



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## FEATURES

**Combined gyroscope and 3-axis, low  $g$  accelerometer**  
**Temperature compensated, high precision bias, and sensitivity performance**  
 **$\pm 30$  mg accelerometer bias stability over temperature**  
 **$\pm 2^\circ/\text{sec}$  gyroscope null stability over temperature**  
**2.5 mg rms typical accelerometer noise at 35.6 Hz**  
**0.1 $^\circ/\text{sec}$  rms typical gyroscope noise at 35.6 Hz**  
**Gyroscope: linear acceleration rejection of 0.03 $^\circ/\text{sec}/g$**   
**Acceleration:  $\pm 32$  g overload performance**  
**SPI digital output with a 16-bit data-word and a 4-bit CRC**  
**Comprehensive electromechanical fail-safe features**  
**6 kHz data update rate**  
**Programmable filter response**  
**<16 mA quiescent current draw**  
**3.3 V or 5 V operation**  
 **$-40^\circ\text{C}$  to  $+105^\circ\text{C}$  temperature range**  
**16-lead SOIC package for robust EMI performance**  
**Qualified for automotive applications**

## APPLICATIONS

**Electronic stability control**  
**Chassis control**

## GENERAL DESCRIPTION

The ADXC1501 is a yaw rate gyroscope and 3-axis accelerometer combined in a single package. It is designed for electronic stability control and other high performance applications that require yaw rate and acceleration signals simultaneously. An internal temperature sensor compensates offset and sensitivity performance, providing excellent stability over the  $-40^\circ\text{C}$  to  $+105^\circ\text{C}$  temperature range.

A digital serial port interface (SPI) transmits the yaw rate and acceleration data to a host microcontroller. A 4-bit cyclical redundancy check (CRC) provides fault coverage for the transmitted SPI data, and internal fault detection routines ensure the integrity of all reported yaw rates and acceleration data. A fully integrated electromechanical continuous self test (CST) routine provides run-time diagnostic capability for assessing the health of each MEMS element.

An advanced gyroscope sensor design rejects the linear acceleration effects of shock and vibration, enabling the ADXC1501 to operate in harsh environments. The accelerometer signal chain is designed to prevent overload conditions from occurring in these same harsh environments.

The ADXC1501 is designed to operate at either 3.3 V or 5 V. At less than 16 mA current consumption, the ADXC1501 can be used in energy sensitive applications.

## FUNCTIONAL BLOCK DIAGRAM

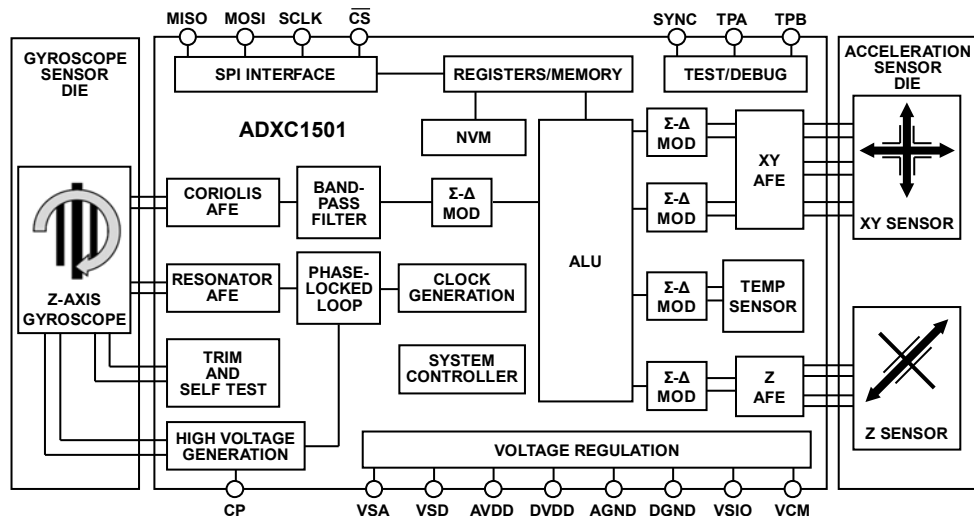


Figure 1.

For more information about the ADXC1501, contact the Analog Devices, Inc., [Customer Interaction Center](http://www.analog.com/technical_support) at [http://www.analog.com/technical\\_support](http://www.analog.com/technical_support) to connect with a technical support specialist.

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