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(54) Title: HYBRID INTERCONNECT TECHNOLOGY

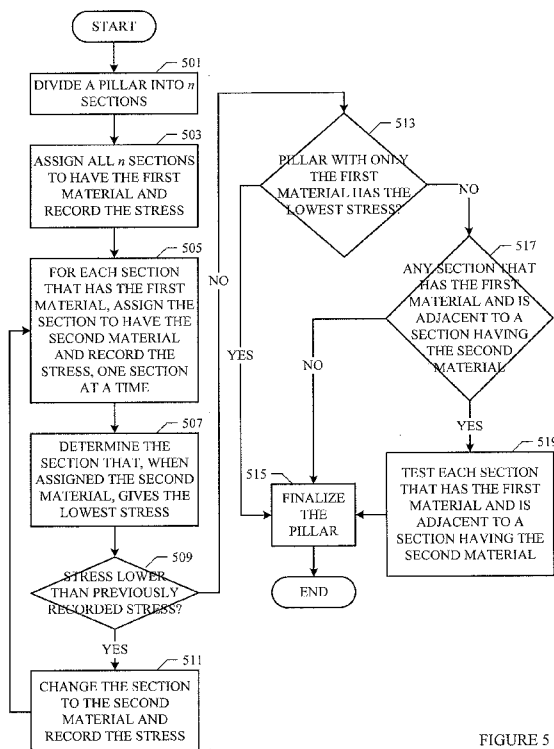


FIGURE 5

(57) Abstract: In one embodiment, an interconnect structure between an integrated circuit (IC) chip and a substrate comprises a plurality of materials. The materials used for the different sections of the interconnect structure and their arrangement are selected by determining the associated stress level of the structure.



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).

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

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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A. CLASSIFICATION OF SUBJECT MATTER

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ADD.

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)

G06F 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 practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97/41594 A1 (SHINE CARL [US]) 6 November 1997 (1997-11-06)	8-10, 12-16
Y	the whole document, in particular Figs 2A, 2B, 6 and corresponding passages lines 102-109, 176-208	1-7,11, 17-24
Y	----- US 2009/108443 A1 (JIANG HUNT HANG [US]) 30 April 2009 (2009-04-30) paragraph [0050]	7,11,23
Y	----- C. J. UCHIBORI ET AL: "Impact of Cu/low-k Interconnect Design on Chip Package Interaction in Flip Chip Package", AIP CONFERENCE PROCEEDINGS, vol. 1143, 1 January 2009 (2009-01-01), pages 185-196, XP055053451, ISSN: 0094-243X, DOI: 10.1063/1.3169258 the whole document ----- -/-	1-7, 17-24



Further documents are listed in the continuation of Box C.



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INTERNATIONAL SEARCH REPORT

International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ALURU K ET AL: "Direct simulation of fatigue failure in solder joints during cyclic shear", MATERIALS AND DESIGN, LONDON, GB, vol. 32, no. 4, 30 November 2010 (2010-11-30), pages 1940-1947, XP028132426, ISSN: 0261-3069, DOI: 10.1016/J.MATDES.2010.11.072 [retrieved on 2010-12-04] the whole document -----	1-7, 17-24

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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