Abstracts

A 900 MHz low phase noise CMOS quadrature oscillator

J. Cabanillas, L. Dussopt, J.M. Lopez-Villegas and G.M. Rebeiz. "A 900 MHz low phase noise CMOS quadrature oscillator." 2002 Radio Frequency Integrated Circuits (RFIC) Symposium 02. (2002 [RFIC]): 63-66.

A novel method for designing quadrature oscillators is presented. The technique is based on differential coupling at the second harmonic frequency of two separate oscillators. The desired coupling is obtained using an integrated transformer which is attached to the common-mode nodes of two differential oscillators. A 900 MHz prototype has been implemented in a 0.35 /spl mu/m CMOS process. The oscillator core consumes 3 mA of current from a 1.7 V DC supply and results in an output power of -9 dBm per oscillator, and a measured phase noise of -116, -133 and -138 dBc/Hz at 100 kHz, 600 kHz and 1 MHz from the carrier, respectively. The proposed method is ideal for oscillators operating at 2.5 GHz, 3.5 GHz and 5 GHz.

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