Abstracts

A Review of Microwave Ferrite Devices

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Ferrites are used at frequencies between 100 Mc and 300,000 Mc in nonreciprocal attenuators (isolators), circulators, nonreciprocal phase shifters, power limiters, microwave switches, modulators, frequency multipliers, parametric amplifiers, sideband generators and variable attenuators and phase shifters. These applications fall into two categories: (1) unique functions such as those performed by the ferrite isolator and circulator where other types of devices are clearly inferior; (2) marginal functions such as the ferrite limiter or switch where a gas or semiconductor device would ordinarily provide superior performance. Ferrite devices of both categories have been improved recently. Those that perform the unique functions have been made to operate in new kinds of microwave systems or at higher power levels or at ultra-high frequencies or at millimeter wavelengths. Those that perform marginal functions have been adapted to work in specialized systems where they have provided higher power-handling capacity or longer lifetime or lower cost or smaller size or shorter recovery time or smaller insertion loss, but rarely more than one of these in each case.

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