Abstracts

An MMIC-Compatible Tightly Coupled Line Structure Using Embedded Microstrip

D. Willems and I. Bahl. "An MMIC-Compatible Tightly Coupled Line Structure Using Embedded Microstrip." 1993 Transactions on Microwave Theory and Techniques 41.11 (Dec. 1993 [T-MTT] (1993 Symposium Issue)): 2303-2310.

This paper presents a highly manufacturable coupled line structure for MMIC's which uses embedded microstrip to achieve tight coupling and employs the process steps necessary to make metal-insulator-metal (MIM) capacitors. Passive circuits demonstrated using this technique include a single-section 5-21 GHz broadband 3 dB coupler fabricated on both 75 and 125 µm thick GaAs substrates and a 6-15 GHz 90° Schiffman section fabricated on a 125 µm thick GaAs substrate. The coupler and the Schiffman section use tight (2 dB) to extremely tight (0.7 dB) coupling factors, respectively. Additionally, two single-section 2-7 GHz couplers are compared, one having a crossover and one without. This is the first time that a coupler has achieved such a wide bandwidth on thin GaAs substrates. Complete test data are presented, including the amplitude, isolation, and phase response of the couplers and the phase and amplitude response of the Schiffman sections.

❑ Return to main document.