(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 December 2013 (27.12.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/190432 A3

(51) International Patent Classification:
H02M 3/338 (2006.01) *H02M 1/14* (2006.01)
H02M 3/337 (2006.01) *H02M 7/48* (2007.01)
H02M 1/00 (2007.01)

(21) International Application Number:
PCT/IB2013/054839

(22) International Filing Date:
13 June 2013 (13.06.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/661,463 19 June 2012 (19.06.2012) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

[Continued on next page]

(54) Title: CONTROL MODES FOR RESONANT DC-TO-DC CONVERTER

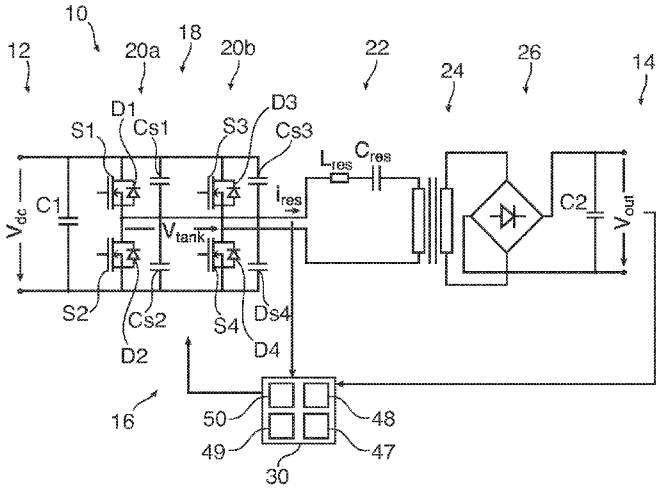

FIG. 1

(57) Abstract: An electrical power converter (16) comprises an inverter (18) with semiconductor switches (S1, S2, S3, S4), a resonant circuit (22) coupled with the inverter (18), and a controller (30) for switching the semiconductor switches (S1, S2, S3, S4) of the inverter (18) to switching states. The controller (30) is adapted for periodically switching the inverter (18) between switching states, such that a periodic resonant current ires is generated in the resonant circuit (22), for synchronizing switching events of the switching states with the periodic resonant current ires, such that a switching state is applied to the inverter at a time point associated with a specific periodic point (52) of the periodic resonant current ires, and for applying the switching states such that an overall power feed backward from the resonant circuit (22) to an input (12) of the inverter (18) is balanced with an overall power feed forward from the input (12) of the inverter to the resonant circuit (22).

WO 2013/190432 A3

(88) Date of publication of the international search report:
24 July 2014

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2013/054839

A. CLASSIFICATION OF SUBJECT MATTER
INV. H02M3/338 H02M3/337 H02M1/00
ADD. H02M1/14 H02M7/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H02M H05G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2006/114719 A1 (KONINKL PHILIPS ELECTRONICS NV [NL]; PHILIPS INTELLECTUAL PROPERTY [DE) 2 November 2006 (2006-11-02) cited in the application page 2, line 28 - page 2, line 30 page 3, line 17 - page 3, line 24 page 6, line 3 - page 6, line 33; figures 4, 5, 6	1-13
A	US 2011/194206 A1 (SASE TAKASHI [JP] ET AL) 11 August 2011 (2011-08-11) paragraph [0012] paragraph [0079] - paragraph [0096]	1-13
A	EP 1 120 892 A2 (MURATA MANUFACTURING CO [JP]) 1 August 2001 (2001-08-01) paragraph [0074] - paragraph [0075]	1-13

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
28 May 2014	05/06/2014

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2013/054839

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