

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 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

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)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

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DOCDB simple family (application)

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