

1. Record Nr.	UNINA9910451979603321
Autore	Dittmann Helena <1952->
Titolo	Learn Library of Congress classification [[electronic resource] /] / Helena Dittman and Jane Hardy
Pubbl/distr/stampa	Friendswood, Tex, : TotalRecall Publications, Inc., c2007
ISBN	1-281-92341-9 9786611923419 1-59095-818-7
Edizione	[2nd North American ed.]
Descrizione fisica	1 online resource (164 p.)
Collana	Library education series, , 1328-1909
Altri autori (Persone)	HardyJane <1953->
Disciplina	025.433
Soggetti	Classification, Library of Congress Classification - Books - United States 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 and index.
Nota di contenuto	CONTENTS; PREFACE TO THE FIRST EDITION; PREFACE TO THE SECOND EDITION; Chapter 1 INTRODUCTION TO CLASSIFICATION; Chapter 2 INTRODUCTION TO LIBRARY OF CONGRESS CLASSIFICATION; Chapter 3 STRUCTURE OF LIBRARY OF CONGRESS CLASSIFICATION; Chapter 4 BUILDING A CALL NUMBER; Chapter 5 TABLES; Chapter 6 SHELVING; Chapter 7 CLASSIFICATION WEB; Chapter 8 MORE PRACTICE; ANSWERS; GLOSSARY; BIBLIOGRAPHY; INDEX

2. Record Nr.	UNINA9910820644803321
Autore	Bahl Inder J.
Titolo	Lumped Elements for RF and Microwave Circuits // Inder J. Bahl
Pubbl/distr/stampa	Norwood, MA : , : Artech House, , [2023] ©2023
ISBN	9781630819330 9781630819323
Edizione	[Second edition.]
Descrizione fisica	1 online resource (593 pages)
Disciplina	780
Soggetti	Lumped elements (Electronics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
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

