Abstracts

Coplanar Waveguide Bandpass Filter--A Ribbon-of-Brick-Wall Design

F.-L. Lin, C.-W. Chiu and R.-B. Wu. "Coplanar Waveguide Bandpass Filter--A Ribbon-of-Brick-Wall Design." 1995 Transactions on Microwave Theory and Techniques 43.7 (Jul. 1995, Part I [T-MTT]): 1589-1596.

This paper proposes a novel ribbon-of-brick-wall design of the coplanar waveguide bandpass filter which is built from cascading several sections of quarter wavelength open-end series stubs. The design originates from modeling the series stub as a system of two asymmetrically coupled transmission lines, which is then made equivalent to a basic filter element of admittance inverter. The relationship between the parameters of the coupled transmission lines and the admittance inverter is derived and the design charts are provided for the convenience of the designers. Systematic procedure is established to design the Chebyshev filter, which is also fabricated and measured. In addition, the quasistatic equivalent lumped circuit models of the discontinuities formed between two sections are evaluated and incorporated into the circuit simulation to get better prediction for the filter performance. The good agreement between simulation results and experimental data justifies the design procedure and validates the present analysis approach.

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