



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## Evaluating the Low Noise, High Frequency MEMS [ADXL1001/ADXL1002](#) Accelerometers

### FEATURES

- 2 sets of spaced vias for populating 6-pin headers
- Easily attaches to prototyping board or PCB
- Small size and board stiffness minimizes impact on the user system and acceleration measurements

### EQUIPMENT NEEDED

External digitizer and host processor

### DOCUMENTS NEEDED

[ADXL1001/ADXL1002](#) data sheet

### GENERAL DESCRIPTION

The [EVAL-ADXL1001Z](#) and [EVAL-ADXL1002Z](#) are simple evaluation boards that allow users to quickly evaluate the performance of the [ADXL1001](#) and [ADXL1002](#) vibration sensors. The [EVAL-ADXL1001Z](#) and [EVAL-ADXL1002Z](#) are specifically designed to mount onto a mechanical shaker and are constructed of an extra thick printed circuit board (PCB), measuring 0.8 inches square. Screw holes are supplied for rigid mounting to the shaker block. This design allows users to evaluate the full performance range of the [ADXL1001](#) or [ADXL1002](#) vibration sensor without having to solder the device to a separate test board. A simple RC low-pass filter is provided at the output with a  $-3$  dB bandwidth of about 20 kHz. Components can be replaced to allow users to implement their own application specific low-pass filter on the output of the device.

Full details on the microelectromechanical systems (MEMS) [ADXL1001/ADXL1002](#) accelerometers are provided in the [ADXL1001/ADXL1002](#) data sheet, available from Analog Devices, Inc., which must be consulted in conjunction with this evaluation board user guide.

### EVALUATION BOARD PHOTOGRAPHS

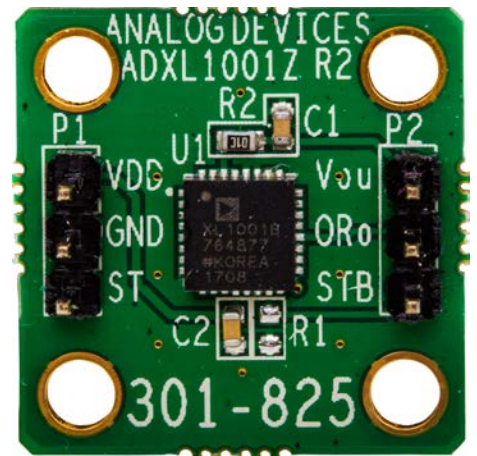


Figure 1. [EVAL-ADXL1001Z](#)



Figure 2. [EVAL-ADXL1002Z](#)

**TABLE OF CONTENTS**

Features .....	1	Evaluation Board Hardware.....	3
Equipment Needed.....	1	Circuit Description .....	3
Documents Needed.....	1	Special Notes on Handling.....	3
General Description.....	1	Evaluation Board Schematics and Artwork.....	4
Evaluation Board Photographs .....	1	Ordering Information.....	7
Revision History .....	2	Bill of Materials.....	7

**REVISION HISTORY**

**3/2017—Revision 0: Initial Version**

## EVALUATION BOARD HARDWARE

### CIRCUIT DESCRIPTION

The schematics for the [EVAL-ADXL1001Z](#) and [EVAL-ADXL1002Z](#) are shown in Figure 3 and Figure 4. This circuit was designed to allow a user configurable low-pass filter on the device output. When no low-pass filter is needed, users must short the R1 solder pads together, and it is recommended that a bypass capacitor (22 nF) be placed on C2 for improved electromagnetic interference (EMI) rejection.

The board layouts of the [EVAL-ADXL1001Z](#) and [EVAL-ADXL1002Z](#) are shown in Figure 1 and Figure 2, and the bill of materials list for the [EVAL-ADXL1001Z](#) and [EVAL-ADXL1002Z](#) is

shown in Table 1. As delivered, the bandwidth limit of the evaluation boards is set by the external RC filter at about 20 kHz. It is recommended that additional filtering, such as a <75 kHz low-pass filter, be added to mitigate high frequency noise outside of the vibration band of interest.

