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Descrizione fisica   1 online resource (xvi, 198 pages) : illustrations (some color)

Collana   Analog circuits and signal processing

Altri autori (Persone)   GielenGeorges

Disciplina   621.3815

Soggetti   Linear integrated circuits - Reliability
Metal oxide semiconductors, Complementary

Lingua di pubblicazione   Inglese

Formato   Materiale a stampa

Livello bibliografico   Monografia

Note generali   Description based upon print version of record.

Nota di bibliografia   Includes bibliographical references and index.

Nota di contenuto   Introduction -- CMOS Reliability Overview -- Transistor Aging Compact Modeling -- Background on IC Reliability Simulation -- Analog IC Reliability Simulation -- Integrated Circuit Reliability -- Conclusions.

Sommario/riassunto   This book focuses on modeling, simulation and analysis of analog circuit aging. First, all important nanometer CMOS physical effects resulting in circuit unreliability are reviewed. Then, transistor aging compact models for circuit simulation are discussed and several methods for efficient circuit reliability simulation are explained and compared. Ultimately, the impact of transistor aging on analog circuits is studied. Aging-resilient and aging-immune circuits are identified and the impact of technology scaling is discussed.   The models and simulation techniques described in the book are intended as an aid for device engineers, circuit designers and the EDA community to understand and to mitigate the impact of aging effects on nanometer CMOS ICs. ·   Enables readers to understand long-term reliability of an integrated circuit; ·   Reviews CMOS unreliability effects, with focus on those that will emerge in future CMOS nodes; ·   Provides overview of models for key aging effects, as well as compact models that can be included in a circuit simulator, with model parameters for advanced CMOS technology; ·   Describes existing reliability simulators, along with techniques to analyze the impact of process