Abstracts

42% high efficiency two-stage HBT power amplifier MMIC for W-CDMA cellular phone system (2000 Vol. II [MWSYM])

T. Iwai, K. Kobayashi, Y. Nakasha, T. Miyashita, S. Ohara and K. Joshin. "42% high efficiency two-stage HBT power amplifier MMIC for W-CDMA cellular phone system (2000 Vol. II [MWSYM])." 2000 MTT-S International Microwave Symposium Digest 00.2 (2000 Vol. II [MWSYM]): 869-872.

This paper is the first to report a high efficiency two-stage HBT power amplifier MMIC for 1.95 GHz wide-band CDMA (W-CDMA) cellular phone system. Power amplifiers for W-CDMA system are required with high efficiency and high linearity over a wide range of output power level. To obtain a high efficiency, we chose a near class B operation. To obtain a high linearity, we suppressed the gain distortion due to a near class B operation by the adaptive biasing technique. The MMIC exhibited the highest power-added efficiency (PAE) of 42% ever reported, a gain of 30.5 dB, and an adjacent channel leakage power ratio (ACLR) it a 5 MHz offset frequency of -38 dBc at a Pout of 27 dBm under a supply voltage of 3.5 V with 3.84 Mcps HPSK modulation.

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