Abstracts

Analysis and Design of Lumped- and Lumped-Distributed-Element Directional Couplers for MIC and MMIC Applications

R.W. Vogel. "Analysis and Design of Lumped- and Lumped-Distributed-Element Directional Couplers for MIC and MMIC Applications." 1992 Transactions on Microwave Theory and Techniques 40.2 (Feb. 1992 [T-MTT]): 253-262.

An analysis of lumped- and lumped-distributed-element directional couplers is described. The assumed generality of the ring type four-port enables different types of directionality to be developed. The equations enabling an idealized design of co-, contra- and trans-directional couplers for arbitrary power division and transformation ratio are derived. A design procedure for three-branch, lumped-element directional couplers, which enables an impedance transformation between the input and output, ports is also included. Computer simulations of the performance of various couplers with lumped elements represented by realistic models are included in the paper.

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