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Autore	Taff Laurence G. <1947->
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Pubbl/distr/stampa	Lexington, MA : , : Lincoln Laboratory, M.I.T. [Washington, D.C.] : , : National Aeronautics and Space Administration, , [1983]
Descrizione fisica	1 online resource (7 pages, 5 unnumbered pages) : illustrations
Collana	NASA CR ; ; 175374
Soggetti	Asteroids Spectral resolution Charge coupled devices Image processing
Lingua di pubblicazione	Inglese
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ISBN	9781630819330 9781630819323
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Descrizione fisica	1 online resource (593 pages)
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Soggetti	Lumped elements (Electronics)
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Lumped Elements for RF and Microwave Circuits Second Edition -- Contents -- Preface -- Chapter 1 Introduction -- 1.1 History of Lumped Elements -- 1.2 Why Use Lumped Elements for RF and Microwave Circuits? -- 1.3 L, C, R Circuit Elements -- 1.4 Basic Design of Lumped Elements -- 1.4.1 Capacitor -- 1.4.2 Inductor -- 1.4.3 Resistor -- 1.5 Lumped-Element Modeling -- 1.6 Fabrication -- 1.7 Applications -- References -- Chapter 2 Inductors -- 2.1 Introduction -- 2.2 Basic Definitions -- 2.2.1 Inductance -- 2.2.2 Magnetic Energy -- 2.2.3 Mutual Inductance -- 2.2.4 Effective Inductance -- 2.2.5 Impedance -- 2.2.6 Time Constant -- 2.2.7 Quality Factor -- 2.2.8 Self-Resonant Frequency -- 2.2.9 Maximum Current Rating -- 2.2.10 Maximum Power Rating -- 2.2.11 Other Parameters -- 2.3 Inductor Configurations -- 2.4 Inductor Models -- 2.4.1 Analytical Models -- 2.4.2 Coupled-Line Approach -- 2.4.3 Mutual Inductance Approach -- 2.4.4 Numerical Approach -- 2.4.5 Measurement-Based Model -- 2.5 Coupling Between Inductors -- 2.5.1 Low-Resistivity Substrates -- 2.5.2 High-Resistivity Substrates -- 2.6 Electrical Representations -- 2.6.1 Series and Parallel Representations -- 2.6.2 Network Representations -- References -- Chapter 3 Printed Inductors -- 3.1 Inductors on Si Substrate -- 3.1.1 Conductor Loss -- 3.1.2 Substrate Loss -- 3.1.3 Layout Considerations -- 3.1.4 Inductor Model -- 3.1.5 Q-Enhancement Techniques -- 3.1.6 Stacked-Coil Inductor -- 3.1.7

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- 13.3.8 CMOS Attenuator with Integrated Switch.

Sommario/riassunto

Fully updated and including entirely new chapters, this Second Edition provides in-depth coverage of the different types of RF and microwave circuit elements, including inductors, capacitors, resistors, transformers, via holes, airbridges, and crossovers. Featuring extensive formulas for lumped elements, design trade-offs, and an updated and current list of references, the book helps you understand the value and usefulness of lumped elements in the design of RF, microwave and millimeter wave components and circuits. You'll find a balanced treatment between standalone lumped elements and their circuits using MICs, MMICs and RFICs technologies. You'll also find detailed information on a broader range RFICs that was not available when the popular first edition was published. The book captures - in one consolidated volume -- the fundamentals, equations, modeling, examples, references and overall procedures to design, test and produce microwave components that are indispensable in industry and academia today. With its superb organization and expanded coverage of the subject, this is a must-have, go-to resource for practicing engineers and researchers in industry, government and university and microwave engineers working in the antenna area. Students will also find it a useful reference with its clear explanations, many examples and practical modeling guidelines.

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