

A LOW POWER CMOS LC VCO IN 70NM FOR RF APPLICATIONS

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ABSTRACT

This paper proposes a low power cross coupled differential LC Voltage Controlled Oscillator topology which has been designed using 70nm CMOS process for wireless applications. To achieve low power, NMOS cross-coupled differential LC VCO topology is used. In this topology a variable MOS capacitance has been used to obtain high frequency tuning range by varying gate voltage of MOS in order to meet this VCO topology for RF applications. Simulation result is performed by Tanner EDA 14.0 on 70nm CMOS process. The tuning frequency of circuit is from 5.05 to 5.37 GHz that can obtain by applying tuning voltage ranging from 0.1 to 1 V. The proposed VCO topology dissipates power of 0.4mw at the maximum oscillation frequency which is very low compared to conventional VCO.

KEYWORDS: Voltage, Controlled Oscillator (VCO), CMOS, NMOS, Tuning Rang and RF