Abstracts

94-GHz 4-Port E-Plane Junction Circulator (Short Paper)

K. Solbach. "94-GHz 4-Port E-Plane Junction Circulator (Short Paper)." 1984 Transactions on Microwave Theory and Techniques 32.7 (Jul. 1984 [T-MTT]): 722-724.

A 4-port junction circulator for use in 94-GHz E-plane integrated circuits is investigated. The design incorporates an E-plane X-junction of standard metal waveguides with a single ferrite disk on one of the narrow walls of the junction plus a metal plunger extending into the junction from the opposite side. The plunger is used to tune the n = 0 mode to the circulator center frequency and additionally can be used to tune the circulator center frequency over several gigahertz without critically degrading circulator performance, Minimum insertion loss of 0.65 dB was typical in a series of 12 plunger-tuned circulators with adjacent port isolation better than 20 dB, and crossport isolation better than 15 dB over nearly a 1-GHz bandwidth.

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