

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
19 June 2008 (19.06.2008)

PCT

(10) International Publication Number
WO 2008/073159 A3

(51) International Patent Classification:
B05D 5/12 (2006.01)

(21) International Application Number:

PCT/US2007/018121

(22) International Filing Date: 15 August 2007 (15.08.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/822,792 18 August 2006 (18.08.2006) US

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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, BH, BR, BW, BY, BZ, CA, CH, 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, 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.

(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, MT, 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).

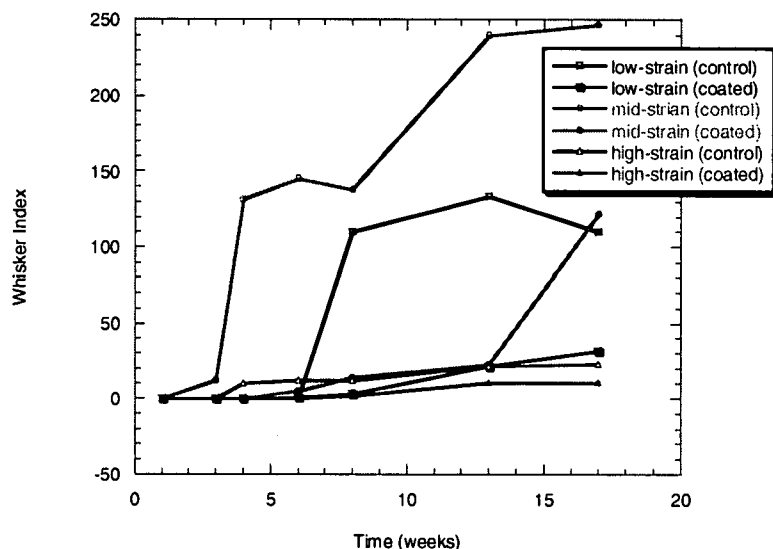
Published:

- 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

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

7 August 2008

(54) Title: NANOSCOPIC ASSURANCE COATING FOR LEAD-FREE SOLDERS



(57) Abstract: Nanoscopic silicon containing agents including polyhedral oligomeric silsesquioxane and polyhedral oligomeric silicate are used to eliminate the formation of conductive metal whiskers at the surface of lead-free solders joints and atom migration in semiconductors.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 07/18121

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - B05D 5/12 (2008.04) USPC - 427/58 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 - 427/58 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC - 427/58, 240, 387; 528/15, 25, 28; 524/266, 268 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST(USPT,PGPB,EPAB,JPAB); Google Patent; Google Search Terms Used: mixing silicon agent coating carrier metal whisker protective nanostructure electronic assembly inhibit formation solder hydrophobicity lead free joint		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0013990 A1 (CAVALLARO et al.) 20 January 2005 (20.01.2005) entire document especially paras [0007], [0013]	1-20
Y	US 6,376,769 B1 (CHUNG) 23 April 2002 (23.04.2002); col 8, ln 44-63	1-11, 13, 14, 18 and 20
Y	US 2006/0104855 A1 (ROTHSCHILD) 18 May 2006 (18.05.2006); paras [0006], [0007]	7 and 12-20
Y	US 5,753,374 A (CAMILLETTI et al.) 19 May 1998 (19.05.1998); col 2, ln 64-67	9 and 19
Y	US 5,730,851 A (ARROWSMITH et al.) 24 March 1998 (24.03.1998); col 2, ln 58-64	7 and 17
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
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Date of the actual completion of the international search 7 June 2008 (07.06.2008)		Date of mailing of the international search report 19 JUN 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 Helpdesk: 571-272-4300 PCT OSP: 571-272-7774