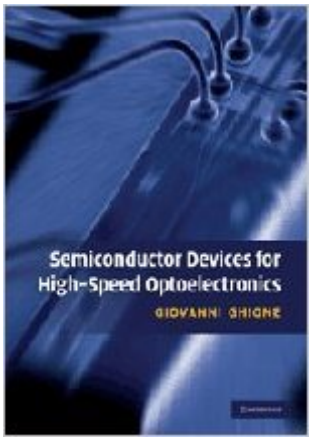
Semiconductor Devices For High-Speed Optoelectronics



Synopsis

Providing an all-inclusive treatment of electronic and optoelectronic devices used in high-speed optical communication systems, this book emphasizes circuit applications, advanced device design solutions, and noise in sources and receivers. Core topics covered include semiconductors and semiconductor optical properties, high-speed circuits and transistors, detectors, sources, and modulators. It discusses in detail both active devices (heterostructure field-effect and bipolar transistors) and passive components (lumped and distributed) for high-speed electronic integrated circuits. It also describes recent advances in high-speed devices for 40 Gbps systems. Introductory elements are provided, making the book open to readers without a specific background in optoelectronics, whilst end-of-chapter review questions and numerical problems enable readers to test their understanding and experiment with realistic data.

Book Information

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Customer Reviews

This all-inclusive treatment of high-speed electronic and optoelectronic devices uniquely covers circuit applications, advanced device design solutions, and noise in sources and receivers. Active devices and passive components for high-speed electronic ICs are discussed in detail; end-of-chapter review questions and numerical problems enable readers to test their understanding.

Giovanni Ghione is Full Professor of Electronics at Politecnico di Torino, Torino, Italy. His current research activity involves the physics-based and circuit-oriented modeling of high-speed electronic

and optoelectronic components, with particular attention to III-N power devices, thermal and noise simulation, eletrooptic and electroabsorption modulators, coplanar passive components, and integrated circuits. He is a Fellow of the IEEE and has authored or co-authored over 200 technical papers and four books.

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