Abstracts

Pure-mode network analyzer for on-wafer measurements of mixed-mode S-parameters of differential circuits

D.E. Bockelman and W.R. Eisenstadt. "Pure-mode network analyzer for on-wafer measurements of mixed-mode S-parameters of differential circuits." 1997 Transactions on Microwave Theory and Techniques 45.7 (Jul. 1997 [T-MTT]): 1071-1077.

A practical measurement system is introduced for measurement of combined differential and common-mode (mixed-mode) scattering parameters, and its operation is discussed. A pure-mode system measures network parameters of a differential circuit in the fundamental modes of operation, and has improved accuracy over a traditional network analyzer for the measurement of such circuits. The system is suitable for on-wafer measurements of differential circuits. The transformation between standard S-parameters and mixed-mode S-parameters is developed. Example microwave differential structures are measured with the pure-mode vector-network analyzer (PMVNA), and the corrected data is presented. These structures are simulated, and the simulated mixed-mode S-parameters correlate well with the measured data.

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