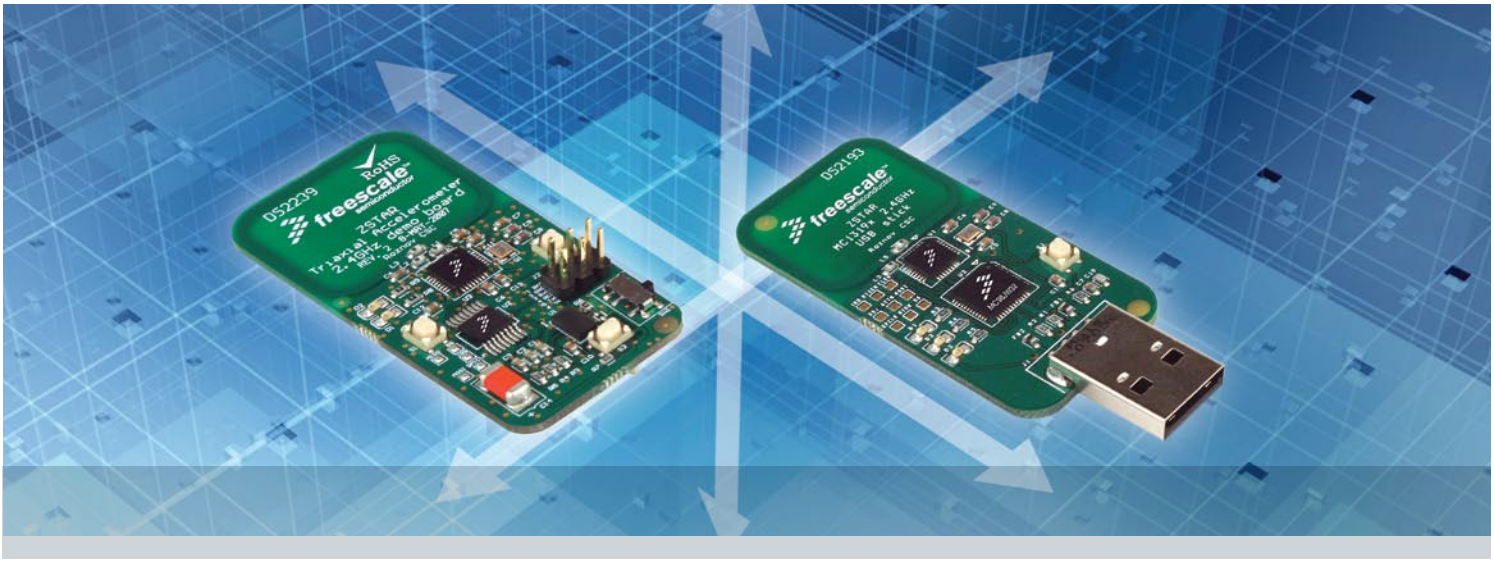

Sensors

MMA7360L Accelerometer

Wireless Sensing Triple-Axis Reference Design (ZSTAR2)

Overview

Motion sensing technology that is enabled by an accelerometer for handheld electronics is becoming more prevalent. Accelerometers for simple motion control offer significant advantages in portable electronic applications. The motions of fall, tilt, motion, positioning, shock and vibration are intuitive to use with the added benefit of eliminating buttons on the user interface. Freeing the user interface of buttons allows for a larger LCD screen. Freescale Semiconductor demonstrates these advantages with our Wireless Sensing Triple-Axis Reference Design ZSTAR2 demo board.

The goal of the ZSTAR2 design under orderable tool number RD3473MMA7360L is to provide a small portable board with the capability to demonstrate and evaluate various accelerometer applications that accommodate the low-cost low-power wireless connection.

The RD3473MMA7360L Wireless Sensing Triple-Axis Reference Design ZSTAR2 demo board is a modification (see application note AN3473 for details) to the original MMA7260Q ZSTAR board (RD3152MMA7260Q) as described in application note AN3152.

