

عنوان مقاله:

Linear analysis for the first-harmonic based Colpitts QVCO

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خلاصه مقاله:

In this work, the Colpitts LC oscillators are categorized into some groups to gain a good insight into the different types of Colpitts oscillators. This categorization helps the oscillator designers to choose a good Colpitts topology for designing of the specific circuit. In addition, the significant specifications of each category of Colpitts oscillators which should be carefully considered in the designing of the RF integrated circuits are explained. In fact, the architecture of oscillators significantly determines their specifications such as phase noise, power consumption, frequency tuning range, chip area, ease of implementation, immunity to circuit parasitic elements and ability to work at low voltages. Moreover, a recently published Colpitts quadrature voltage controlled oscillator (QVCO) realized by two Colpitts VCOs with the coupling scheme of in-phase anti-phase is theoretically analyzed. In fact, a linear analysis is presented to show the quadrature operation of the previously designed QVCO. Using this type of analysis, some other similarly .first-harmonic QVCOs can be analyzed

کلمات کلیدی:

Voltage controlled oscillator; quadrature; phase noise; current-switching

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