Abstracts

High performance silicon bipolar power amplifier for 1.8 GHz applications

F. Carrara, A. Castorina, A. Scuderi and G. Palmisano. "High performance silicon bipolar power amplifier for 1.8 GHz applications." 2002 MTT-S International Microwave Symposium Digest 02.2 (2002 Vol. II [MWSYM]): 1015-1018 vol.2.

The potential of a high-performance low-cost silicon bipolar technology for high-efficiency low-voltage RF power amplifiers has been explored. To this end, a unit power cell has been developed by optimizing layout design, collector thickness and doping level. On-wafer load-pull measurements were performed which showed an excellent power-added efficiency of 83% at 1.8 GHz under a supply voltage of 2.7 V. The optimized unit power cell was employed to implement a 1.8 GHz three-stage monolithic power amplifier. The device achieved a 57% maximum power-added efficiency and 33-dB gain at a 34-dBm output power level while operating at 2.7 V.

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