Abstracts

Large Signal Modeling of HBT's Including Self-Heating and Transit Time Effects

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A physically based, large signal HBT model is presented to account for the time dependence of the base, collector, and emitter charging currents, as well as self heating effects. The model tracks device performance over eight decades of current. As such, the model can be used as the basis of SPICE modeling approximations, and to this end, examples are presented. A thesis for the divergence of high frequency large signal SPICE simulations from measured data is formulated, inclusive of a requisite empirical equation for the base-collector junction capacitance.

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