Abstracts

Millimeter-Wave Monolithic Integrated Circuit Characterization by a Picosecond Optoelectronic Technique

H.-L.A. Hung, P. Polak-Dingels, K.J. Webb, T. Smith, H.C. Huang and C.H. Lee. "Millimeter-Wave Monolithic Integrated Circuit Characterization by a Picosecond Optoelectronic Technique." 1989 Transactions on Microwave Theory and Techniques 37.8 (Aug. 1989 [T-MTT]): 1223-1231.

The characterization of microwave and millimeter-wave monolithic integrated circuits (MIMIC's) using picosecond pulse sampling techniques is developed, with emphasis on improving broad-band coverage and measurement accuracy. GaAs photoconductive switches are used for signal generation and sampling operations. The measured time-domain response allows the spectral transfer function of the MIMIC to be obtained. This measurement technique was verified by characterization of the frequency response (magnitude and phase) of a reference 50 Omega microstrip line and a two-stage K/sub a/-band MIMIC amplifier. The measured broad-band results agree well with those obtained from conventional frequency-domain measurements using a network analyser. The application of this optical technique to on-wafer MIMIC characterization is also described.

❑ Return to main document.