High Precision, Low-*g*, Digital Z-Axis Accelerometer

Data Sheet **ADXL701**

FEATURES

High performance, z-axis digital output accelerometer
±14.2 *g* full-scale range at 16-bit resolution (0.434 mg/LSB)
2 kHz output sample rate with optional data FIFOs
Programmable filter response
20 Hz, 46 Hz, 92 Hz, 184 Hz
Continuous electromechanical self test
Additional key-on and on demand self test routines
Z-axis offset adjust
Low quiescent current draw
High linearity performance
Qualified for automotive applications
−40°C to +105°C temperature range

APPLICATIONS

Vehicle rollover detection
Platform stabilization/leveling

GENERAL DESCRIPTION

The ADXL701 device is a high precision, single z-axis accelerometer designed for vehicle rollover detection and other high performance applications. The ADXL701 provides offset stability to better than ±500 mg and sensitivity stability to better than 5% across the entire temperature range. The ADXL701 is designed with selectable −3 dB filter corner frequencies to satisfy a range of applications, and the 2 kHz output data rate allows sufficient oversampling of the acceleration information.

The acceleration data output from the device is a true 16-bit word and is contained in a 32-bit SPI transaction. The SPI interface contains additional fault detection bits and data formatting bits designed to assist high reliability applications. SPI communications are compatible up to 8 MHz. The 16-bit acceleration data-word offers a resolution of 0.434 mg/LSB for the ±14.2 *g* full-scale range of the device.

The ADXL701 is available in an SOIC package with an inverted paddle for improved EMI/RFI robustness. The ADXL701 operates at nominal power supplies of 3.3 V and 5 V, and is specified to operate across the full automotive temperature range of −40°C to +105°C.

FUNCTIONAL BLOCK DIAGRAM

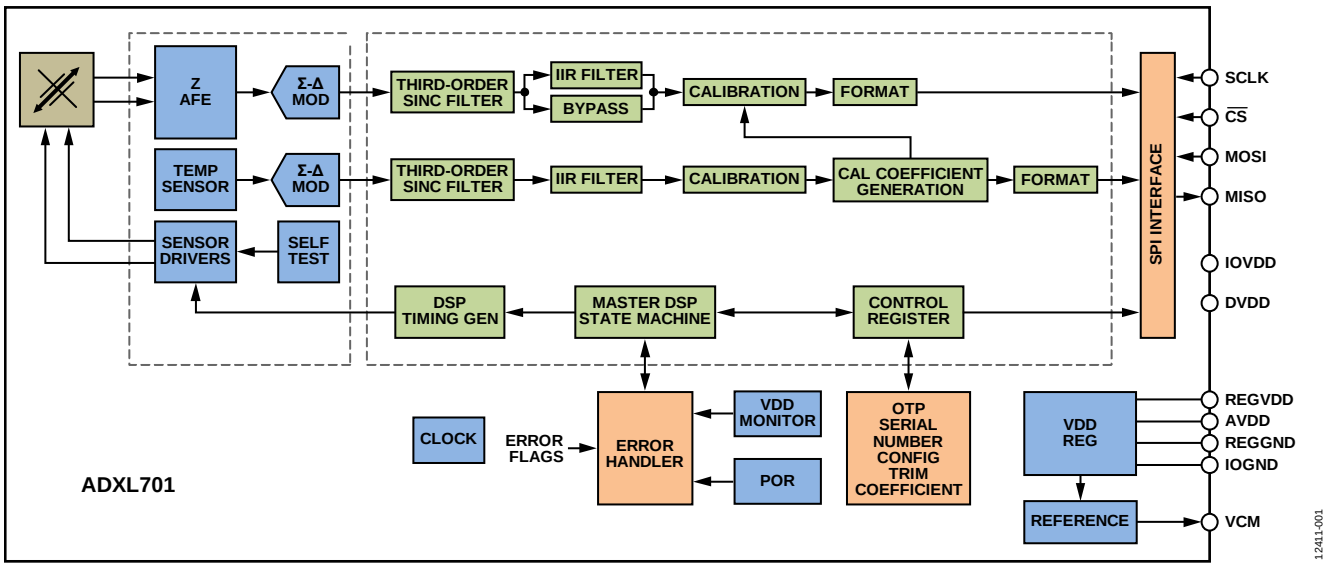

Figure 1.

For more information about the ADXL701, please contact the Analog Devices, Inc., Customer Interaction Center at http://www.analog.com/en/content/technical_support_page/fca.html to connect with a technical support specialist.

Rev. SpA **Document Feedback**

One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106, U.S.A.
Tel: 781.329.4700 **Technical Support**

www.analog.com

NOTES

D12411F-0-11/15(SpA)