Low Cost, Single-Axis PSI5-Compatible Satellite Sensor

Data Sheet

ADXL185B/ADXL189B

FEATURES

- **User configurable sensor range: ±30 *g*, ±60 *g*, ±120 *g*, ±240 *g*, ±480 *g***
- **Compliant with PSI5 Communication Protocol Version 1.3**
  - **Asynchronous operation: PSI5-A10P-250[228]/1L**
  - **Synchronous operation: PSI5-P10P-500/3L and others**
  - **Daisy-chain operation with bidirectional communication**
- **10-bit sensor data**
- **0.25 µs data interpolation routine**
- **User-selectable, continuous auto-zero operation**
- **Electromechanical sensor self-test**
- **High resistance to EMI/RFI/BCI**
- **4.5 V to 16.5 V operation**
- **Electronic serial number**
- **Qualified for automotive applications**

APPLICATIONS

- **Front impact crash sensing**
- **Side impact crash sensing**
- **Shock and vibration detection**
- **Pedestrian collision sensing**

GENERAL DESCRIPTION

The ADXL185B z-axis sensor and the ADXL189B x-axis sensor are *g* range configurable, integrated single-axis satellite sensors, compliant with the PSI5 Version 1.3 specification. The ADXL185B/ADXL189B enable low cost solutions for front and side impact airbag satellite sensor applications. Acceleration data is sent to the control module via a digital 2-wire current loop interface bus.

The sensor *g* range is configurable to provide full-scale ranges from ±30 *g* to ±480 *g*. The devices can also be configured to transmit data from multiple *g* ranges during predefined time slots, in accordance with the PSI5 specification. The devices transmit 10-bit acceleration data to the control module and can be configured to include either a 1-bit parity check or a 3-bit cyclic redundancy check (CRC). Each device has a unique electronic serial number.

The ADXL185B/ADXL189B are available in a 16-lead, narrow-body SOIC package with an exposed pad. The ADXL185B/ADXL189B are specified to operate over the full automotive temperature range of −40°C to +125°C.

FUNCTIONAL BLOCK DIAGRAM

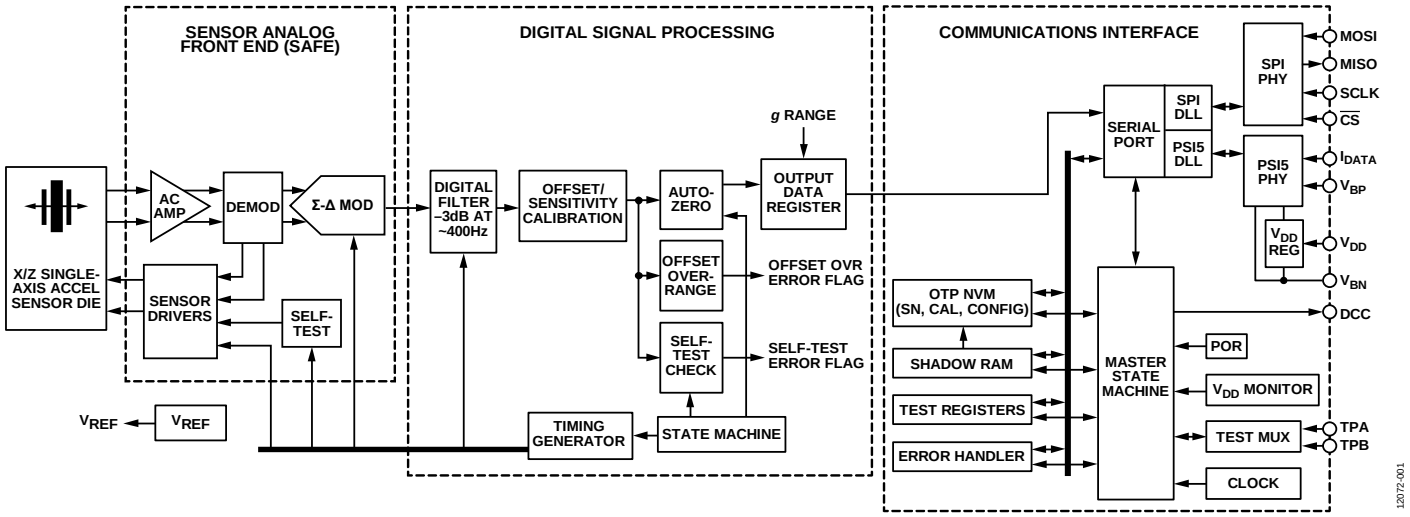

Figure 1.

For more information about the ADXL185B/ADXL189B, 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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