



Low Cost ± 5 g Dual-Axis Accelerometer with SPI Interface

Automotive Grade

MXS7205VW

FEATURES

- Dual axis accelerometer fabricated on a single CMOS IC
- Monolithic design with mixed mode signal processing
- Zero-g temperature stability better than ± 30 mg from -40 C to 105 C
- Sensitivity temperature compensation better than $\pm 3\%$ from -40 C to 105 C
- ± 5 g dynamic range, 800LSB/g sensitivity
- 29Hz bandwidth
- On Demand Self Test
- $>50,000$ g shock survival rating
- 4.50V to 5.25V single supply operation
- Small surface mount package, 5.5mm x 5.5mm x 2.7mm
- XZ or XY mounting
- RoHS compliant

AUTOMOTIVE APPLICATIONS

- Vehicle Stability Control
- Roll Over Detection
- Electronic Parking Break – Hill Start Assist
- Headlight Leveling and Steering

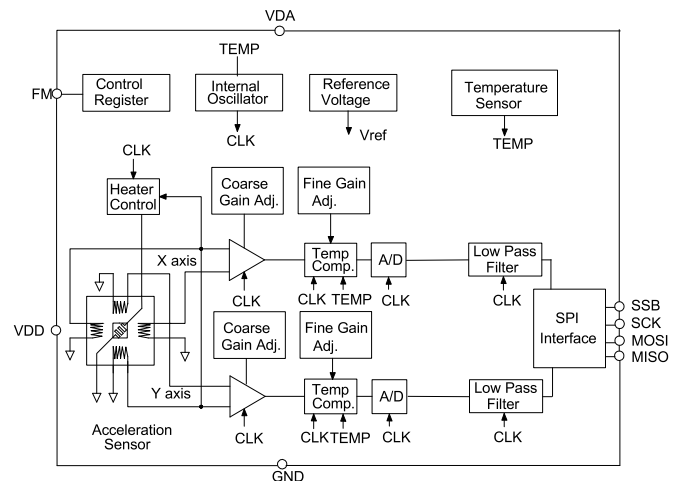
GENERAL DESCRIPTION

The MXS7205VW is a low cost, dual axis accelerometer built on a standard, submicron CMOS process. It measures acceleration with a full-scale range of ± 5 g and a sensitivity of 800LSB/g with 14bits operation mode and 50LSB/g with 10bits operation mode.

The MXS7205VW provides an SPI interface.

The typical noise floor is $0.6\text{mg} / \sqrt{\text{Hz}}$, allowing signals below 1mg to be resolved at 1Hz bandwidth. The inherent 3dB roll off of the device is 29Hz providing immunity to and attenuation of higher frequency vibrations present in automotive applications.

The MXS7205VW is packaged in a hermetically sealed LCC surface mount package (5.5 mm x 5.5 mm x 2.7 mm height), and the package can be used for either XY and XZ sensing, its operation temperature is -40 °C to $+105$ °C.



MXS7205VW FUNCTIONAL BLOCK DIAGRAM

MEMSIC's accelerometer technology allows for designs from ± 1 g to ± 70 g with custom versions available above ± 70 g. It can measure both dynamic acceleration (e.g., vibration) and static acceleration (e.g., gravity).

The design is based on heat convection and requires no solid proof mass. This eliminates stiction, particle, and inherent resonant frequency problems associated with competitive devices and provides shock survivability to greater than 50,000g, leading to significantly lower failure rates and lower loss due to handling during assembly and at customer field application.

Due to the standard CMOS structure of the MXS7205VW, additional circuitry can easily be incorporated into custom versions for high volume applications. Contact MEMSIC's local office for more information.

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Improved Low Cost ± 5 g Dual-Axis Accelerometer with Ratiometric Analog Outputs

MXR7305VF

FEATURES

- Dual axis accelerometer fabricated on a single CMOS IC
- Monolithic design with mixed mode signal processing
- RoHS compliant
- On-chip sensitivity compensation for temperature variations
- On Demand Self Test
- ± 5 g dynamic range, 250mV/g sensitivity
- Independent axis programmability (special order)
- Resolution better than 1mg
- Zero-g Output Temperature drift, better than ± 80 mg over -40 – 95 degC range
- 27Hz bandwidth
- $>50,000$ g shock survival rating
- 4.50V to 5.25V single supply operation
- Small surface mount package, 5mm x 5mm x 2mm
- Improved thermal gradient performance

APPLICATION

Automotive – Roll over sensing, VSC/EPB application

GENERAL DESCRIPTION

The MXR7305VF is a low cost, dual axis accelerometer built on a standard, submicron CMOS process. It measures acceleration with a full-scale range of ± 5 g and a sensitivity of 250mV/g.

