

Title (en)

INDUCTOR CURRENT SYNTHESIZER FOR SWITCHING POWER SUPPLIES

Title (de)

INDUKTIVITÄTS-STROMSYNTHESIZER FÜR SCHALTNETZTEILE

Title (fr)

SYNTHETISEUR DE COURANT INDUCTEUR DESTINE A UNE ALIMENTATION DE DECOUPAGE

Publication

EP 1290522 A1 20030312 (EN)

Application

EP 01920451 A 20010316

Priority

- US 0108508 W 20010316
- US 19112500 P 20000322
- US 20947800 P 20000605

Abstract (en)

[origin: WO0171446A1] A circuit and method for sensing the inductor (L1) current flowing through to a load (Rload) from a switching power supply without using a sense resistor in the path of the inductor current. In a synchronous buck converter topology, the inductor current is derived by sensing the voltage drop across the synchronous MOSFET (Q1 and Q2) of the half-bridge and reconstructing the current using a sample and hold (12 and 14) technique. A ripple current synthesizer (6) is employed to reconstruct inductor current outside the sample and hold window. The sampled product ILoad x RDSon is used to update the ripple current estimator with dc information every switching cycle. The resulting voltage waveform is directly proportional to the inductor current. The inductor current synthesizer of the present invention can also be used in boost converter, flyback converter and forward converter topologies.

IPC 1-7

G05F 1/40

IPC 8 full level

H02M 3/155 (2006.01); **H02M 3/158** (2006.01)

CPC (source: EP)

H02M 3/1588 (2013.01); **H01L 2223/6611** (2013.01); **H01L 2924/19042** (2013.01); **H01L 2924/19043** (2013.01); **H02M 1/0009** (2021.05); **Y02B 70/10** (2013.01)

Citation (search report)

See references of WO 0171446A1

Designated contracting state (EPC)

DE

DOCDB simple family (publication)

WO 0171446 A1 20010927; AU 4750101 A 20011003; EP 1290522 A1 20030312; JP 2003528553 A 20030924; JP 3619494 B2 20050209

DOCDB simple family (application)

US 0108508 W 20010316; AU 4750101 A 20010316; EP 01920451 A 20010316; JP 2001569575 A 20010316