

Abstract: Design of a CMOS 18th-order IF (intermediate frequency) bandpass filter for integrated low-IF Bluetooth receivers is presented. The centre frequency and bandwidth of the filter are 3 and 1 MHz, respectively. The proposed filter is based on unity gain fully differential voltage buffers and provides efficient, low power and a small area design solution. The filter, including its automatic tuning circuit, occupies an area of 0.6 mm² in a standard 0.5 μ m-CMOS chip. Experimental results show that the filter satisfies the selectivity and dynamic range requirements of Bluetooth while operating from a total supply current of 0.9 mA.