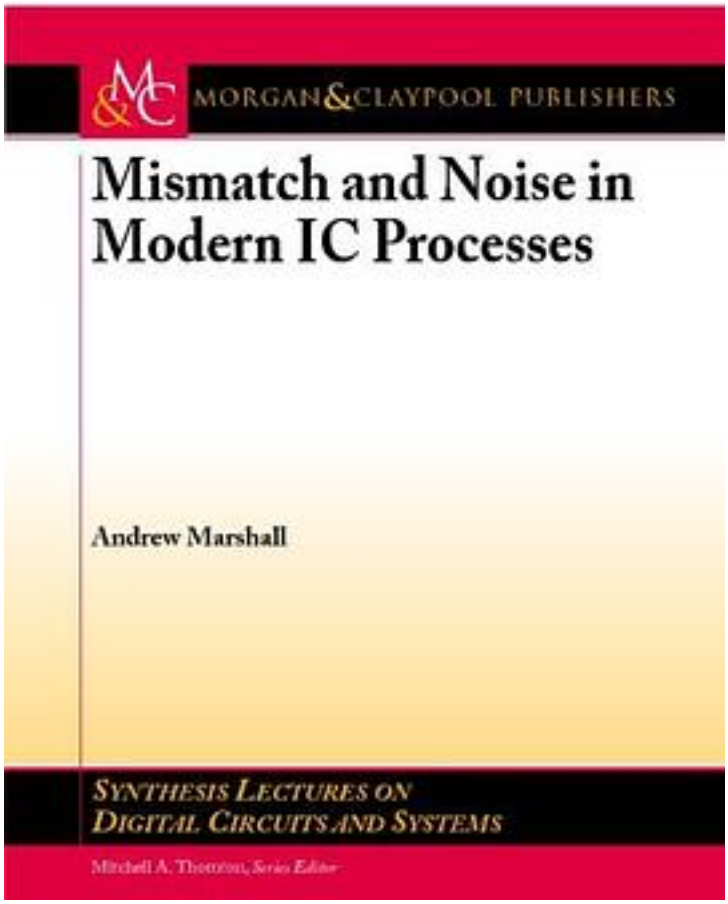
Mismatch and Noise in Modern IC Processes



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This book brings together five topics on the application of Boolean functions. They are 1. Equivalence classes of Boolean functions: The number of n-variable functions is large, even for values as small as n = 6, and there has been much research on classifying functions. There are many classifications, each with their own distinct merit.

2. Boolean functions for cryptography: The process of encrypting/decrypting plaintext messages often depends on Boolean functions with specific properties. For example, highly nonlinear functions are valued because they are less susceptible to linear attacks. 3. Boolean differential calculus: An operation analogous to taking the derivative of a real-valued function offers important insight into the properties of Boolean functions. One can determine tests or susceptibility to hazards. 4. Reversible logic: Most logic functions are irreversible; it is impossible to reconstruct the input, given the output. However, Boolean functions that are reversible are necessary for quantum computing, and hold significant promise for low-power computing. 5. Data mining: The process of extracting subtle patterns from enormous amounts of data has benefited from the use of a graph-based representation of Boolean functions. This has use in surveillance, fraud detection, scientific discovery including bio-informatics, genetics, medicine, and education. Written by experts, these chapters present a tutorial view of new and emerging technologies in Boolean functions. Table of Contents: Equivalence Classes of Boolean Functions / Boolean Functions for Cryptography / Boolean Differential Calculus / Synthesis of Boolean Functions in Reversible Logic / Data Mining Using Binary Decision Diagrams

作者介绍:

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标签

英文原版

半导体

IC

评论

focusing on digital, noise in the circuit, not much layout...

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书评

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