1. Record Nr. UNINA9910145749803321

Autore	Raghavan Arvind
Titolo	Modeling and design techniques for RF power amplifiers [[e-book] /] / Arvind Raghavan, Nuttapong Srirattana, Joy Laskar
Pubbl/distr/stampa	Hoboken, New Jersey : , : Wiley-Interscience, , c2008 [Piscataqay, New Jersey] : , : IEEE Xplore, , [2007]
ISBN	1-281-20401-3 9786611204013 0-470-22831-8 0-470-22830-X
Descrizione fisica	1 online resource (220 p.)
Altri autori (Persone)	LaskarJoy SrirattanaNuttapong
Disciplina	621.384/12
Soggetti	Power amplifiers - Design and construction Amplifiers, Radio frequency
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 and index.
Nota di contenuto	PREFACE ix -- 1 INTRODUCTION 1 -- 1.1 Semiconductor Technology and RF Power Amplifier Design 2 -- 1.2 Device Modeling 3 -- 1.3 Power Amplifier IC Design 4 -- 1.4 Power Amplifier Linearity 5 -- 1.5 Modulation Schemes 5 -- 1.6 Circuit Simulation 9 -- 1.7 Load-Pull Measurements 10 -- References 13 -- 2 DEVICE MODELING FOR CAD 15 -- 2.1 Introduction 15 -- 2.2 Bipolar Junction and Weterojunction Bipolar Transistors 16 -- 2.3 Bipolar Device Models 18 -- 2.3.1 The Ebers-Moll Model 18 -- 2.3.2 The Gummel-Poon Model 20 -- 2.3.3 The VBIC Model 25 -- 2.3.4 MEXTRAM 29 -- 2.3.5 HICUM 32 -- 2.4 MOSFET Device Physics 35 -- 2.5 MOSFET Device Models 38 -- 2.5.1 The Level 1 Model 38 -- 2.5.2 The Level 2 and Level 3 Models 40 -- 2.5.3 BSIM 40 -- 2.5.4 The BSIM2 and HSPICE Level 28 Models 43 -- 2.5.5 BSIM3 44 -- 2.5.6 MOS Model 9 and MOS Model 11 45 -- 2.5.7 BSIM4 45 -- References 46 -- 3 EMPIRICAL MODELING OF BIPOLAR DEVICES 49 -- 3.1 Introduction 49 -- 3.1.1 Modeling the HBT versus the BJT 49 -- 3.1.2 Parameter Extraction 50 -- 3.1.3 Motivation for an Empirical Bipolar Device Model 51 -- 3.1.4 Physics-Based and Empirical

Sommario/riassunto

The book covers RF power amplifier design, from device and modeling considerations to advanced circuit design architectures and techniques. It focuses on recent developments and advanced topics in this area, including numerous practical designs to back the theoretical considerations. It presents the challenges in designing power amplifiers in silicon and helps the reader improve the efficiency of linear power amplifiers, and design more accurate compact device models, with faster extraction routines, to create cost effective and reliable circuits.