



- (51) **International Patent Classification:**
H05K 7/14 (2006.01) **H01R 12/71** (2011.01)
H05K 7/20 (2006.01)
- (21) **International Application Number:**
PCT/US2011/030604
- (22) **International Filing Date:**
30 March 2011 (30.03.2011)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/366,036 20 July 2010 (20.07.2010) US
12/882,161 14 September 2010 (14.09.2010) 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, 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, KM, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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.

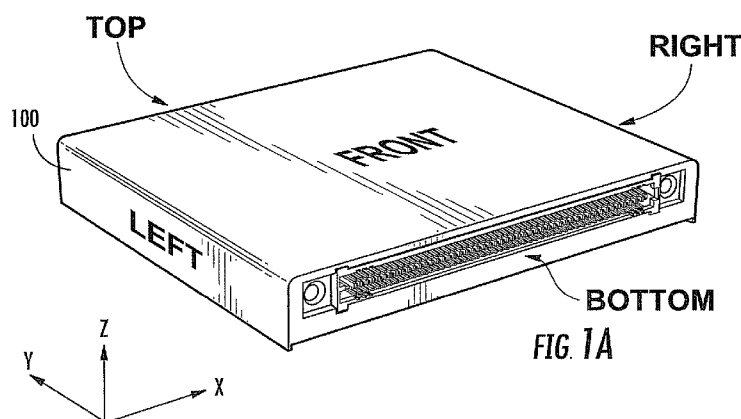
(84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, 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, ML, MR, NE, SN, TD, TG).

Published:

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

(88) **Date of publication of the international search report:**
5 July 2012

(54) **Title:** PRINTED CIRCUIT BOARD MODULE ENCLOSURE AND APPARATUS USING SAME

**FIG. 1A**

(57) **Abstract:** A modular electronic component includes a circuit board having disposed thereon one or more electronic components and an enclosure for housing the circuit board. The enclosure comprises a thermally conductive shell having front and back surfaces being substantially parallel to the plane of the circuit board and being disposed on opposite sides of the circuit board from each other, left and right surfaces being substantially perpendicular to the plane of the circuit board and being disposed on opposite sides of the circuit board from each other, and top and bottom surfaces being substantially perpendicular to the left and right surfaces and substantially perpendicular to the top and bottom surfaces and being disposed on opposite sides of the circuit board from each other. A thermal shunt comprised of a thermally conductive material is disposed between the circuit board and the front surface of the enclosure and provides a thermally conductive path between at least some of the electronic components and the front surface of the enclosure, where the front surface of the enclosure conducts heat to at least one of the top, left, and right surfaces of the enclosure.



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/030604**A. CLASSIFICATION OF SUBJECT MATTER****H05K 7/14(2006.01)i, H05K 7/20(2006.01)i, H01R 12/71(2011.01)i**

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)

H05K 7/14; H05K 7/20; F28D 15/00; F28F 9/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: heat,board, housing, shunt

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002-0186544 A1 (JACOB TZLIL et al.) 12 December 2002	1-12
X	See abstract; claims 1, 4-5, 8 and figures 1,2.	13-25
Y	US 2004-0212964 A1 (CHRISTIAN, L. BELADY et al.) 28 October 2004	1-12
A	See abstract; paragraphs [0030], [0041]; claims 1, 8, 75 and figures 8A-8B.	13-25
A	US 2009-0260777 A1 (ATTLESEY CHAD DANIEL) 22 October 2009	1-25
	See abstract; claims 1, 8, 10-14 and figure 2.	
A	US 2010-0097767 A1 (JUDE JOHN DAVID et al.) 22 April 2010	1-25
	See abstract; claims 1, 5-8, 10, 12 and figure 2.	



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

29 MARCH 2012 (29.03.2012)

Date of mailing of the international search report

06 APRIL 2012 (06.04.2012)

Name and mailing address of the ISA/KR

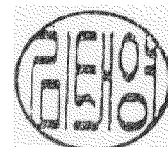
Korean Intellectual Property Office
Government Complex-Daejeon, 189 Cheongsu-ro,
Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

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Telephone No. 82-42-481-5650



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2011/030604

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 2010-0097767 A1	22.04.2010	None	