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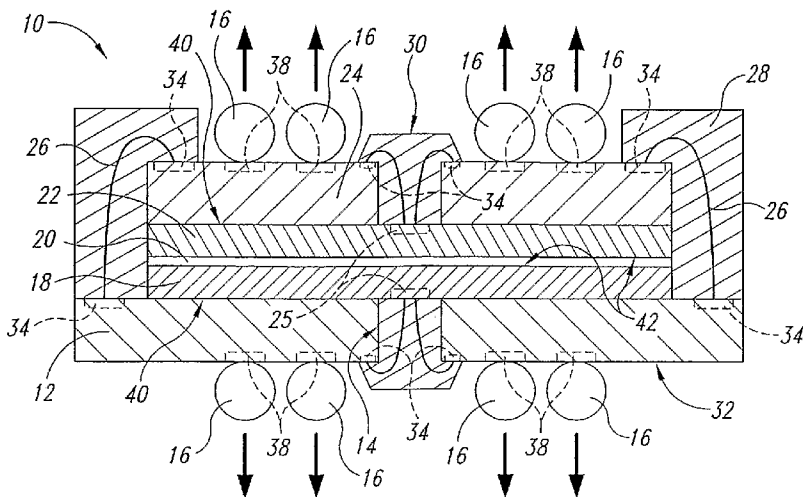
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(54) Title: MICROELECTRONIC DEVICE PACKAGES, STACKED MICROELECTRONIC DEVICE PACKAGES, AND METHODS FOR MANUFACTURING MICROELECTRONIC DEVICES



(57) Abstract: A stackable microelectronic package includes a first microelectronic die attached to and electrically connecting with a first substrate. A second microelectronic die is attached to the first die on one side, and to a second substrate on the other side. Electrical connections are made between the first die and the first substrate, between the second die and the second substrate, and between the first and second substrates, e.g., via wire bonding. The electrical connecting elements are advantageously encased in a molding compound. Exposed contacts on the first and/or second substrates, not covered by the molding compound, provide for electrical connections between the package, and another package stacked onto the package. The package may avoid coplanarity factors, can be manufactured using existing equipment, allows for intermediate testing, and can also offer a thinner package height.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2006/033219

A. CLASSIFICATION OF SUBJECT MATTER INV. H01L25/065		
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) 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 practical, 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 Y Y A	DE 102 59 221 A1 (INFINEON TECHNOLOGIES AG [DE]) 15 July 2004 (2004-07-15) figures 2,3 ----- US 2002/171136 A1 (HIRAOKA TETSUYA [JP] ET AL) 21 November 2002 (2002-11-21) figure 4 ----- US 2002/190391 A1 (ICHIKAWA SUNJI [JP]) 19 December 2002 (2002-12-19) figures 1,3 -----	1,3-6, 9-11,13 2 2 1-6, 9-11,13
<input type="checkbox"/> Further documents are listed in the continuation of Box C.		
<input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family	
Date of the actual completion of the international search <p style="text-align: center; font-weight: bold;">30 January 2007</p>	Date of mailing of the international search report <p style="text-align: center; font-weight: bold;">26 MAR 2007</p>	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer <p style="text-align: center; font-weight: bold;">Prohaska, Georg</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2006/033219

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-6,9-11,13

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6, 9-11, 13

2. claims: 8, 12, 22-55, 60-62

3. claims: 7, 14-17

4. claims: 18-21, 56-59

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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