

Abstracts

Inline capacitive and DC-contact MEMS shunt switches

J.B. Muldavin and G.M. Rebeiz. "Inline capacitive and DC-contact MEMS shunt switches." 2001 Microwave and Wireless Components Letters 11.8 (Aug. 2001 [MWCL]): 334-336.

This paper presents inline capacitive MEMS shunt switches suitable for X/K-band and Ka/V-band applications. The inline switch allows for a low- or high-inductance connection to the ground plane without changing the mechanical characteristics of the MEMS bridge. Excellent isolation and loss are achieved with this design, and the performance is very similar to the standard capacitive MEMS shunt switch. Also, a new metal-to-metal contact MEMS shunt switch is presented. A novel pull-down electrode is used which applies the electrostatic force at the same location as the metal-to-metal contact area. A contact resistance of 0.15-0.35 Ω is repeatable, and results in an isolation of -40 dB at 0.1-3 GHz. The measured isolation is still better than -20 dB at 40 GHz. The application areas are in high-isolation/low-loss switches for telecommunication and radar systems.

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