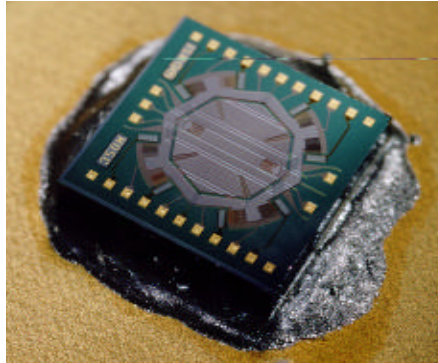


SILICON MICRORING GYRO™



MicroSensors' Silicon MicroRing Gyro is designed for MEMS applications requiring highly sensitive motion sensing, such as anti-spin and sophisticated air bag controls in automobiles, medical monitors implants, GPS inertial guidance backup, other navigation systems, and flat-panel video displays.

The sensor element contains a number of proprietary design features. Only 4 masks are required for this MEMS sensor, reducing the tolerance accumulation and process sensitivity associated with designs using more. The physical decoupling of the capacitive pickoff plate from the oscillating wheel greatly reduces the feedthrough of the drive motion to the pickoff plate.

In addition to input signal detection, the readout and control ASIC has all necessary rate sensor electronics functions: comb drive, electrostatic tuning, signal demodulation, self test, output signal buffering.

Key to the ASIC design is a unique approach to measuring the very small capacitance changes associated with the small changes in rate. A double sample corrector, combined with a charge amplifier topology developed by Irvine Sensors for other low noise applications, will enable amplifier sensitive to capacitance changes less than 0.05 femtoFarads.

This micro gyro responds to Coriolis forces induced in an oscillating wheel whenever there is physical rotation about the input axis. The magnitude of these forces is directly proportional to the angular rate of rotation. These minuscule forces, acting on a differential capacitor, are detected and amplified by the readout ASIC.

APPLICATIONS:

- **AUTOMOBILE:** leveling control, anti-spin, anti-skid, navigation
- **INDUSTRIAL:** robotics, shipping, motion control, survey equipment
- **CONSUMER:** GPS receiver, VR gear, 3D mouse, camcorder, sports equipment,
- **TOYS:** remote control for cars, helicopter, aircraft, robots
- **MILITARY:** missile guidance, smart munitions, tracker buoys, autonomous vehicles, land navigation, pilot head tracker, marine guidance

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