Abstracts

High-Power and High-Efficiency Ion-Implanted Power GaAs FETs for C and X Bands

S. Yanagawa, Y. Yamada, M. Itoh, K. Arai and N. Tomita. "High-Power and High-Efficiency Ion-Implanted Power GaAs FETs for C and X Bands." 1985 MTT-S International Microwave Symposium Digest 85.1 (1985 [MWSYM]): 332-335.

C- and X-band multichip operation power GaAs FETs have been developed using an ion implantation technique. Uniformity among chips superior to and breakdown voltage comparable to those of conventional GaAs FETs have been obtained. The 4-chip C-band device, with a total gate width (Wg) of 57.6 mm, delivers a CW output power at 1-dB gain compression (P/sub 1dB/) of 21 W with 9 dB gain (G) and 42 % power-added efficiency (eta /sub add/), and a saturated output power (P/sub sat/) of 25 W at 5 GHz. The 8-chip X-band device with Wg=32 mm gives P/sub 1dB/=10.5 W with G=5 dB and eta/sub add/=25 %, and P/sub sat/=12 W at 10 GHz. The channel temperature rise is estimated from IR measurement to be 40 °C and 47 °C at 21-W and 10.5-W output power for the C- and X-band devices, respectively.

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