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3.3.3 From Linear to Nonlinear; 3.3.4 Extraction of an Equivalent Circuit from Multi-bias Small-signal Measurements; 3.3.5 Nonlinear Models; 3.3.6 Packages; 3.4 Black-Box Models; 3.4.1 Table-based Models; 3.4.2 Quasi-static Model Identified from Time-domain Data
3.4.3 Frequency-domain Models3.4.4 Behavioural Models; 3.5 Simplified Models; 3.6 Bibliography; Chapter 4 Power Amplifiers; 4.1 Introduction; 4.2 Classes of Operation; 4.3 Simplified Class-A Fundamental-frequency Design for High Efficiency; 4.3.1 The Methodology; 4.3.2 An Example of Application; 4.4 Multi-harmonic Design for High Power and Efficiency; 4.4.1 Introduction; 4.4.2 Basic Assumptions; 4.4.3 Harmonic Tuning Approach; 4.4.4 Mathematical Statements; 4.4.5 Design Statements; 4.4.6 Harmonic Generation Mechanisms and Drain Current Waveforms
4.4.7 Sample Realisations and Measured Performances4.5 Bibliography; Chapter 5 Oscillators; 5.1 Introduction; 5.2 Linear Stability and Oscillation Conditions; 5.3 From Linear to Nonlinear: Quasi-large-signal Oscillation and Stability Conditions; 5.4 Design Methods; 5.5 Nonlinear Analysis Methods for Oscillators; 5.5.1 The Probe Approach; 5.5.2 Nonlinear Methods; 5.6 Noise; 5.7 Bibliography; Chapter 6 Frequency Multipliers and Dividers; 6.1 Introduction; 6.2 Passive Multipliers; 6.3 Active Multipliers; 6.3.1 Introduction; 6.3.2 Piecewise-linear Analysis; 6.3.3 Full-nonlinear Analysis
6.3.4 Other Circuit Considerations6.4 Frequency Dividers - the Regenerative (Passive) Approach; 6.5 Bibliography; Chapter 7 Mixers; 7.1 Introduction; 7.2 Mixer Configurations; 7.2.1 Passive and Active Mixers; 7.2.2 Symmetry; 7.3 Mixer Design; 7.4 Nonlinear Analysis; 7.5 Noise; 7.6 Bibliography; Chapter 8 Stability and Injection-locked Circuits; 8.1 Introduction; 8.2 Local Stability of Nonlinear Circuits in Large-signal Regime; 8.3 Nonlinear Analysis, Stability and Bifurcations; 8.3.1 Stability and Bifurcations; 8.3.2 Nonlinear Algorithms for Stability Analysis; 8.4 Injection Locking
8.5 Bibliography

Sommario/riassunto

Design techniques for nonlinear microwave circuits are much less developed than for linear microwave circuits. Until now there has been no up-to-date text available in this area. Current titles in this field are considered outdated and tend to focus on analysis, failing to adequately address design and measurement aspects. Giannini and Leuzzi provide the theoretical background to non-linear microwave circuits before going on to discuss the practical design and measurement of non-linear circuits and components. Non-linear Microwave Circuit Design reviews all of the established analysis