

1. Record Nr.	UNINA9910827318403321
Autore	Kazimierczuk Marian K.
Titolo	Pulse-width modulated DC-DC power converters // Marian K. Kazimierczuk
Pubbl/distr/stampa	Chichester, West Sussex, [England] : , : Wiley, , 2016 ©2016
ISBN	1-119-00959-6 1-119-00957-X 1-119-00956-1
Edizione	[Second edition.]
Descrizione fisica	1 online resource (963 p.)
Disciplina	621.381/044
Soggetti	DC-to-DC converters Pulse circuits PWM power converters
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 at the end of each chapters and index.
Nota di contenuto	Pulse-Width Modulated DC--DC Power Converters; Contents; About the Author; Preface; Nomenclature; 1 Introduction; 1.1 Classification of Power Supplies; 1.2 Basic Functions of Voltage Regulators; 1.3 Power Relationships in DC-DC Converters; 1.4 DC Transfer Functions of DC-DC Converters; 1.5 Static Characteristics of DC Voltage Regulators; 1.6 Dynamic Characteristics of DC Voltage Regulators; 1.7 Linear Voltage Regulators; 1.7.1 Series Voltage Regulator; 1.7.2 Shunt Voltage Regulator; 1.8 Topologies of PWM DC-DC Converters; 1.9 Relationships Among Current, Voltage, Energy, and Power 1.10 Summary References; Review Questions; Problems; 2 Buck PWM DC-DC Converter; 2.1 Introduction; 2.2 DC Analysis of PWM Buck Converter for CCM; 2.2.1 Circuit Description; 2.2.2 Assumptions; 2.2.3 Time Interval: $0 < t < DT$; 2.2.4 Time Interval: $DT < t < T$; 2.2.5 Device Stresses for CCM; 2.2.6 DC Voltage Transfer Function for CCM; 2.2.7 Boundary Between CCM and DCM; 2.2.8 Capacitors; 2.2.9 Ripple Voltage in Buck Converter for CCM; 2.2.10 Switching Losses with Linear MOSFET Output Capacitance; 2.2.11 Switching Losses with Nonlinear

MOSFET Output Capacitance

2.2.12 Power Losses and Efficiency of Buck Converter for CCM 2.2.13 DC Voltage Transfer Function of Lossy Converter for CCM; 2.2.14 MOSFET Gate-Drive Power; 2.2.15 Gate Driver; 2.2.16 Design of Buck Converter for CCM; 2.3 DC Analysis of PWM Buck Converter for DCM; 2.3.1 Time Interval: $0 < t < DT$; 2.3.2 Time Interval: $DT < t < (D + D_1)T$; 2.3.3 Time Interval: $(D + D_1)T < t < T$; 2.3.4 Device Stresses for DCM; 2.3.5 DC Voltage Transfer Function for DCM; 2.3.6 Maximum Inductance for DCM; 2.3.7 Power Losses and Efficiency of Buck Converter for DCM; 2.3.8 Design of Buck Converter for DCM 2.4 Buck Converter with Input Filter 2.5 Buck Converter with Synchronous Rectifier; 2.6 Buck Converter with Positive Common Rail; 2.7 Quadratic Buck Converter; 2.8 Tapped-Inductor Buck Converters; 2.8.1 Tapped-Inductor Common-Diode Buck Converter; 2.8.2 Tapped-Inductor Common-Transistor Buck Converter; 2.8.3 Watkins-Johnson Converter; 2.9 Multiphase Buck Converter; 2.10 Switched-Inductor Buck Converter; 2.11 Layout; 2.12 Summary; References; Review Questions; Problems; 3 Boost PWM DC-DC Converter; 3.1 Introduction; 3.2 DC Analysis of PWM Boost Converter for CCM; 3.2.1 Circuit Description 3.2.2 Assumptions 3.2.3 Time Interval: $0 < t < DT$; 3.2.4 Time Interval: $DT < t < T$; 3.2.5 DC Voltage Transfer Function for CCM; 3.2.6 Boundary Between CCM and DCM; 3.2.7 Ripple Voltage in Boost Converter for CCM; 3.2.8 Power Losses and Efficiency of Boost Converter for CCM; 3.2.9 DC Voltage Transfer Function of Lossy Boost Converter for CCM; 3.2.10 Design of Boost Converter for CCM; 3.3 DC Analysis of PWM Boost Converter for DCM; 3.3.1 Time Interval: $0 < t < DT$; 3.3.2 Time Interval: $DT < t < (D + D_1)T$; 3.3.3 Time Interval: $(D + D_1)T < t < T$; 3.3.4 Device Stresses for DCM 3.3.5 DC Voltage Transfer Function for DCM

Sommario/riassunto

PWM DC-DC power converter technology underpins many energy conversion systems including renewable energy circuits, active power factor correctors, battery chargers, portable devices and LED drivers. Following the success of Pulse-Width Modulated DC-DC Power Converters this second edition has been thoroughly revised and expanded to cover the latest challenges and advances in the field. Key features of 2nd edition: Four new chapters, detailing the latest advances in power conversion, focus on: small-signal model and dynamic characteristics of the buck converter in continuous conduction
