Abstracts

A New Type of Latching Switchable Ferrite Junction Circulator (Mar. 1968 [T-MTT])

W.W. Siekanowicz and W.A. Schilling. "A New Type of Latching Switchable Ferrite Junction Circulator (Mar. 1968 [T-MTT])." 1968 Transactions on Microwave Theory and Techniques 16.3 (Mar. 1968 [T-MTT]): 177-183.

This paper presents an approximate theory and initial performance data for a new type of latching, switchable, ferrite junction circulator that is well suited for applications requiring fast (fractions of or several microseconds), low-energy (tens of microjoules in the microwave region) switching. The novelty of the device is the use of oppositely magnetized ferrite cylinder-and-ring assemblies within the region of circulation. The approximate theory yields the radius for circulation, bandwidth, and input impedance as functions of material properties and frequency. Operation of latched circulators has been demonstrated on assemblies operating in the region of 7.3 and 5.4 GHz. Insertion losses from 0.25 to 0.4 dB, 20-dB isolation bandwidths from 2.4 to 8.3 percent, and switching energies from 15 to 30 µJ have been obtained.

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