Abstracts

High-Efficiency Monolithic GaAs Power MESFET Amplifier Operating with a Single Low Voltage Supply for 1.9-GHz Digital Mobile Communication Applications

M. Nagaoka, T. Inoue, K. Kawakyu, S. Obayashi, H. Kayano, E. Takagi, Y. Tanabe, M. Yoshimura, K. Ishida, Y. Kitaura and N. Uchitomi. "High-Efficiency Monolithic GaAs Power MESFET Amplifier Operating with a Single Low Voltage Supply for 1.9-GHz Digital Mobile Communication Applications." 1994 MTT-S International Microwave Symposium Digest 94.2 (1994 Vol. II [MWSYM]): 577-580.

A monolithic GaAs power amplifier IC using refractory WN/sub X//W self-aligned gate power MESFETs has been developed for 1.9-GHz digital mobile communication systems, such as the Japanese personal handy phone system. The power amplifier operates with high efficiency and low distortion with a single low voltage supply of 2.7 - 3.0 V, by virtue of small drain knee voltage, high transconductance and sufficient breakdown voltage of the power MESFET. An output power of 23.7 dBm and a high power-added efficiency of 24.2 % were attained at 3 V for 1.9-GHz pi/4-shifted QPSK (quadrature phase shift keying) modulated input when adjacent channel leakage power was -58 dBc at 600 kHz apart.

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