



Xtrinsic Accelerometers

FXLS8471Q Xtrinsic SPI Accelerometer

Low-power, low-noise, pin-compatible SPI Accelerometer

Target Applications

- Alarm systems
- Asset tracking
- Digital still cameras
- Game controllers
- Gaming
- Home medical
- Hospital equipment
- Inclometers
- Instrumentation
- Laptops
- Medical
- Remote control cars/helicopters
- Remote controls
- Shipment tracking
- Smartphones
- Sports gear
- Surveying equipment
- Tablets
- Toys

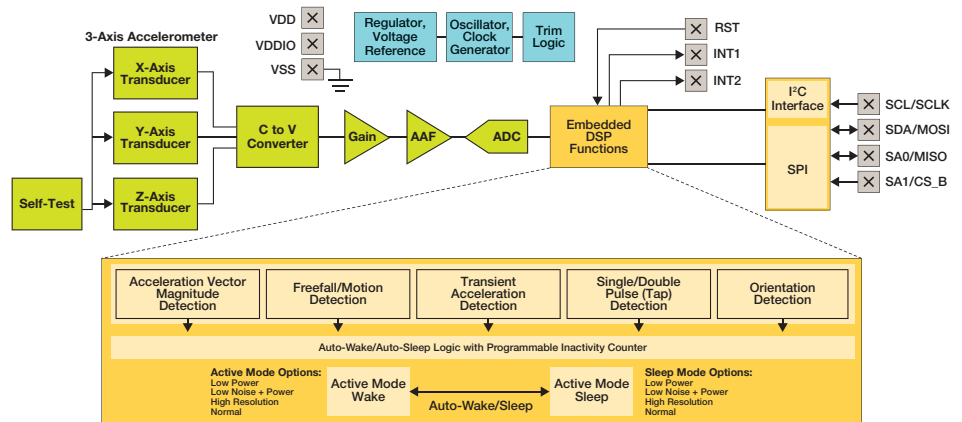
Overview

The Xtrinsic FXLS8471Q low-power, low-noise accelerometer has unique performance and compatibility for laptops, game controllers, white goods and mass market applications. This new FXLS8471Q accelerometer has a SPI interface that is pin compatible with Freescale's industry-leading I²C accelerometer portfolio.

The FXLS8471Q accelerometer is highly versatile for industrial and consumer high-performance low-g applications that offer noise density, board mount offset, temperature performance and sensitivity. Integrated motion detection features include tilt, shake and tap detection with a new vector magnitude output that simplifies implementation and reduces power consumption.

To operate with extremely low power, the FXLS8471Q accelerometer has six user-configurable sample rates that can be set over a wide range from 1.5 to 800 samples per second. The operating current is proportional to the sample rate. The power scheme contains normal mode and low-power operational modes, offering best-in-class savings in supply current and extremely high resolution for very small motion detection. See the Xtrinsic accelerometer family comparison table for more details.

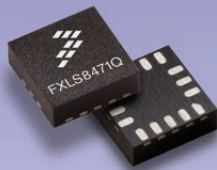
FXLS8471Q Xtrinsic 14-bit Accelerometer Block Diagram



■ Sensing Blocks ■ I/O Pins ■ Digital Blocks ■ Supporting Blocks

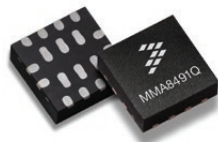


Freescale Accelerometer Product Feature Comparison



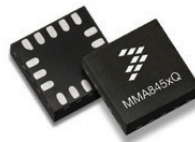
FXLS8471Q Accelerometer

- Extreme performance
 - .25 mg/count sensitivity
- Extended features
 - FIFO
 - Configurable P/L trip angles
 - High pass filter
 - Transient detect
- SPI output
- Drivers available



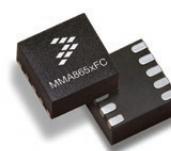
MMA8491Q Accelerometer

- Extreme low power
 - 0.35 uA/Hz
- Cost efficient
- 1 mg/count sensitivity
- Industrial package
- Drivers available



MMA845xQ Accelerometers

- Extreme performance
 - .25 mg/count sensitivity
- Extended features
 - FIFO
 - Configurable P/L trip angles
 - High pass filter
 - Transient detect
- I²C output
- Drivers available



MMA865xFC Accelerometers

- High performance
- Well rounded
- Cost competitive
- Low power consumption
- Low-voltage compatibility
- Rich features
 - P/L detection
 - High pass filter
 - Transient detect
- Drivers available



FXOS8700CQ 6-Axis Sensor

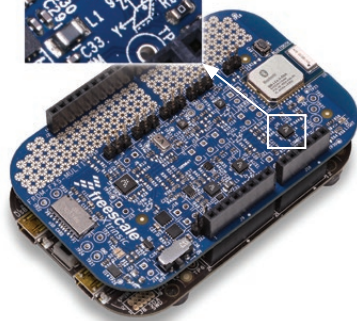
- Highly integrated
- High performance
- Low power consumption
- Wide dynamic range
- Embedded autonomous hard iron calibration
- Drivers available

Accelerometer Implementations

- Free fall
- Motion control
- Portrait/landscape
- Shock
- Tilt
- User interface
- Warranty reporting



Freescale Freedom Development Platform featuring the SPI Accelerometer



Development Tools and Software

Kit Number	Description
FRDM-FXS-MULTI	Freescale Freedom Development Platform for Xtrinsic Sensors, including software
FRDM-FXS-MULTI-B	Freescale Freedom Development Platform for Xtrinsic Sensors with Bluetooth, including software
BRKOUT-FXLS8471Q	Breakout board for evaluating the FXLS8471Q Xtrinsic accelerometer
Component for Processor Expert	Supports Kinetis MCUs

Documentation

Document Number	Description
FXLS8471Q	Product specification data sheet.
AN4692	Using the Xtrinsic FXLS8471Q Accelerometer Vector Magnitude Function Application Note
AN4693	Using the Xtrinsic FXLS8471Q Transient-Acceleration Function Application Note
AN4694	Using the Xtrinsic FXLS8471Q Command Line Interface Software Application Note
FXLS8471UG	Freescale Xtrinsic FXLS8471Q Demonstration Software User Guide

Freescale: A Leader in Sensing Solutions

Expanding on more than 30 years of sensor innovation, Freescale Xtrinsic sensing solutions are designed with the right combination of high-performance sensing capability, processing capacity and customizable software to help deliver smart, differentiated sensing applications. With Xtrinsic sensing solutions, our vision is to offer a diverse and differentiated product portfolio to meet the expanding needs of the automotive, consumer and industrial segments. Xtrinsic solutions offer ideal blends of functionality and intelligence designed to help our customers differentiate and win in highly competitive markets.

For more information, visit freescale.com/xyz

Freescale, the Freescale logo, Kinetis and Processor Expert are trademarks of Freescale Semiconductor, Inc., Reg. U.S. Pat. & Tm. Off. Xtrinsic is a trademark of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners. © 2013 Freescale Semiconductor, Inc.

Document Number: FXLS8471QFS REV 0