



Fundamentals of III-V Devices: HBTs, MESFETs, and HFETs/HEMTs

By William Liu

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Fundamentals of III-V Devices: HBTs, MESFETs, and HFETs/HEMTs By William Liu

A systematic, accessible introduction to III-V semiconductor devices. With this handy book, readers seeking to understand semiconductor devices based on III-V materials no longer have to wade through difficult review chapters focusing on a single, novel aspect of the technology. Well-known industry expert William Liu presents here a systematic, comprehensive treatment at an introductory level. Without assuming even a basic course in device physics, he covers the dc and high-frequency operations of all major III-V devices-heterojunction bipolar transistors (HBTs), metal-semiconductor field-effect transistors (MESFETs), and the heterojunction field-effect transistors (HFETs), which include the high electron mobility transistors (HEMTs). An excellent introduction for researchers and circuit designers working on wireless communications equipment, *Fundamentals of III-V Devices* offers a variety of features, including:

- * An introductory chapter on the basic properties, growth process, and device physics of III-V materials
- * Coverage of both dc and high-frequency models, integrating aspects of device physics and circuit design
- * A discussion of transistor fabrication and device comparison
- * 55 worked-out examples illustrating design considerations for a given application
- * 215 figures and end-of-chapter practice problems
- * Appendices listing parameters for various materials and transistor types

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Editorial Review

From the Back Cover

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About the Author

WILLIAM LIU is a senior member of the technical staff at Texas Instruments, where he has worked since obtaining his PhD in electrical engineering from Stanford University in 1991. Dr. Liu has published numerous papers, reviews, and chapter contributions on HBTs. He holds thirteen U.S. patents on device and circuit design in various HBT technologies. He is a senior member of the IEEE.

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