عنوان مقاله:

A Study of Modeling and Simulation for Interleaved Buck Converter

محل انتشار:

اولین کنفرانس بین المللی الکترونیک قدرت و سیستم های درایو (سال: 1388)

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خلاصه مقاله:

This paper focuses on modeling, analysis and simulation of a 42V/14V dc/dc converter based architecture. This architecture is considered to be a technically viable solution for automotive dual-voltage power system in passenger cars of the near future. An interleaved dc/dc converter system is chosen for the automotive converter topology due to its advantages regarding filter reduction, dynamic response, and power management. Presented herein, is a model based on one kilowatt interleaved six-phase buck converter designed to operate in a Discontinuous Conduction Mode (DCM). The control strategy of the converter is based on a voltage-mode-controlled Pulse Width Modulation (PWM) with a Proportional-Integral-Derivative (PID). The effectiveness of the interleaved step-down converter is verified .through simulation using control-oriented simulator, MatLab/Simulink

کلمات کلیدی:

Automotive, dc-to-dc power modules, design, interleaved, MatlabSimulink and PID control