Abstracts

Seventeen-GHz Directional Coupler Optical Modulator

M. Yu and A. Gopinath. "Seventeen-GHz Directional Coupler Optical Modulator." 1995 Transactions on Microwave Theory and Techniques 43.9 (Sep. 1995, Part II [T-MTT] (Special Issue on Microwave and Millimeter Wave Photonics)): 2198-2202.

The design of our high-speed directional coupler modulators at 0.83 µm used a semi-vectorial finite difference solver to obtain the odd and even mode optical propagation constants in the AlGaAs waveguide structure and a quasistatic finite difference code to obtain the RF characteristics of the electrode structure, which was an asymmetric coplanar waveguide modified capacitance loading. The measured drive voltage of the modulators, for 10-90 % response, varied between 22 and 27 V, compared with the theoretical value of 25 V. The 3 dB bandwidth of 17 GHz was obtained for this capacitive-loaded design, with 2500 mm interaction length, and is in good agreement with the predicted result.

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