Abstracts

A 1.9-GHz DECT CMOS power amplifier with fully integrated multilayer LTCC passives

D. Heo, A. Sutono, E. Chen, Y. Suh and J. Laskar. "A 1.9-GHz DECT CMOS power amplifier with fully integrated multilayer LTCC passives." 2001 Microwave and Wireless Components Letters 11.6 (Jun. 2001 [MWCL]): 249-251.

We present the first demonstration of a CMOS power amplifier (PA) utilizing fully integrated multilayer low-temperature co-fired ceramic (LTCC) high-Q passives for 1.9-GHz digital European cordless telecommunications (DECT) applications. The inductor and capacitor library were built in a multilayer LTCC board using a compact topology. An inductor Q-factor as high as 100 with a self-resonant frequency (SRF) as high as 8 GHz was demonstrated. Measured results of the CMOS-LTCC PA show good agreement with the simulated results exhibiting 48% power added efficiency, 26-dBm output power and 17-dB gain at 1.9 GHz with a 3.3-V drain supply voltage. This result is the first significant step toward a compact DECT transceiver module development utilizing fully integrated multilayer LTCC passives and a standard CMOS technology.

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