Design of Charge Pump in CMOS Phase-Locked Loops for DVB-T Applications

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Abstract

This thesis, based on tsmc 0.18um CMOS 1P6M process , PLL, is designed to apply to Local oscillator. PLL includes phase frequency detector、charge pump、loop filter、voltage control oscillator and frequency divider.

In the design of DVB-T tuner , we have chosen the input 1MHz of reference frequency, with the system supply voltage at 1.8V. What phase frequency detector adopts is operational high-frequency. Charge pump possesses fast-switching speed, adding feedback amplifier to improve the problem of mismatched current . In terms of loop filter , we adopt two order loop filter to filter the high-frequency ingredient. Besides well-phase noise LC-tank VCO, its adaptability ranges from

2.486 GHz to 3.333 GHz .