Abstracts

High-isolation CPW MEMS shunt switches. 2. Design

J.B. Muldavin and G.M. Rebeiz. "High-isolation CPW MEMS shunt switches. 2. Design." 2000 Transactions on Microwave Theory and Techniques 48.6 (Jun. 2000 [T-MTT] (Mini-Special Issue on the 1999 IEEE Radio and Wireless Conference (RAWCON))): 1053-1056.

For pt.1 see ibid., vol.48, no.6, p.1045-1052 (2000). In this paper, the second of two parts, the equivalent RLC model of the shunt switch is used in the design of tuned two- and four-bridge "cross" switches from 10 to 40 GHz. The cross switch attained an insertion loss of less than 0.3-0.6 dB, a return loss below -20 dB from 22 to 38 GHz in the up state, and a down-state isolation of 45-50 dB with only 1.5 pF of down-state capacitance (C/sub d/). Also, an X-band microelectromechanical system (MEMS) switch with an insertion loss of less than 0.2 dB and an isolation of 35 dB is presented. This is done by inductively tuning the LC series resonance of the shunt switch. The MEMS bridge height is 1.5-2.5 /spl mu/m, resulting in a pull-down voltage of 15-25 V. Application areas are in low-loss high-isolation communication and radar.

❑ Return to main document.