The ZSTAR2 demo board has been updated with Freescale's smaller 3x5x1 mm 14-pin LGA MMA7360L analog output triple axis accelerometer. The MMA7360L accelerometer is very comparable to the MMA7260Q with a sensitivity of 800mV/g and a g range of 1.5g. There is also a sleep mode for power cycling options.

The ZSTAR2 design provides two small portable boards with the capability to demonstrate and evaluate various accelerometer applications that accommodate the cost-effective, low-power wireless connection.

It also comes bundled with the Triax Reloaded 1.0 software application for easy development.

Target Applications

(Applications in Rank Order of Importance)

- 3D gaming
- Tilt and motion sensing
- Image rotation
- Camera stabilization
- Freefall detection for hard disk drives
- Power save on/off
- Tap to mute
- Warranty purpose recording
- MP3 players
- Menu scroll
- Motion dialing
- Pedometers
- Navigation and dead reckoning
- E-Compass tilt compensation

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ZSTAR2 Board Features

Sensor Board

- Two PCB 2.4 GHz antennas
- CR2032 Lithium battery holder
- Three pushbuttons
- Small and versatile tool (board size is 56 mm x 27 mm or 2.20" x 1.10")

USB Board

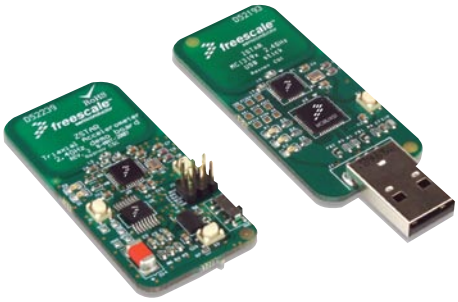
- Two PCB 2.4 GHz antennas
- One pushbutton
- USB type “A” plug

Freescale Products

- MMA7360L triple axis accelerometer
- MC9S08QG8 8-bit microcontroller
- MC13191 2.4 GHz ISM band low power transceiver
- MC13192/MC13193 2.4 GHz low power transceiver for the IEEE® 802.15.4 standard
- MCHC908JW32 USB 2.0 Full Speed 8-bit microcontroller

Benefits

- BDM header for on-board programming



Freescale is a leading provider of acceleration, pressure and proximity sensors and has offered MEMS-based sensors for more than 25 years. The sensor ICs complement Freescale’s broad portfolio of ZigBee™ technology, microcontrollers, microprocessors, digital signal processors, analog ICs, and development tools to offer system solutions to customers.

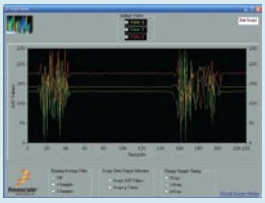
Software interface with 16 functions

From the main application screen, you will be able to demonstrate various accelerometer functions such as freefall, tilt, motion, positioning and shock and can apply these functions to your own design ideas. See the application note titled, "Using the MMA7360L ZSTAR2 Demo Board" for more detailed information.

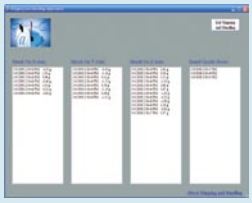
Freefall Detection

Battery Saving Motion Demo

Threshold Detection



X-, Y-, Z-Axis Scope Demo



Shipping and Handling Demo

Portrait/Landscape Demo

Sensing Triple Axis Reference Design (STAR) Family of Development Tools

Part Number	Description
RD3473MMA7360L	MMA7360L Accelerometer – *Wireless Sensing Triple Axis Reference Design (ZSTAR2)*
RD3152MMA7260Q	MMA7260Q Accelerometer – *Wireless Sensing Triple Axis Reference Design (ZSTAR)*
RD3112MMA7260Q	MMA7260Q Accelerometer – *Sensing Triple Axis Reference Design (STAR)*

Learn More: For more information about Freescale products, please visit **www.freescale.com/sensors or www.freescale.com/xyz**

ZSTAR2BOARDFS /REV 0

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