Abstracts

49% efficiency power amplifier MMIC utilizing SrTiO/sub 3/ capacitors for 3.5 V Li-ion battery operated CDMA cellular phones

N. Iwata, K. Yamaguchi, T.B. Nishimura, K. Takemura and Y. Miyasaka. "49% efficiency power amplifier MMIC utilizing SrTiO/sub 3/ capacitors for 3.5 V Li-ion battery operated CDMA cellular phones." 1998 Radio Frequency Integrated Circuits (RFIC) Symposium 98. (1998 [RFIC]): 65-68.

This paper describes 840 MHz IS-95 power performance of a two-stage power amplifier MMIC with 2.0/spl times/1.5 mm/sup 2/ area utilizing double-doped AlGaAs-InGaAs-AlGaAs FETs and SrTiO/sub 3/ capacitors. Under 3.5 V operation, the developed MMIC including input matching, inter-stage matching and bias circuits delivered an output power of 0.93 W (29.7 dBm), a power-added efficiency (PAE) of 48.6% and an associated gain of 28.4 dB with an adjacent channel leakage power of -42 dBc at 0.9 MHz off-center frequency. Even operated at a reduced supply voltage of 1.2 V, a high PAE of 46.9% was obtained.

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