Ultralow Power, ±200 g Digital Accelerometer Breakout Board

FEATURES
- 2 sets of spaced vias for population of 5-pin headers
- Easily attached to prototyping board or PCB
- Small size and board stiffness minimize impact on the system and acceleration measurements

EQUIPMENT NEEDED
- External host processor

DOCUMENTS NEEDED
- ADXL372 data sheet

GENERAL DESCRIPTION
The EVAL-ADXL372Z is a simple evaluation board that allows quick evaluation of the performance of the ADXL372 ultralow power, 3-axis, digital output MEMS accelerometer. The EVAL-ADXL372Z is ideal for evaluation of the ADXL372 in an existing system because the stiffness and the small size of the evaluation board minimize the effect of the board on both the system and acceleration measurements.

Full specifications for the ADXL372 are available in the product data sheet; consult the data sheet in conjunction with this user guide when working with the evaluation board.

EVALUATION BOARD PHOTOGRAPH

Figure 1.
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REVISION HISTORY

3/2017—Revision 0: Initial Version
EVALUATION BOARD HARDWARE

The EVAL-ADXL372Z has two sets of 0.1 inch spaced vias for populating the 5-pin headers that provide access to all power and signal lines. The vias or headers allow attachment of the evaluation board either to a prototyping board (breadboard) or to a printed circuit board (PCB) in an existing system. Four holes are provided that are set 15 mm × 15 mm at the corners of the PCB for mechanical attachment of the EVAL-ADXL372Z to the application fixture. An external host processor is required for communication to the device.

The dimensions of the EVAL-ADXL372Z are 20 mm × 20 mm.

CIRCUIT DESCRIPTION

The PCB layout of the EVAL-ADXL372Z is shown in Figure 1. The EVAL-ADXL372Z is equipped with three factory installed capacitors for bypass: two 0.1 μF capacitors (C1 and C2) and a 10 μF capacitor (C3). C2 and C3 are VS bypass capacitors for reducing analog supply noise and C1 (located between VDDI/O and GND) is for reducing digital clocking noise.

The schematic of the EVAL-ADXL372Z is shown in Figure 2. See the ADXL372 data sheet for information on configuring the accelerometer following its connection to the application host processor.

HANDLING CONSIDERATIONS

The EVAL-ADXL372Z is not reverse polarity protected. Reversing the VS or VDDI/O supply and GND pins can cause damage to the ADXL372.

Dropping the EVAL-ADXL372Z on a hard surface can generate several thousand g of acceleration, which may exceed the data sheet absolute maximum limits. See the ADXL372 data sheet for more information.
EVALUATION BOARD SCHEMATICS AND ARTWORK

Figure 2. EVAL-ADXL372Z Schematic

Figure 3. Printed Circuit Board Layout
Figure 4. EVAL-ADXL372Z Bottom Layout

Figure 5. EVAL-ADXL372Z Top Layout
ORDERING INFORMATION

BILL OF MATERIALS

Table 1.

<table>
<thead>
<tr>
<th>Qty</th>
<th>Reference Designator</th>
<th>Description</th>
<th>Manufacturer</th>
<th>Part Number</th>
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<tr>
<td>1</td>
<td>U1</td>
<td>Ultralow power MEMS accelerometer</td>
<td>Analog Devices, Inc.</td>
<td>ADXL372BCCZ-ENG</td>
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<tr>
<td>2</td>
<td>C1, C2</td>
<td>0.1 µF ceramic capacitor, 50 V, 10%, X7R</td>
<td>CAL-CHIP</td>
<td>GMC10X7R104K50NTLF</td>
</tr>
<tr>
<td>1</td>
<td>C3</td>
<td>10 µF tantalum capacitor, 10 V, 10%</td>
<td>CAL-CHIP</td>
<td>TCKIA106ATL</td>
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RELATED LINKS

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<th>Resource</th>
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</tr>
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<td>EVAL-ADXL372Z</td>
<td>ADXL372 breakout board user guide</td>
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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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