Abstracts

RF power amplifier integration in CMOS technology

Y.J.E. Chen, M. Hamai, D. Heo, A. Sutono, S. Yoo and J. Laskar. "RF power amplifier integration in CMOS technology." 2000 MTT-S International Microwave Symposium Digest 00.1 (2000 Vol. I [MWSYM]): 545-548.

This paper explores different levels of integration for CMOS RF power amplifiers, including integration fully on chip, integration with LTCC passive components, and integration with off-chip components. At 1.9 GHz, the fully on-chip integrated CMOS PA can deliver 20 dBm output power with 16% efficiency. Because the LTCC inductors have much higher Q than the on-chip inductors, the CMOS PA integrated with passive components embedded in LTCC can improve the output power and efficiency to 24 dBm and 32% at 1.9 GHz, respectively. The 2.4 GHz Bluetooth PA with discrete passive components for output matching exhibits 22 dBm output power and 44% efficiency. To our knowledge, this paper reports the first development of fully on-chip integrated and LTCC hybrid CMOS power amplifiers.

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