Abstracts

Theory and experiment of thin-film junction circulator

H. How, S.A. Oliver, S.W. McKnight, P.M. Zavracky, N.E. McGruer, C. Vittoria and R. Schmidt. "Theory and experiment of thin-film junction circulator." 1998 Transactions on Microwave Theory and Techniques 46.11 (Nov. 1998, Part I [T-MTT]): 1645-1653.

We have calculated the S-parameters and losses in ferrite-film-junction circulators using a new effective-field theory assuming TEM-like propagation. Conductivity loss dominates the dielectric and magnetic losses in Y-junction circulators fabricated on ferrite films with thicknesses less than 200 /spl mu/m. It is plausible to fabricate Y-junction thin-film circulator at X-band with insertion loss less than 0.5 dB if the film thickness is larger than 100 /spl mu/m. The quality of the conductor plane is important in reducing the overall insertion loss of the thin-film-junction circulator.

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