

单质量块的单轴集成惯性测量器件的设计

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摘要:

介绍了一种单质量块的单轴集成惯性测量器件的结构,提出一种可以利用一个敏感头同时测量某一方向加速度和陀螺信号的集成测量结构形式;同时本论文建立了单轴集成测量器件的模型,并运用计算机辅助软件对其进行仿真,对惯性测量器件的加速度信号和陀螺信号的产生及仿真进行了阐述;最后,为了保证器件有高的成品率,本文对测量器件的版图进行了优化设计和修改;为了保证高的检测精度,本文还就测量器件的后续处理电路进行了研究。

关键词: 单轴集成; 建模; 仿真; 版图; 处理电路

The design of the single-axis integrated inertia measurement device

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Abstract:

A single-chip integration inertia measurement device is designed in this paper; and the proposed sensor can detect the acceleration and angle velocity in the same direction at the same time. In the meantime, the model of the device is set up and simulated using soft wares in this paper. The signal of the accelerates and the angle velocity is represented too by simulation. In the end, for the purpose of high rate of finished products, the process map is optimized and modified; aiming at high detection accuracy, the subsequent circuit of the device is designed too.

Keywords: signal-axis integrated; model; simulation; process map; process circuit

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