Abstracts

High-isolation inductively-tuned X-band MEMS shunt switches

J.B. Muldavin and G.M. Rebeiz. "High-isolation inductively-tuned X-band MEMS shunt switches." 2000 MTT-S International Microwave Symposium Digest 00.1 (2000 Vol. I [MWSYM]): 169-172.

This paper presents the design and measurement of low-loss high-isolation micro-electro-mechanical systems (MEMS) switches at 7-12 GHz. The high isolation is obtained by designing the resonance frequency of the MEMS switch in the down-state position and a series inductance to be in the X-band frequency range. Single MEMS shunt switches achieved an isolation of 35 dB at 10 GHz with an associated up-state insertion loss of less than 0.2 dB. A double MEMS shunt switch design resulted in an isolation of 30 dB from 7-12.5 GHz with an up-state insertion loss of less than 0.4 dB. This technique allows the construction of very high isolation shunt switches at low microwave frequencies while limiting the capacitive area of the MEMS switch to a mechanically acceptable size.

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