

عنوان مقاله:

Voltage Differencing Buffered Amplifier based Voltage Mode Four Quadrant Analog Multiplier and its Applications

محل انتشار:

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خلاصه مقاله:

In this paper a voltage mode four quadrant analog multiplier (FQAM) using voltage differencing buffered amplifier (VDBA) based on quarter square algebraic identity is presented. In the proposed FQAM the passive resistor can be implemented using MOSFETs operating in saturation region thereby making it suitable for integration. The effect of non idealities of VDBA has also been analyzed in this paper. Theoretical propositions are verified through SPICE simulations at 0.18 μ m CMOS technology node and the simulation results are found in close agreement with theoretical values. The supply voltage is taken as ± 1 V and the value of the bias current is set to 40 μ A. The simulated total harmonic distortion (THD) is observed to be under 3% and the total power dissipation is found as 627 μ W. The workability of the proposed FQAM is also tested through two applications, namely, an amplitude modulator and a rectifier. The simulated results corroborate the theoretical propositions.

کلمات کلیدی:

Analog Building Blocks, Voltage Differencing Buffered Amplifier, Four Quadrant Analog Multiplier, Quarter Square Algebraic Identity

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