Abstracts

Hairpin-Line and Hybrid Hairpin-Line/Half-Wave Parallel-Coupled-Line Filters

E.G. Cristal and S. Frankel. "Hairpin-Line and Hybrid Hairpin-Line/Half-Wave Parallel-Coupled-Line Filters." 1972 Transactions on Microwave Theory and Techniques 20.11 (Nov. 1972 [T-MTT]): 719-728.

A new class of microwave filters, hairpin-line and hybrid hairpin-line/half-wave parallel-coupled-line filters, is reported. This class of filters is particularly well suited for microstrip and TEM printed-circuit realizations because grounding of the filter resonators is generally not required. Hairpin-line filters have been divided into two types. The first (Type A) is characterized by having its input and output lines open-circuited at their ends. The Type A filter has been found to yield practical impedance levels for narrow to approximately 25-percent bandwidths. The second (Type B) is characterized by having its input and output lines short-circuited at their ends. However, because of space limitations, details of the Type B filter are not presented in this paper. Theoretical background and design equations for Type A bandpass filters are presented. Experimental data for several stripline filters of 5- and 20-percent bandwidths are given. Experimental results for two microwave-integrated-circuit (MIC) filters are discussed.

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