Abstracts

On the Theory of the Ferrite Resonance Isolator

E. Schlomann. "On the Theory of the Ferrite Resonance Isolator." 1960 Transactions on Microwave Theory and Techniques 8.2 (Mar. 1960 [T-MTT]): 199-206.

The attenuation constants for both directions of propagation in a rectangular waveguide loaded with a small slab of ferrite are calculated by means of perturbation theory. The maximum attainable ratio of reverse to forward attenuation is found to be inversely proportional to the square of the bandwidth, with a constant of proportionality that is dependent on the shape of the ferrite slab and the proximity of cutoff. The figure of merit is largest for the case of a thin ferrite slab magnetized perpendicular to the plane of the slab. It is shown that a significant increase in the figure of merit can be obtained by proper use of the anisotropy of grain-oriented materials or single crystals.

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