

## Ultralow Power, $\pm 200$ 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

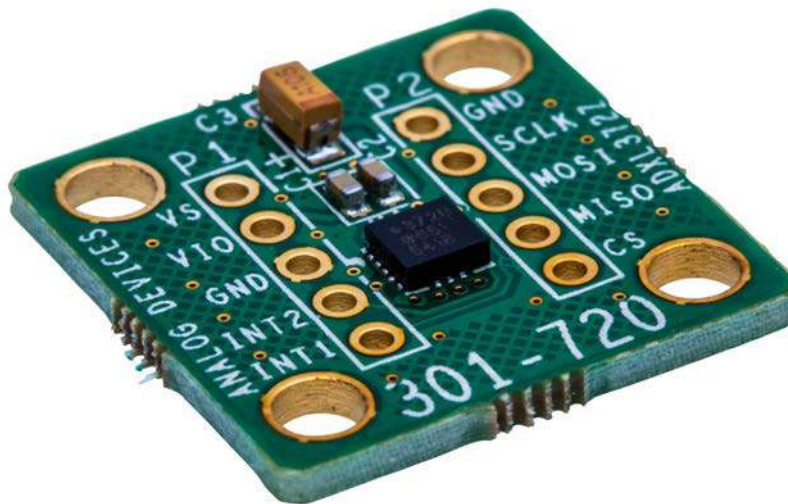


Figure 1.

15639-001

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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  $V_s$  bypass capacitors for

reducing analog supply noise and C1 (located between  $V_{DDI/O}$  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  $V_s$  or  $V_{DDI/O}$  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

