

Rollover

Overview

Occupant safety applications are the largest volume application for acceleration sensors in the automobile industry today. This trend is expected to continue in the future as the focus on safety stays in the forefront. One of the more recent, and rapidly growing uses for sensors is in the rollover sensing application.

Freescale Semiconductor's Sensors portfolio expansion of low-g accelerometers is designed to meet the requirements of the rollover application.

Offerings of low-g sensors include the MMA Series of accelerometers, ranging from 1.5g to 8g, X- and Z-axis devices.

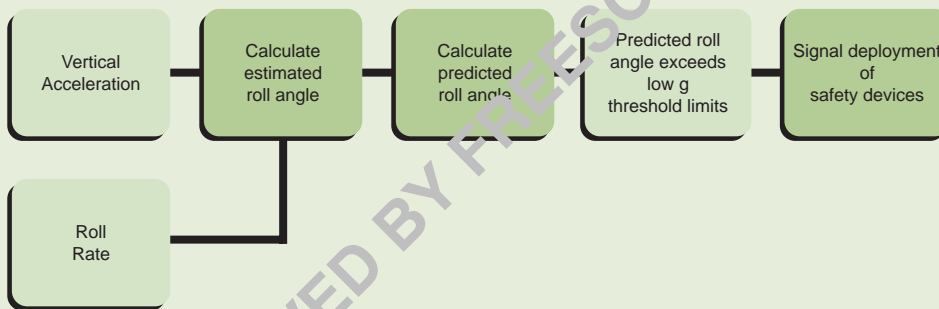
These devices are available in a 16-pin SOIC surface mount package. Freescale Semiconductor's silicon capacitive, micromachined, accelerometer features signal conditioning, 4-pole and 2-pole low pass filters and temperature compensation. In addition, zero-g offset full-scale span, and filter cut-off are factory set, and require no external devices. A full system self-test capability verifies system functionality as a standard feature.

Key Benefits

- > Offers low g, 1.5g to 8g
- > Low noise performance for higher resolution and more accuracy
- > Provides sensitivity up to 1200 millivolts per unit of gravity (mV/g)
- > Includes a calibrated self-test for functional verification
- > Provides a signal conditioned output with an internal filter

ROLLOVER BLOCK DIAGRAM

Low g Accelerometer



Freescale Ordering Information

Part Number	Product Highlights	Additional Information
MMA1220D	8g, 250 Hz Z-Axis Acceleration sensor	www.freescale.com/sensors ^{Note}
MMA1250D	5g, 50 Hz Z-Axis Acceleration sensor	www.freescale.com/sensors ^{Note}
MMA1260D	1.5g, 50 Hz Z-Axis Acceleration sensor	www.freescale.com/sensors ^{Note}
MMA1270D	2.5g, 50 Hz Z-Axis Acceleration sensor	www.freescale.com/sensors ^{Note}
MMA2260D	1.5g, 50 Hz X-Axis Acceleration sensor	www.freescale.com/sensors ^{Note}

Note: Search on the listed part number.

Design Challenges

As a leading automotive semiconductor manufacturer, Freescale Semiconductor understands the importance of safety systems. Our broad portfolio offers the flexibility to meet the needs of engineers designing automobile rollover detection systems.

Freescale Semiconductor Solution

Products designed using Freescale Semiconductor's low g accelerometers differentiate themselves in the marketplace due to their superior safety, security, and convenience features. More than two decades of sensor development experience have been brought to bear in expanding Freescale Semiconductor's line of accelerometers.

Development Tools

Tool Type	Product Name	Vendor	Description
Evaluation Kit	KIT1925MMA1250D	Freescale Semiconductor	5g, 50 Hz Z-Axis Evaluation Board
Evaluation Kit	KIT1925MMA1260D	Freescale Semiconductor	1.5g, 50 Hz Z-Axis Evaluation Board
Evaluation Kit	KIT1925MMA1270D	Freescale Semiconductor	2.5g, 50 Hz Z-Axis Evaluation Board
Evaluation Kit	KIT1925MMA2260D	Freescale Semiconductor	1.5g, 50 Hz X-Axis Evaluation Board

Learn More: Contact the Technical Information Center at +1-800-521-6247 or +1-480-768-2130. For more information about Freescale products, please visit www.freescale.com.