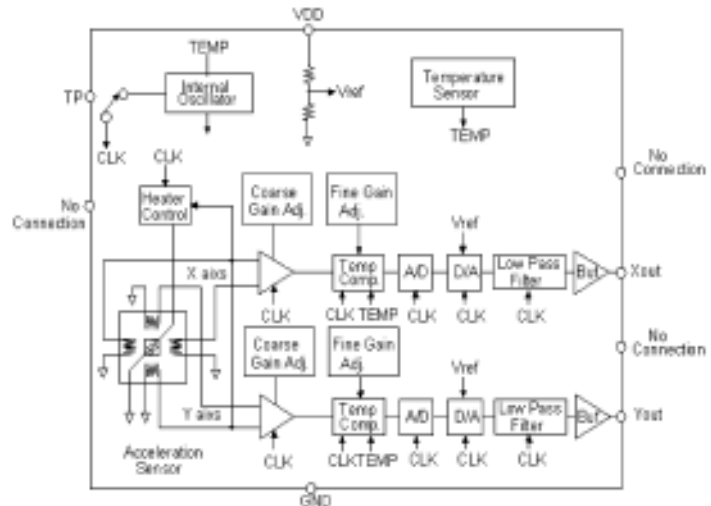
The MXR7305VF provides a g-proportional ratiometric analog output above/below the zero-g point at 50% of the supply voltage. (Ref. other MEMSIC data sheets for absolute analog or digital outputs).

The typical noise floor is $0.6\text{mg} / \sqrt{\text{Hz}}$, allowing signals below 1mg to be resolved at 1Hz bandwidth. The 3dB roll-off of the device occurs at 27Hz.

The MXR7305V is available in a low profile LCC surface mount package (5mm x 5mm 2mm). It is hermetically sealed and operational over a -40°C to $+95^{\circ}\text{C}$ temperature range.

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MEMSIC MXR7305V Rev.A

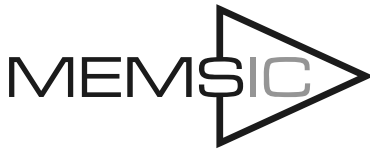


MXR7305V FUNCTIONAL BLOCK DIAGRAM

Memsic's accelerometer technology allows for designs from ± 1 g to ± 70 g with custom versions available above ± 70 g. It can measure both dynamic acceleration (e.g., vibration) and static acceleration (e.g., gravity). The design is based on heat convection and requires no solid proof mass. This eliminates stiction and particle problems associated with competitive devices and provide shock survival greater than 50,000 g, leading to significantly lower failure rates and lower loss due to handling during assembly and at customer field application. Due to the standard CMOS structure of the MXR7305V, additional circuitry can easily be incorporated into custom versions for high volume applications. Contact Memsic's local office for more information.



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Low Cost, High Performance ±1.0 g Dual-Axis Accelerometer with Ratiometric Outputs

MXR7900A/C/DF

FEATURES

- Dual axis accelerometer fabricated on a single CMOS IC**
- Monolithic design with mixed mode signal processing**
- RoHS compliant**
- On-chip sensitivity compensation for temperature variations**
- On Demand Self Test**
- 900mV/g sensitivity**
- Independent axis programmability (special order)**
- Resolution better than 1mg**
- 19Hz bandwidth**
- >50,000 g shock survival rating**
- 4.50V to 5.25V single supply operation**
- Small surface mount package, 5mm x 5mm x 2mm**

APPLICATION

Automotive – Roll over sensing, VSC/EPB application

GENERAL DESCRIPTION

The MXR7900A/C/DF is a low cost, dual axis accelerometer built on a standard, submicron CMOS process. It measures acceleration with a sensitivity of 900mV/g.

The MXR7900A/C/DF provides a g-proportional ratiometric analog output above/below the zero-g point at 50% of the supply voltage.

(Ref. other MEMSIC datasheets for absolute analog or digital outputs).

The typical noise floor is $0.3\text{mg} / \sqrt{\text{Hz}}$, allowing signals below 1mg to be resolved at 1Hz bandwidth. The 3dB roll-off of the device occurs at 17Hz.

