

The book was found

3D Flash Memories



Synopsis

This book walks the reader through the next step in the evolution of NAND flash memory technology, namely the development of 3D flash memories, in which multiple layers of memory cells are grown within the same piece of silicon. It describes their working principles, device architectures, fabrication techniques and practical implementations, and highlights why 3D flash is a brand new technology. After reviewing market trends for both NAND and solid state drives (SSDs), the book digs into the details of the flash memory cell itself, covering both floating gate and emerging charge trap technologies. There is a plethora of different materials and vertical integration schemes out there. New memory cells, new materials, new architectures (3D Stacked, BiCS and P-BiCS, 3D FG, 3D VG, 3D advanced architectures); basically, each NAND manufacturer has its own solution. Chapter 3 to chapter 7 offer a broad overview of how 3D can materialize. The 3D wave is impacting emerging memories as well and chapter 8 covers 3D RRAM (resistive RAM) crosspoint arrays. Visualizing 3D structures can be a challenge for the human brain: this is why all these chapters contain a lot of bird's-eye views and cross sections along the 3 axes. The second part of the book is devoted to other important aspects, such as advanced packaging technology (i.e. TSV in chapter 9) and error correction codes, which have been leveraged to improve flash reliability for decades. Chapter 10 describes the evolution from legacy BCH to the most recent LDPC codes, while chapter 11 deals with some of the most recent advancements in the ECC field. Last but not least, chapter 12 looks at 3D flash memories from a system perspective. Is 14nm the last step for planar cells? Can 100 layers be integrated within the same piece of silicon? Is 4 bit/cell possible with 3D? Will 3D be reliable enough for enterprise and datacenter applications? These are some of the questions that this book helps answering by providing insights into 3D flash memory design, process technology and applications.

Book Information

Hardcover: 380 pages

Publisher: Springer; 1st ed. 2016 edition (June 27, 2016)

Language: English

ISBN-10: 9401775109

ISBN-13: 978-9401775106

Product Dimensions: 6.2 x 1.1 x 9.2 inches

Shipping Weight: 1.8 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #1,294,718 in Books (See Top 100 in Books) #19 in Books > Computers & Technology > Programming > Algorithms > Memory Management #61 in Books > Computers & Technology > Digital Audio, Video & Photography > Adobe > Adobe Flash #404 in Books > Engineering & Transportation > Engineering > Electrical & Electronics > Circuits > Design

[Download to continue reading...](#)

After Effects for Flash / Flash for After Effects: Dynamic Animation and Video with Adobe After Effects CS4 and Adobe Flash CS4 Professional AdvancED Flash on Devices: Mobile Development with Flash Lite and Flash 10 (Friends of Ed Adobe Learning Library) 3D Flash Memories Flash + After Effects: Add Broadcast Features to Your Flash Designs Extending Macromedia Flash MX 2004: Complete Guide and Reference to JavaScript Flash Flash Professional CS5 and Flash Catalyst CS5 For Dummies Nonvolatile Memory Technologies with Emphasis on Flash: A Comprehensive Guide to Understanding and Using Flash Memory Devices Law in a Flash Cards: Real Property, 2013 Edition (Emanuel Law in a Flash) Law in a Flash Cards: Secured Transactions 2011 (Emanuel Law in a Flash) The Muscles (Flash Cards) (Flash Anatomy) Indonesian Flash Cards: (Audio CD Included) (Tuttle Flash Cards) Christmas in Plains: Memories Forget-Me-Not Teddy Bears, Dolls & Memories TRANSFORMERS: Memories from Childhood Menus and Memories from Punjab: Meals to Nourish Body and Soul (Hippocrene Cookbooks) Summers Under the Tamarind Tree: Recipes and memories from Pakistan Wild Blackberries: Recipes & Memories from a New Zealand Table Memories of Philippine Kitchens VINTAGE CHRISTMAS TRADITIONS: Christmas Cards, Customs, Carols, Legends, Poems, Recipes, Advertisements (Vintage Memories) VINTAGE VALENTINES: Valentine's Day Cards, Customs, Legends & Poetry (Vintage Memories)

[Dmca](#)