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DESIGN METHOD AND SIMULATION OF TIQ COMPARATOR BASED ADC

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ABSTRACT

This Paper addresses a Threshold Inverter Quantization (TIQ) based CMOS flash analog-to-digital converter (ADC) for system-on-chip (SoC) applications. However, this TIQ technique must be developed to satisfy recent SoC trends, which force ADCs to be integrated on the chip with other digital circuits and centre on low-power and low-voltage implementations.

Thus, this paper proposes an optimal design method for the TIQ comparator and a new voltage comparator for better implementation in SoC applications. These proposals contributed toward the achievement of high-speed conversion, low-power dissipation, and low-voltage operation in the TIQ flash ADC.

Therefore, we obtained a higher speed and resolution TIQ flash ADC. The results demonstrate that the TIQ flash ADC achieves high-speed conversion, and has a small size, low-power dissipation, and low-voltage operation compared to other flash ADCs.

KEYWORDS: Threshold Inverter, Quantization (TIQ), TIQ Flash ADC