

Title (en)

ADAPTIVE DIGITAL VOLTAGE REGULATOR

Title (de)

ADAPTIVER DIGITALER SPANNUNGSREGLER

Title (fr)

REGULATEUR DE TENSION NUMERIQUE ADAPTATIF

Publication

**EP 1825340 A4 20081008 (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  $\Delta t$ . 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

**G05F 1/40** (2006.01); **G05F 1/618** (2006.01)

CPC (source: EP KR)

**G05F 1/46** (2013.01 - KR); **G05F 1/618** (2013.01 - KR); **H02M 3/157** (2013.01 - EP)

Citation (search report)

- [XY] WO 9844622 A2 19981008 - KONINKL PHILIPS ELECTRONICS NV [NL], et al
- [X] US 5932938 A 19990803 - SHIMAMORI HIROSHI [JP]
- [X] US 2004156219 A1 20040812 - CHAPUIS ALAIN [US]
- [X] US 6163143 A 20001219 - SHIMAMORI HIROSHI [JP]
- [X] US 2004146101 A1 20040729 - PEARCE LAWRENCE G [US]
- [X] US 5475296 A 19951212 - VINSANT RONALD G [US], et al
- [X] US 2003117118 A1 20030626 - IMAI TAKAKAZU [JP], et al
- [Y] EP 1324476 A1 20030702 - DIALOG SEMICONDUCTOR GMBH [DE]
- See references of WO 2006062790A2

Designated contracting state (EPC)

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DOCDB simple family (publication)

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DOCDB simple family (application)

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