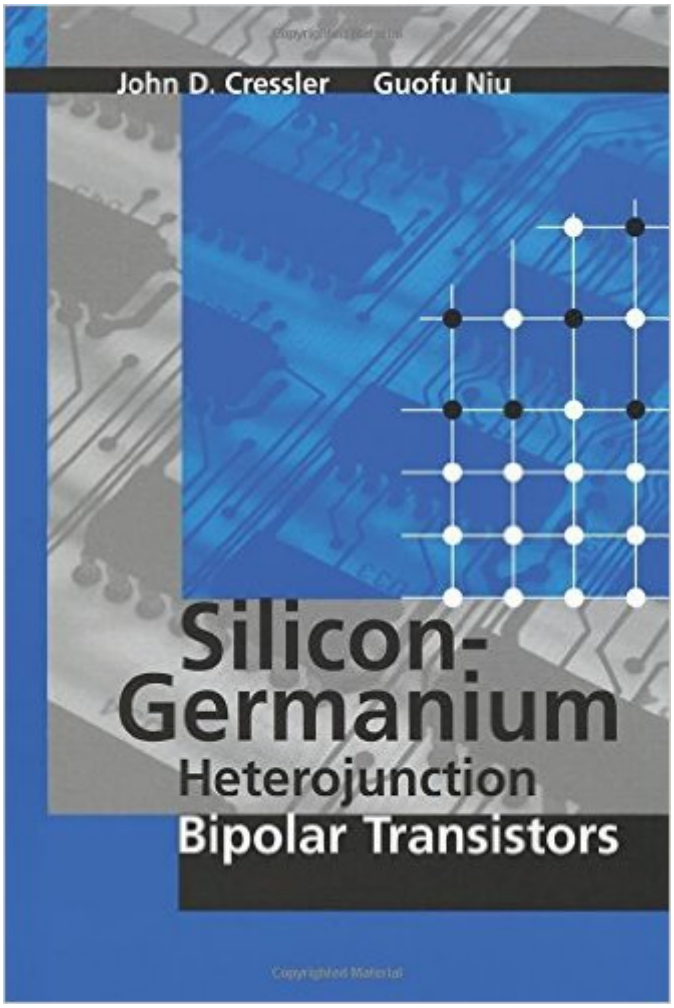
Silicon-Germanium Heterojunction Bipolar Transistors



Synopsis

This informative, new resource presents the first comprehensive treatment of silicon-germanium heterojunction bipolar transistors (SiGe HBTs). It offers you a complete, from-the-ground-up understanding of SiGe HBT devices and technology, from a very broad perspective. The book covers motivation, history, materials, fabrication, device physics, operational principles, and circuit-level properties associated with this new cutting-edge semiconductor device technology. Including over 400 equations and more than 300 illustrations, this hands-on reference shows you in clear and concise language how to design, simulate, fabricate, and measure a SiGe HBT. Moreover, the book helps you gain a thorough understanding of the subtle optimization issues and design tradeoffs of SiGe HBTs and RF/microwave circuits built with this technology. The book explains how SiGe HBTs offer the high-performance associated with III-V devices such as GaAs and InP, while preserving the low-cost, high-integration level, high yield, and economy-of-scale benefits of conventional silicon IC manufacturing. You discover why SiGe technology offers a unique solution for 21st century communications IC needs.

Book Information

Hardcover: 589 pages

Publisher: Artech Print on Demand (December 31, 2002)

Language: English

ISBN-10: 1580533612

ISBN-13: 978-1580533614

Product Dimensions: 6 x 1.3 x 9 inches

Shipping Weight: 2.3 pounds (View shipping rates and policies)

Average Customer Review: 4.5 out of 5 starsÂ Â See all reviewsÂ (2 customer reviews)

Best Sellers Rank: #1,790,310 in Books (See Top 100 in Books) #63 inÂ Books > Engineering & Transportation > Engineering > Electrical & Electronics > Electronics > Transistors #620 inÂ Books > Health, Fitness & Dieting > Mental Health > Bipolar #338046 inÂ Books > Textbooks

Customer Reviews

Definitely not an average beta=Ic/Ib book; it tells you the various factors that go into this equation (and more, of course). The discussion on noise and linearity is in-depth, and more importantly, touches upon circuit-level topics. There is plenty of actual measured data, as well as illustration of practical measurement techniques and sets.This book is suitable for senior-level undergraduate and graduate students, as well process, device and circuit engineers.

I think this book is very good for Semiconductor physics student but it is not good enough for circuit designer because I don’t like Volterra series concept for analyzing nonlinearity of amplifiers and mixer. I know that there are different high frequency small and large signal equivalent circuit such as Mextram models from Philips and Hicum models from Germany.These models can be use to analyze and design frequency response and harmonic generation of any amplifiers and mixer schematics.