



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H05K 1/16, H01L 27/13	A3	(11) International Publication Number: WO 99/39554 (43) International Publication Date: 5 August 1999 (05.08.99)
(21) International Application Number: PCT/IB99/00148 (22) International Filing Date: 27 January 1999 (27.01.99) (30) Priority Data: 09/015,735 29 January 1998 (29.01.98) US (71) Applicant: ENERGENIUS, INC. [CA/CA]; 842 York Mills Road, Don Mills, Ontario M3B 3A8 (CA). (72) Inventor: STAFFIERE, Donald, T.; 4 Corduroy Road, Amherst, NH 03031 (US).	(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 24 August 2000 (24.08.00)	
(54) Title: EMBEDDED ENERGY STORAGE DEVICE (57) Abstract <p>The present invention is directed towards an embedded electrical storage device in a layered electrical device, such as a printed board or IC chip. The layered electrical device comprises an outer surface. An electrical energy storage device is embedded in the layered electrical device, either partially or fully. The electrical energy storage device comprises at least two electrical conducting layers sandwiching a high capacity dielectric, and is connected to other circuitry on the layered electrical device.</p>		

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INTERNATIONAL SEARCH REPORT

Internat. Application No PCT/1B 99/00148
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A. CLASSIFICATION OF SUBJECT MATTER
 IPC 6 H05K1/16 H01L27/13

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)
 IPC 6 H05K H01L

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 713 358 A (INTERNATIONAL BUSINESS MACHINES CORP.) 22 May 1996 (1996-05-22) column 8, line 22 - column 9, line 57; figures 13-21	1-5,10, 24-29
Y	---	7,8,30, 31
P,Y	WO 98 07167 A (ENERGENIUS) 19 February 1998 (1998-02-19) claims 1,7	7,8,30, 31
X	US 5 027 253 A (LAUFFER ET AL.) 25 June 1991 (1991-06-25) the whole document	1-4,6,7, 10,24-30
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Further documents are listed in the continuation of box C. Patent family members are listed in annex.

* Special categories of cited documents :

<p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p>	<p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>*&* document member of the same patent family</p>
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Date of the actual completion of the international search 26 April 1999	Date of mailing of the international search report 23. 08. 99
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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer MES L. A.
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INTERNATIONAL SEARCH REPORT

International Application No PCT/IB 99/00148

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 172 304 A (OZAWA ET AL.) 15 December 1992 (1992-12-15) column 3, line 4 - column 4, line 30; figures 1-3 ---	1-3,7, 10,24, 27,28, 30,33-35
X	DE 38 37 206 A (ROBERT BOSCH GMBH) 3 May 1990 (1990-05-03) claims; figure ---	1-4,9, 24, 27-29,32
X	US 5 019 468 A (MIYABAYASHI) 28 May 1991 (1991-05-28) abstract; figures ---	1-5,11, 12,24, 25,34,36
X	WO 92 19090 A (DOWTY ELECTRONIC COMPONENTS) 29 October 1992 (1992-10-29) the whole document ---	1-4,11, 12,24, 36,37
X	PATENT ABSTRACTS OF JAPAN vol. 15, no. 408 (E-1123), 17 October 1991 (1991-10-17) & JP 03 167887 A (TOSHIBA CORP), 19 July 1991 (1991-07-19) abstract - -----	1,2,9, 10,24, 32,35

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1+(2-12), 24-37

Energy storage device embedded in circuit board

2. Claims: 1+(13-23), 38-50

Energy storage device embedded in integrated circuit chip

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 99/00148

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1+(2-12), 24-37

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 99/00148

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