Abstracts

Analysis of Asymmetrical Multilayer Ferrite-Loaded Finlines by the Extended Spectral Domain Approach

Z. Fan and S.R. Pennock. "Analysis of Asymmetrical Multilayer Ferrite-Loaded Finlines by the Extended Spectral Domain Approach." 1996 Transactions on Microwave Theory and Techniques 44.4 (Apr. 1996 [T-MTT]): 497-504.

The spectral domain approach is extended to analyze the nonreciprocal propagation characteristics of asymmetrical multilayer finlines containing magnetized ferrites. This extended method offers several advantages. It can be applied to nonuniform cross-section geometries, uses only one set of basis functions, and the dyadic Green's function is efficiently derived by a recursive algorithm. Fast convergence is obtained and the accuracy of the method is verified by comparison with available computed and measured data. In comparison with symmetrical structures, the additional design degree of freedom of the asymmetry can be used to obtain wider bandwidth and higher nonreciprocity. Of the various structures considered, a four-layer dual ferrite (DF) structure is seen to be the best choice for realization of nonreciprocal phase shifters with widest bandwidth.

❑ Return to main document.