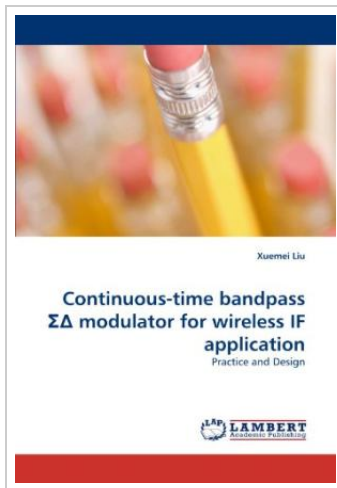




Continuous-time bandpass Sigma Delta modulator for wireless IF application

By Xuemei Liu

LAP Lambert Academic Publishing Aug 2010, 2010. Taschenbuch. Condition: Neu. Neuware - Bandpass modulators combine over-sampling and noise shaping to get very high resolution in a narrowband. In recent years interests have been seen in wireless system and software radio using the modulators to digitize signals near the front end of radio receivers. Such applications necessitate clocking the modulators at a high frequency (MHz or above). Therefore a loop filter is required in continuous-time circuits (e.g., using transconductors and integrators) rather than discrete-time circuits (e.g., using switching capacitors) where the maximum clocking rate is limited by the bandwidth of Opamp, switch's speed and settling time of the circuitry. In this work, the design of a CMOS 4th-order bandpass modulator clocking at 500MHz for direct conversion of narrowband signals is presented. A new calibration scheme is proposed. The continuous-time loop filter is based on Gm-C resonators. A novel transconductance amplifier has been developed with high linearity for the application. Q-factor of filter is enhanced by tuning negative impedance of OTA. The modulator is implemented using 0.35 μm triple-metal standard analog CMOS technology. 100 pp. Englisch.



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