Abstracts

Millimeter-Wave AlGaAs-GaAs HBT Power Operation

N.-L. Wang, W.-J. Ho and J.A. Higgins. "Millimeter-Wave AlGaAs-GaAs HBT Power Operation." 1992 Microwave and Guided Wave Letters 2.10 (Oct. 1992 [MGWL]): 397-399.

The AIGaAs-GaAs HBT has demonstrated good power performance up to 18 GHz. Although f/sub max/ is typically above 100 GHz, the power performance limitation and large signal operation at millimeter wave have not yet been studied. Power results at 35GHz of two HBT structures, with an analysis based on numerical simulation are summarized. The HBT demonstrated 8.5-dB linear power gain, 30% PAE with 7.8-dB gain and 7.5-V V/sub ce/ bias. The power density reaches 1.25 mW/μm². A shorter collector (0.4 μm) is shown to be better suited for 35-GHz operation as a result of shorter collector transit time and smaller "residual collector voltage." Improvement can be achieved by reducing the base and collector resistance, and the collector capacitance.

❑ Return to main document.