Abstracts

A Broadband MMIC Quadrature Coupler Using a Braided Microstrip Structure

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This paper presents a broadband quadrature coupler implemented with a unique braided microstrip structure. This novel structure consists of 64 air bridge crossovers and is completely compatible with MMIC processing, employing only the processing steps required to fabricate MIM capacitors. The airbridge crossovers create extremely tight coupling coefficients which are independent of the substrate thickness and, therefore, can be used on the thin substrates employed for MMICs. This paper contains the test results of a 2.5 to 8 GHz coupler fabricated on a 125 µm GaAs substrate. The coupler achieved less than ±.25 dB of amplitude imbalance with better than 17 dB return loss and 11 dB of isolation over the almost 2 octave bandwidth. This bandwidth and performance are the best reported for braided structures on thin GaAs substrates.

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