

Abstracts

Low thermal impedance MMIC technology

D. Hill, R. Yarborough, Tae Kim and Hin-Fai Chau. "Low thermal impedance MMIC technology." 1997 Microwave and Guided Wave Letters 7.2 (Feb. 1997 [MGWL]): 36-38.

A technology has been developed that reduces the thermal resistance of monolithic microwave integrated circuits (MMICs). Novel processing techniques are used to fabricate thin-film capacitors and microstrip lines on the back side of the chip. The front side of the chip is metallized to serve as the ground-plane; the completed chip is assembled inverted so that the active devices are next to the heat sink, but the chip otherwise is a drop-in replacement for conventional MMICs. With very conservative deembedding of circuit losses, an AlGaAs/GaAs heterojunction bipolar transistor (HBT) fabricated in this technology achieved record performance at 20 GHz: over 1.2 W output power with 53% power-added efficiency while operating at 12.7 V.

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