

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
25 January 2007 (25.01.2007)

PCT

(10) International Publication Number  
**WO 2007/010472 A3**

- (51) International Patent Classification:  
*H01L 27/02* (2006.01)
- (21) International Application Number:  
PCT/IB2006/052436
- (22) International Filing Date: 17 July 2006 (17.07.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
05106737.9 22 July 2005 (22.07.2005) EP
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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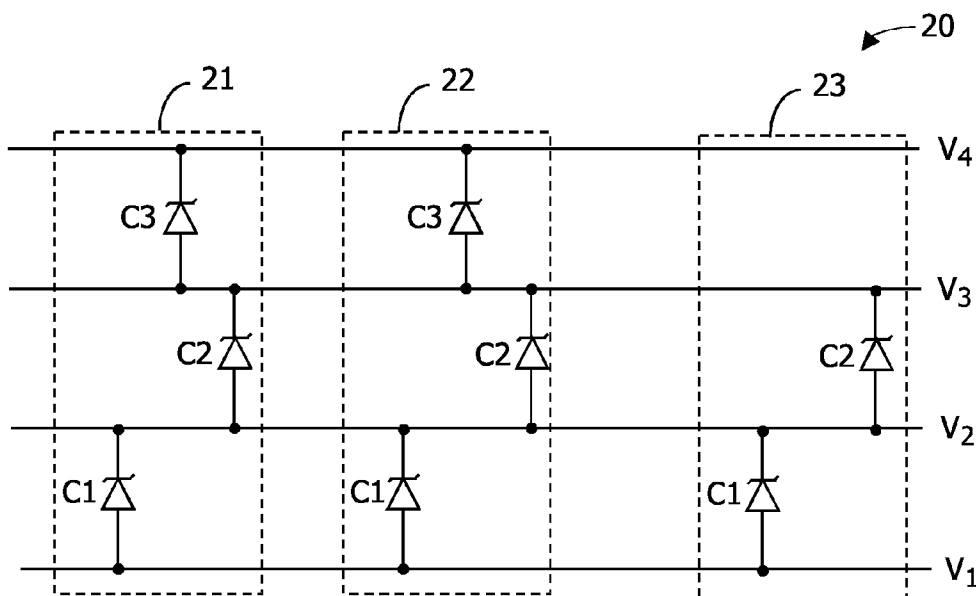
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: PATH SHARING HIGH-VOLTAGE ESD PROTECTION USING DISTRIBUTED LOW-VOLTAGE CLAMPS



(57) Abstract: Integrated circuit (20) comprising several different voltage rails ( $V_5$  to  $V_1$ ) and an on-chip ESD protection circuit. The ESD protection circuit comprises at least one group (21, 22, 23) of ESD clamp devices (C1 - C4). The ESD clamp devices (C1 - C4) are arranged in a ladder-configuration. This ladder-configuration is characterized in that there is one of the ESD clamp devices interposed between each of the power rails ( $V_5$  to  $V_1$ ) and the respective power rail having a next lower voltage. Due to this arrangement an ESD current path is defined between each one of the power rails and the power rail having the next lower voltage. The ESD clamp devices (C1 - C4) are off under normal power operation of the integrated circuit (20).

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

10 May 2007

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/IB2006/052436A. CLASSIFICATION OF SUBJECT MATTER  
INV. H01L27/02

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)  
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)

EPO-Internal, WPI Data, INSPEC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 10 2004 004789 B3 (INFINEON TECHNOLOGIES AG [DE]) 3 March 2005 (2005-03-03) abstract paragraphs [0005], [0006], [0041] - [0046] figures 2,3	1-18
X	US 2003/076636 A1 (KER MING-DOU [TW] ET AL) 24 April 2003 (2003-04-24) paragraphs [0063] - [0065] figures 31-35	1,3-10, 16,18
A		2,11-15, 17
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Date of the actual completion of the international search

21 February 2007

Date of mailing of the international search report

01/03/2007

Name and mailing address of the ISA/

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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/IB2006/052436

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 002 568 A (KER MING-DOU [TW] ET AL) 14 December 1999 (1999-12-14) column 3, line 27 - line 58 figures 2-9	1-18
A	----- JAESIK LEE ET AL: "Understanding and addressing the noise induced by electrostatic discharge in multiple power supply systems" PROCEEDINGS 2001 INTERNATIONAL CONFERENCE ON COMPUTER DESIGN. (ICCD). AUSTIN, TX, SEPT. 23-26, 2001, INTERNATIONAL CONFERENCE ON COMPUTER DESIGN, LOS ALAMITOS, CA : IEEE COMP. SOC, US, 23 September 2001 (2001-09-23), pages 406-411, XP010561013 ISBN: 0-7695-1200-3 the whole document -----	1-18

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2006/052436
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