Abstracts

An analytic expression for the HBT extrinsic base-collector capacitance derived from S-parameter measurements

E. Wasige, B. Sheinman, V. Sidorov, S. Cohen and D. Ritter. "An analytic expression for the HBT extrinsic base-collector capacitance derived from S-parameter measurements." 2002 MTT-S International Microwave Symposium Digest 02.2 (2002 Vol. II [MWSYM]): 733-736 vol.2.

Direct extraction is the most accurate method for the determination of equivalent-circuits of heterojunction bipolar transistors (HBTs). However, previous work lacks an exact expression for the extrinsic base-collector capacitance, which models the distributed nature of the base. This paper gives the derivation of an exact expression for this capacitance. As a result, each intrinsic equivalent-circuit parameter is determined using a simple exact expression at each measured frequency. The expression is valid for both the hybrid- /spl pi/ and the physics-based T-topology equivalent circuits. Extraction results for InP- and GaAs-HBTs are given.

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