Record Nr. UNINA9911007373403321 Autore Marouchos C. C (Christos C.) Titolo The switching function: analysis of power electronic circuits / / by C.C. Marouchos Stevenage, U.K., : Institution of Electrical Engineers, c2006 Pubbl/distr/stampa **ISBN** 1-281-97138-3 9786611971380 1-61583-317-X 1-84919-019-4 Descrizione fisica 1 online resource (310 p.) Collana IEE circuits, devices and systems series;; 17 621.3815372 Disciplina 621.38159 Soggetti Analog-to-digital converters Electric filters, Active Frequency changers Lingua di pubblicazione Inglese Materiale a stampa **Formato** Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references (p. [291]-292) and index. Nota di contenuto Contents; Part 1 The switching function; 1 The switching function: Application and properties: 2 Voltage-current relations in switched circuits; 3 Pulse width modulation; Part 2 AC to DC conversion; 4 Analysis of the single phase ac to dc phase controlled converter with R-L load; 5 The single phase full-wave diode rectifier - RC load; 6 The three-phase half-wave phase controlled converter; 7 The three-phase full-wave phase controlled rectifier; 8 Overlap in ac to dc three-phase converters; Part 3 DC to DC converters; 9 The step down converter; 10 The step up or boost converter 11 The buck boost dc to dc converter12 The CUK dc to dc converter; 13 The PWM full bridge dc to dc converter; Part 4 Frequency changers: 14 Three by three matrix converter; 15 The single pulse PWM inverter; 16 The sinusoidally PWM inverter; 17 The envelope cyclo-converter; Part 5 Active filters; 18 The thyristor-controlled reactor; 19 The switched capacitor active filters: 20 The inverter configuration active filter: 21

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Sommario/riassunto

This book demonstrates the usefulness of the switching function in analyzing power electronic circuits in the steady state. It includes analysis of generic circuits of power electronics using the switching function, and derives compact expressions for output voltage and current and input current. Further coverage includes frequency spectrums and distortion figures together with the power factor where appropriate, and switching function algebra. The application of the Kirchoff_s laws and the superposition theorem in switched circuits are also discussed.