Abstracts

Low-Loss High-Peak-Power Microstrip Circulators

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Smalll-signal magnetic losses due to coupling of the microwave signal to the spinwave manifold in a ferrite circuit under perpendicular pumping may be suppressed by biasing it between the subsidiary and main resonances. This paper describes the realization of two microstrip circulators biased in such a way. These magnetic conditions also coincide with those required to suppress spinwave instability at large-signal level. A device, using a triangular resonator, exhibited no nonlinear loss up to 1500-W peak at which power level thermal breakdown of the circuit metalization occurred both at the impedance step of the quarter-wave transformer and at the apex of the triangular resonator. A similar device using a disk resonator exhibited no nonlinear loss up to 2200-W peak at which power level breakdown of the circuit metalization again took place. A circulator using a disk resonator with a similar material but biased at magnetic saturation displayed nonlinear loss at 80-W peak.

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