Abstracts

Scattering Matrices of Junction Circulator with Chebyshev Characteristics

J. Helszajn. "Scattering Matrices of Junction Circulator with Chebyshev Characteristics." 1975 Transactions on Microwave Theory and Techniques 23.7 (Jul. 1975 [T-MTT]): 548-554.

The purpose of this paper is to derive the scattering matrix of junction circulators with Chebyshev characteristics. This is done by forming the overall eigenvalues of the circulator one at a time in terms of the ABCD matrix of the matching network and the initial set of the junction eigenvalues. This paper deals both with the case where the frequency variation of the in-phase eigennetwork at the gyrator terminals is neglected compared to that of the counterrotating ones, and with the case where it is included. It is found that the former approach is in excellent agreement with the results obtained by assuming a 1-port model for the circulator. The influence of this eigennetwork on the overall frequency response is studied separately by combining the electromagnetic and network problems in the case of the stripline circulator.

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