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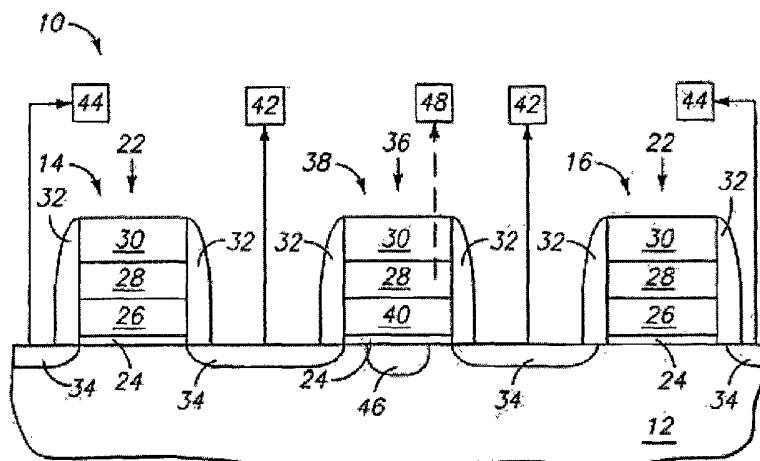
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SEMICONDUCTOR CONSTRUCTIONS WITH GATED ISOLATION REGIONS HAVING INDIUM-DOPED SUB-REGIONS



(57) Abstract: The invention includes a semiconductor construction wherein gate structures are separated by isolation regions that are provided with an indium-doped pocket and a covering gate. The invention also includes a semiconductor construction having a pair of channel regions that have sub-regions doped with indium and surrounded by boron. A pair of transistor constructions are located over the channel regions and are separated by an isolation region. The transistors have gates that are wider than the underlying sub-regions. The invention also includes a semiconductor construction that has transistor constructions with insulative spacers along gate sidewalls. Each transistor construction is between a pair source/drain regions that extend beneath the spacers. A source/drain extension extends the source/drain region farther beneath the transistor constructions on only one side of each of the transistor constructions. The invention also includes methods of forming semiconductor constructions.

INTERNATIONAL SEARCH REPORT

Internal Application No
PCT/US 03/26906

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01L21/765 H01L21/8238 H01L27/105 H01L27/108

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)

IPC 7 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, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 841 185 A (ISHIKAWA AKIO) 24 November 1998 (1998-11-24) column 3, line 25 - column 12, line 52; figures 5-7	1-3,5-9
Y	US 6 251 744 B1 (CHEN JONG ET AL) 26 June 2001 (2001-06-26) column 7, line 13 - column 8, line 18; figures 8-10	1-3,5-9
Y	US 6 331 458 B1 (STUBER ALAN L ET AL) 18 December 2001 (2001-12-18) column 1, line 19 - column 8, line 38; figures 1-5	5,6



Further documents are listed in the continuation of box C.



Patent family members are listed in 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

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21.06.2004

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/26906

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 II Observations where unity of invention is lacking (Continuation of item 2 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.:

1-9

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: 1-9

Isolation region between gate structures that has an indium-doped pocket

2. claims: 10-15

Transistors with indium-doped sub-regions in their channels

3. claims: 16-35 and 53-61

Transistors with an implant in either of source and drain regions

4. claims: 36-52 and 62-64

Method of implanting a dopant through a gap

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/26906

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