Abstracts

Non-Minimum-Phase Microwave Filters (Dec. 1968 [T-MTT])

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Several restriction are normally imposed on the type of transfer functions which can be realized as practical microwave filters. Conventional waveguide filter structures cannot realize general nonminimum-phase functions with transmission zeros in the right half-plane. These networks are, however, of great importance as much better combinations of phase and amplitude characteristics can be achieved through the use of these filters. In this paper a new type of filter is analyzed, in which reactive elements are combined in a special way with a magic-T or a 90-degree microwave hybrid. A synthesis procedure is given for the realization of transfer functions with zeros in any or both halves of the complex frequency plane. This realization leads to canonic networks with ladder type structures. It is also shown how antireciprocal phase shifters can be used to realize modulators, or special types of filter functions.

❑ Return to main document.