

Reconfigurable Reduced Switching Activity (Rsw) Mode For An Analog-To-Digital Converter

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ABSTRACT

Present invention relates to a RECONFIGURABLE REDUCED SWITCHING ACTIVITY MODE OF OPERATION FOR AN ANALOG-TO-DIGITAL CONVERTER (ADC), termed as "Rsw mode", alongside the default mode of operation in order to decrease the power consuming activity in the ADC without adding excessive circuit complexity. It demonstrates a novel circuit design approach while disclosing a reconfigurable RSw mode for an ADC based on numerical mathematics.

KEY APPLICATION AREAS

1. Analog-to-Digital Converters (ADCs)
2. Low-Power VLSI & Integrated Circuits.
3. Sensor Interface & Data Acquisition Systems.
4. Biomedical & Environmental Monitoring.
5. Wireless Communication Systems.

POTENTIAL USE

- 1.Low-power SAR ADCs for battery-powered and portable electronic devices.
- 2.Environmental sensing and biosensing read-out circuits with reduced power consumption.
- 3.Healthcare monitoring devices requiring energy-efficient analog signal acquisition.
- 4.Wireless sensor networks (WSNs) and IoT nodes with extended battery life.
- 5.Data logging and industrial monitoring systems using power-efficient ADCs.
- 6.Communication and signal processing systems requiring reconfigurable, low-power data conversion.
- 7.General-purpose ADCs (SAR, Flash, Hybrid Flash-SAR, multi-step ADCs) with reduced switching activity and lower energy consumption.