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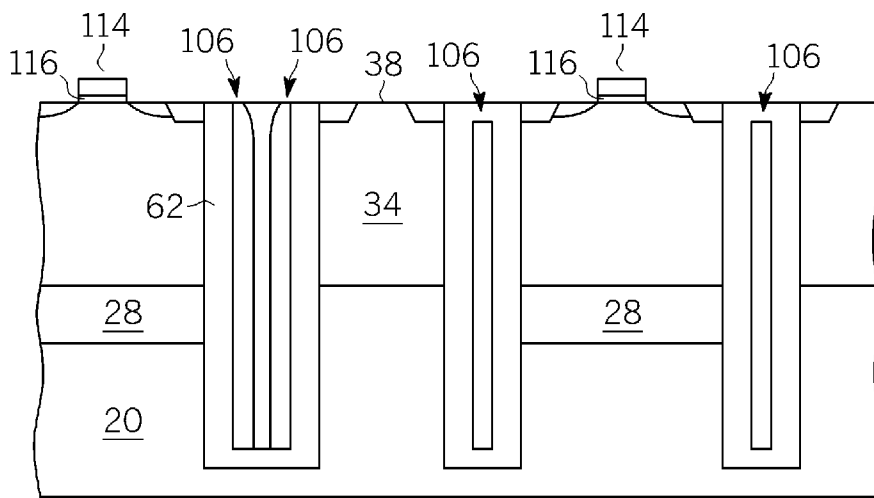
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(54) Title: SEMICONDUCTOR DEVICE WITH A MULTI-PLATE ISOLATION STRUCTURE



(57) Abstract: A microelectronic assembly and a method for constructing a microelectronic assembly are provided. The microelectronic assembly may include a semiconductor substrate with an isolation trench (62) formed therein. The isolation trench (62) may have first and second opposing inner walls (74, 76) and a floor (78). First and second conductive plates (106) may be formed over the first and second opposing inner walls (74, 76) of the isolation trench (62) respectively such that there is a gap (90) between the first and second conductive plates (106). First and second semiconductor devices (114) may be formed in the semiconductor substrate on opposing sides of the isolation trench (62). The method may include forming a trench (62) in a semiconductor substrate, forming first and second conductive plates (106) within the trench, and forming first and second semiconductor devices (114) in the semiconductor substrate on opposing sides of the trench (62).

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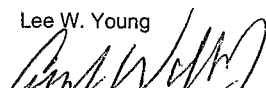
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## INTERNATIONAL SEARCH REPORT

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - H01L 21/77; H01L 21/4763 (2007.10) USPC - 438/248; 438/391 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC(8) - H01L 21/77; H01L 21/4763 (2007.10) USPC - 438/248; 438/391 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched IPC(8) - H01L 21/77; H01L 21/4763 (2007.10) - PGPB, USPT, EPAB, JPAB USPC - 438/248; 438/391 - PGPB, USPT, EPAB, JPAB Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPTO - WEST - (PGPB, USPT, EPAB, JPAB); Google Scholar Terms: "microelectronic", "trench", "conductive plates", "semiconductor", "insulating layer", "gap", "dopant", "polycrystalline silicon", "oxide", query, search, refine		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2002/0098642 A1 (HARRIS et al.) 25 July 2002 (25.07.2002), entire document, especially abstract, and para [0018].	1-20
Y	US 2004/0161931 A1 (PARTHASARATHY et al.) 19 August 2004 (19.08.2004), entire document, especially abstract, para [0024], [0025], [0028], [0030], [0031], [0033], [0034], and FIGs 2 and 8.	1-20
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* 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 "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 18 October 2007 (18.10.2007)		Date of mailing of the international search report <b>20 NOV 2007</b>
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