Abstracts

Large-Signal Modeling of Self-Heating, Collector Transit-Time, and RF-Breakdown Effects in Power HBT's

C.-J. Wei, J.C.M. Hwang, W.-J. Ho and J.A. Higgins. "Large-Signal Modeling of Self-Heating, Collector Transit-Time, and RF-Breakdown Effects in Power HBT's." 1996 Transactions on Microwave Theory and Techniques 44.12 (Dec. 1996, Part II [T-MTT] (1996 Symposium Issue)): 2641-2647.

A large-signal heterojunction bipolar transistor (HBT) model has been developed which includes self-heating, collector transit-time, and RF-breakdown effects. The model has a compact form which is based on a compromise between accuracy and utility. As such, the model can be readily extracted and verified with the aid of RF waveform measurements. Using the model in simulations, it was found that RF breakdown was dependent on base biasing and loading conditions. Therefore, with proper circuit design, the maximum output power of the HBT can significantly exceed the limit of open-base breakdown voltage.

❑ Return to main document.