Abstracts

Novel HBT with Reduced Thermal Impedance

D. Hill, A. Khatibzadeh, W. Liu, T. Kim and P. Ikalainen. "Novel HBT with Reduced Thermal Impedance." 1995 Microwave and Guided Wave Letters 5.11 (Nov. 1995 [MGWL]): 373-375.

Heterojunction bipolar transistors have been fabricated using a novel process in which the majority of the front side of the chip is metallized to serve as the groundplane. The completed chip is assembled inverted so that the emitters are next to the heat sink; base and collector are contacted using through-wafer vias and microstrip lines on the back side of the chip. These devices show a 50% reduction in thermal impedance compared to conventionally fabricated devices and have achieved power densities of 10 W/mm of emitter length. Such devices are expected to have substantially lower emitter inductance as well, which may lead to improved gain at higher frequencies.

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