### SPECIAL NOTES ON HANDLING

The [EVAL-ADXL1001Z](#) and [EVAL-ADXL1002Z](#) are not reverse polarity protected. Reversing the power supply or applying inappropriate voltages to any pin may damage the [EVAL-ADXL1001Z](#) and [EVAL-ADXL1002Z](#).

EVALUATION BOARD SCHEMATICS AND ARTWORK

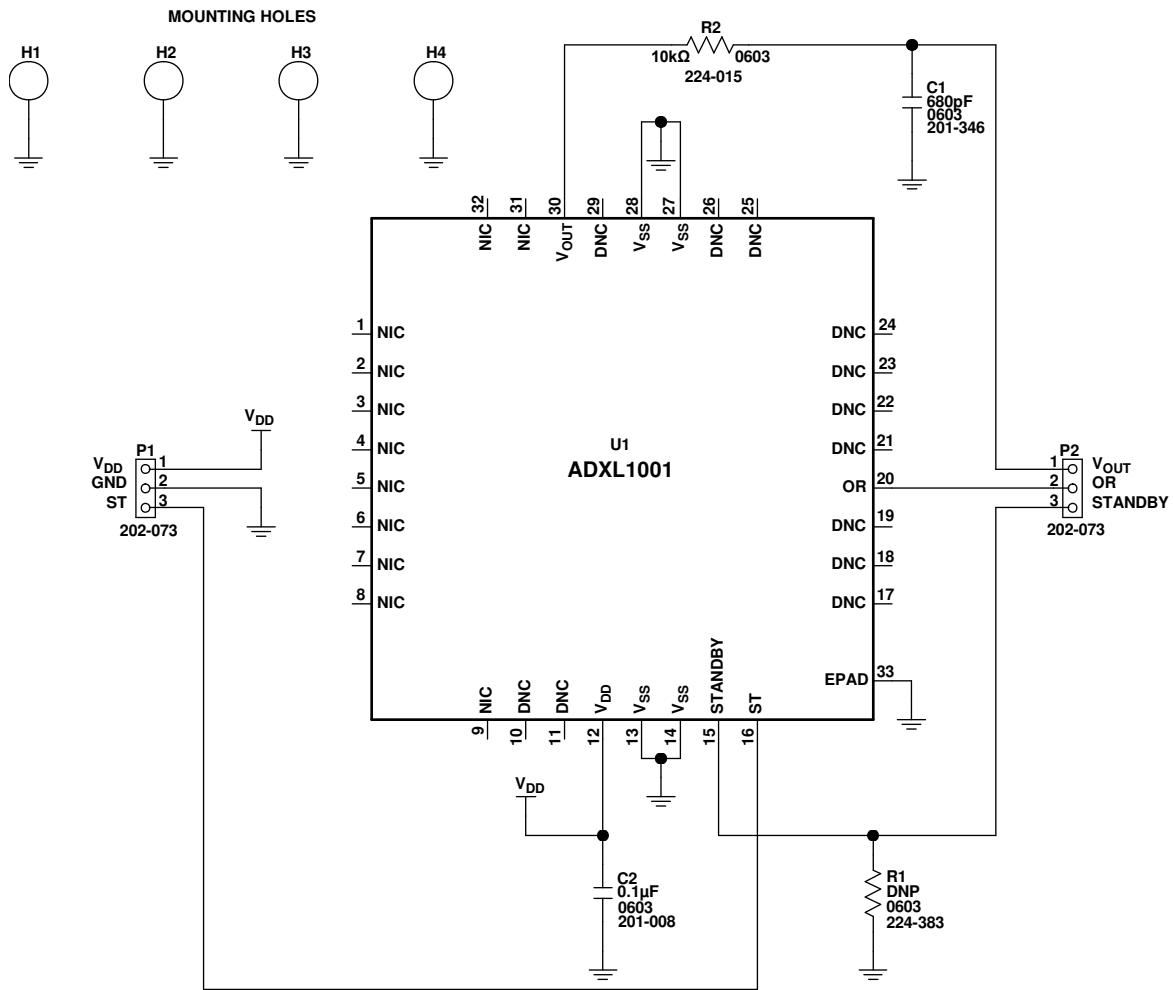


Figure 3. EVAL-ADXL1001Z Schematic

15710-003

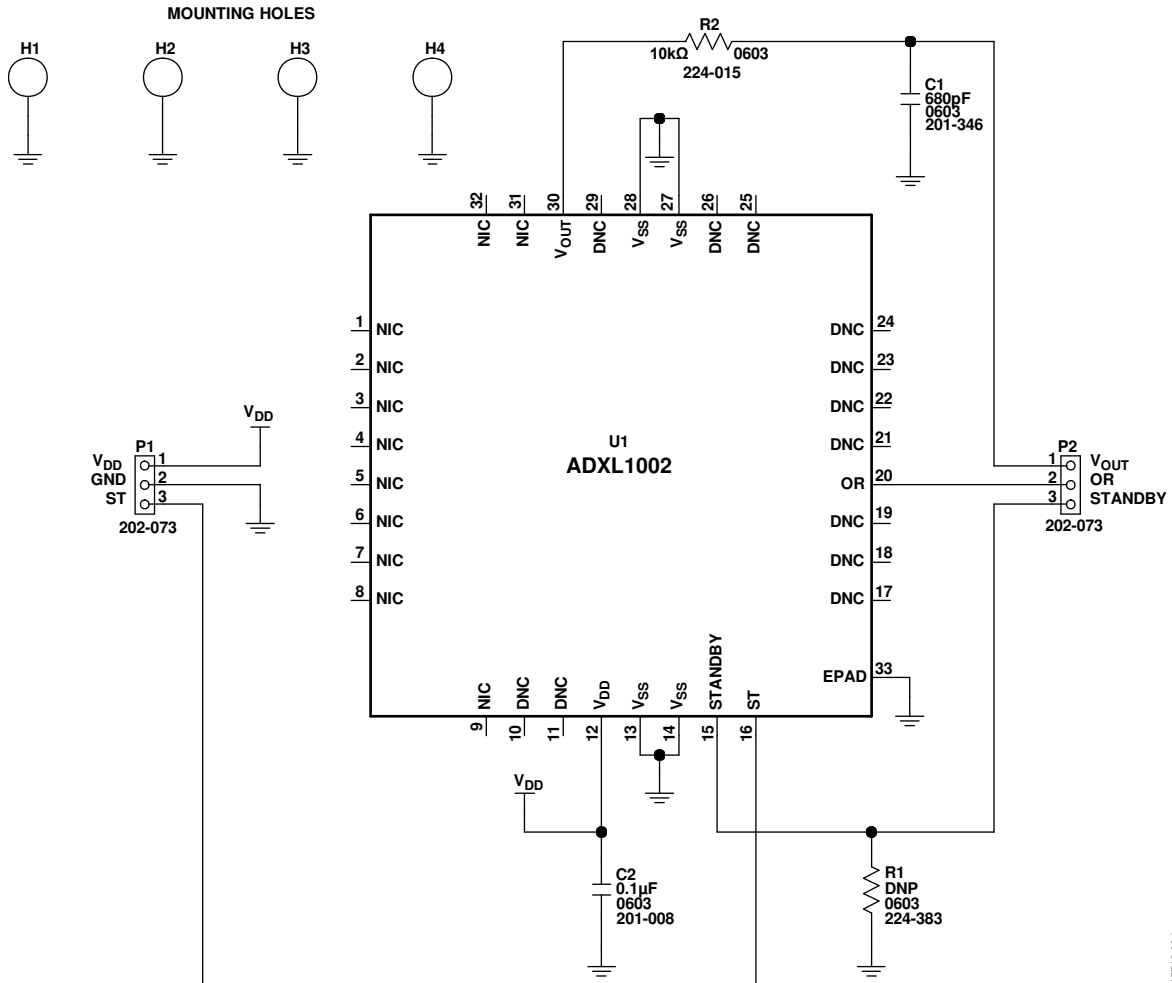
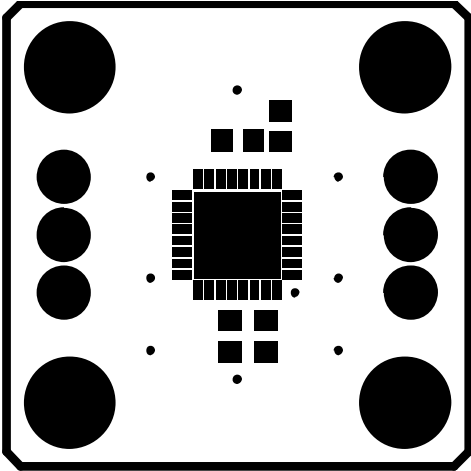


