

Delphi Dual Axis Accelerometer

► Description

Delphi's family of sensors and integrated circuits (ICs) provides customers the advantage of innovative product technology. The Dual Axis Accelerometer is an all-silicon linear accelerometer. The single crystal silicon IC provides a rugged, accurate sensor that is being developed for automotive, industrial, and consumer applications. The sensor module integrates a low-cost sensor with a compensating IC into a small outline package. The capacitive sensing element is manufactured using Delphi's Micro Electro Mechanical (MEMS) technology, while the signal conditioning IC is fabricated using Delphi's high-voltage Complementary Metal Oxide Semiconductor (CMOS) process.

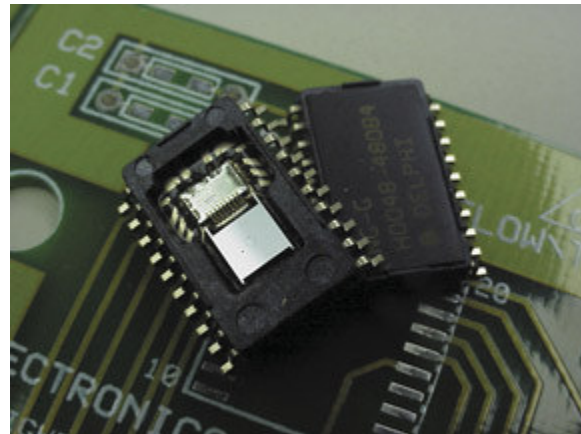
The all-silicon Dual Axis Accelerometer operates using a 5V supply. Applied acceleration causes movement of the internal proofmass. The position of the proofmass is capacitively detected by the compensator IC and converted to a DC output voltage. The accelerometer can also perform a self test, which simulates actual acceleration.

► Benefits

- Bi-directional self test
- Range tailored to customer needs
- Custom cost-effective solutions
- Low offset error
- Small package size

► Features

- Programmable ranges from +/- 2.5g to +/- 50g
- Start up time < 25msec
- Output ratiometric to supply
- Single crystal silicon element
- Capacitive sensing
- Low noise
- Analog output



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► Possible Applications

- Vehicle stability control
- Vehicle rollover detection
- Vehicle crash detection
- Vehicle dynamics (lateral or longitudinal)
- Virtual reality electronics
- Consumer electronics
- Industrial controls
- Robotics

Module Performance Data	
Supply Voltage	5.0V +/- 5%
Temperature Range	-40oC to 125oC
Supply Current	7.00 mA Max. w/100k load
Zero g Offset	2.5V +/-50mV Max., Ratiometric to Supply
Offset Drift	+/-150mV Max. for +/-15g Range Calibration
Sensing Range	+/-2.5g to +/-50g Calibrated Range, Ratiometric to Supply
Sensitivity Error	+/- 3% Max.
Output Load Current	+/-1mA Max.
Frequency Response	400Hz or 1500Hz Selectable
Noise	10mV rms Max
Startup Time	25ms
Self-Test	Bi-directional
Linear Output Range	0.7V to 4.3V
Lower Diagnostic Range	< 0.15V (Fault detection output)
Upper Diagnostic Range	> 4.85V (with 5V Supply)
Cross-Axis Sensitivity	<5%
Shock Resistance	10,000 g's Max with no reduced performance

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