传感技术学报
中国微米纳米技术学会
全国高校传感技术研究会 主办

一种超宽带MEMS开关的研制

作　者：董自强, 赵博韬, 石国超

单　位：中国电子科技集团公司第五十四研究所

基金项目：

摘　要：

现代电子战，为了具备更强的防御和进攻能力，对其中的射频器件提出了宽带指标的要求。本文以此为背景，在理论分析的基础上设计了一种应用于12.5~50GHz频带的超宽带双膜桥式MEMS开关，该开关具备低损耗、高隔离度等特点，文中给出了开关的制备工艺，并进行流水完成了芯片制备。经测试，该开关在设计频段内，回波损耗优于20dB，插入损耗典型值0.3dB@12.5~35GHz，优于0.5dB@45GHz，隔离度全频段优于20dB，驱动电压在45V~55V之间。

关键词：电子战；RF-MEMS开关；电容式；双膜桥；超宽带

Design and Fabrication of a Ultra Wideband Capacitance MEMS Switch

Author's Name:

Institution:

Abstract:

Based on the consideration of high performance in electronic warfare, an ultra wideband capacitance MEMS switch is reported in this paper, the fabricated switch keeps properties of high isolation, low insertion and ultra wideband. The switch is designed carefully by using ADS and HFSS software, and the fabrication processes are presented in this paper. The testing results show that the switch provides high isolation performance at 12.5~ 50GHz, which is better than 20dB. Its insertion loss is better than 0.3dB@12.5~35GHz, and is better than 0.5dB@45GHz. Meanwhile, its return loss is better than 20dB, and the value of pull-in voltage is between 45V to 55V.

Keywords: electronic warfare; RF MEMS switch; capacitance； dual beam; ultra wideband

投稿时间：**2014-01-09**

查看pdf文件