Abstracts

Miniaturized, Temperature Stable, Coaxial Y-Junction Circulators (Correspondence)

J. Clark and J. Brown. "Miniaturized, Temperature Stable, Coaxial Y-Junction Circulators (Correspondence)." 1961 Transactions on Microwave Theory and Techniques 9.3 (May 1961 [T-MTT]): 267-269.

The problem of designing a circulator that is extremely small, durable, and lightweight immediately suggests the Y- or T-junction approach. For use with coaxial connectors, the strip transmission line Y-junction suggested by Auld and subsequently demonstrated by Milano, Davis and Saunders, has obvious advantages. A systematic approach to developing such a device calls for the symmetrical alteration of at least two physical characteristics of the junctional The obvious choice for one of these characteristics is the magnitude of the biasing magnetic field. The choice for the complementary characteristics can include any symmetrical change in the geometry of the junction (the adjustable ground plane of Fig. 1 is an example) and the symmetrical placing of isotropic and anisotropic material in the junction. The choice of this complementary characteristic most frequently mentioned in the literature is the diameter of the ferrite post. An alteration of the ferrite post height will also provide adjustment. The use of a metal pin along the axis of symmetry has also been suggested for this purpose. Thaxter and Heller have also reported on the use of a copper sleeve around the ferrite post for operation at 70 and 140 kMc.

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