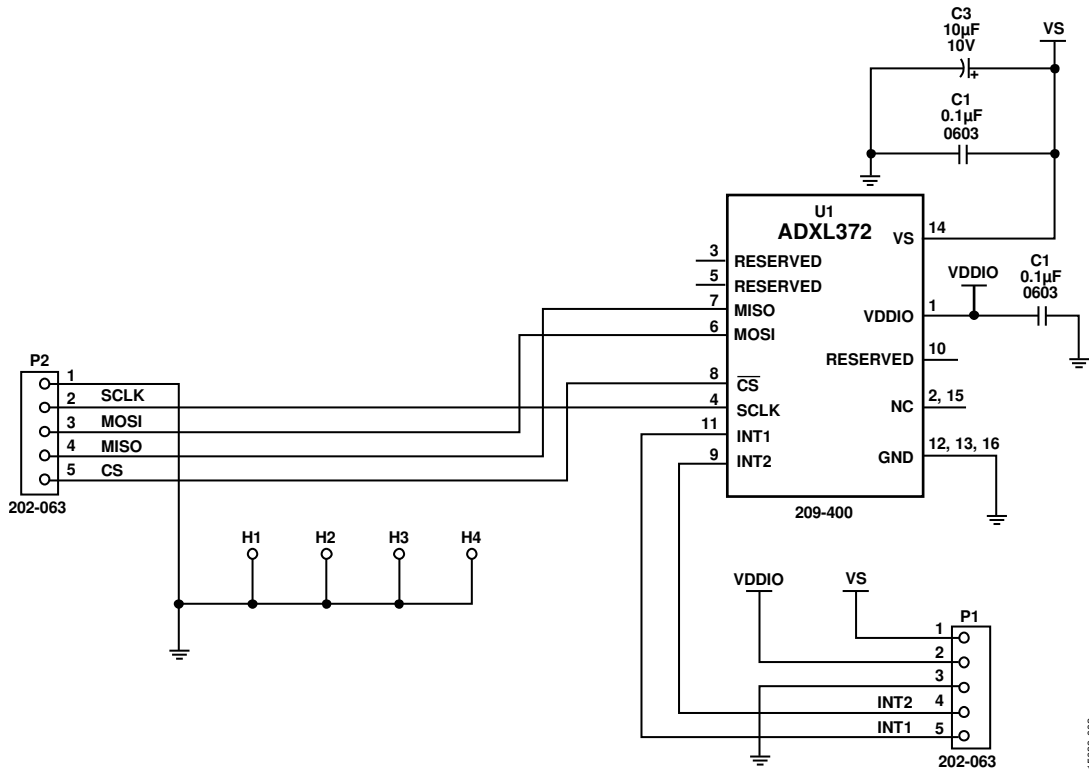


Figure 2. EVAL-ADXL372Z Schematic

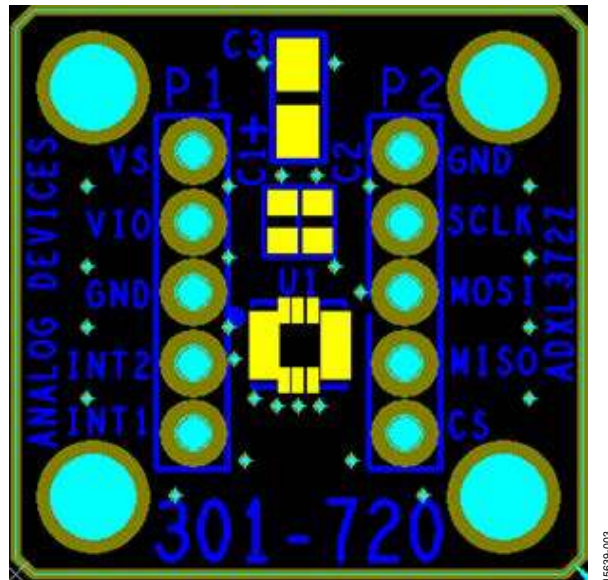
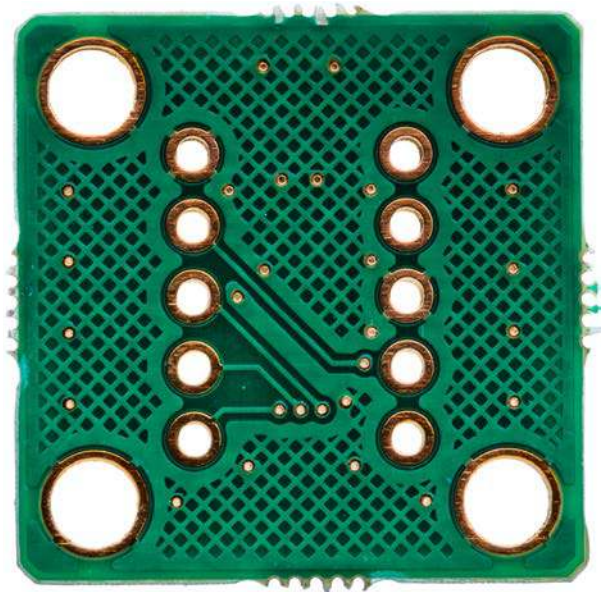
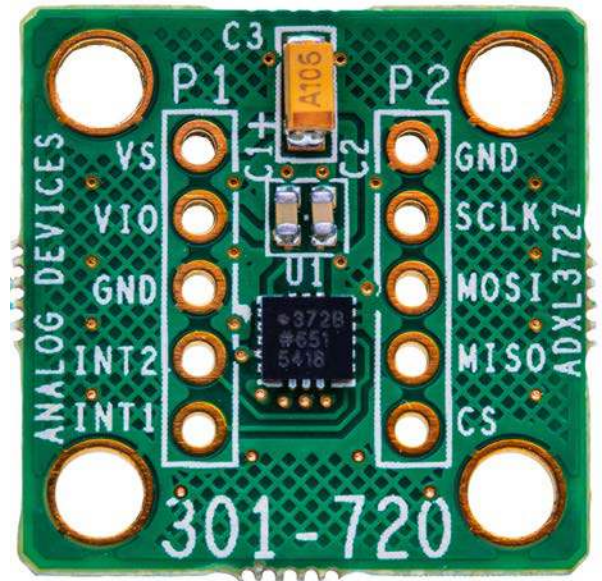


Figure 3. Printed Circuit Board Layout



15639-004

Figure 4. EVAL-ADXL372Z Bottom Layout



15639-005

Figure 5. EVAL-ADXL372Z Top Layout

## ORDERING INFORMATION

### BILL OF MATERIALS

Table 1.

