

Equivalent-small-parameter analysis of DC/DC switched-mode converter

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Abstrak

This book focuses on the applications of Equivalent-Small-Parameter Method (ESPM) in solving the steady-state periodic solutions, as well as stability analysis, of kinds of open-loop or closed-loop operated DC/DC converters, such as PWM, quasi-resonant and resonant ones. The analytical expressions of DC components and harmonics of state variables (inductor current and capacitor voltage) with DC/DC converters can be obtained by ESPM, which can be helpful to understand the nonlinear operating mechanism of switched-mode converters. It can also be useful for stability analysis and design for practical converters. Modeling and analysis on all kinds of DC/DC converters are introduced in detail in this book, along with a large amount of simulation or experimental waveforms to verify the correctness of the theoretical analysis based on ESPM.