

硅微梳状静电谐振器机械性能试验研究*

作者: 赵江铭^{1*} 陈晓阳² 刘武发¹ 杨杰伟¹ 王小静²

单位: 1. 郑州大学机械工程学院, 郑州450001; 2. 上海大学机电工程与自动化学院, 上海200072

基金项目:

摘要:

设计了多类直脚型、弓型梁和多折叠梁谐振器, 测量了各谐振器的品质因子和振幅电压比。结合部分直脚型谐振器的实验结果, 建立了半经验公式, 并利用弓型梁和多折叠梁谐振器的实验结果进行了验证。结果表明所得公式形式简明, 计算结果与实测值吻合较好。

关键词: 静电微谐振器, 品质因子, 振幅电压比, 试验研究, 半经验公式

Experiment Research on Mechanical Properties of Micro Electro-static Silicon Resonators*

Author's Name: ZHAO Jiang-ming^{1*}, CHEN Xiao-yang², LIU Wu-fa¹, YANG Jie-wei¹, WANG Xiao-jing²

Institution: 1. School of Mechanical Engineering, Zhengzhou University, Zhengzhou 450001, China; 2. School of Electromechanical Engineering and Automation, Shanghai University, Shanghai 200072, China

Abstract:

Several straight-leg resonators, meander-leg resonators and multi-folded-leg resonators are designed to study the mechanical characters of resonators. The values of quality factors and ratios of amplitude to voltages are measured. According to the measured results of some straight-leg resonators, half-empirical formulas of quality factors and ratios of amplitude to voltages are developed and tested by the meander-leg ones and multi-folded-leg ones. It is proved that the formulas were very simple and its results fitted well with tested ones.

Keywords: micro electro-static resonators; quality factors; ratio of amplitude to voltages; experiment research; half-empirical formula

投稿时间: 2010-04-07

[查看pdf文件](#)