Abstracts

High Efficiency Small Size 6W Class AB X-Band Power Amplifier Module Using a Novel MBE GaAs FET

M. Avasarala, D.S. Day, S. Chan, P. Gregory and J.R. Basset. "High Efficiency Small Size 6W Class AB X-Band Power Amplifier Module Using a Novel MBE GaAs FET." 1988 MTT-S International Microwave Symposium Digest 88.2 (1988 Vol. II [MWSYM]): 843-846.

A high efficiency 7.2 mm GaAs power FET using a novel doping profile grown by MBE was developed. This FET has achieved greater than 7 dB gain and 35.3 dBm power operating in class AB mode with a power-add efficiency (P.A.E.) of 40% at 10.2 GHz. Extremely compact single and 2-stage balanced amplifier modules were developed achieving power, gain and P.A.E.'s of 37.7 dBm, 6.7 dB, and 34.8% for the single stage and 37.7 dBm, 15.1 dB, and 33.1% for the double stage amplifier modules at 1 and 2 dB gain compression points, respectively, across the 9.2-10.2 GHz band with good gain flatness and output return loss. The total 2-stage amplifier was realized on a carrier measuring only .700"x.280" by using high dielectric constant substrates for all the matching circuits. The values for the P.A.E. remained relatively constant with flange temperatures up to 75°C.

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