Abstracts

New Edge-Guided Mode Isolator Using Ferromagnetic Resonance Absorption (Feb. 1977 [T-MTT])

T. Noguchi. "New Edge-Guided Mode Isolator Using Ferromagnetic Resonance Absorption (Feb. 1977 [T-MTT])." 1977 Transactions on Microwave Theory and Techniques 25.2 (Feb. 1977 [T-MTT]): 100-106.

A new edge-guided (EG) mode isolator is described in which nonreciprocal attenuation is due to the ferromagnetic resonance absorption caused by a strong dc magnetic field applied locally at the short-circuited edge of a ferrite microstrip line. From modal analysis, including the magnetic losses of ferrite substrate and the transversal variation of the internal dc magnetic field, the dominant EG mode has been proved to propagate along not only the conventional ferrite stripline but also a stripline with one edge short circuited to the ground. Dispersion relations and RF electric field distribution have been calculated numerically, and the upper limit of isolator bandwidth has been discussed with several design parameters. Based on the results, a practical EG mode resonance isolator has been successfully developed, which has more than 25 dB isolation loss and less than 1.0 dB insertion loss over a 4.0-8.0-GHZ frequency band throughout the - 10/spl deg/C-+60/spl deg/C temperature range,

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