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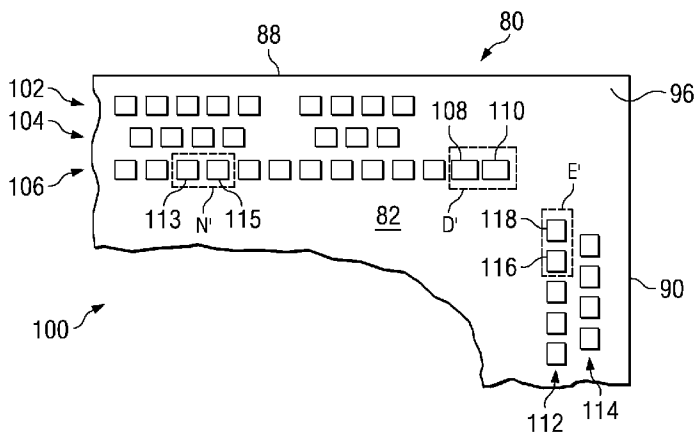
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(54) Title: METHODS AND APPARATUS FOR BONDING ELECTRICAL MEMBER TO SUBSTRATE



(57) Abstract: A bonded structure formed by connecting an electrical member to a substrate. A plurality of conductive bumps is located on the electrical member surface and a plurality of contact pads is located on a substrate. At least one of the conductive pads aligned with a non-planar area of the electrical member or substrate and having a surface area larger than a contact pad located outside the non-planar area. The conductive bumps are joined with the conductive pads.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H01L 21/4763 (2007.10)

USPC - 438/629; 257/E21.508

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: 438/629; 257/E21.508

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 438/629; 257/E21.508 (text searched)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST(USPT,PGPB,EPAB,JPAB); Google Scholar
Search terms - bump, ball, pad, non-planar, warped, bowed, wavy, size, surface area

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 5,569,960 A (Kumazawa et al.) 29 October 1996 (29.10.1996), entire document, especially Abstract; col 9, ln 25-33, col 10, ln 47-55, col 3, ln 41-52	1, 2, 5-7, 12-14 and 17 ----- 3, 4, 8-11, 15 and 16
Y	US 2005/0051352 A1 (Aoki) 10 March 2005 (10.03.2005), entire document, especially para [0007]	3, 4, 8-11, 15 and 16
A	US 5,667,132 A (Chirovsky et al.) 16 September 1997 (16.09.1997), entire document, especially col 4, ln 20-25	1-17

Further documents are listed in the continuation of Box C.

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- "A" document defining the general state of the art which is not considered to be of particular relevance
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- "&" document member of the same patent family

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