

Abstracts

Lumped Element Y Circulator

Y. Konishi. "Lumped Element Y Circulator." 1965 Transactions on Microwave Theory and Techniques 13.6 (Nov. 1965 [T-MTT]): 852-864.

A lumped element Y circulator using ferrite, having a mesh mechanism in place of the center conductor of an ordinary Y strip line circulator, is proposed. A theory is developed relating to bandwidth, insertion loss, and temperature dependence of the reactive energy and the tensor permeability of ferrite, and the bandwidth enlargement is discussed on the basis of the equivalent network. The size of the circulator is approximately 1~2 cm in diameter for VHF and UHF bands and the characteristics are, for example, about 50 percent bandwidth for 20-dB isolation, 2-dB insertion loss at 600-Mc/s center frequency. It is also shown that the insertion loss has its minimum value at a definite bandwidth and, as a practical example, a circulator is described with 0.25 dB of insertion loss and 6.5 percent bandwidth at 700 Mc/s.

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