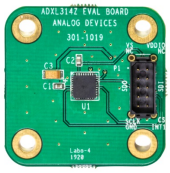

ANALOG DEVICE UG-2043 3-Axis Digital Accelerometer User Guide

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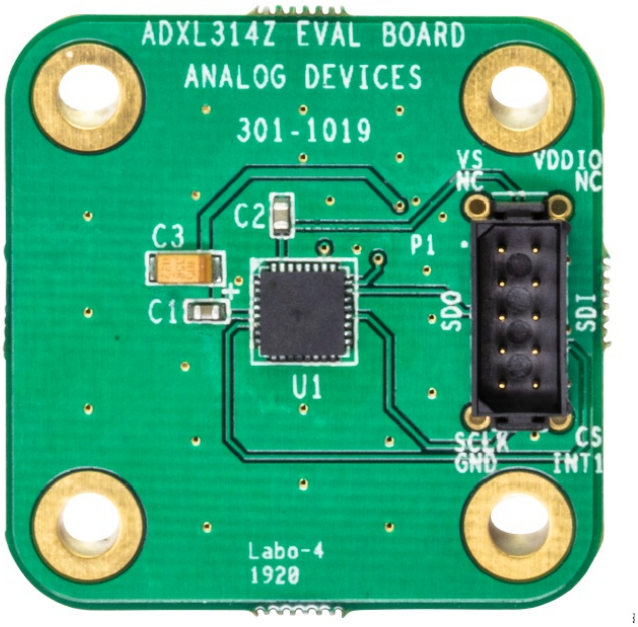


Evaluating the ADXL314 ±200 g Range, 3-Axis Digital Accelerometer

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 measurement

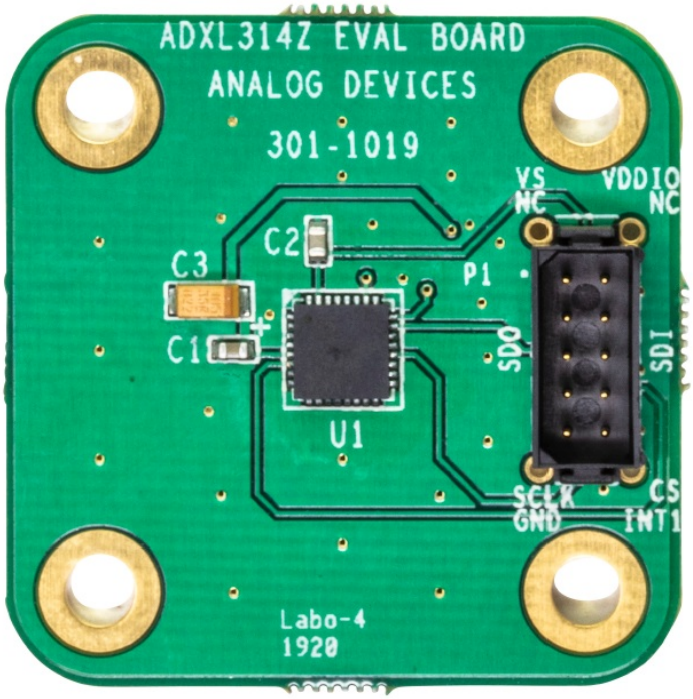
EVALUATION KIT CONTENTS

- EVAL-ADXL314Z evaluation board
- 10-pin Harwin connector, M80-8541042 ONLINE RESOURCES
- ADXL314 datasheet
- ADXL314 Quick Start User Guide

GENERAL DESCRIPTION

The EVAL-ADXL314Z is a simple evaluation board that allows quick evaluation of the performance of the ADXL314, a 3-axis digital accelerometer. The EVAL-ADXL314Z is ideal for the evaluation of the ADXL314 in an existing system because the stiffness and the small size of the EVAL-ADXL314Z minimize the effect of the board on both the system and acceleration measurements.
For full details on the ADXL314, see the ADXL314 data sheet, which should be consulted in conjunction with this user guide when using the EVAL-ADXL314Z evaluation board.

EVALUATION BOARD PHOTOGRAPH



EVALUATION BOARD HARDWARE

The EVAL-ADXL314Z includes a 10-pin Harwin connector that provides robustness for the more demanding scenarios and access to all power and signal lines. Four holes are provided that are set at 2.54 mm × 2.54 mm at the corners of the printed circuit board (PCB) for mechanical attachment of the EVAL-ADXL314Z to the application fixture. An external host processor is required for communication to the device.
The dimensions of the EVAL-ADXL314Z are 35.5 mm × 35.5 mm.

