

عنوان مقاله:

A low-phase noise source injection-coupled LC quadrature oscillator with tail noise filter

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خلاصه مقاله:

This paper presents a low phase noise source injection coupled quadrature oscillator (IC-QO). Like most of the works which have been presented for parallel coupled quadrature oscillators (PC-QO), the presented IC-QO using passive components like capacitance instead of noisy active devices with casualties for coupling the oscillator circuits that lead to elimination of the phase noise due to the coupling transistors. The presented IC-QO also uses the re-filtering technique of the sideband noise. Furthermore, the second harmonic of the tail current source suppressed by creating high impedance in the tail, which applied for the proposed IC-QO to be more noiseless. Reducing the noise frequencies around 20, leads to the amplitude of quadrature signals become larger and also the phase noise reaches to the lowest possible amount of noise level. To confirm, a 3.4 GHz proposed design of CMOS source injection coupled quadrature oscillator with LC noise filter structure in the tail is simulated. Using 0.18 μ m TSMC CMOS technology proved that the proposed structure with passive components and using LC filter shunted with tail current source exhibit a low phase noise of -157 dBc at 3MHz offset frequency and -187.2 dBc at 3GHz frequency. The obtained results show the agreement

کلمات کلیدی:

.Injection Coupled, LC Quadrature Oscillator, RF CMOS, Passive Components, Phase Noise, Tail Noise Filter

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