

Modeling and Simulation of a CMOS-Based Analog Function Generator

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Abstract : Modelling and simulation of an analogy function generator is presented based on a polynomial expansion model. The proposed function generator model is based on a 10th order polynomial approximation of any of the required functions. The polynomial approximations of these functions can then be implemented using basic CMOS circuit blocks. In this paper, a circuit model is proposed that can simultaneously generate many different mathematical functions. The circuit model is designed and simulated with HSPICE and its performance is demonstrated through the simulation of a number of non-linear functions.

Keywords : modelling and simulation, analog function generator, polynomial approximation, CMOS transistors

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