Abstracts

Hybrid Couplers in Bilevel Microstrip

M.D. Prouty and S.E. Schwarz. "Hybrid Couplers in Bilevel Microstrip." 1993 Transactions on Microwave Theory and Techniques 41.10 (Nov. 1993 [T-MTT]): 1939-1944.

Hybrid couplers can be built using a bilevel microstrip structure in which two strips are positioned broadside, one above the other. This simple geometry provides large coupling factors without the need for rigorous manufacturing tolerances. Remarkably, if the dielectric constant of one of the layers can be freely chosen, ideal hybrid coupler performance is achievable. Even when the choice of dielectric constant is constrained, good results can be obtained. A technique for achieving optimal design has been developed, and design curves are shown. Experiments confirm design predictions. The reentrant coupler may be analyzed as an interconnection of two bilevel couplers of the kind described here. This provides a simpler analysis than methods used earlier, and in some cases yields more accurate results.

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