Title: INTEGRATED CIRCUIT HAVING STRUCTURAL SUPPORT FOR A FLIP-CHIP INTERCONNECT PAD AND METHOD THEREFOR

Abstract: A technique for alleviating the problems of defects caused by stress applied to bond pads (32) includes, prior to actually making an integrated circuit (10), adding dummy metal lines (74, 76) to interconnect layers (18, 22, 26) to increase the metal density of the interconnect layers. These problems are more likely when the interlayer dielectrics (16, 20, 24) between the interconnect layers are of a low-k material. A critical area or force area (64) around and under each bond pad defines an area in which a defect may occur due to a contact made to that bond pad. Any interconnect layer in such a critical area that has a metal density below a certain percentage can be the cause of a defect in the interconnect layers. Any interconnect layer that has a metal density below that percentage in the critical area has dummy metal lines added to it.
(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, TJK, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, 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).

Published:
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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

**A. CLASSIFICATION OF SUBJECT MATTER**

<table>
<thead>
<tr>
<th>IPC:</th>
<th>H01L 23/52( 2006.01), 23/48( 2006.01); H01L 21/4763( 2006.01)</th>
</tr>
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**USPC:**  257/771, E23.142, E21.575, E21.627, 438/618

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)


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).

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
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</table>

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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**Date of the actual completion of the international search**

31 January 2007 (31.01.2007)

**Date of mailing of the international search report**

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