Abstracts

Design of Dielectric Ridge Waveguides for Millimeter-Wave Integrated Circuits

T. Wang and S.E. Schwarz. "Design of Dielectric Ridge Waveguides for Millimeter-Wave Integrated Circuits." 1983 Transactions on Microwave Theory and Techniques 31.2 (Feb. 1983 [T-MTT] (Special Issue on Millimeter-Waves)): 128-134.

All-dielectric ridge waveguides may be useful as elements of millimeter- and submillimeter-wave integrated circuits; A planar metallic V-coupler can be used to couple energy between the guide and small circuit elements such as diodes. Desirable characteristics in such a guide/coupler system are a) quasi-single mode propagation; b) low radiation loss in bendy c) low coupling loss between guide and devices and d) adequate physical strength. In this paper, we discuss the general problem of designing guides and couplers to obtain the desired characteristics. The principal method used is simulation in the range 2-7 GHz. We find that with good compromise designs, typical coupling loss between waveguide and a small device is about 1.4 dB, exclusive of dielectric loss and ohmic loss in the coupler.

❑ Return to main document.