Abstracts

Double Ridged Waveguide Phase Shifters for Broadband Applications (Dec. 1993 [T-MTT])

E.-B. El-Sharawy. "Double Ridged Waveguide Phase Shifters for Broadband Applications (Dec. 1993 [T-MTT])." 1993 Transactions on Microwave Theory and Techniques 41.11 (Dec. 1993 [T-MTT] (1993 Symposium Issue)): 2161-2165.

This paper presents an electromagnetic mode matching analysis of dual ridged waveguide phase shifters. The waveguide is loaded with a high dielectric material between the ridges, and the troughs are filled with ferrite toroids. The present structure offers nearly twice the bandwidth and less variation in nonreciprocity versus frequency as compared to the conventional dual toroidal phase shifter. An optimum design that maximizes nonreciprocity has been found. Effects of the dielectric constant and the trough dimensions are also presented. A differential phase shift of more than 100°/cm has been predicted for the new phase shifter.

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