

集成电容式传感器的理论模型研究

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摘要:

研究一种与CMOS工艺兼容的梳状电极结构电容式传感器, 对其敏感电容的变化量进行理论推导, 建立了一种简单的解析模型, 并使用Ansys软件仿真验证。利用该解析模型能够直观的分析各种参数变化对敏感电容变化量的影响, 对芯片设计、制作及测试等具有参考意义。

关键词: 电容式传感器; CMOS工艺; 梳状电极; 保角变换

Research on a Theoretical Model for CMOS Capacitive Sensors

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Abstract:

A CMOS compatible capacitive sensor with comb electrodes is researched. The change of the sensor capacitance is theoretically deduced. Its analytic model is built and simulated by Ansys. Based on the model, the relation between the change of parameters and the change in capacitance is analyzed easily. There is some instruction to the sensor design, fabrication and test.

Keywords: capacitive sensor; CMOS technology; comb electrodes; conformal transformation

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