

Title (en)

ADAPTIVE DIGITAL VOLTAGE REGULATOR

Title (de)

ADAPTIVER DIGITALER SPANNUNGSREGLER

Title (fr)

REGULATEUR DE TENSION NUMERIQUE ADAPTATIF

Publication

EP 1825340 A2 20070829 (EN)

Application

EP 05852550 A 20051130

Priority

- US 2005043333 W 20051130
- US 848104 A 20041208
- US 18039905 A 20050712

Abstract (en)

[origin: WO2006062790A2] A digitally-controlled, DC/DC converter includes at least one switched-mode power stage for the purpose of converting an input voltage (Vin) into an output voltage (Vout); the power stage including at least one controllable switching device, which is turned ON and OFF by a control device with temporal resolution Δt . The converter further includes a duty cycle control mechanism for controlling the duty cycle of the controllable switching device, the duty cycle control mechanism including a mechanism for estimating the output voltage error; a mechanism for estimating the target duty cycle; a duty cycle quantization mechanism for determining, for a target duty cycle estimate, a first set of quantized ON time/OFF time pairs suitable for controlling the switching device; and a selector mechanism for determining the turn ON and turn OFF times of said controllable switching device by choosing, cycle by cycle, an ON time/OFF time pair from a second set of quantized ON time/OFF time pairs, derived from said first set, choosing in such a manner that the amplitude of the output voltage error is continually minimized. To compensate for the load-dependent effects of parasitics the second set of quantized ON time/OFF time pairs is adjusted continuously, to insure optimum performance at all load levels.

IPC 8 full level

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