Abstracts

A differentially-tuned CMOS LC VCO for low-voltage full-rate 10 Gb/s CDR circuit

D. Mukherjee, J. Bhattacharjee and J. Laskar. "A differentially-tuned CMOS LC VCO for low-voltage full-rate 10 Gb/s CDR circuit." 2002 MTT-S International Microwave Symposium Digest 02.2 (2002 Vol. II [MWSYM]): 707-710 vol.2.

A fully-integrated differentially-tuned CMOS LC voltage controlled oscillator (VCO) is presented. The VCO is designed in a 0.13 /spl mu/m standard digital CMOS process with a 1.2 V supply. It achieves a phase noise of -99 dBc/Hz at 1 MHz offset from a carrier frequency of 10 GHz and has a tuning range of 3.7 GHz with the core consuming only 3.6 mW of DC power. This satisfies the requirements of clock-and-data-recovery (CDR) circuits for 10 gigabit optical communication systems. This paper also investigates, for the first time, the circuit topologies of other building blocks for a fully-differential implementation of a closed loop full-rate CDR circuit with low supply voltage (1.2 V).

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