Abstracts

High-Power S-Band Junction Circulator (Short Papers)

R.A. Stern. "High-Power S-Band Junction Circulator (Short Papers)." 1973 Transactions on Microwave Theory and Techniques 21.12 (Dec. 1973 [T-MTT] (1973 Symposium Issue)): 840-842.

The design of a high-power air-cooled microwave Y-junction circulator which is capable of operation at peak and average power levels of 800 kW and 800 W, respectively, is described. The unit is an H-plane waveguide circulator which is externally air cooled. The circulator design employs a full-height substituted YIG rod with a center metal pin together with boron nitride matching transformers. The circulator exhibits an insertion loss of less than 0.4 dB, isolation greater than 22 dB, and a VSWR <1.26:1 over a 400-MHz bandwidth centered at 3.3 GHz. At high-power levels, the device exhibits insertion loss of less than 0.9 dB, isolation greater than 20 dB, and VSWR <1.25:1 at an indicative frequency within the operating bandwidth.

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