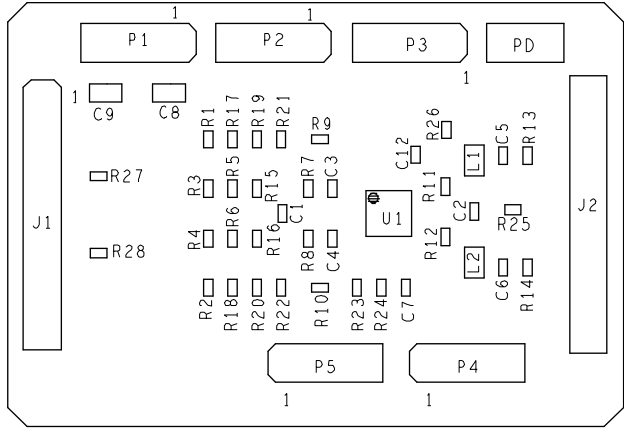


Figure 3. AMC-ADA4945-1EBZ Evaluation Board Assembly Drawing, Primary Side

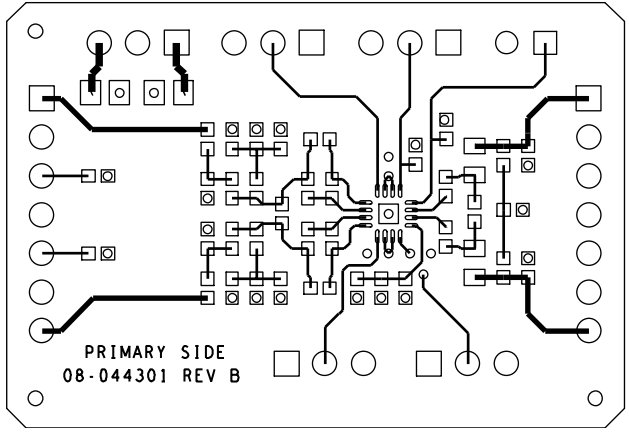


Figure 4. AMC-ADA4945-1EBZ Evaluation Board Layout Pattern, Primary Side

# ORDERING INFORMATION

## BILL OF MATERIALS

Table 1. AMC-ADA4945-1EBZ Bill of Materials

Quantity	Description	Reference Designation	Manufacturer	Part Number
1	High speed, $\pm 0.1 \mu V/^{\circ}C$ offset drift, fully differential ADC driver	U1	Analog Devices	<a href="#">ADA4945-1</a>
5	0.1 $\mu F$ ceramic capacitors, 0402	C7, C10 to C13	TDK	CGA2B1X7R1C104K050BC
2	10 $\mu F$ tantalum capacitors, 0805	C8, C9	Taiyo Yuden	JMK212BJ106MG-T
8	0 $\Omega$ chip resistors, 0402	R1, R2, R7, R8, R11, R12, R27, R28	Panasonic	ERJ-2GE0R00X
4	499 $\Omega$ chip resistors, 0402	R5, R6, R9, R10	Panasonic	ERJ-2RKF4990X
3	1 k $\Omega$ chip resistors, 0402	R23, R24, R26	Panasonic	ERJ-2RKF1001X
2	0 $\Omega$ chip resistors, 0805	L1, L2	Panasonic	ERJ-6GEY0R00V
1	Berg 2-pin header	PD	Amphenol	69157-102HLF
5	Berg 3-pin headers	P1 to P5	Samtec	TSW-103-08-G-S
1	7-pin connector, male	J1	Samtec	MTSW-107-07-T-S-240
1	7-pin connector, female	J2	Samtec	SSW-107-01-T-S
16	Chip resistors, 0402, do not install (DNI)	R3, R4, R13 to R25, R29	Not applicable	Not applicable
6	Ceramic capacitors, 0402, DNI	C1 to C6	Not applicable	Not applicable



**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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