Abstracts

Novel lumped-element uniplanar transitions

Yo-Shen Lin and Chun Hsiung Chen. "Novel lumped-element uniplanar transitions." 2001 Transactions on Microwave Theory and Techniques 49.12 (Dec. 2001 [T-MTT] (Special Issue on 2001 International Microwave Symposium)): 2322-2330.

Novel reduced-size lumped-element uniplanar transitions are proposed, using the planar parallel and series inductor-capacitor (LC) circuits to realize the effective open and short circuits, respectively. In this study, various compact lumped-element coplanar waveguide-to-slotline and finite-ground coplanar waveguide-to-coplanar stripline transition structures are developed and carefully examined. Specifically, the performance of proposed basic lumped-element transitions can easily be adjusted through the control of L and C values, while the design of lumped-element Marchand-balun-type transitions may be accomplished by the use of conventional filter synthesis techniques. Simple equivalent-circuit models are also established, from which the passband behavior of the lumped-element transition structures may be characterized.

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