Abstract: Isolated transistors formed in a semiconductor substrate include a submerged floor isolation region and a filled trench extending downward from the surface of the substrate to the floor isolation region. Together the floor isolation region and the filled trench form an isolated pocket of the substrate. In alternative embodiments a doped sidewall region extends downward from the bottom of the trench to the floor isolation region. The substrate does not contain an epitaxial layer, thereby overcoming the many problems associated with fabricating the same.
### A. CLASSIFICATION OF SUBJECT MATTER

**HOIL 21/8249(2006.01)1**

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 HOIL 21/8249**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

- Korean Utility Models and applications for Utility Models since 1975
- Japanese Utility Models and applications for Utility Models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

- eKOMPASS(KIPO internal) &keywords "isolate, pocket, floor, isolation and the similar terms"

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Relevant to claim No</th>
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<td>X</td>
<td>US 2005/01791 11 Al(CHAO) 18 AUGUST 2005 See figure 2B, paragraph [0021] -paragraph [0024]</td>
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<td>US 6657262 B2 (PATTI) 02 DECEMBER 2003 See figure 3, column 3, line 44 -column 4, line 65</td>
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**Note:**
- * 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 application or patent but published on or after the international filing date
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- **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**

23 SEPTEMBER 2009 (23 09 2009)

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

23 SEPTEMBER 2009 (23.09.2009)

**Name and mailing address of the ISA/KR**

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**Facsimile No:** 82-42-472-7140

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