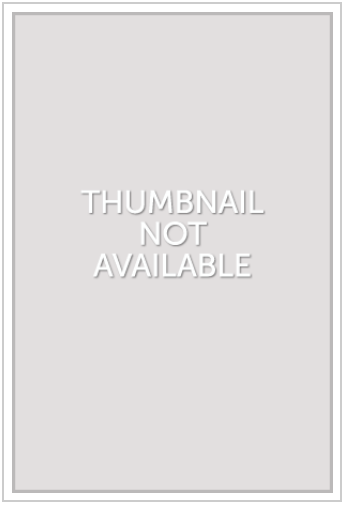

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SOI Circuit Design Concepts

By Bernstein, Kerry / Rohrer, Norman J.

Book Condition: New. Publisher/Verlag: Springer, Berlin | This book first introduces SOI device physics and its fundamental idiosyncrasies. It then walks the reader through realizations of these mechanisms, which are observed in common high-speed microprocessor designs. The book also offers rules of thumb and comparisons to conventional bulk CMOS to guide implementation and describes a number of unique circuit topologies that SOI supports. | Preface. 1: The Time for SOI. 1.1. Technology Scaling in VLSI. 1.2. The End of Moore's Law? 1.3. The Case for PD-SOI. 1.4. Summary. 2: SOI Device Structures. 2.1. Introduction. 2.2. Wafer Fabrication. 2.3. Patterning SOI Regions. 2.4. Transistor Structures. 2.5. Diodes. 2.6. Resistors. 2.7. Decoupling Capacitors. 2.8. Summary. 3: SOI Device Electrical Properties. 3.1. Introduction. 3.2. SOI MOSFET's Junction Diode. 3.3. Impact Ionization. 3.4. Floating Body Effects. 3.5. SOI MOSFET Modeling. 3.6. Insulator-Related Effects. 3.7. Composite Responses. 3.8. Summary. 4: Static Circuit Design Response. 4.1. Introduction. 4.2. Parameters of Interest to Circuit Designers. 4.3. First Switch vs. Second Switch. 4.4. First Switch vs. Steady State. 4.5. Static Circuit Response to SOI. 4.6. Passgate Circuit Response. 4.7. Summary. 5: Dynamic Circuit Design Considerations. 5.1. Introduction. 5.2. Dynamic Circuit Response. 5.3. Preferred Dynamic Design Practices. 5.4. Keeping...

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