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(54) Title: STACKABLE LEADLESS ELECTRONIC PACKAGE

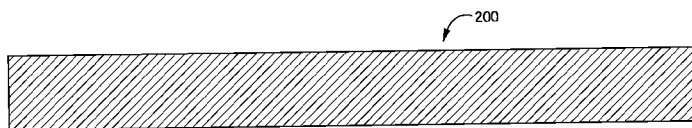


FIG. 2(A)

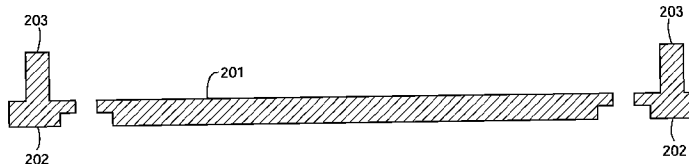


FIG. 2(B)

(57) Abstract: An electronics package is described in which a quad flat no lead (QFN) electronic package has top and bottom surfaces. The bottom surface includes bottom contact pads arranged in a first pattern for electrical connection to corresponding package contact pads of an underlying circuit structure. The top surface includes top contact pads arranged in a second pattern for electrical connection to corresponding bottom contact pads of an overlying electronic package.

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

INV. H01L23/31 H01L23/495 H01L25/10

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	DE 101 47 375 A1 (INFINEON TECHNOLOGIES AG [DE]) 24 April 2003 (2003-04-24) paragraphs [0088] - [0092]; figure 1	1-3, 7-10, 14-17,21
X	WO 2005/022591 A (ADVANCED INTERCONNECT TECHNOLO [MU]; ISLAM SHAFIDUL [US]; SAN ANTONIO) 10 March 2005 (2005-03-10) sentences 208-283; figures 5a-j	1-3, 7-10, 14-17,21
X	US 2003/042581 A1 (FEE SETHO SING [SG] ET AL FEE SETHO SING [SG] ET AL) 6 March 2003 (2003-03-06) paragraphs [0045] - [0053]; figure 6 -/--	1-3, 7-10, 14-17,21

Further documents are listed in the continuation of Box C.

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
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- *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
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- *&* document member of the same patent family

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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.
A	US 2005/173783 A1 (CHOW SENG G [SG] ET AL CHOW SENG GUAN [SG] ET AL) 11 August 2005 (2005-08-11) paragraph [0099]; figure 3C	1-3, 7-10, 14-17,21
X	DE 10 2004 048203 A1 (INFINEON TECHNOLOGIES AG [DE]) 29 December 2005 (2005-12-29) paragraphs [0010], [0023] - [0028]; figures 3-6	1,4-6,8, 11-13, 15,18-20
X	US 2001/006258 A1 (HUR KI-ROK [KR]) 5 July 2001 (2001-07-05) paragraphs [0036] - [0046], [0071] - [0078]; figures 2,5A-H	1,4,8, 11,15,18
A	US 5 726 493 A (YAMASHITA TATUROU [JP] ET AL) 10 March 1998 (1998-03-10) column 5, line 48 - column 6, line 67; figures 2,3	6,13,20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/089003

Box No. 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 No. 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 allsearchable claims.

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

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.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US2007 /089003

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-3,8-10,15-17

These claims are directed to a stackable leadless package in which top circuit contacts are provided by portions of the leadframe on which the die is mounted. Hence processing of the pedestals takes place prior to assembly of the package.

2. claims: 4-6,11-13,18-20

These claims are directed to a stackable leadless package in which top circuit contacts are provided by filled vias provided in the package. Hence the electrical connections between top and bottoms package surfaces are produced after assembly and packaging.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2007/089003

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