Temperature Dependence -- 3.2 Inductors on GaAs Substrate -- 3.2.1 Inductor Models -- 3.2.2 Figure of Merit -- 3.2.3 Comprehensive Inductor Data -- 3.2.4 Q-Enhancement Techniques -- 3.2.5 Compact Inductors -- 3.2.6 High Current Handling Capability Inductors -- 3.3 Printed Circuit Board Inductors -- 3.4 Hybrid Integrated Circuit Inductors -- 3.4.1 Thin-Film Inductors -- 3.4.2 Thick-Film Inductors. 3.4.3 LTCC Inductors -- 3.5 Ferromagnetic Inductors -- References -- Chapter 4 Wire Inductors -- 4.1 Wire-Wound Inductors -- 4.1.1 Analytical Expressions -- 4.1.2 Compact High-Frequency Inductors -- 4.2 Bond Wire Inductor -- 4.2.1 Single and Multiple Wires -- 4.2.2 Wire Near a Corner -- 4.2.3 Wire on a Substrate Backed by a Ground Plane -- 4.2.4 Wire Above a Substrate Backed by a Ground Plane -- 4.2.5 Curved Wire Connecting Substrates -- 4.2.6 Twisted Wire -- 4.2.7 Maximum Current Handling of Wires -- 4.3 Wire Models -- 4.3.1 Numerical Methods for Bond Wires -- 4.3.2 Measurement-Based Model for Air Core Inductors -- 4.3.3 Measurement-Based Model for Bond Wires -- 4.4 Broadband Inductors -- 4.5 Magnetic Materials -- References -- Chapter 5 Capacitors -- 5.1 Introduction -- 5.2 Capacitor Parameters -- 5.2.1 Capacitor Value -- 5.2.2 Effective Capacitance -- 5.2.3 Tolerances -- 5.2.4 Temperature Coefficient -- 5.2.5 Quality Factor -- 5.2.6 Equivalent Series Resistance -- 5.2.7 Series and Parallel Resonances -- 5.2.8 Dissipation Factor or Loss Tangent -- 5.2.9 Time Constant -- 5.2.10 Rated Voltage -- 5.2.11 Rated Current -- 5.3 Chip Capacitor Types -- 5.3.1 Multilayer Dielectric Capacitor -- 5.3.2 Multiplate Capacitor -- 5.4 Discrete Parallel Plate Capacitor Analysis -- 5.4.1 Vertically Mounted Series Capacitor -- 5.4.2 Flat-Mounted Series Capacitor -- 5.4.3 Flat-Mounted Shunt Capacitor -- 5.4.4 Measurement-Based Model -- 5.5 Voltage and Current Ratings -- 5.5.1 Maximum Voltage Rating -- 5.5.2 Maximum RF Current Rating -- 5.5.3 Maximum Power Dissipation -- 5.6 Capacitor Electrical Representation -- 5.6.1 Series and Shunt Connections -- 5.6.2 Network Representations -- References -- Chapter 6 Monolithic Capacitors -- 6.1 MIM Capacitor Models -- 6.1.1 Simple Lumped Equivalent Circuit -- 6.1.2 Single Microstrip-Based Distributed Model. 6.1.3 EC Model for MIM Capacitor on Si -- 6.1.4 EM Simulations of Capacitors -- 6.2 High-Density Capacitors -- 6.2.1 Multilayer Capacitors -- 6.2.2 Ultra-Thin-Film Capacitors -- 6.2.3 High-K Capacitors -- 6.2.4 Fractal Capacitors -- 6.2.5 Ferroelectric Capacitors -- 6.3 Capacitor Shapes -- 6.3.1 Rectangular Capacitors -- 6.3.2 Circular Capacitors -- 6.3.3 Octagonal Capacitors -- 6.4 Design Considerations -- 6.4.1 Q-Enhancement Techniques -- 6.4.2 Tunable Capacitor -- 6.4.3 Maximum Power Handling -- References -- Chapter 7 Interdigital Capacitors -- 7.1 Interdigital Capacitor Models -- 7.1.1 Approximate Analysis -- 7.1.2 Full-Wave Analysis -- 7.1.3 Measurement-Based Model -- 7.2 Design Considerations -- 7.2.1 Compact Size -- 7.2.2 Multilayer Capacitor -- 7.2.3 Q-Enhancement Techniques -- 7.2.4 Voltage Tunable Capacitor -- 7.2.5 High-Voltage Operation -- 7.3 Interdigital Structure as a Photodetector -- References -- Chapter 8 Resistors -- 8.1 Introduction -- 8.2 Basic Definitions -- 8.2.1 Power Rating -- 8.2.2 Temperature Coefficient -- 8.2.3 Resistor Tolerances -- 8.2.4 Maximum Working Voltage -- 8.2.5 Maximum Frequency of Operation -- 8.2.6 Stability -- 8.2.7 Noise -- 8.2.8 Maximum Current Rating -- 8.3 Resistor Types -- 8.3.1 Chip Resistors -- 8.3.2 MCM Resistors -- 8.3.3 Monolithic Resistors -- 8.4 High-Power Resistors -- 8.5 Resistor Models -- 8.5.1 EC Model -- 8.5.2 Distributed Model -- 8.5.3 Meander Line Resistor -- 8.6 Resistor Representations -- 8.6.1 Network Representations -- 8.6.2 Electrical

