Abstracts

A new, simple, test-set for on-wafer characterization of millimeter-wave electro-optic devices

A. Ferrero, G. Ghione and M. Pirola. "A new, simple, test-set for on-wafer characterization of millimeter-wave electro-optic devices." 2000 MTT-S International Microwave Symposium Digest 00.3 (2000 Vol. III [MWSYM]): 1607-1610.

A simple approach is described for the on-wafer and in-package electrical and electro-optic characterization of electro-optic components, such as electro-optic modulators, up to 40 GHz. The technique makes use of a two-port electrical measurement on a device obtained by connecting a calibrated high-speed photodetector to the optical output of the DUT. From the measurement of the electrical S/sub 21/ and the detector calibration curve, the electro-optical transmission coefficient is derived. The calibration of the on-wafer test set is carried out through the RSOL technique. The accuracy and repeatability of the proposed method is shown to be comparable with those of commercially available instrumentation, and the frequency bandwidth, once the high-frequency responsivity of the photodetector enables the network vector analyzer (NVA) to operate above its noise floor, is only determined by the NVA bandwidth. Some results and comparisons are presented concerning packaged and on-wafer LiNbO/sub 3/ modulators.

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