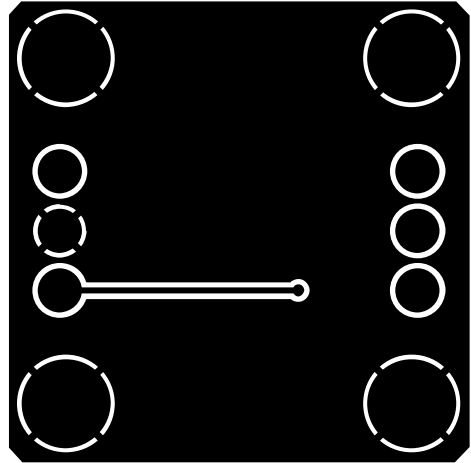
Figure 4. EVAL-ADXL100ZZ Schematic

15710-004



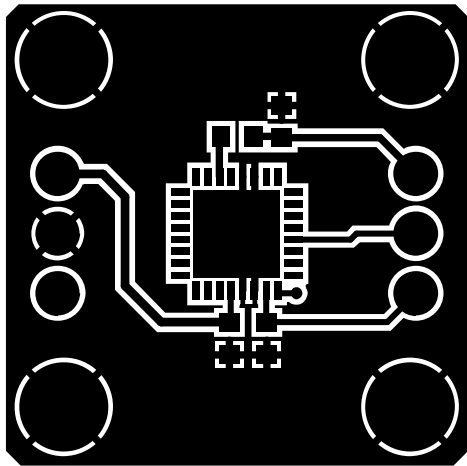
15710-005

Figure 5. Top Soldermask



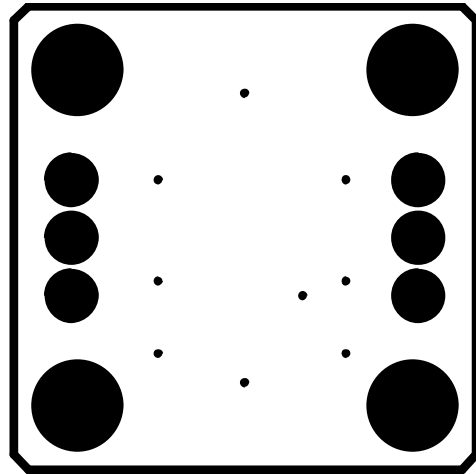
15710-007

Figure 7. Bottom Copper Layer



15710-006

Figure 6. Top Copper Layer



15710-008

Figure 8. Secondary Bottom Soldermask

## ORDERING INFORMATION

### BILL OF MATERIALS

Table 1. [EVAL-ADXL1001Z/EVAL-ADXL1002Z](#) Bill of Materials

Qty	Reference Designator	Description
1	C1	680 pF capacitor, 0603 size
1	C2	0.1 $\mu$ F capacitor, 0603 size
1	R1	Not included
1	R2	10 k $\Omega$ resistor, 0603 size



#### 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 (\$100,000). 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.

©2017 Analog Devices, Inc. All rights reserved. Trademarks and registered trademarks are the property of their respective owners.  
UG15710-0-3/17(0)



www.analog.com