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Nota di contenuto	Fundamentals of RF and Microwave Transistor Amplifiers; Contents in Brief; Contents; Foreword; Preface; 1. Introduction; 1.1. Transistor Amplifier; 1.2. Early History of Transistor Amplifiers; 1.3. Benefits of Transistor Amplifiers; 1.4. Transistors; 1.5. Design of Amplifiers; 1.6. Amplifier Manufacturing Technologies; 1.7. Applications of Amplifiers; 1.8. Amplifier Cost; 1.9. Current Trends; 1.10. Book Organization; References; 2. Linear Network Analysis; 2.1. Impedance Matrix; 2.2. Admittance Matrix; 2.3. ABCD Parameters; 2.4. S-Parameters; 2.4.1. S-Parameters for a One-Port Network 2.5. Relationships Between Various Two-Port ParametersReferences; Problems; 3. Amplifier Characteristics and Definitions; 3.1. Bandwidth; 3.2. Power Gain; 3.3. Input and Output VSWR; 3.4. Output Power; 3.5. Power Added Efficiency; 3.6. Intermodulation Distortion; 3.6.1. IP3; 3.6.2. ACPR; 3.6.3. EVM; 3.7. Harmonic Power; 3.8. Peak-to-Average Ratio; 3.9. Combiner Efficiency; 3.10. Noise Characterization; 3.10.1. Noise Figure; 3.10.2. Noise Temperature; 3.10.3. Noise Bandwidth; 3.10.4. Optimum Noise Match; 3.10.5. Constant Noise Figure and Gain

Circles; 3.10.6. Simultaneous Input and Noise Match
3.11. Dynamic Range3.12. Multistage Amplifier Characteristics; 3.12.1. Multistage IP3; 3.12.2. Multistage PAE; 3.12.3. Multistage NF; 3.13. Gate and Drain Pushing Factors; 3.14. Amplifier Temperature Coefficient; 3.15. Mean Time to Failure; References; Problems; 4. Transistors; 4.1. Transistor Types; 4.2. Silicon Bipolar Transistor; 4.2.1. Figure of Merit; 4.2.2. High-Frequency Noise Performance of Silicon BJT; 4.2.3. Power Performance; 4.3. GaAs MESFET; 4.3.1. Small-Signal Equivalent Circuit; 4.3.2. Figure of Merit; 4.3.3. High-Frequency Noise Properties of MESFETs
4.4. Heterojunction Field Effect Transistor4.4.1. High-Frequency Noise Properties of HEMTs; 4.4.2. Indium Phosphide pHEMTs; 4.5. Heterojunction Bipolar Transistors; 4.5.1. High-Frequency Noise Properties of HBTs; 4.5.2. SiGe Heterojunction Bipolar Transistors; 4.6. MOSFET; References; Problems; 5. Transistor Models; 5.1. Transistor Model Types; 5.1.1. Physics/Electromagnetic Theory Based Models; 5.1.2. Analytical or Hybrid Models; 5.1.3. Measurement Based Models; 5.2. MESFET Models; 5.2.1. Linear Models; 5.2.2. Nonlinear Models; 5.3. pHEMT Models; 5.3.1. Linear Models; 5.3.2. Nonlinear Models
5.4. HBT Model5.5. MOSFET Models; 5.6. BJT Models; 5.7. Transistor Model Scaling; 5.8. Source-Pull and Load-Pull Data; 5.8.1. Theoretical Load-Pull Data; 5.8.2. Measured Power and PAE Source Pull and Load Pull; 5.8.3. Measured IP3 Source and Load Impedance; 5.8.4. Source and Load Impedance Scaling; 5.9. Temperature-Dependent Models; References; Problems; 6. Matching Network Components; 6.1. Impedance Matching Elements; 6.2. Transmission Line Matching Elements; 6.2.1. Microstrip; 6.2.2. Coplanar Lines; 6.3. Lumped Elements; 6.3.1. Capacitors; 6.3.2. Inductors; 6.3.3. Resistors
6.4. Bond Wire Inductors

Sommario/riassunto

A Comprehensive and Up-to-Date Treatment of RF and Microwave Transistor Amplifiers This book provides state-of-the-art coverage of RF and microwave transistor amplifiers, including low-noise, narrowband, broadband, linear, high-power, high-efficiency, and high-voltage. Topics covered include modeling, analysis, design, packaging, and thermal and fabrication considerations. Through a unique integration of theory and practice, readers will learn to solve amplifier-related design problems ranging from matching networks to biasing and stability. More than 240 problems are included to help read