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Physics : Electronic Circuits and Devices

Atef, Mohamed, Zimmermann, Horst

Optoelectronic Circuits in Nanometer CMOS Technology

- Displays the effect of technology scaling on the optical receiver performance
- Explains the needed basics and the state-of-the-art of laser drivers, modulator drivers, transimpedance amplifiers, equalizers, and limiting amplifiers fabricated in nanometer CMOS technologies
- Shows the latest results for the performance of fully integrated optical receivers and of receivers in nanometer standard CMOS technologies with discrete photodiodes
- Collects and describes newest optical sensors for imagers, time-of-flight 3D camera chips and optical sensors
- Includes numerous detailed circuit diagrams and plots of measured results for fast comprehension

This book describes the newest implementations of integrated photodiodes fabricated in nanometer standard CMOS technologies. It also includes the required fundamentals, the state-of-the-art, and the design of high-performance laser drivers, transimpedance amplifiers, equalizers, and limiting amplifiers fabricated in nanometer CMOS technologies. This book shows the newest results for the performance of integrated optical receivers, laser drivers, modulator drivers and optical sensors in nanometer standard CMOS technologies. Nanometer CMOS technologies rapidly advanced, enabling the implementation of integrated optical receivers for high data rates of several Giga-bits per second and of high-pixel count optical imagers and sensors. In particular, low cost silicon CMOS optoelectronic integrated circuits became very attractive because they can be extensively applied to short-distance optical communications, such as local area network, chip-to-chip and board-to-board interconnects as well as to imaging and medical sensors.

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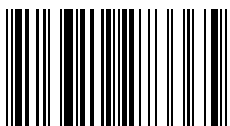
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