

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
7 September 2007 (07.09.2007)

PCT

(10) International Publication Number
WO 2007/100404 A3(51) International Patent Classification:
HO1L 23/48 (2006.01)

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(21) International Application Number:
PCT/US2006/061737

(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, GT, 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, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

(22) International Filing Date:
7 December 2006 (07.12.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/339,132 25 January 2006 (25.01.2006) US(71) Applicant (for all designated States except US):
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(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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Published:

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— with international search report

(88) Date of publication of the international search report:
9 October 2008

(54) Title: SEMICONDUCTOR INTERCONNECT HAVING ADJACENT RESERVOIR FOR BONDING AND METHOD FOR FORMATION

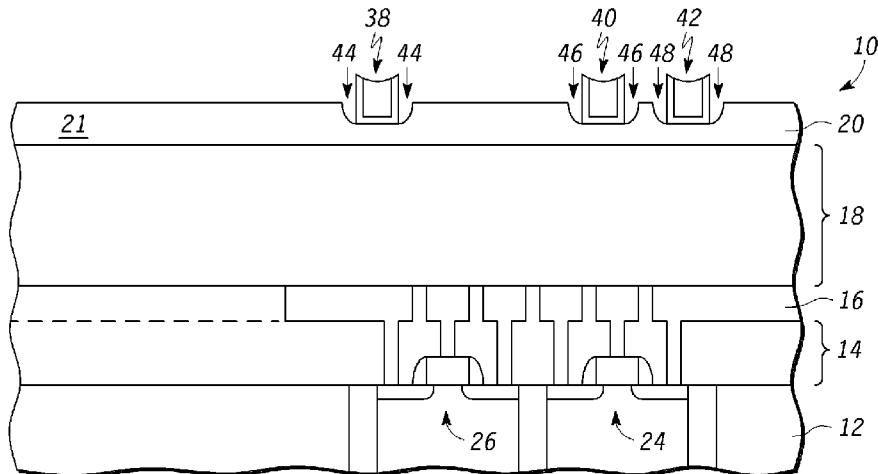


FIG.7

(57) **Abstract:** A semiconductor device (10) and method has interconnects (38, 40, 42) with adjoining reservoir openings (44, 46, 48). A dielectric layer (20) is formed as part of an uppermost of the one or more interconnect layers (18). Openings (30) formed in the dielectric layer result in modified portions (32) of the dielectric layer along portions of sidewalls of the openings. The openings are filled with a conductive material, such as metal. An exposed portion (22) of the dielectric layer (20) is removed to form protruding pads (38, 40, 42) of the conductive material extending above the dielectric layer. Reservoir openings are formed adjacent the protruding pads by removing the modified portions of the dielectric layer. When the semiconductor device is bonded with another device (100), either a wafer or a die, laterally flowing metal collects in the reservoir openings and ensures that a reliable electrical connection is made between the semiconductor device and the other device.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 06/61737

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - H01 L 23/48 (2008.04)
USPC - 257/734

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)
USPC - 257/734, 438/667; 438/455; 438/599; 438/675;

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 257/734, 438/667; 438/455; 438/599; 438/675;

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (USPT, PGPB, EPAB, JPAT); DialogPRO (Engineering); Google Scholar
Search term: **semiconductor device, integrated circuit, IC, device, component, Interconnect\$3 layer, interlevel layer, dielectric layer, pad, opening**

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 6,887,769 B2 (KELLAR et al.) 03 May 2005 (03.05.2005), fig 2-3, col 4 In 24-26, col 5 In 25-29	1-4,7-10,12,15-20 ----- 5-6, 11,13-14
Y	US 5,817,572 A (CHIANG et al.) 06 October 1998 (06.10.1998), fig 20, col 17 In 19-30, In 52-68	5-6, 11, 14
Y	US 2002/0160596 A1 (WEINRICH et al.) 31 October 2002 (31.10.2002), para [0044]	6
Y	US 6,232,219 B1 (BLALOCK et al.) 15 May 2001 (15.05.2001), abstract	13

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

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"&" document member of the same patent family

Date of the actual completion of the international search 08 July 2008 (08.07.2008)	Date of mailing of the international search report 17 JUL 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Halpdøsk: 571-272-4300 PCTOSP: 571-272-7774