Abstracts

Tunable lumped components with applications to reconfigurable MEMS filters

D. Peroulis, S. Pacheco, K. Sarabandi and L.P.B. Katehi. "Tunable lumped components with applications to reconfigurable MEMS filters." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 341-344 vol.1.

This paper presents a novel design scheme for tunable coplanar waveguide components with applications to compact lumped-element MEMS reconfigurable filters. Shunt MEMS switches are employed for tuning the values of lumped components frequently encountered in microwave integrated circuits. In particular, shunt capacitors, series inductors and shunt inductive stubs are the main tunable circuit elements utilized in this work. Furthermore, accurate equivalent circuits that include the most important parasitics introduced by the tuning mechanism are provided. Finally, the proposed method is applied to the design and implementation of very compact low-pass and bandpass tunable filters. The very high tunability range, the compactness of the resulting networks and their very wideband response constitute the main advantages of this technique.

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