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A SPICE Model Parameters
Each chapter provides basic information on the first comprehensive treatment of analog VLSI design for signal and information processing applications by blending the basic design concepts of both traditional and contemporary analog VLSI. Outstanding features of the text include coverage of the latest in analog VLSI putting students and practicing engineers on the cutting edge of this exciting field; thorough coverage of topics unique to this book including low-voltage, BiCMOS, current-mode and neural information processing, oversampled data converters, statistical design, analog testability, analog CAD, analog layout, and analog VLSI interconnects; avoids lengthy coverage of. Abstract. Analog VLSI signal processing is most effective when precision is not required, and is therefore an ideal solution for the implementation of perception systems. The possibility to choose the physical variable that represents each signal allows all the features of the transistor to be exploited opportunistically to implement very dense time- and amplitude-continuous processing cells. This paper describes a simple model that captures all the essential features of the transistor.
Analog VLSI Signal Processing: Why, Where and How? Eric A. Vittoz, CSEM, Centre Suisse d'Electronique et de Microtechnique SA, Maladière 71, 2007 Neuchâtel, Switzerland. Abstract. This view is certainly correct for the implementation of all systems aiming at the precise restitution of information, like audio or video storage, communication and reproduction. Together with very fast but plain computation on numbers, these are the tasks at which the whole electronic industry has been most successful. However, the very precise computation on sequences of numbers is certainly not what is needed to build systems intended for the quite different category of tasks corresponding to the perception of a continuously changing environment. Analog signal processors have received increasing attention in the past few years thanks to the advances in fabrication technologies permitting better control of device characteristics and to the explosive growth in neural networks. This chapter focuses on the design and test methodologies for analog VLSI signal processors. Recent advances in circuit design techniques and new circuit configurations will be covered. The impact of better fabrication processes, especially for MOS devices, is a remarkable improvement in both circuit performance and complexity. The complexity issues surface more clearly in the verification of processor functions and performance. 3. Analog VLSI: Signal and Information Processing 