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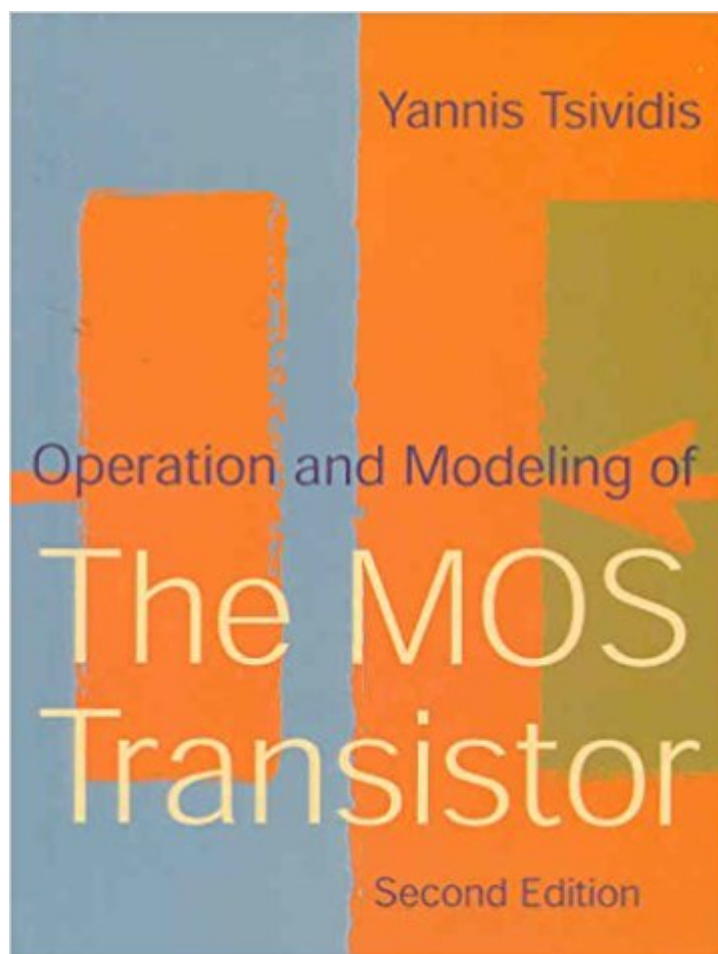# Operation & Modeling Of The MOS Transistor

Yannis Tsividis

Operation and Modeling of

The MOS Transistor

Second Edition

Synopsis

Operation end Modeling of the MOS Transistor, 2/e carefully leads from physical principles to relevant working models of the MOS Transistors device. Models range from the very simple to sophisticated with the connections between models of successive levels clearly identified. Intuitive understanding is provided through extensive discussions.

Book Information

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Customer Reviews

Yannis Tsvidis is at Colombia University. --This text refers to an out of print or unavailable edition of this title.

Y Tsividis is the KING of MOS theory and operation.. buy this book and curl up for a good read...

THE classic text on tis subject, took the Coursera course which was also fantastic.

Just reading the Preface to this book, I fell in love with the author. I completely agree that sometimes the most rigorous and careful treatment of a subject actually makes it possible to study the material faster!! What always frustrated me and slowed me down in reading other books was the sloppiness and hand waving. It's amazing that many Ph.Ds and even authors of famous books like

Uyemura's "Fundamentals of MOS ICs" don't understand the simple body effect, and talk about complete nonsense showing a 2 terminal capacitor with Vb applied to the bulk, and saying that the Vt will now change by the sqrt(Vb) body effect. They don't understand that the body effect is a 3 terminal effect and in 2 terminals if you apply Vb to bulk then your Vt will have to increase by Vb--NOT sqrt(Vb)!!! This book is a delight. Just the material on contact potentials was worth the money.This is a repeat of a review I did previously.

I used this book several years ago for an advanced field effect device course in graduate school. In the beginning of graduate school I was lost when it came to understanding semiconductor devices as I had previously done my undergraduate work in chemical engineering. After hitching a ride on the Sze and Tsividis train, I was ready to go. This book is well written, concise and does not leave out detail. A truly remarkable text. It turned a frustrating subject into one I enjoy and appreciate. My only warning is; I hope you are good at math :)A new updated edition would be nice. While the industry is still battling short channel effects, the techniques covered in the text are a bit out of date.

Just reading the Preface to this book, I fell in love with the author. I completely agree that sometimes the most rigorous and careful treatment of a subject actually makes it possible to study the material faster!! What always frustrated me and slowed me down in reading other books was the sloppiness and hand waving. It's amazing that many Ph.Ds and even authors of famous books like Uyemura's "Fundamentals of MOS ICs" don't understand the simple body effect, and talk about complete nonsense showing a 2 terminal capacitor with Vb applied to the bulk, and saying that the Vt will now change by the sqrt(Vb) body effect. They don't understand that the body effect is a 3 terminal effect and in 2 terminals if you apply Vb to bulk then your Vt will have to increase by Vb--NOT sqrt(Vb)!!! This book is a delight. Just the material on contact potentials was worth the money.If you are serious about really understanding MOSFETs, if you hate non-sense and hand waving, then this book is for you.

I am a graduate student with main area of interest in Mixed mode design,testing and device modelling.This book was suggested to me by my proffessor.It is the book for MOSFET.I have read many books on this topic like Tyagi,Foty,massobrio etc but this books stands apart.It is a very well written book.Its progress is very logical going from two terminal device to four terminal device with very good explanation of the physics.More importantly the emphasis on the approximations made makes things clearer.....For a person working with Mosfets it is a must......

I bought this book since 1st edition more than 10 years ago for collection.But for the 2nd edition I bought 7 years ago, I use it as a reference for basic understanding. This is a very detailed textbook about MOSFET. But I still don't know how much different between small-signal model and large-signal model as a lumped circuit elements. Please gives an example of measurement value for recent development of small and large signal model lumped element of MOSFET so that I can design something realistic without HSPICE or SmartSPICE.Some reviewer from NEWCAS-TAISA2008 told me that basic noise model is useless. Does anyone beleive it true or false? So, I will wait for the 3rd edition of this book.

I don't usually write reviews unless the book is either very poor or very good. This is one of the best books on my shelf. If you want to know the MOS transistor this is the book. Well researched, excellent explanations, excellent appendices. Other authors of technical books should use this as an example of how to write a good technical book.

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