

**SUPPLEMENTARY  
EUROPEAN SEARCH REPORT**

Application Number  
EP 11 81 2914

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,P	US 2010/259296 A1 (OR-BACH ZVI [US]) 14 October 2010 (2010-10-14) * paragraphs [0159], [0189] - [0196], [0198], [0200], [0202], [0208]; figures 8, 8A, 20, 21, 22, 24, 29 *	1-4,11	INV. H01L21/336 H01L21/8238 H01L29/78 H01L27/092 B82Y10/00
X	US 2008/191312 A1 (OH CHOONSIK [KR] ET AL) 14 August 2008 (2008-08-14) * paragraphs [0037], [0042], [0044], [0045], [0071]; figures 1-8 *	1-4	G11C29/32 H01L21/84 H01L21/66 H01L23/48 H01L23/525
A	US 2005/067620 A1 (CHAN VICTOR [US] ET AL) 31 March 2005 (2005-03-31) * paragraph [0052]; figure 1C *	11	H01L21/683 H01L21/74 H01L21/762 H01L29/775 H01L27/105 H01L27/108 H01L29/792
X	US 2005/280155 A1 (LEE SANG-YUN [US]) 22 December 2005 (2005-12-22) * paragraphs [0024], [0026], [0028], [0031] - [0033]; figures 5, 6 *	1,11	
A	US 5 216 278 A (LIN PAUL T [US] ET AL) 1 June 1993 (1993-06-01) * column 6, line 11 - column 7, line 15; figures 6-8 *	3	TECHNICAL FIELDS SEARCHED (IPC) H01L G06G
A	US 2004/031004 A1 (YOSHIOKA KEIICHI [JP]) 12 February 2004 (2004-02-12) * paragraphs [0069] - [0074]; figure 2 *	3	
A	US 4 450 472 A (TUCKERMAN DAVID B [US] ET AL) 22 May 1984 (1984-05-22) * column 1, line 46 - line 48 *	4	
A	US 2005/282356 A1 (LEE SANG-YUN [US]) 22 December 2005 (2005-12-22) * paragraphs [0023], [0025], [0027], [0029]; figures 4-6 *	1,11	
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			
Place of search Munich		Date of completion of the search 15 March 2017	Examiner Seck, Martin
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04N04)



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Application Number  
EP 11 81 2914

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
			H01L27/24
			TECHNICAL FIELDS SEARCHED (IPC)
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			
Place of search <b>Munich</b>		Date of completion of the search <b>15 March 2017</b>	Examiner <b>Seck, Martin</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  &amp; : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04N04)

### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present (supplementary) European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present (supplementary) European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present (supplementary) European search report has been drawn up for those parts of the European patent application which relate to the first mentioned in the claims, namely claims:

1-4, 11

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4, 11

Formation of 3DICs: implant a doped layer in donor wafer before layer transfer, and form transistor gates after layer transfer

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2. claims: 5, 6, 14

Form different 3DICs with common masks

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3. claim: 7

Concurrent patterning of two monocrystalline layers

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4. claims: 8, 12

Thermal conduction path, e. g. comprising through-layer-vias, from a second device layer in a 3DIC to a heat sink

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5. claims: 9, 10

Partitioning in 3D semiconductor device comprising logic circuits

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6. claims: 13, 15

3DIC with three metal layers between two device layers, the third metal layer having a tighter pitch than a second metal layer

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 81 2914

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

15-03-2017

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