Qty	Reference Designator	Description	Manufacturer	Part Number
1	U1	Ultralow power MEMS accelerometer	Analog Devices, Inc.	ADXL372BCCZ-ENG
2	C1, C2	0.1 $\mu$ F ceramic capacitor, 50 V, 10%, X7R	CAL-CHIP	GMC10X7R104K50NTLF
1	C3	10 $\mu$ F tantalum capacitor, 10 V, 10%	CAL-CHIP	TCKIA106ATL

### RELATED LINKS

Resource	Description
<a href="#">ADXL372</a>	Product page, <a href="#">ADXL372</a>
<a href="#">EVAL-ADXL372Z</a>	<a href="#">ADXL372</a> breakout board user guide



#### 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.

#### Legal Terms and Conditions

By using the evaluation board discussed herein (together with any tools, components documentation or support materials, the "Evaluation Board"), you are agreeing to be bound by the terms and conditions set forth below ("Agreement") unless you have purchased the Evaluation Board, in which case the Analog Devices Standard Terms and Conditions of Sale shall govern. Do not use the Evaluation Board until you have read and agreed to the Agreement. Your use of the Evaluation Board shall signify your acceptance of the Agreement. This Agreement is made by and between you ("Customer") and Analog Devices, Inc. ("ADI"), with its principal place of business at One Technology Way, Norwood, MA 02062, USA. Subject to the terms and conditions of the Agreement, ADI hereby grants to Customer a free, limited, personal, temporary, non-exclusive, non-sublicensable, non-transferable license to use the Evaluation Board FOR EVALUATION PURPOSES ONLY. Customer understands and agrees that the Evaluation Board is provided for the sole and exclusive purpose referenced above, and agrees not to use the Evaluation Board for any other purpose. Furthermore, the license granted is expressly made subject to the following additional limitations: Customer shall not (i) rent, lease, display, sell, transfer, assign, sublicense, or distribute the Evaluation Board; and (ii) permit any Third Party to access the Evaluation Board. As used herein, the term "Third Party" includes any entity other than ADI, Customer, their employees, affiliates and in-house consultants. The Evaluation Board is NOT sold to Customer; all rights not expressly granted herein, including ownership of the Evaluation Board, are reserved by ADI. CONFIDENTIALITY. This Agreement and the Evaluation Board shall all be considered the confidential and proprietary information of ADI. Customer may not disclose or transfer any portion of the Evaluation Board to any other party for any reason. Upon discontinuation of use of the Evaluation Board or termination of this Agreement, Customer agrees to promptly return the Evaluation Board to ADI. ADDITIONAL RESTRICTIONS. Customer may not disassemble, decompile or reverse engineer chips on the Evaluation Board. Customer shall inform ADI of any occurred damages or any modifications or alterations it makes to the Evaluation Board, including but not limited to soldering or any other activity that affects the material content of the Evaluation Board. Modifications to the Evaluation Board must comply with applicable law, including but not limited to the RoHS Directive. TERMINATION. ADI may terminate this Agreement at any time upon giving written notice to Customer. Customer agrees to return to ADI the Evaluation Board at that time. LIMITATION OF LIABILITY. THE EVALUATION BOARD PROVIDED HEREUNDER IS PROVIDED "AS IS" AND ADI MAKES NO WARRANTIES OR REPRESENTATIONS OF ANY KIND WITH RESPECT TO IT. ADI SPECIFICALLY DISCLAIMS ANY REPRESENTATIONS, ENDORSEMENTS, GUARANTEES, OR WARRANTIES, EXPRESS OR IMPLIED, RELATED TO THE EVALUATION BOARD INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, TITLE, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. IN NO EVENT WILL ADI AND ITS LICENSORS BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES RESULTING FROM CUSTOMER'S POSSESSION OR USE OF THE EVALUATION BOARD, INCLUDING BUT NOT LIMITED TO LOST PROFITS, DELAY COSTS, LABOR COSTS OR LOSS OF GOODWILL. ADI'S TOTAL LIABILITY FROM ANY AND ALL CAUSES SHALL BE LIMITED TO THE AMOUNT OF ONE HUNDRED US DOLLARS (\$100.00). EXPORT. Customer agrees that it will not directly or indirectly export the Evaluation Board to another country, and that it will comply with all applicable United States federal laws and regulations relating to exports. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the substantive laws of the Commonwealth of Massachusetts (excluding conflict of law rules). Any legal action regarding this Agreement will be heard in the state or federal courts having jurisdiction in Suffolk County, Massachusetts, and Customer hereby submits to the personal jurisdiction and venue of such courts. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement and is expressly disclaimed.