



- (51) **International Patent Classification:**
H01R 12/51 (2011.01) *H01R 13/04* (2006.01)
H05K 1/18 (2006.01)
- (21) **International Application Number:**
PCT/US2012/036271
- (22) **International Filing Date:**
3 May 2012 (03.05.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/481,855 3 May 2011 (03.05.2011) US
- (71) **Applicant (for all designated States except US):** **CARDI-OINSIGHT TECHNOLOGIES, INC.** [US/US]; 1160 Cedar Avenue, Suite 290, Cleveland, Ohio 44106 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **VENALECK, John T.** [US/US]; 1382 West Jackson Street, Painesville, Ohio 44077 (US). **CROFOOT, Larry M.** [US/US]; 4536 Baldwin Road, Perry, Ohio 44077 (US).
- (74) **Agent:** **PLATT, Jonathan A.**; Renner, Otto, Boisselle & Sklar, LLP, Nineteenth Floor, 1621 Euclid Avenue, Cleveland, Ohio 44115 (US).

- (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, 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, ML, MR, NE, SN, TD, TG).

Published:

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

- (88) **Date of publication of the international search report:**
21 March 2013

(54) **Title:** HIGH-VOLTAGE RESISTANCE FOR A CONNECTOR ATTACHED TO A CIRCUIT BOARD

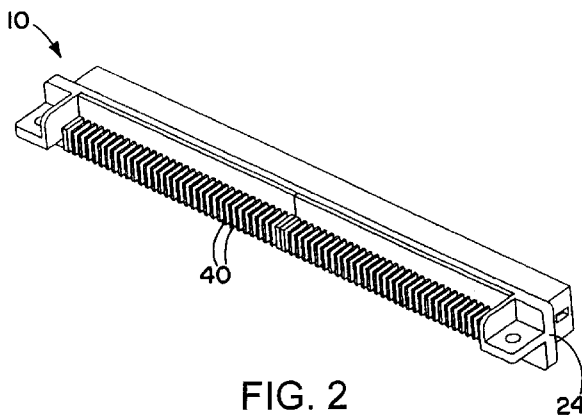


FIG. 2

(57) **Abstract:** A circuit board connector is disclosed that has isolator ribs between contact tails, and slots in the edge of a circuit board between circuit pads that communicate with the ribs to avoid pad-to-pad current leakage and high-voltage breakdown. The slots may be between individual circuit board fingers that each include one of the conductor pads.



A. CLASSIFICATION OF SUBJECT MATTER**H01R 12/51(2011.01)i, H05K 1/18(2006.01)i, H01R 13/04(2006.01)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)

H01R 12/51; H05K 1/18; H01R 12/04; H01R 13/24; H05K 1/11; H01R 12/20; H01R 12/32; H01R 12/00

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: circuit board, connector, mount, finger, contact, pad

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	WO 2009-099926 A2 (RAYTHEON COMPANY et al.) 13 August 2009 See paragraphs [0037],[0050], claims 1,2,12 and figures 1-4	1-3,6-8,12-14 4-5,9-11,15-16
A	JP 2009-070988 A (SHARP CORP) 02 April 2009 See abstract, claim 1 and figure 1	1-16
A	JP 2000-294321 A (YAZAKI CORP) 20 October 2000 See abstract, claim 1 and figure 1	1-16
A	EP 1953871 A2 (SIEMENS AG OESTERREICH) 06 August 2008 See abstract, claim 1 and figure 1-3	1-16

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

14 NOVEMBER 2012 (14.11.2012)

Date of mailing of the international search report

16 NOVEMBER 2012 (16.11.2012)

Name and mailing address of the ISA/KR

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

Facsimile No. 82-42-472-7140

Authorized officer

Song Geun Bae

Telephone No. 82-42-481-8688



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/036271

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009-099926 A2	13.08.2009	AU 2009-212712 A1 CA 2710940 A1 EP 2238651 A2 US 2009-0197434 A1 US 7665998 B2 WO 2009-099926 A3 WO 2009-099926 A3	13.08.2009 13.08.2009 13.10.2010 06.08.2009 23.02.2010 01.10.2009 13.08.2009
JP 2009-070988 A	02.04.2009	None	
JP 2000-294321 A	20.10.2000	None	
EP 1953871 A2	06.08.2008	AT 504960 A1 EP 1953871 A3	15.09.2008 23.09.2009