Abstracts

Microwave Performances of npn and pnp AIGaAs/GaAs Heterojunction Bipolar Transistors

B. Bayraktaroglu and N. Camilleri. "Microwave Performances of npn and pnp AIGaAs/GaAs Heterojunction Bipolar Transistors." 1988 MTT-S International Microwave Symposium Digest 88.1 (1988 Vol. I [MWSYM]): 529-532.

The performances of MOCVD grown npn and pnp AIGaAs/GaAs HBTs were compared at microwave frequencies to identify relative merits of each type of device. F/sub t/ and f/sub max/ values of devices with 100 nm thick bases were 22 and 40 GHz for npn transistors and 19 and 25 GHz for pnp transistors, respectively. An accurate device model was developed using the measured S-parameter data. The base resistance of the pnp transistors, as determined from the model, was about five times lower than identical size npn device. A theoretical comparison of the two types indicated that similar performances may be obtained from both if the base layer thickness of pnp transistor is half that of the npn device. Large signal characterization was carried out at 10 GHz.

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