Abstracts

28-V low thermal-impedance HBT with 20-W CW output power

D. Hill and T.S. Kim. "28-V low thermal-impedance HBT with 20-W CW output power." 1997 Transactions on Microwave Theory and Techniques 45.12 (Dec. 1997, Part II [T-MTT] (1997 Symposium Issue)): 2224-2228.

AlGaAs/GaAs heterojunction bipolar transistors (HBT's) have been fabricated which exhibit record output power for GaAs flip-chip technology, and record operating voltage for GaAs microwave power devices. Transistors with 2-mm emitter length readily achieved 20-W continuous wave (CW) output power at 2 GHz when biased at 28 V, with typical power-added efficiencies of 62% (typical collector efficiencies of 70%). Maximum CW output power of 25 W was obtained, corresponding to a power density of 12.5 W/mm. All results reported were obtained with devices requiring less than 1-mm/sup 2/ die area. High efficiency, high power, and high power density are enabled by the low device temperatures afforded by the thermally efficient low thermal impedance (LTI) technology.

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