

Design and Implementation of A 10-bit SAR ADC with A Programmable Reference

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Abstract : This paper presents the development of a single-ended 38.5 kS/s 10-bit programmable reference SAR ADC which is realized in MIMOS's 0.35 μm CMOS process. The design uses a resistive DAC, a dynamic comparator with pre-amplifier and a SAR digital logic to create 10 effective bits ADC. A programmable reference circuitry allows the ADC to operate with different input range from 0.6 V to 2.1 V. A single ended 38.5 kS/s 10-bit programmable reference SAR ADC was proposed and implemented in a 0.35 μm CMOS technology and consumed less than 7.5 mW power with a 3 V supply.

Keywords : successive approximation register analog-to-digital converter, SAR ADC, resistive DAC, programmable reference

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