High Precision, Low-*g*, Digital Triaxial Accelerometer

Data Sheet

ADXL700

FEATURES

High performance, triaxial 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
Temperature compensated, high precision zero-*g* bias and sensitivity performance
X-/Y-/Z-axis offset adjust
Low quiescent current draw
High linearity performance
−40°C to +105°C temperature range
Qualified for automotive applications

APPLICATIONS

Vehicle dynamic control (VDC)
Electronic stability program (ESP)
Electronic chassis control
Platform stabilization/leveling

GENERAL DESCRIPTION

The ADXL700 device is a high precision, triaxial accelerometer designed for electronic stability control and other high performance applications. A built in temperature compensation routine ensures sensitivity stability to better than ±3% across the entire temperature range. The ADXL700 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 ADXL700 is available in an SOIC package with an inverted paddle for improved EMI/RFI robustness. The ADXL700 operates at both 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

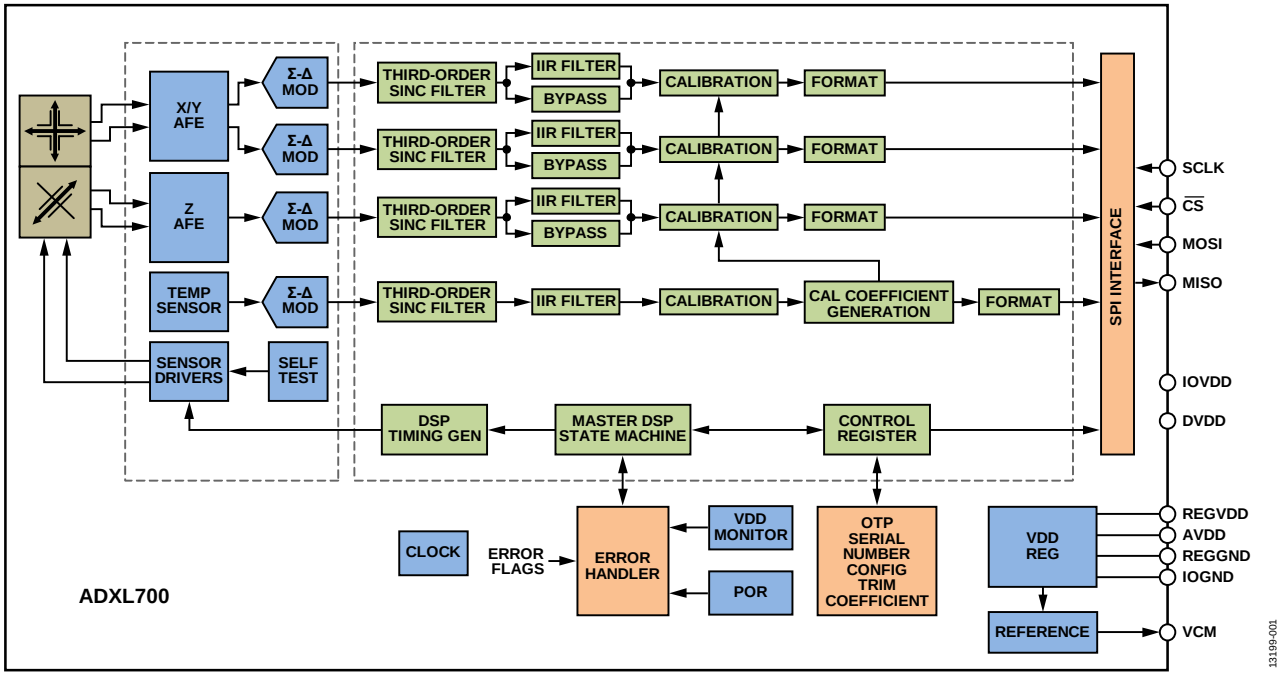

Figure 1.

For more information about the ADXL700, 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. Sp0 **Document Feedback**

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NOTES

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