EVALUATION BOARD CIRCUITRY

The EVAL-ADXL314Z is equipped with three factory-installed capacitors for bypass: two 0.1 µF capacitors (C1 and C2) and a 1.0 µF capacitor (C3). C2 and C3 are VS bypass capacitors for reducing analog supply noise and C1 (located between VDD I/O and GND) is for reducing digital clocking noise. The schematic of the EVAL-ADXL314Z is shown in Figure 2. The 10-pin Harwin mating female connector is M80-8881005, and the preassembled cable part number is M80C108373C. These two components are not included in the evaluation kit. See the ADXL314 data sheet for information on configuring the accelerometer following its connection to the application host pro-cessor.

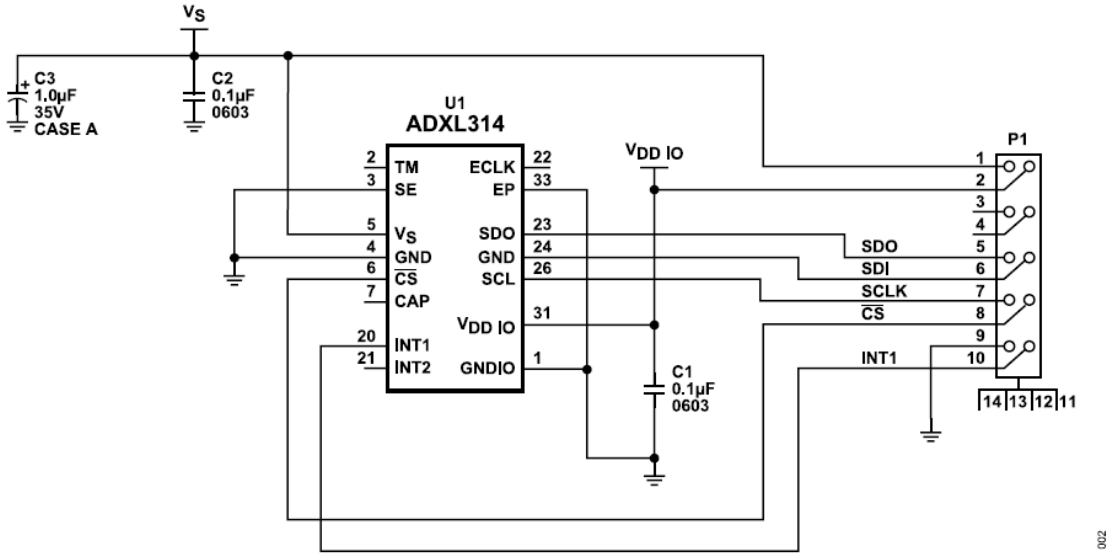


Figure 2. EVAL-ADXL314Z Schematic

EVALUATION BOARD HARDWARE

HANDLING CONSIDERATIONS

The EVAL-ADXL314Z is not reverse polarity protected. Reversing the VS or VDDI/O supply and GND pins can cause damage to the ADXL314. Dropping the EVAL-ADXL314Z on a hard surface can generate several thousand g of acceleration, which can exceed the absolute maximum ratings data sheet limits. See the ADXL314 data sheet for more information.

ORDERING INFORMATION

BILL OF MATERIALS

Table 1. Bill of Materials

Quantity	Reference Designator	Description	Manufacturer	Part Number
1	U1	±200 *g* range, 3-axis digital accelerometer, 32-lead LFCSP	Analog Devices, Inc.	ADXL314WACPZ
2	C1, C2	0.1 µF ceramic capacitors, 50 V, 10%, X7R, 0603	Cal-Chip	GMC10X7R104K50NT
1	C3	1.0 µF tantalum capacitor, 16 V, 10%, Size A	Cal-Chip	TCKIC105ATLF
1	P1	Header, male shrouded, 2 x 5 (10 positions), 2 mm pitch, thru hole	Harwin	M80-8631042

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 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,

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Documents / Resources

	ANALOG DEVICE UG-2043 3-Axis Digital Accelerometer [pdf] User Guide UG-2043, 3-Axis Digital Accelerometer, Digital Accelerometer, UG-2043, 3-Axis Accelerometer

References

- Mixed-signal and digital signal processing ICs | Analog Devices
- Search | Analog Devices
- -- ADXL314 Quick Start User Guide -- [Analog Devices Wiki]
- ADXL314 Datasheet and Product Info | Analog Devices