

Evaluating the ADXL382 SPI, Low Noise, Low Power, Wide Bandwidth, 3-Axis MEMS Accelerometer

FEATURES

- ▶ Provides interface to host system through a 10-pin, dual-row, 2.00mm pitch header
- ▶ Small size and board stiffness minimizes impact on the system and acceleration measurements

EQUIPMENT NEEDED

- ▶ External host processor

DOCUMENTS NEEDED

- ▶ [ADXL382 data sheet](#)

EVALUATION BOARD PHOTOGRAPH

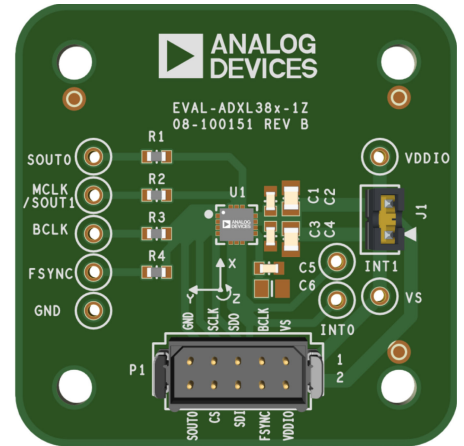


Figure 1. EVAL-ADXL382-1Z Evaluation Board Top View

GENERAL DESCRIPTION

The EVAL-ADXL382-1Z is a simple evaluation board that allows quick evaluation of the performance of the ADXL382 SPI, low noise, low power, wide bandwidth, 3-axis, digital output, microelectronic mechanical system (MEMS) accelerometer. The evaluation board provides a 10-pin header for access to the main ADXL382 communication signals.

TABLE OF CONTENTS

| | | | |
|----------------------------------|---|---------------------------------|---|
| Features..... | 1 | Circuit Description..... | 3 |
| Equipment Needed..... | 1 | Handling Considerations..... | 3 |
| Documents Needed..... | 1 | Evaluation Board Schematic..... | 4 |
| Evaluation Board Photograph..... | 1 | Ordering Information..... | 5 |
| General Description..... | 1 | Ordering Guide..... | 5 |
| Evaluation Board Hardware..... | 3 | Bill of Materials..... | 5 |

REVISION HISTORY**6/2026—Revision 0: Initial Version**

EVALUATION BOARD HARDWARE

The EVAL-ADXL382-1Z incorporates a 10-pin, dual-row, 2.00mm pitch header that provides access to the power supply and key signal lines. This connector enables connection of the evaluation board to an external host processor or interface board. Four holes are provided in the corners of the board for mechanical attachment of the EVAL-ADXL382-1Z to an application. An external host processor is required for communication with the [ADXL382](#).

The dimensions of the EVAL-ADXL382-1Z are 38mm × 38mm × 2mm. The center of each of the four mounting holes is located 5.08mm from the edges of the printed circuit board (PCB). Each hole has a diameter of 3.04mm and is sized for M3 screws (see [Figure 1](#)).

CIRCUIT DESCRIPTION

The PCB layout of the EVAL-ADXL382-1Z is shown in [Figure 1](#). The EVAL-ADXL382-1Z is equipped with five factory installed ceramic capacitors: C1 = C3 = C5 = 0.1μF and C2 = C4 = 1μF. C1 to C4 are optional capacitors meant for decoupling the accelerometer from the noise on the power supply. In contrast, C5 is required and ensures internal supply stability.

A jumper connects the V_S pin or the V_{DDIO} pin, enabling the board to be powered using one supply voltage applied to either of the two pins.

On the bottom side of the PCB, a set of check boxes is used to indicate the assembled device variant. The ADXL382 option is marked on this board (see [Figure 2](#)).

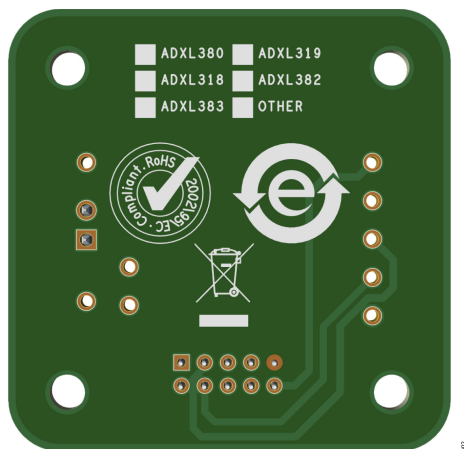


Figure 2. EVAL-ADXL382-1Z Evaluation Board Bottom View

The schematic of the EVAL-ADXL382-1Z is shown in [Figure 3](#).

