Abstracts

1W Ku-Band AlGaAs/GaAs Power HBTs with 72% Peak Power-Added Efficiency

T. Shimura, M. Sakai, A. Inoue, S. Izumi, H. Matsuoka, J. Udomoto, K. Kosaki, T. Kuragaki, R. Hattori, H. Takano, T. Sonoda, S. Takamiya and S. Mitsui. "1W Ku-Band AlGaAs/GaAs Power HBTs with 72% Peak Power-Added Efficiency." 1994 MTT-S International Microwave Symposium Digest 94.2 (1994 Vol. II [MWSYM]): 687-690.

High power and high-efficiency multi-finger HBTs (Heterojunction Bipolar Transistors) have been successfully realized at Ku-band by using emitter ballasting resistors and a PHS (Plated Heat Sink) structure. An output power of 1W with power added efficiency (PAE) of 72% at 12GHz has been achieved from a ten-finger HBT with the total emitter size of 300μm². 72% PAE with the output power density of 5.0W/mm is the best performance in the HBTs of which the output powers are more than 1W at Ku-band.

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