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Autore	Tsividis Yannis
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conductance parameters in weak and in strong inversion. 4.4. Capacitance parameters. 4.5. Intrinsic cutoff frequency and limits of model validity. 4.6. The transistor at very high frequencies. 4.7. Noise. 4.8. General models and moderate inversion. 4.9. Parameter extraction for accurate small-signal modeling. 4.10. Requirements for good CAD models -- ch. 5. Technology and available circuit components. 5.1. Introduction. 5.2. The n-well CMOS process. 5.3. BiCMOS processes. 5.4. Other silicon processes. 5.5. Sensors. 5.6. Trimming. 5.7. Tolerance and matching of electrical parameters. 5.8. Chip size and yield. 5.9. The influence of pads and package -- ch. 6. Layout. 6.1. Introduction. 6.2. Relation of fabricated transistors to layout. 6.3. Transistor geometry and layout. 6.4. Layout for device matching and precision parameter ratios. 6.5. Layout for interference reduction. 6.6. Integrated-circuit design.

Sommario/riassunto

Improve your circuit-design potential with this expert guide to the devices and technology used in mixed analog-digital VLSI chips for such high-volume applications as hard-disk drives, wireless telephones, and consumer electronics. The book provides you with a critical understanding of device models, fabrication technology, and layout as they apply to mixed analog-digital circuits. You will learn about the many device-modeling requirements for analog work, as well as the pitfalls in models used today for computer simulators such as Spice. Also included is information on fabrication technologies developed specifically for mixed-signal VLSI chips, plus guidance on the layout of mixed analog-digital chips for a high degree of analog-device matching and minimum digital-to-analog interference. This reference book features an intuitive introduction to MOSFET operation that will enable you to view with insight any MOSFET model - besides thorough discussions on valuable large-signal and small-signal models. Filled with practical information, this first-of-its-kind book will help you grasp the nuances of mixed-signal VLSI-device models and layout that are crucial to the design of high-performance chips.
