

Abstract: A new second-order lowpass filter based on a single CMOS fully differential current conveyor is presented. Developed from the Sallen-Key highpass filter, the proposed filter is AC coupled and provides programmable gain. Moreover, the filter exhibits low noise, high linearity and low power, making it suitable for implementing the baseband filter of a WCDMA direct-conversion wireless receiver. A WCDMA filter having a programmable bandwidth around 2.1 MHz, a variable gain range of 50dB and a DC notch below 2kHz using passive components below 5k Ω for resistors and 20pF for capacitors is implemented. Experimental and simulation results obtained from fabricated chips are included.