Form PTO-1595 (Rev. 06-12)
OMB No. 0651-0027 (exp. 04/30/2015)

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RECORDATION FORM C

ATENT	S C 103664745
To the Director of the U.S. Patent and Trademark Office: Pleas	e record the attached documents or the new address(es) below.
1. Name of conveying party(ies) Byung-lyul Park (Nov. 29, 2013) Gil-heyun Choi (Dec. 4, 2013) Suk-chul Bang (Nov. 29, 2013) Kwang-jin Moon (Nov. 30, 2013)	2. Name and address of receiving party(ies) Name: Samsung Electronics Co., Ltd. Internal Address:
Additional name(s) of conveying party(ies) attached? Yes No	
3. Nature of conveyance/Execution Date(s): Execution Date(s) See dates next to names above.	Street Address: 129, Samsung-ro, Yeongtong-gu
■ Assignment	ou. Suwon si
Security Agreement Change of Name	City: Suwon-si
Joint Research Agreement	State: Gyeonggi-do
Government Interest Assignment	Country: Republic of Korea Zip: 443-742
Executive Order 9424, Confirmatory License	Country. 12
Other	Additional name(s) & address(es) attached? Yes No
4. Application or patent number(s):	document serves as an Oath/Declaration (37 CFR 1.63). B. Patent No.(s)
13/627,790	
Additional numbers att	ached? Yes No
5. Name and address to whom correspondence concerning document should be mailed:	6. Total number of applications and patents involved: 1
Name: Law Office of Monica H. Choi	7. Total fee (37 CFR 1.21(h) & 3.41) \$40
Internal Address:	, , ,
	Authorized to be charged to deposit account
Street Address: P.O. Box 3424	■ Enclosed
	None required (government interest not affecting title)
City: Dublin	8. Payment Information
State: OH Zip: 43017	
Phone Number: 614-789-0240	(10/10/10/10/10/10/10/10/10/10/10/10/10/1
Docket Number: S10-01B	Deposit Account Number M 03003074 13427700 01 FC:0321
Email Address: mchoi1@columbus.rr.com	Authorized User Name 40.60 CC
9. Signature: Thomaca H. Cho	December 9, 2013
Signature	Data
Signature Monica H. Choi Name of Person Signing	Total number of pages including cover sheet, attachments, and documents:



RECORDATION FORM COVER SHEET

PATENTS ONLY To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below. 1. Name of conveying party(ies) 2. Name and address of receiving party(ies) Name: Samsung Electronics Co., Ltd. Dong-chan Lim (Dec. 2, 2013) Deok-young Jung (Dec. 4, 2013) Internal Address: Additional name(s) of conveying party(ies) attached? Yes Street Address: 129, Samsung-ro, Yeongtong-gu 3. Nature of conveyance/Execution Date(s): Execution Date(s) See dates next to names above. ■ Assignment Merger Citv: Suwon-si Change of Name Joint Research Agreement State: Gyeonggi-do Government Interest Assignment Zip: 443-742 Country: Republic of Korea Executive Order 9424, Confirmatory License Other Additional name(s) & address(es) attached? Yes No 4. Application or patent number(s): This document serves as an Oath/Declaration (37 CFR 1.63). A. Patent Application No.(s) B. Patent No.(s) 13/627,790 Additional numbers attached? Yes No 5. Name and address to whom correspondence 6. Total number of applications and patents concerning document should be mailed: involved: 1 Name: Law Office of Monica H. Choi **7. Total fee** (37 CFR 1.21(h) & 3.41) \$40 Internal Address: Authorized to be charged to deposit account ■ Enclosed Street Address: P.O. Box 3424 None required (government interest not affecting title) City: Dublin 8. Payment Information _Zip:_43017 State: OH Phone Number: 614-789-0240 Deposit Account Number Docket Number: S10-01B Authorized User Name Email Address: mchoi1@columbus.rr.com 9. Signature: December 9, 2013 Date Monica H. Choi Total number of pages including cover sheet, attachments, and documents: Name of Person Signing Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:

Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

PATENT REEL: 032063 FRAME: 0691

COMBINED DECLARATION (37 CFR §1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM¹

The undersigned acknowledges that this document is being used both as an assignment of the invention and as the declaration (37 CFR 1.63) for a Utility or Design Application. WHEREAS, the undersigned, hereinafter referred to collectively as Assignor, has invented: Semiconductor Device and Method of Fabricating the Same Title: for which Assignor is about to make or has made United States or International application for patent. WHEREAS, as a below named inventor(s), I/(we) hereby declare that: Section I. Declaration This declaration is directed to: The attached U.S. non-provisional patent application, or U.S. non-provisional patent application number 13/627,790, filed on September 26, 2012, or PCT international patent application number ___ The above-identified application was made or authorized to be made by me (us). I (we) believe that I am (we are) the original inventor (original joint inventors) of a claimed invention in the above-identified application. I (we) hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. This form requires the use of an Application Data Sheet. SEC Ref No. IE-201004-023-1-US2 Attorney Ref No. COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM

Page 1 of 5

REEL: 032063 FRAME: 0692

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SAMSUNG ELECTRONICS CO., LTD.

I hereby state that I have reviewed and understand the contents of the above identified application, including the claims.

I acknowledge that I am aware of the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56.

Section II. Assignment

In consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration paid to each of the undersigned, the undersigned hereby sell(s) and assign(s) to

Samsung Electronics Co., Ltd.

having an address at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 443-742, Republic of Korea (hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in Section I of this document.

Assignor hereby confirms any prior assignment to Assignee, and to the extent that Assignor has not already done so, agrees to assign, and hereby does, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

Assignor hereby covenants and agrees to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, re-

SEC Ref No.	IE-201004-023-1-US2	Attorney Ref No.	S10-03B

COMBINÉD DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM

examination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

Assignor hereby covenants that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the United States Patent and Trademark Office to issue the Letters Patent of the United States of America to Assignee, and requests that any official of any country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue the Letters Patent, Utility Model Registration or other similar right to Assignee.

The undersigned hereby grant(s) the law firm of Law Office of Monica H. Choi, Co., LPA the power to insert on this Declaration and Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

Section III. Inventor(s)/Assignor(s) Signature(s)

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIRST INVENTOR/ASSIGNOR	Park	Byung-lyul	
SIGNATURE	Park, Byung-	DATE	11/29/2013
SIGNATURE	vari, ryury	<u>cy</u>	7-11-12

SEC Ref No.	IE-201004-023-1-US2	Attorney Ref No.	S10-03B
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COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
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LEGAL NAME OF	Family Name	First Given Name	Second Given Name
SECOND INVENTOR/ASSIGNOR	Choi	Gil-heyun	
SIGNATURE G	sil-heyan Chai	DATE 	12/04/2013
3.0			

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
THIRD INVENTOR/ASSIGNOR	Bang	Suk-chul	
SIGNATURE	Bung. Suk-ch	DATE	11/29 /2013

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FOURTH INVENTOR/ASSIGNOR	Moon	Kwang-jin	
SIGNATURE	Kwang-jin Moon	DATE	11/30/2013

			-	
SEC Ref No.	IE-201004-023-1-US2	Attorney Ref No	S10-03B	

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
Page 4 of 5

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SAMSUNG ELECTRONICS CO., LTD.

Family Name	First Given Name	Second Given Name
Lim	Dong-chan	
Dongchan Lim	DATE	12/02/2013
_	Lim	Lim Dong-chan

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
SIXTH INVENTOR/ASSIGNOR	Jung	Deok-young	
	Jook Young	DATE	12/4/2013_

SEC Ref No. ______ IE-201004-023-1-US2 _____ Attorney Ref No. _____ S10-03B

COMBINED DECLARATION (37 CFR 1.63) FOR UTILITY PATENT APPLICATION AND ASSIGNMENT FORM
Page 5 of 5

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RECORDED: 12/13/2013