Some components (test points and C6) are designated as do not install (DNI) and are not populated on this board (see [Table 2](#)). The INT0, INT1, and SOUT1/MCLK signals are accessible only via these test points and are not routed to the P1 connector.

Refer to the ADXL382 data sheet for information on configuring the accelerometer after connection to the application host processor.

HANDLING CONSIDERATIONS

The EVAL-ADXL382-1Z is not reverse polarity protected. Reversing the V_S or V_{DDIO} supply and GND pins can cause damage to the ADXL382.

Dropping the EVAL-ADXL382-1Z on a hard surface can generate several thousand g of acceleration, which may exceed the absolute maximum limits of the device. See the ADXL382 data sheet for additional information.

EVALUATION BOARD SCHEMATIC

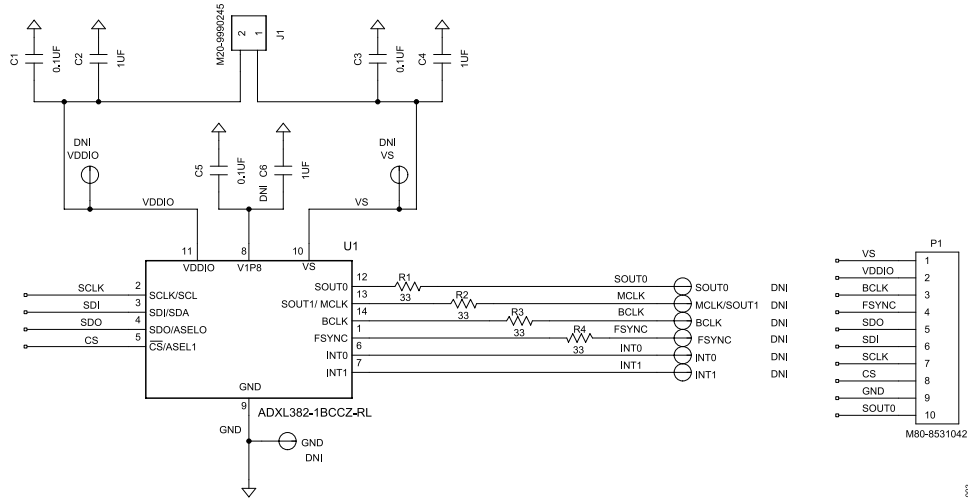


Figure 3. EVAL-ADXL382-1Z Evaluation Board Schematic

ORDERING INFORMATION

ORDERING GUIDE

| Model ¹ | Description |
|--------------------|------------------------------|
| EVAL-ADXL382-1Z | ADXL382 SPI Evaluation Board |

¹ Z = RoHS-Compliant Part.

BILL OF MATERIALS

Table 1. Bill of Materials

| Item | Quantity | Reference Designator | Description | Manufacturer | Part Number |
|------|----------|----------------------|--|----------------------|----------------------|
| 1 | 1 | U1 | SPI, low noise, low power, wide bandwidth, 3-Axis MEMS accelerometer | Analog Devices, Inc. | ADXL382-1BCCZ-RL |
| 2 | 3 | C1, C3, C5 | 0.1µF ceramic capacitors, 50V, 10%, X7R, 0603 | TDK | CGA3E2X7R1H104K080AE |
| 3 | 2 | C2, C4 | 1µF ceramic capacitors, 25V, 10%, X7R, 0805 | TDK | CGA4J3X7R1E105K125AB |
| 4 | 1 | J1 | 2-position header, throughhole, 2.54mm pitch | Harwin | M20-9990245 |
| 5 | 1 | P1 | 10-position, dual-row header, throughhole, 2.00mm pitch | Harwin | M80-8531042 |
| 6 | 4 | R1, R2, R3, R4 | 33Ω resistors, ±5%, 0.1W, 0603 | Panasonic Industry | ERJ-3GEYJ330V |

Table 2. Do Not Install (DNI) Components

| Item | Quantity | Reference Designator | Description | Manufacturer | Part Number |
|------|----------|--|--|----------------------|----------------------|
| 1 | 9 | BCLK, FSYNC, GND, INT0, INT1, SOUT0, SOUT1/MCLK, VDDIO, VS | PC test points, miniature black | Keystone Electronics | 5001 |
| 2 | 1 | C6 | 1µF ceramic capacitor, 25V, 10%, X7R, 0805 | TDK | CGA4J3X7R1E105K125AB |

**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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