Abstracts

A low quiescent current, 40% efficiency three-stage PHEMT power amplifier MMIC for PCS CDMA application

Xinwei Wang, Jiang Cao, Bo Liang, Ee Sze Khoo, H. Nakamura and R. Singh. "A low quiescent current, 40% efficiency three-stage PHEMT power amplifier MMIC for PCS CDMA application." 1999 Radio Frequency Integrated Circuits (RFIC) Symposium 99. (1999 [RFIC]): 121-124.

This paper reports a three-stage PHEMT power amplifier (PA) MMIC with low quiescent current and high power added efficiency (PAE) for 1.9 GHz PCS CDMA application. Based on an accurate extracted large signal PHEMT model, the effects of harmonic terminations as well as envelope termination to power, linearity and PAE have been investigated and the results have been applied to the PA design. The three-stage PCS CDMA PA attained over 40% PAE, 0.8-watt output power and 30 dB gain at -45 dBc adjacent channel power rejection (ACPR) under a supply voltage of 3.6 V. The total quiescent current is only 80 mA.

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