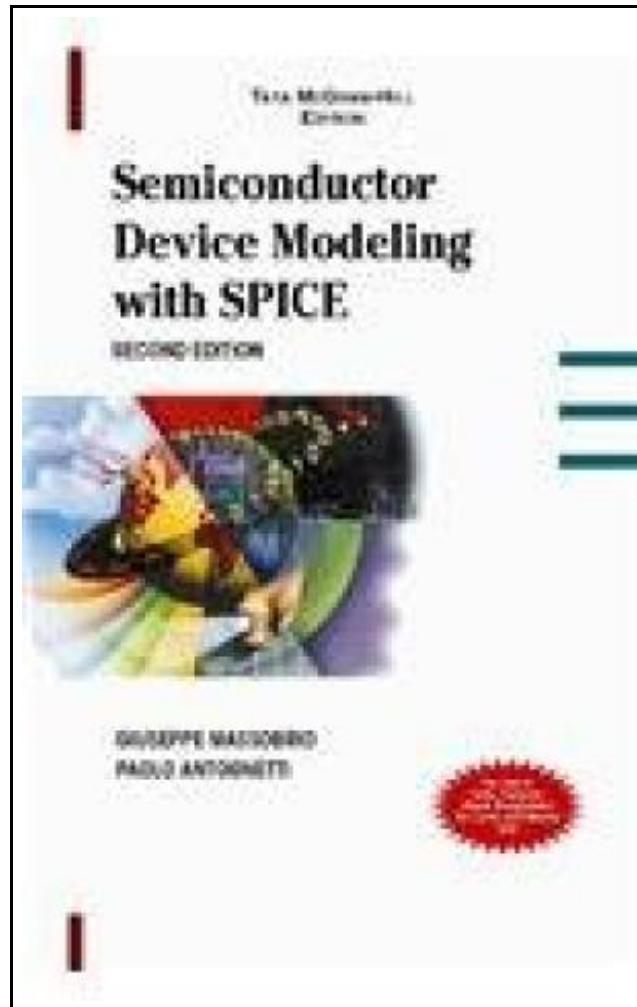# Semiconductor Device Modeling with Spice (Second Edition)

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SEMICONDUCTOR DEVICE MODELING WITH SPICE (SECOND EDITION)

McGraw Hill Education, 2010. Softcover. Book Condition: New. 2nd edition. With all the clarity and hands-on practicality of the bestselling first edition, this revised version explains the ins and outs of SPICE, plus gives new data on modeling advanced devices such as MESFETs, ISFETs, and thyristors. And because it`s the only book that describes the models themselves, it helps readers gain maximum value from SPICE, rather than just telling them how to run the program. This guide is also distinctive in covering both MOS and FET models. Step by step, it takes the reader through the modeling process, providing complete information on a variety of semiconductor devices for designing specific circuit applications. These include: Pn junction and Schottky diodes; bipolar junction transistor (BJT); junction field effect transistor (JFET); metal oxide semiconductor transistor (MOST); metal semiconductor field effect transistor (MESFET); ion sensitive field effect transistor (ISFET); semiconductor controlled rectifier (SCR-thyristor). Table of contents List of Physical Parameters Foreword by Robert W. Dutton, Stanford University Preface Chapter 1. PN Junction Diode and Schottky Diode 1.1 DC Current- Voltage Characteristics 1.2 Static Model 1.3 Large- Signal Model 1.4 Small- Signal Model 1.5 Schottky Diode and its implementation in SPICE2 1.6 Temperature and Area Effects on the Diode Model Parameters 1.7 SPICE3 Models 1.8 HSPICE Models 1.9 PSPICE Models References Chapter 2. Bipolar Junction Transistor (BJT) 2.1 Transistor Conversions and Symbols 2.2 Ebers-Moll Static Model 2.3 Ebers-Moll Large- Signal Model 2.4 Ebers-Moll Small- Signal Model 2.5 Gummel-Poon Static Model 2.6 Gummel-Poon Large- Signal Model 2.7 Gummel-Poon Small- Signal Model 2.8 Temperature and Area Effects on the BJT Model Parameters 2.9 Power BJT Model 2.10 SPICE3 Models 2.11 HSPICE Models 2.12 PSPICE Models References Chapter 3. Junction Field-Effect Transistor (JFET) 3.1 Static Model 3.2 Large- Signal Model and its implementation in SPICE2 3.3 Small- Signal...

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