

70% Ultra-Wide Tuning CMOS VCO Based on Magnetic Energy Adjustment

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Abstract : This paper demonstrates an ultra-wide tuning VCO implemented by CMOS 0.18 μ m process technology. By employing the proposed technique of magnetic energy adjustment in the oscillator tank, our proposed VCO achieves a wide frequency tuning range of 69.46% from 0.9 GHz to 1.86 GHz. The phase noise at an operating frequency of 1.86 GHz is -110 dBc/Hz (Offset frequency=1MHz). Furthermore, it achieves an excellent FOMT of 190.03 dBc/Hz.

Keywords : VCO, Ultra-wide tuning, Frequency tuning range, phase noise, Magnetic energy adjustment

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