

1. Record Nr.	UNINA9910131382103321
Autore	Sha Zhanyou
Titolo	Optimal design of switching power supply // Zhanyou Sha [and three others], Hebei University of Science and Technology, China
Pubbl/distr/stampa	Singapore : , : Wiley, , 2015 ©2015
ISBN	1-118-79093-6 1-118-79095-2 1-118-79094-4
Descrizione fisica	1 online resource (435 p.)
Disciplina	621.3815/3
Soggetti	Switching power supplies - Design and construction
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	Cover; Title Page; Copyright; Contents; Preface; Introduction; Chapter 1 Overview on Switching-Mode Power Supply (SMPS); 1.1 Classification of Integrated Regulated Power Supply; 1.1.1 Optimal Design of SMPS; 1.2 Characteristics of SMPS; 1.2.1 Main Characteristics of SMPS; 1.2.2 Performance Comparison of SMPS and Linear Regulated Power Supply; 1.3 New Development Trend of SMPS; 1.3.1 New Development Trend of SMPS; 1.3.2 New Technology in the SMPS Field; 1.4 Basic Principles of SMPS; 1.4.1 Working Mode of SMPS; 1.4.2 Basic Principles of PWM; 1.4.3 Classification of PWM Products 1.5 Control Mode Type of SMPS1.5.1 VMC-Type SMPS; 1.5.2 CMC-Type SMPS; 1.6 Working Mode of SMPS; 1.6.1 Setting Methods of CUM and DUM; 1.6.2 Power Consumption Comparison between These Two Working Modes; 1.7 Feedback Type of SMPS; 1.7.1 Basic Types of SMPS Feedback Circuit; 1.7.2 Feedback Principle of the Single-Chip SMPS; 1.8 Load Characteristics of SMPS; 1.8.1 Constant Load; 1.8.2 Transient Load; 1.8.3 Constant Current Load; 1.8.4 Constant Power Load; 1.8.5 Peak Power Load; 1.8.6 Inertia Load; 1.8.7 Low Noise Load; Chapter 2 New Technology and Its Application of SMPS 2.1 Single-Chip Integration of SMPS2.2 Computer-Based SMPS Design; 2.2.1 Main Features of SMPS Design Software; 2.2.2 Classification of Design and Simulation Software of SMPS; 2.2.3 Design Process of SMPS

Software; 2.3 Internal Protection Circuit of SMPS; 2.4 Synchronous Rectification (SR) Technology; 2.4.1 Brief Introduction to the SR Technology; 2.4.2 Basic Principle of SR; 2.5 Active Clamp Technology; 2.6 Magnetic Amplifier Regulator Technology; 2.7 Programmable Voltage Regulator Technology; 2.7.1 Basic Work Principle of Digital Potentiometers  
2.7.2 Circuit Design of Programmable Switching Regulators  
2.8 Digital Power Supply System; 2.8.1 Main Features of the Digital Power Supply; 2.8.2 Basic Constitution of the Digital Power Supply; 2.8.3 Circuit Design of Digital Power Supply; 2.9 Energy-Saving and Environment-Friendly Technology of SMPS; 2.9.1 Reduce the Switching Losses with Valley Switching Circuit; 2.9.2 Reduce the No-Load Power Consumption with EcoSmart Energy-Saving Technology; 2.9.3 Lead-Free Packaging Technology; Chapter 3 Topologies of the DC/DC Converter; 3.1 Topologies of the DC/DC Converter  
3.1.1 Main Technical Indicators of the Typical Products of the DC/DC Converter  
3.2 Basic Principle of Buck Converter; 3.2.1 Simplified Circuit of Buck Converter; 3.3 Basic Principle of Boost Converter; 3.3.1 Simplified Circuit of Boost Converter; 3.4 Basic Principle of Buck-Boost Converter; 3.5 Basic Principle of Charge Pump Converter; 3.6 Basic Principle of SEPIC; 3.7 Basic Principle of Flyback Converter; 3.7.1 Basic Circuit of Multiple Output Flyback Converter; 3.8 Basic Principle of Forward Converter; 3.9 Basic Principle of Push-Pull Converter; 3.9.1 Two Types of Push-Pull Converter  
3.10 Basic Principle of Half/Full Bridge Converter

---

### Sommario/riassunto

A contemporary evaluation of switching power design methods with real world applications  
Written by a leading author renowned in his field  
Focuses on switching power supply design, manufacture and debugging  
Switching power supplies have relevance for contemporary applications including mobile phone chargers, laptops and PCs  
Based on the authors' successful ""Switching Power Optimized Design 2nd Edition"" (in Chinese)  
Highly illustrated with design examples of real world applications

---