

Evaluating the ADXL366 Ultra-Low Power, $\pm 2g/\pm 4g/\pm 8g$ Digital Accelerometer Breakout Board

FEATURES

- ▶ Simply attached to the prototyping board or PCB via two sets of 5-pin headers
- ▶ Small size and board stiffness minimizes impact on the system and acceleration measurements

EQUIPMENT NEEDED

- ▶ External host processor

DOCUMENTS NEEDED

- ▶ [ADXL366](#) data sheet

EVALUATION BOARD PHOTOGRAPH

GENERAL DESCRIPTION

The EVAL-ADXL366Z is a simple evaluation board that allows quick evaluation of the performance of the ADXL366 ultra-low power, 3-axis, digital output, microelectronic mechanical system (MEMS) accelerometer. The evaluation board comes with a set of two 5-pin headers (not installed) and provides access to all ADXL366 communication and interrupt pins. The EVAL-ADXL366Z also comes with a set of four mounting holes that are compatible with the [EVAL-XLMOUNT1](#), which is an aluminum block with a central mounting hole.

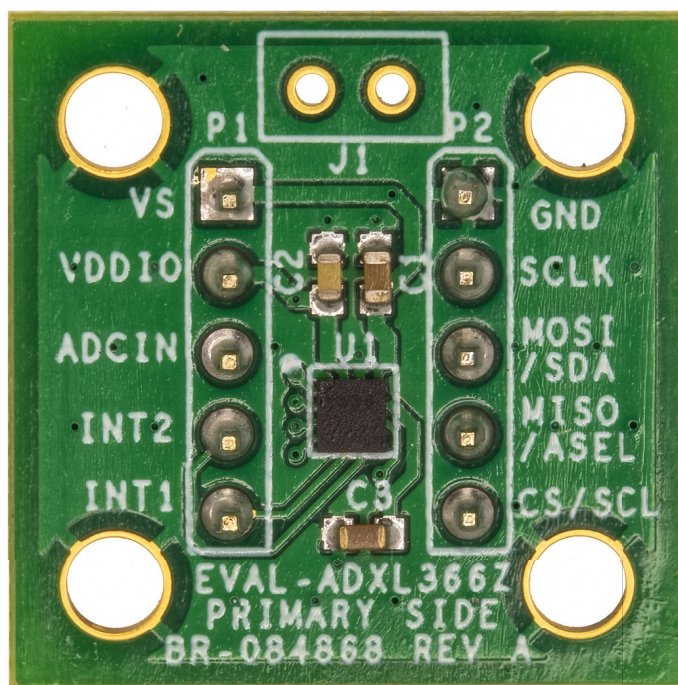


Figure 1. EVAL-ADXL366Z Evaluation Board

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REVISION HISTORY

4/2025—Revision 0: Initial Version

EVALUATION BOARD HARDWARE

The EVAL-ADXL366Z has two sets of 5-pin headers, with a 0.1in pitch, that provides access to all power and signal lines. The headers allow the evaluation board to be attached either to a prototyping board (breadboard) or to a printed circuit board (PCB) in an existing system. Four holes are provided in the corners of the board for mechanical attachment of the EVAL-ADXL366Z to an application. An external host processor is required for communication with the [ADXL366](#).

The dimensions of the EVAL-ADXL366Z are 20mm × 20mm. The four mounting holes are set 15mm × 15mm at the corners of the PCB.

CIRCUIT DESCRIPTION

The PCB layout of the EVAL-ADXL366Z is shown in [Figure 1](#). The EVAL-ADXL366Z is equipped with three factory installed ceramic capacitors: C1 = 1μF, C2 = 0.1μF, and C3 = 0.22μF. C1 and C2

are meant for decoupling the accelerometer from the noise on the power supply, and C3 is used for internal supply stability.

The schematic of the EVAL-ADXL366Z is shown in [Figure 2](#). See the ADXL366 data sheet for information on configuring the accelerometer following its connection to the application host processor.

HANDLING CONSIDERATIONS

The EVAL-ADXL366Z is not reverse polarity protected. Reversing the V_S or V_{DDIO} supply and GND pins can cause damage to the ADXL366.

Dropping the EVAL-ADXL366Z on a hard surface can generate several thousand g of acceleration, which may exceed the data sheet absolute maximum limits. See the ADXL366 data sheet for more information.

EVALUATION BOARD SCHEMATIC

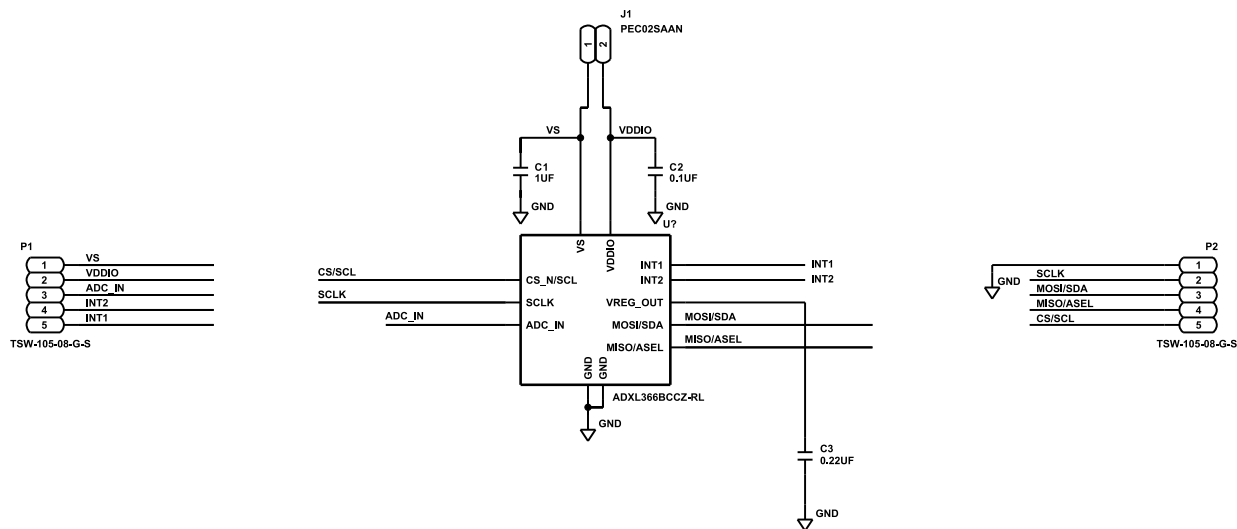


Figure 2. EVAL-ADXL366Z Evaluation Board Schematic


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ORDERING INFORMATION

BILL OF MATERIALS

Table 1. Bill of Materials

| Item | Quantity | Reference Designator | Description | Manufacturer | Part Number |
|------|----------|----------------------|--|----------------------|--------------------|
| 1 | 1 | U1 | Micropower 3-Axis, ±2g/±4g/±6g, digital output, MEMs accelerometer | Analog Devices, Inc. | ADXL366BCCZ-RL |
| 2 | 1 | C1 | 1µF ceramic capacitor, 50V, 10%, X7R, 0603 | Taiyo Yuden | UMK107AB7105KA-T |
| 3 | 1 | C2 | 0.1µF ceramic capacitor, 50V, 10%, X7R, 0603 | YAGEO | CC0603KRX7R9BB104 |
| 4 | 1 | C3 | 0.22µF ceramic capacitor, 50V, 10%, X7R, 0603 | Murata | GCM188R71H224KA64D |
| 5 | 2 | P1, P2 | Connector headers, through hole, 5 position, 0.100" (2.54mm) | Samtec, Inc. | TSW-105-08-G-S |



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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