Abstracts

Design of low actuation voltage RF MEMS switch

S.P. Pacheco, L.P.B. Katehi and C.T.-C. Nguyen. "Design of low actuation voltage RF MEMS switch." 2000 MTT-S International Microwave Symposium Digest 00.1 (2000 Vol. I [MWSYM]): 165-168.

Low-loss microwave microelectromechanical systems (MEMS) shunt switches are reported that utilize highly compliant serpentine spring folded suspensions together with large area capacitive actuators to achieve low actuation voltages while maintaining sufficient off-state isolation. The RF MEMS switches were fabricated via a surface micromachining process using P12545 polyimide as the sacrificial layer. The switch structure was composed of electroplated nickel and the serpentine folded suspensions had a varying number of meanders from 1 to 5. DC measurements indicate actuation voltages as low as 9 V with an on-to-off capacitance ratio of 48. Power handling measurement results showed no "self-biasing" or failure of the MEMS switches for power levels up to 6.6 W. RF measurements demonstrate an isolation of -26 dB at 40 GHz.

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