Abstracts

Basic expressions and approximations in small-signal parameter extraction for HBT's

B. Li and S. Prasad. "Basic expressions and approximations in small-signal parameter extraction for HBT's." 1999 Transactions on Microwave Theory and Techniques 47.5 (May 1999 [T-MTT]): 534-539.

Basic expressions and approximations used to extract small-signal parameters for heterojunction bipolar transistors or bipolar junction transistors are developed in this paper. A T-type small-signal equivalent circuit after deembedding the pad capacitances is used for the derivation. The relative magnitudes of /spl omega/R/sub bc/C/sub be/, /spl omega/R/sub bi/C/sub bc/, and /spl omega/r/sub c/C/sub bell/ were used to evaluate the frequency ranges. Fully numerical or partially numerical approaches can be developed by these approximations. An element parameter-extraction procedure is also given in this paper. Two special cases ("cold" bias and degrading equivalent circuits) are also discussed.

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