Abstracts

K- and Ka-Band High Efficiency Amplifier Modules Using GaAs Power FETs

D. Bechtle, J. Klatskin, G. Taylor, M. Eron, S.G. Liu, R.L. Camisa and H. Dudley. "K- and Ka-Band High Efficiency Amplifier Modules Using GaAs Power FETs." 1987 MTT-S International Microwave Symposium Digest 87.2 (1987 Vol. II [MWSYM]): 849-851.

Sub-half-micrometer GaAs power FETs fabricated with a side-etched-gate technology (1-3) have been developed that exhibit low junction temperatures suitable for space application (4). With these devices high efficiency amplifier modules have been developed and will be reported on. At 20 GHz, using these devices, a high gain module was assembled that had an output power of 775 ± 75 mW from 18- to 20-GHz with 6.9 ± 0.2 dB gain, and a maximum efficiency of 20.3%. At 35 GHz, an output power of 210 mW with 3 dB gain and 22% efficiency has been obtained with one 0.6 mm width cell, and two cells were combined to obtain 300 mW with 3 dB gain and 18.8% efficiency. The power and efficiency results obtained at 35 GHz are some of the highest reported to date and indicate that Ka-band solid state power amplifiers are feasible.

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