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عنوان مقاله:

A CMOS Low-Power Noise Shaping-Enhanced SMASH ΣΔ Modulator

محل انتشار:

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خلاصه مقاله:

A discrete-time (DT) high-resolution and low-power sturdy multi-stage noise-shaping (SMASH) sigma-delta (ΣΔ) modulator is introduced. It proposes major solution for high-resolution applications relying on M-bit digital input-feedforward (DFF) technique which eliminates a power-hungry analog adder before the stage's quantizer, decreases number of comparators for quantizer implementation and reduces the swing of the integrator's output and a ۲nd-order noise-coupling (NC) technique realized by few extra analog paths and enhances the noise shaping of the modulator without adding active blocks. The effectiveness of the introduced modulator is supported by the behavioral simulation and extensive mathematical analyses. The proposed modulator along with conventional one is simulated in a ۰.۱۸μm CMOS technology. The results indicate an outstanding improvement in dynamic range (DR) and resolution with less complexity.

کلمات کلیدی:

SMASH Sigma-Delta Modulators, Noise Shaping, Digital Feed Forward, Noise Transfer Function(Ntf), resolution :

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