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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. Introduction to compact models -- 2. Review of basic device physics -- 3. Metal-oxide-semiconductor system -- 4. Large geometry MOSFET compact models -- 5. Compact models for small geometry MOSFETs -- 6. MOSFET capacitance models -- 7. Compact MOSFET models for RF applications -- 8. Modeling process variability in scaled MOSFETs -- 9. Compact models for ultrathin body FETs -- 10. Beyond-CMOS transistor models : tunnel FETs -- 11. Bipolar junction transistor compact models -- 12. Compact model library for circuit simulation.
Sommario/riassunto	Compact Models for Integrated Circuit Design: Conventional Transistors and Beyond provides a modern treatise on compact models for circuit computer-aided design (CAD). Written by an author with more than 25 years of industry experience in semiconductor processes, devices, and circuit CAD, and more than 10 years of academic experience in teaching compact modeling courses, this first-of-its-kind book on compact SPICE models for very-large-scale-integrated (VLSI) chip design offers a balanced presentation of compact modeling crucial for addressing current modeling challenges and understanding new models for emerging devices. Starting from basic semiconductor

physics and covering state-of-the-art device regimes from conventional micron to nanometer, this text: Presents industry standard models for bipolar-junction transistors (BJTs), metal-oxide-semiconductor (MOS) field-effect-transistors (FETs), FinFETs, and tunnel field-effect transistors (TFETs), along with statistical MOS models Discusses the major issue of process variability, which severely impacts device and circuit performance in advanced technologies and requires statistical compact models Promotes further research of the evolution and development of compact models for VLSI circuit design and analysis Supplies fundamental and practical knowledge necessary for efficient integrated circuit (IC) design using nanoscale devices Includes exercise problems at the end of each chapter and extensive references at the end of the book Compact Models for Integrated Circuit Design: Conventional Transistors and Beyond is intended for senior undergraduate and graduate courses in electrical and electronics engineering as well as for researchers and practitioners working in the area of electron devices. However, even those unfamiliar with semiconductor physics gain a solid grasp of compact modeling concepts from this book.
