Sensor Products

MMA6200Q Series XY-Axis Low g Acceleration Sensors

Primary Applications by Sensing Functions

With five sensing functions, the MMA6200Q series acceleration sensor family is designed to detect tilt, motion, positioning, shock or vibration.

> Tilt (Tilt Sensor)
- Camcorder stability
- Game controllers
- LCD projection
- PDA scrolling
- Physical therapy
- Robotics

> Motion (Motion Sensor)
- Free-fall protection (portable hard disk drives)
- Motion control
- Pedometers
- Trailer brake controls

> Positioning (Positioning Sensor)
- Anti-theft devices
- Back-up GPS
- Car navigation
- Map tracking

> Shock (Shock Sensor)
- Black boxes/event recorders
- Fall log
- Hard disk drive protection
- Shipping/handling monitor

> Vibration (Vibration Sensor)
- Acoustics
- Appliance balance and monitoring
- Seismic monitor
- Smart motor maintenance

FREESCALE MMA6200Q SERIES XY-AXIS LOW g ACCELERATION SERIES

Device	Acceleration (g)	Sensing Axis	Sensitivity (mV/g)	Frequency (Hz)	V_{DD} Supply Voltage (Typ) (V)
MMA6260Q	±1.5	XY	800	50	3.3
MMA6261Q	±1.5	XY	800	300	3.3
MMA6262Q	±1.5	XY	800	150	3.3
MMA6263Q	±1.5	XY	800	900	3.3
MMA6231Q	±10	XY	120	300	3.3
MMA6233Q	±10	XY	120	900	3.3

Overview

The MMA6200Q series XY-axis low g acceleration sensors are designed for end products or embedded systems that require measurement of small forces resulting from tilt, motion, positioning, shock or vibration. Target markets include appliance, consumer, industrial, medical, computer peripherals and the automotive aftermarket.

Sensing capabilities derive from MEMS (micro-electromechanical systems) technology. The acceleration sensor is surface micromachined. The g-cell is coupled with an ASIC, which provides the accelerometer with amplification, signal conditioning, low-pass filter and temperature compensation. This two-chip solution serves as a system-in-a-package (SIP).

Freescale Semiconductor offers a broad portfolio of acceleration sensors for applications ranging from highly sensitive seismic detection to robust collision detection.

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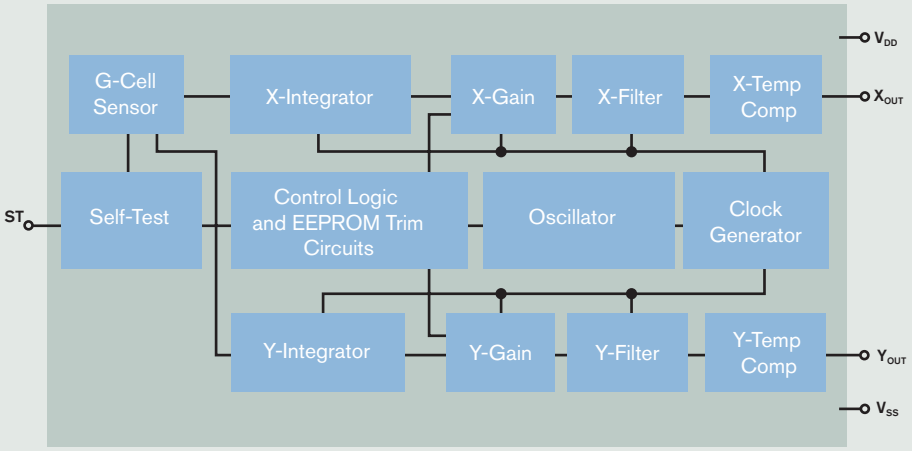
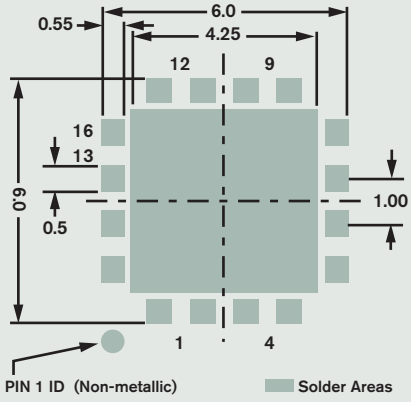
SENSOR DEVELOPMENT TOOLS

Product	Description	Additional Information	Web URL
RD1986MMA6260Q	Three-Axis Acceleration Sensing Reference Design	Web site download of software	www.freescale.com/sensors
KIT1925MMA6260Q	Evaluation Kit for 1.5g, 50 Hz XY-Axis Evaluation Board		www.freescale.com/sensors
KIT1925MMA6261Q	Evaluation Kit for 1.5g, 300 Hz XY-Axis Evaluation Board		www.freescale.com/sensors
KIT1925MMA6262Q	Evaluation Kit for 1.5g, 150 Hz XY-Axis Evaluation Board		www.freescale.com/sensors
KIT1925MMA6263Q	Evaluation Kit for 1.5g, 900 Hz XY-Axis Evaluation Board		www.freescale.com/sensors
KIT1925MMA6231Q	Evaluation Kit for 10g, 300 Hz XY-Axis Evaluation Board		www.freescale.com/sensors
KIT1925MMA6233Q	Evaluation Kit for 10g, 900 Hz XY-Axis Evaluation Board		www.freescale.com/sensors

SIMPLIFIED ACCELEROMETER FUNCTIONAL BLOCK DIAGRAM



6 X 6 QFN FOOTPRINT



Customer Benefits

> Low component count

> High functionality

> Highly sensitive with low noise

> High accuracy, frequency and resolution for tilt, motion, positioning, shock and vibration sensing

> Low current/power for extended battery life

> Fast power-up response time

> Selectable bandwidth/frequencies for multifunctional applications

> Elimination of multiple, angled design boards for 3-D sensing applications

Features

> Low g, 1.5–10g for a wide variety of applications

> Low noise for higher resolution and more accuracy

> Low-dimension Quad Flat No-Lead (QFN) Pb-free package (6 x 6 x 1.98 mm)

> Minimal board space needed

> Sensitivity up to 800 millivolts per unit of gravity (mV/g)

> Calibrated self-test for functional verification

> Signal conditioned with internal filter

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

MMA6200QFS
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