Representations -- 8.7 Effective Conductivity -- 8.8 Thermistors --
References -- Chapter 9 Via Holes -- 9.1 Types of Via Holes -- 9.1.1
Via Hole Connection -- 9.1.2 Via Hole Ground -- 9.2 Via Hole Models
-- 9.2.1 Analytical Expression -- 9.2.2 Quasi-static Method -- 9.2.3
Parallel Plate Waveguide Model -- 9.2.4 Method of Momen.
9.2.5 Measurement-Based Model -- 9.3 Via Fence -- 9.3.1 Coupling
Between Via Holes -- 9.3.2 Radiation from Via Ground Plug -- 9.4
Plated Heat Sink Via -- 9.5 Via Hole Layout -- 9.6 Silicon Vias --
References -- Chapter 10 Airbridges and Dielectric Crossovers -- 10.1
Airbridge and Crossov -- 10.2 Analysis Techniques -- 10.2.1 Quasi-
static Method -- 10.2.2 Full-Wave Analysis -- 10.3 Models -- 10.3.1
Analytical Model -- 10.3.2 Measurement-Based Model -- References --
Chapter 11 Inductor Transformers and Baluns -- 11.1 Basic Theory --
11.1.1 Parameters Definition -- 11.1.2 Analysis of Transformers --
11.1.3 Ideal Transformers -- 11.1.4 Equivalent Circuit Representation
-- 11.1.5 Equivalent Circuit of a Practical Transformer -- 11.1.6
Wideband Impedance Matching Transformers -- 11.1.7 Types of
Transformers -- 11.2 Wire-Wrapped Transformers -- 11.2.1 Tapped
Coil Transformers -- 11.2.2 Bond Wire Transformer -- 11.3
Transmission-Line Type Transformers -- 11.4 Parallel Conductor
Winding Transformers on Si Substrate -- 11.5 Spiral Transformers on
GaAs Substrate -- 11.6 Baluns -- 11.6.1 Lumped-Element LP/HP Filter
Baluns -- 11.6.2 Lumped-Element Power Divider and 180 Hybrid
Baluns -- 11.6.3 Coil Transformer Baluns -- 11.6.4 Transmission-Line
Baluns -- 11.6.5 Marchand Baluns -- 11.6.6 Common-Mode Rejection
Ratio -- References -- Chapter 12 Lumped-Element Passive
Components -- 12.1 Impedance Matching Techniques -- 12.1.1 One-
Port and Two-Port Networks -- 12.1.2 Lumped-Element Narrowband
Matching Techniques -- 12.1.3 Lumped-Element Wideband Matching
Techniques -- 12.2 90 Hybrids -- 12.2.1 Broadband 3-dB 90 Hybrid
-- 12.2.2 Reconfigurable 3-dB 90 Hybrid -- 12.2.3 Dual-Band 3-dB
90 Hybrid -- 12.2.4 Differential 3-dB 90 Hybrid -- 12.3 180
Hybrids -- 12.3.1 Compact Lumped-Element 3-dB 180 Hybrid --
12.3.2 Wideband Lumped-Element Differential 3-dB 180 Hybrids.
12.4 Directional Couplers -- 12.4.1 Transformer Directional Couplers
-- 12.4.3 Differential Directional Couplers -- 12.4.4 Directional
Coupler with Impedance Matching -- 12.5 Power Dividers/Combiners
-- 12.5.1 Power Dividers with 90 and 180 Phase Difference -- 12.5.2
Broadband 2-Way and 4-Way Power Dividers -- 12.5.3 Compact 2-Way
and 4-Way Power Dividers -- 12.5.4 Dual-Band Power Dividers --
12.5.5 Differential Power Dividers -- 12.6 Filter -- 12.6.1 Ceramic
Lumped-Element LTCC Bandpass Filters -- 12.6.2 Dual-Band Filters --
12.6.3 Reconfigurable and Switchable Filters -- 12.6.4 High Selectivity
Compact BPF -- 12.6.5 Differential-Mode and Common-Mode
Rejection Filters -- 12.6.6 Tunable BPF with Constant Bandwidth --
12.6.7 Compact Si Bandpass Filter -- 12.6.8 Compact CMOS Bandpass
Filters -- 12.7 Biasing Networks -- 12.7.1 Biasing of Diodes and
Control Components -- 12.7.2 Biasing of Active Circuits -- References
-- Chapter 13 Lumped-Element Control Components -- 13.1 Switches
-- 13.1.1 Switch Configurations -- 13.1.2 Broadband Switches --
13.1.3 MESFET Switches -- 13.1.4 HEMT Switches -- 13.1.5 CMOS
Switches -- 13.1.6 GaN HEMT Switches -- 13.1.7 Comparison of Switch
Technologies -- 13.2 Phase Shifters -- 13.2.1 Types of Phase Shifters
-- 13.2.2 Switched-Network Phase Shifters -- 13.2.3 Multibit Phase
Shifter Circuits -- 13.2.4 MESFET/HEMT Multibit Phase Shifters --
13.2.5 CMOS Phase Shifters -- 13.2.6 Analog Phase Shifters -- 13.2.7
Broadband Phase Shifters -- 13.2.8 Ultrawideband Phase Shifters --
13.2.9 Millimeter-Wave Phase Shifters -- 13.2.10 Active Phase Shifters

-- 13.3 Attenuators -- 13.3.1 Attenuator Configurations -- 13.3.2 Multibit Attenuators -- 13.3.3 GaAs MMIC Step Attenuators -- 13.3.4 Si CMOS Step Attenuators -- 13.3.5 Variable Voltage Attenuators -- 13.3.6 GaN HEMT Attenuator -- 13.3.7 Phase Compensated Attenuators.
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.