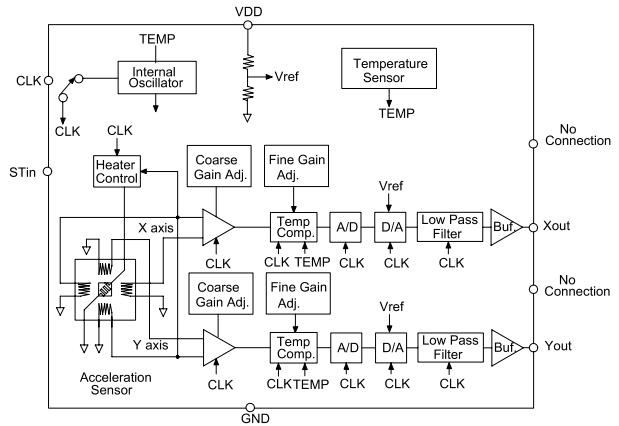
The MXR7900A/C/D is available in a low profile LCC surface mount package (5mm x 5mm 2mm). It is hermetically sealed and operational over a -30°C to +105°C temperature range.

It can measure both dynamic acceleration (e.g., vibration) and static acceleration (e.g., gravity).

The design is based on heat convection and requires no solid proof mass. This eliminates stiction and particle problems associated with competitive devices and provide shock survival greater than 50,000 g, leading to significantly lower failure rates and lower loss due to handling during assembly and at customer field application.

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MEMSIC MXR7900A/C/D Rev.A



MXR7900A/C/D FUNCTIONAL BLOCK DIAGRAM

Due to the standard CMOS structure of the MXR7900A/C/D, additional circuitry can easily be incorporated into custom versions for high volume applications. Contact Memsic's local office for more information.



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Low Cost ± 1.7 g Dual-Axis Accelerometer with Ratiometric Outputs

MXR7999V

FEATURES

Dual axis accelerometer fabricated on a single CMOS IC
Monolithic design with mixed mode signal processing

On-chip sensitivity compensation for temperature variations
On Demand Self Test

± 1.7 g dynamic range, 1000mV/g sensitivity
Independent axis programmability (special order)
Resolution better than 1mg

Zero-g Output Temperature drift, better than ± 100 mg over
 -40 ~ 105 degC range

27 Hz bandwidth
>50,000 g shock survival rating
4.50V to 5.25V single supply operation
Small surface mount package, 5mm x 5mm x 2mm

APPLICATION

Automotive – Roll over sensing systems

GENERAL DESCRIPTION

The MXR7999V is a low cost, dual axis accelerometer built on a standard, submicron CMOS process. It measures acceleration with a full-scale range of ± 1.7 g and a sensitivity of 1000mV/g.

The MXR7999V provides a g-proportional ratiometric analog output above/below the zero-g point at 50% of the supply voltage.

(Ref. other MEMSIC data sheets for absolute analog or digital outputs).

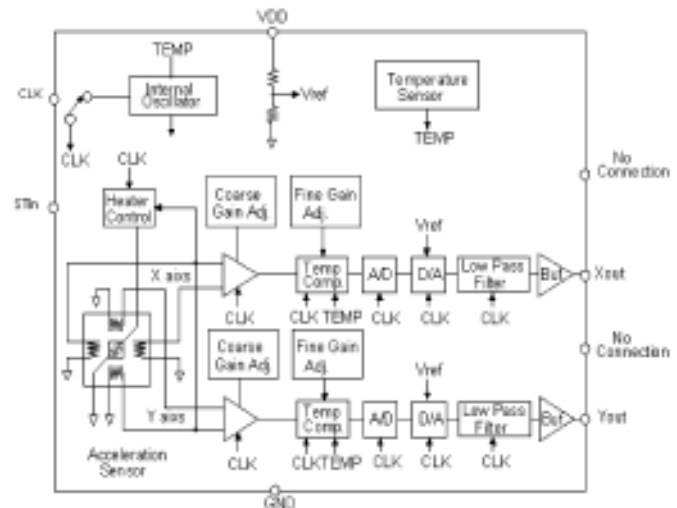
The typical noise floor is $0.6\text{mg} / \sqrt{\text{Hz}}$, allowing signals below 1 mg to be resolved at 1Hz bandwidth. The 3dB roll-off of the device occurs at 27Hz.

The MXR7999V is available in a low profile LCC surface mount package (5mm x 5mm 2mm). It is hermetically sealed and operational over a -40°C to $+105^{\circ}\text{C}$ temperature range.

MEMSIC's accelerometer technology allows for designs from ± 1 g to ± 70 g with custom versions available above

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MEMSIC MXR7999V Rev.A



MXR7999V FUNCTIONAL BLOCK DIAGRAM

± 70 g. It can measure both dynamic acceleration (e.g., vibration) and static acceleration (e.g., gravity). The design is based on heat convection and requires no solid proof mass. This eliminates stiction and particle problems associated with competitive devices and provide shock survival greater than 50,000 g, leading to significantly lower failure rates and lower loss due to handling during assembly and at customer field application. Due to the standard CMOS structure of the MXR7999V, additional circuitry can easily be incorporated into custom versions for high volume applications. Contact Memsic's local office for more information.



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