

## 自激驱动方式的振动式微机械陀螺全差动接口电路

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摘要：

以外框驱动内框检测（ISOD）的框架式振动陀螺为对象，采用CSMC 0.6 $\mu$ m标准CMOS工艺给出了驱动电路和检测电路的实现方式。仿真结果显示，同外加驱动方式相比，自激驱动方式能够让驱动电压工作于微机械陀螺的驱动谐振频率上，对温漂和时漂有很强的抑制作用，能够实现最大的检测分辨率，微机械陀螺性能显著提高。采用全差动工作方式相对于单端工作方式，可以有效的提高信噪比（SNR），并可以抑制共模噪声的干扰，并降低对高频载波的依赖度。在大气环境下，微机械陀螺的响应度为10mV/deg，灵敏度为0.1deg/sec。

关键词：微机械陀螺，自激驱动，全差动接口电路

## Full diff interface circuit realization with self-excitation driving mode of vibration micro-machined gyroscope

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**Abstract:**

Based on the object of Outside Drive Inside Sense frame vibration micro-machined gyroscope, given the circuits realization with CSMC 0.6 $\mu$ m standard CMOS technology. The simulation result revealed that the self-excitation driving model can make drive AC voltage work at the resonance of sensor, have strongly restrain ability to temperature drift and time drift. The work mode of full difference can improve SNR dramatic evidently, and restrain the disturb of common mode noise, and have less sensitivity to carrier wave. At one atom environment, the sensor have responsibility 10mV/deg, sensitivity 0.1deg/sec/sqar Hz.

**Keywords:** micro-machined gyroscope, self-excitation driving, full diff interface circuit

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