Abstracts

Gas damping model for a RF MEM switch and its dynamic characteristics

T. Veijola, T. Tinttunen, H. Nieminen, V. Ermolov and T. Ryhanen. "Gas damping model for a RF MEM switch and its dynamic characteristics." 2002 MTT-S International Microwave Symposium Digest 02.2 (2002 Vol. II [MWSYM]): 1213-1216 vol.2.

A compact model for a capacitive RF MEM switch with damping is presented. The damping model is based on analytic expressions for flow resistances due to the rarefied air flow in the gap and in the perforation holes. The complete switch model is constructed of elements resulting from the discretization of the beam deflection equation and has been implemented as a nonlinear electrical equivalent circuit. The model reproduces the beam displacement accurately. Comparison with measured transient on/off capacitance characteristics shows very good agreement.

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