Abstracts

Low distortion high power GaAs pseudomorphic heterojunction FETs for L/S-band digital cellular base stations

I. Takenaka, K. Ishikura, H. Takahashi, K. Asano and M. Kanamori. "Low distortion high power GaAs pseudomorphic heterojunction FETs for L/S-band digital cellular base stations." 2000 MTT-S International Microwave Symposium Digest 00.3 (2000 Vol. III [MWSYM]): 1711-1714.

An L/S-band high-power and low-distortion GaAs FET amplifier has been developed. The amplifier employed newly developed GaAs pseudomorphic heterojunction FETs (HJFETs) exhibiting large drain current and small gm3 characteristics. In addition, the output matching circuit was designed to be in short condition for the second harmonic impedance to give the low distortion characteristics. The developed push-pull amplifier demonstrated 51.5 dBm (140 W) output-power with 13 dB linear gain at 2.2 GHz and extremely low IM3 performance of less than -40 dBc at two-tone total output-power of 43 dBm (at Vds=12 V, set Ids=4% Imax). The developed amplifier is suitable for digital cellular base station system applications.

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