

1. Record Nr.	UNINA9910451343103321
Titolo	CMOS RF modeling, characterization and applications [[electronic resource] ] / editors, M. Jamal Deen, Tor A. Fjeldly
Pubbl/distr/stampa	River Edge, N.J., : World Scientific, c2002
ISBN	981-277-776-8
Descrizione fisica	1 online resource (422 p.)
Collana	Selected topics in electronics and systems ; ; v. 24
Altri autori (Persone)	DeenM. Jamal FjeldlyTor A
Disciplina	621.3815
Soggetti	Metal oxide semiconductors, Complementary Semiconductors Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	CONTENTS ; Preface ; RF MOS Measurements ; 1 Characterizing Devices From DC To High Frequencies ; 2 DC Measurements As A Prerequisite For RF Setups ; 3 Capacitance Measurements At 1MHz ; 4 From Y-, Z-, And H-Parameters To S-Parameters; 5 Network Analyzer Measurements ; 6 Extending The Measurement Plane To The Transistor: De-embedding 7 Checking RF Measurement Data Consistency 8 Test Structures For MOS Transistors ; 9 Conclusions ; MOSFET Modeling and Parameter Extraction for RF IC's ; 1. Introduction ; 2. RF Modeling Approaches and Parameter Extraction Strategies for Two-Port Network 3. Three-Terminal RF MOSFET Modeling and Parameter Extraction Examples 4. Four-Terminal RF MOSFET Modeling and Parameter Extraction ; 5. Conclusions ; MOSFET Modeling for RF IC Design ; 1. Introduction ; 2. AC Small Signal Modeling ; 3 Noise Modeling ; 4. Summary RF CMOS Noise Characterization and Modeling 1. Introduction ; 2. Noise Parameters ; 3.

Noise Parameter Calculation of MOSFETs  
; 4. De-embedding of Noise Parameters and Required Dummy Structures ; 5. Extraction of Noise Sources in Deep Sub-micron MOSFETs  
6. Design Consideration for Low Noise Circuits  
7. Noise Source Modeling ; 8. Conclusions  
; SOI CMOS Transistors for RF and Microwave Applications  
; 1. Introduction ; 2. Overview of SOI Material, Devices and Circuits; 3. Properties of Fully-Depleted SOI MOSFET's  
4. Microwave Characterization of Passive Elements on the SOI Substrate

---

Sommario/riassunto

CMOS technology has now reached a state of evolution, in terms of both frequency and noise, where it is becoming a serious contender for radio frequency (RF) applications in the GHz range. Cutoff frequencies of about 50 GHz have been reported for 0.18  $\mu\text{m}$  CMOS technology, and are expected to reach about 100 GHz when the feature size shrinks to 100 nm within a few years. This translates into CMOS circuit operating frequencies well into the GHz range, which covers the frequency range of many of today's popular wireless products, such as cell phones, GPS (global positioning system) and Bluetooth. Of course, the great interest in RF CMOS comes from the obvious advantages of CMOS technology in terms of production cost, high-level integration, and the ability to combine digital, analog and RF circuits on the same chip. This book discusses many of the challenges facing the CMOS RF circuit designer in terms of device modeling and characterization, which are crucial issues in circuit simulation and design.

---