

# CAPACITIVE ACCELERATION SENSORS

TI's Capacitive Acceleration Sensor (CAS) is a workhorse, at the heart of numerous automotive chassis control applications worldwide.

Our low-g acceleration sensing solutions serve applications including Anti-Roll Control, Semi-Active Suspension, Vehicle Dynamics Control, 4WD ABS, and OBDII/Rough Road Detection.



## CAS meets the demanding expectations of the automotive industry:

- 1g, 2g, and 10g full scale options available
- Sensitivity up to 3 V/g; Output ratiometric with supply
- Operating range: -40° to 85°C
- Flat response DC to 50Hz (-3dB)
- Total error band  $\pm 5\%$  Full Scale (includes calibration, linearity, thermal offset, and drift over life)
- EMC – radiated susceptibility 100V/m up to 500MHz
- Automotive fluid compatibility
- We are QS9000 certified, delivering <50ppm AIQ

## Product History

A proven automotive performer, versions of CAS have been in mass production since 1992. TI has been supplying the automotive industry for over 30 years. Our portfolio includes Coolant Level Sensors, Transmission Range Sensors, and Pressure Switches and Transducers. CAS is an extension of our recognized worldwide leadership in Automotive Pressure Transducers, sharing much of the proven packaging technology with that highly successful product.

## Product Technology

CAS employs the combined expertise accumulated from several highly regarded TI products:

- Thick film ceramic based sensing element from TI Automotive Pressure Transducer
- Alloy 42 metal beam from TI Leadframes
- Application Specific IC
- Controlled expansion alloy (for minimal thermal error) from TI Thermostat Metals
- High reliability packaging from TI Automotive Pressure Transducer

### For more information, please contact:

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## Typical Specifications

*Custom specifications are available upon request.*

<b>ATTRIBUTE</b>	<b>MIN</b>	<b>MAX</b>
Input Range	±0.5g	±10g
Sensitivity	0.200 V/g	3.000 V/g
Supply Voltage	4.5 V	5.5 V
Supply Current	-	10 mA
Output Current	-	1 mA (typical)
Supply Voltage without damage	-14 V	16 V
Noise (1g F.S. device)	-	0.001 g (rms)
EMC Radiated Susceptibility to 500MHz	200 V/m	-
Calibration Offset Error	-0.050 V	0.050 V
Linearity (0g offset from endpoint line)	-1.0% F.S.	1.0% F.S.
Cross Axis Sensitivity Error	-3%	3%
Frequency Response (-3dB point)	25 Hz	100 Hz
Thermal Sensitivity Error (-40° to 85°C)	-4%	4%
Thermal Offset Error (-40° to 85°C)	-0.100 V	0.100 V
Operating Temperature	-40°C	85°C
Storage Temperature	-40°C	125°C

## Typical Product Qualification Tests

*Test specifications available upon request.*

- Thermal Cycling
- High Temperature Endurance
- Low Temperature Endurance
- Vibration
- Humidity
- Corrosion / Salt Spray

Web: [www.ti.com/snc/products/sensors/auto-cas.htm](http://www.ti.com/snc/products/sensors/auto-cas.htm)

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