Abstracts

Method of Analysis and Filtering Properties of Microwave Planar Networks

G. D' Inzeo, F. Giannini, C.M. Sodi and R. Sorrentino. "Method of Analysis and Filtering Properties of Microwave Planar Networks." 1978 Transactions on Microwave Theory and Techniques 26.7 (Jul. 1978 [T-MTT]): 462-471.

A method of analysis of planar microwave structures, based on a field expansion in term of resonant modes, is presented. A first advantage of the method consists in the possibility of taking into account fringe effects by introducing, for each resonant mode, an equivalent model of the structure. Moreover, the electromagnetic interpretation of the filtering properties of two-port networks, particularly of the transmission zeros, whose nature has been the subject of several discussions, is easily obtained. The existence of two types of transmission zeros, modal and interaction zeros is pointed out. The first ones are due to the structure's resonances, while the second ones are due to the interaction between resonant modes. Several experiments performed on circular and rectangular microstrips in the frequency range 2-18 GHz have shown a good agreement with the theory.

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