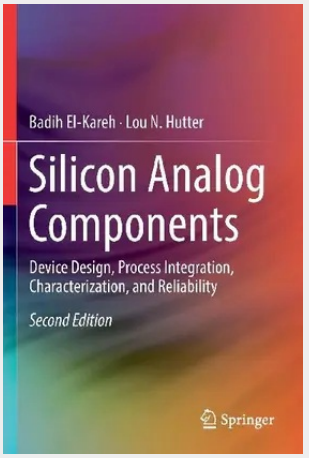
El-Kareh / Hutter

Silicon Analog Components

Device Design, Process Integration, Characterization, and Reliability



This book covers modern analog components, their characteristics, and interactions with process parameters. It serves as a comprehensive guide, addressing both the theoretical and practical aspects of modern silicon devices and the relationship between their electrical properties and processing conditions. Based on the authors' extensive experience in the development of analog devices, this book is intended for engineers and scientists in semiconductor research, development and manufacturing. The problems at the end of each chapter and the numerous charts, figures and tables also make it appropriate for use as a text in graduate and advanced undergraduate courses in electrical engineering and materials science.

- Enables engineers to understand analog device physics, and discusses important relations between process integration, device design, component characteristics, and reliability;
- Describes in step-by-step fashion the components that are used in analog designs, the particular characteristics of analog components, while comparing them to digital applications;
- Explains the second-order effects in analog devices, and trade-offs between these effects when designing components and developing an integrated process for their manufacturing.

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