

Analysis of Injection-Lock in Oscillators versus Phase Variation of Injected Signal

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Abstract : In this paper, behavior of an oscillator under injection of another signal has been investigated. Also, variation of output signal amplitude versus injected signal phase variation, the effect of varying the amplitude of injected signal and quality factor of the oscillator has been investigated. The results show that the locking time depends on phase and the best locking time happens at 180-degrees phase. Also, the effect of injected lock has been discussed. Simulations show that the locking time decreases with signal injection to bulk. Locking time has been investigated versus various phase differences. The effect of phase and amplitude changes on locking time of a typical LC oscillator in 180 nm technology has been investigated.

Keywords : analysis, oscillator, injection-lock oscillator, phase modulation

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