Characterization Methods for Submicron MOSFETs /

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Springer US,
1996

Electronic books

Monografía

The Metal-Oxide Semiconductor Field-Effect Transistor (MOSFET) is a key component in modern microelectronics. During the last decade, device physicists, researchers and engineers have been continuously faced with new elements making the task of MOSFET characterization increasingly crucial, as well as more difficult. The progressive miniaturization of devices has caused several phenomena to emerge and modify the performance of scaled-down MOSFETs. Localized degradation induced by hot carrier injection and Random Telegraph Signal (RTS) noise generated by individual traps are examples. It was thus unavoidable to develop new models and new characterization methods, or at least adapt the existing ones to cope with the special nature of these new phenomena. Characterization Methods for Submicron MOSFETs deals with techniques which show high potential for characterization of submicron devices. Throughout the book the focus is on the adaptation of such methods to resolve measurement problems relevant to VLSI devices and new materials, especially Silicon-on-Insulator (SOI). Characterization Methods for Submicron MOSFETs was written to provide help to device engineers and researchers to enable them to cope with the challenges they face. Without adequate device characterization, new physical phenomena and new types of defects or damage may not be well identified or dealt with, leading to an undoubted obstruction of the device development cycle. Audience: Researchers and graduate students familiar with MOS device physics, working in the field of device characterization and modeling. Also intended for industrial engineers working in device development, seeking to enlarge their understanding of measurement methods. The book additionally addresses device-based characterization for material and process engineers and for circuit designers. A valuable reference that may be used as a text for advanced courses on the subject

Título: Characterization Methods for Submicron MOSFETs edited by Hisham Haddara

Editorial: Boston, MA Springer US 1996

Descripción física: 1 online resource (248 pages)

Mención de serie: The Kluwer International Series in Engineering and Computer Science, Analog Circuits and Signal Processing 0893-3405 352

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ISBN: 9781461313557 electronic bk.) 1461313554 electronic bk.) 9781461285847 1461285844

Materia: Engineering Computer engineering Systems engineering Computer engineering. Engineering. Systems engineering.

Enlace a formato físico adicional: Print version 9781461285847

Punto acceso adicional serie-Título: Kluwer international series in engineering and computer science. Analog circuits and signal processing 352
