

MEMS传感器敏感单元RTD的力敏特性优化

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摘要:

论文中首先通过减小垒前阱的厚度消除了负阻区的“台阶区”, 提高负阻区的阻值为-7.916, 并通过加压测试RTD的力电耦合灵敏度, 使其灵敏度由原来的5.5 mA/g增大到7 mA/g, 优化了RTD作为MEMS传感器敏感单元的灵敏度, 同时也通过增大RTD结构的台面积大小, 有效的消除了负阻区的“台阶区”, 并使其负阻区的阻值增大为-0.06, 提高了MEMS传感器敏感单元RTD结构的灵敏度。

关键词: RTD, 力电耦合, 偏压灵敏度, 台阶效应

Optimize the force-sensitive characteristics of RTD as the sensitive unit of MEMS sensors

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Abstract:

In this paper, we first eliminate "bench area" in the negative resistance area by reducing the thickness of the well to improve the resistance of the negative resistance for 7.916. Then we conduct the force-electrical coupling test of RTD using the pressure test. As the result, we make its sensitivity increase from 5.5 mA/g to 7 mA/g, optimize the sensitivity of RTD as MEMS sensor sensitive unit. As well as, the "bench area" eliminates as increasing the size of launch region of RTD structure (RTS). At the same time, its negative resistance increases to 0.06. Finally, we improve the sensitivity of RTD structure which is the unit of MEMS sensors.

Keywords: RTD; Force-electrical coupling; Bias voltage sensitivity; Bench effect

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