Abstracts

A 10-60-GHz micromachined directional coupler

S.V. Robertson, A.R. Brown, L.P.B. Katehi and G.M. Rebeiz. "A 10-60-GHz micromachined directional coupler." 1998 Transactions on Microwave Theory and Techniques 46.11 (Nov. 1998, Part II [T-MTT] (Special Issue on Innovative Integration Techniques for Microwave and Millimeter-Wave Circuits)): 1845-1849.

A 20-dB directional coupler has been designed and fabricated on a thin dielectric membrane using micromachining techniques. The fabrication process is compatible with monolithic microwave integrated-circuit (MMIC) techniques, and the coupler can be integrated into a planar-circuit layout. Design of the asymmetric tapered coupled-line coupler relies on simple quasi-static models and ideal transmission-line theory. The use of membrane technology results in less than 0.5-dB insertion loss in the coupler from 10 to 60 GHz. In addition, a micromachined packaging technique creates a shielded circuit, which is extremely compact and lightweight.

❑ Return to main document.