

MMA7260Q

XYZ Three-Axis Low g Acceleration Sensor

Overview

Freescale Semiconductor's MMA7260Q XYZ three-axis low g acceleration sensor is designed to detect on three axes, allowing your end application the freedom of movement and detection it needs. In addition, for multifunctional applications, this three-axis device allows you to select between 1.5g, 2g, 4g and 6g levels of acceleration. This solution is ideal for end products or embedded systems requiring measurement of low g forces resulting from fall, tilt, motion, positioning, shock or vibration. Target markets include consumer, appliance, industrial, medical and computer peripherals.

Freescale offers a broad portfolio of acceleration sensors from 1.5g to 250g for applications ranging from highly sensitive seismic detection to robust collision detection.

Typical Applications

- > Fall detection
- > Fall log
- > HDD protection
- > MP3 players
- > Portable electronics
- > Warranty purpose recording
- > E-compass
- > Ergonomic tools
- > Gaming
- > Image stability
- > Physical therapy
- > Text scrolling
- > 3-D motion dialing
- > Pedometer
- > Robotics
- > Virtual reality input devices
- > Anti-theft devices
- > Car/personal navigation
- > Dead reckoning for GPS
- > Black boxes/event recorders
- > Shipping/handling monitor
- > Tap to mute
- > Acoustics
- > Appliance balance/monitoring
- > Bearing wear monitoring
- > Seismic monitoring
- > Smart motor maintenance

MMA7260Q Features

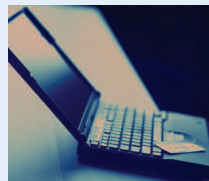
- > XYZ: three axes of sensitivity in one device
- > Selectable sensitivity for any of these values: 1.5g, 2g, 4g and 6g
- > Low current consumption: 500 μ A
- > Sleep mode: 3 μ A
- > Low voltage operation: 2.2V–3.6V
- > Fast turn-on time: 1 ms
- > Low noise: achieve higher resolution, more accuracy
- > Package: low-profile 16-lead, 6 mm x 6 mm x 1.45 mm QFN

MMA7260Q Benefits

- > Flexibility to select 1.5g, 2g, 4g and 6g of acceleration for multifunctional applications
- > Low power for extended battery life
- > Fast power-up response time
- > Sleep mode is ideal for handheld battery-powered electronics
- > Low component count—saves cost, saves space
- > Highly sensitive with low noise
- > Adaptable functionality
- > High frequency and resolution for accurate fall, tilt, motion, positioning, shock and vibration sensing

SUGGESTED g LEVELS FOR VARIOUS APPLICATIONS

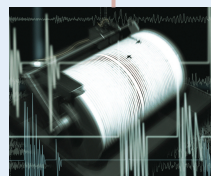
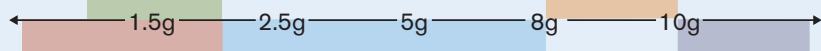
Freefall Detection: 1g–2g
Mobile HDD, Cell Phone, PC Notebook, MP3 Player



Tilt Control: 1g–2g
Movement Recognition, User Interface, Scrolling, Gaming



Vibration: 8g–10g
Motor Stability



Seismometry: 0.002g–2g
Geophones, Seismic Switches



Shock Detection: 2g–8g
Shipping/Handling



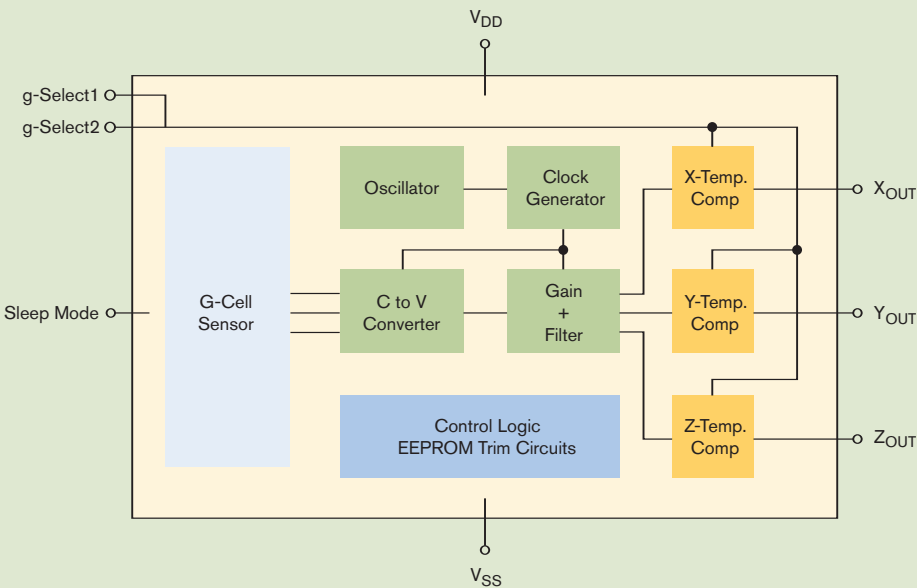
Pedometer: 10g–20g
Pace, Physiology

FREESCALE MMA7260Q XYZ-AXIS LOW g ACCELERATION SENSOR

Device	Acceleration (g)	Sensitivity (mV/g)	Sensing Axis	Frequency (Hz)	VDD Supply Voltage (Typical) (V)	Response Time (ms)	Packaging
MMA7260Q*	1.5	800	XYZ	350/150	3.3	1	Quad Flat No-Lead (QFN)
	2	600	XYZ	350/150	3.3	1	Quad Flat No-Lead (QFN)
	4	300	XYZ	350/150	3.3	1	Quad Flat No-Lead (QFN)
	6	200	XYZ	350/150	3.3	1	Quad Flat No-Lead (QFN)

*This device has selectable sensitivity (1.5g, 2g, 4g and 6g)

SIMPLIFIED ACCELEROMETER FUNCTIONAL BLOCK DIAGRAM



Sensor Development Tools

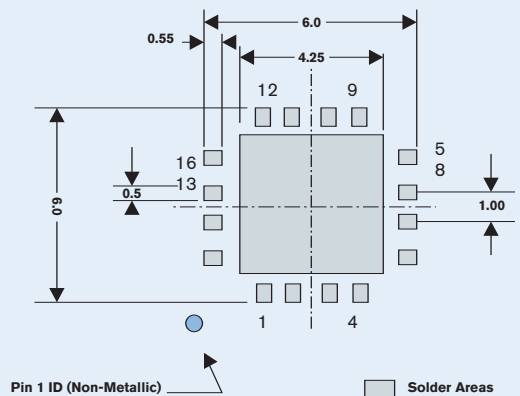
RD3112MMA7260Q STAR: sensing triple-axis reference design

KIT3109MMA7260Q Evaluation kit using the MMA7260Q

Download software from our site:
www.freescale.com/sensors.



6 x 6 QFN FOOTPRINT



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