	<b>REC</b> 07-16	5-2009 IEET "U.S. DEPARTMENT OF COMM Patent and Trademark
(Rev. 6-93) 12/458	3218	
DMB No. 0651-0011 (exp. 4/94) 07/06/		
To the Honorable Commissioner of Pa	atents a. 1035	67330ched original documents or copy there
1. Name of conveying party(ies):		2. Name and address of receiving party(ies):
Wook-Hyun KWON, Byung-Gook Yoon KIM Additional name(s) of conveying party(ie		Name: Samsung Electronics Co., Ltd. Internal Address: Street Address: 416 Maetan-dong, Yeongtong-gu, City: Suwon-si, Gyeonggi-do, REPUBLIC OF KOREA
3. Nature of conveyance:	<u></u>	Additional name(s) & address(es) attached? No
X Assignment Mer	rger ge of Name	
Execution Date: June 23, 2009, July 1	1, 2009, July 2, 2009	
4. Application number(s) or patent num	ber(s):	
If this document is being filed togethe 2009	er with a new application, the e	execution date of the application is: June 23, 2009, July 1, 2009, Ju
A. Patent Application No.(s)		B. Patent No.(s)
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	Additional num	l nbers attached? <u>No</u>
5. Name and address of party to whom of		6. Total number of applications and patents
document should be mailed:	-	involved: One
Name: <u>Eugene M. Lee</u> Internal Address: <u>LEE &amp; MORSE,</u> Street Address: <u>3141 Fairview Parl</u>	Corive, Suite 500	
City: Falls Church, State: VA ZIP:	22042	
City: Falls Church, State: VA ZIP.	. 22042	7. Total fee (37 C.F.R. 3.41)\$40.00
City: Falls Church, State: VA ZIP	. <u>22042</u>	<ul> <li>7. Total fee (37 C.F.R. 3.41)\$40.00</li> <li>X Enclosed (PTO-2038)</li> <li>X Authorized to be charged to deposit account any add fees</li> </ul>
City: Falls Church, State: VA ZIP	. <u>22042</u>	<ul> <li>X Enclosed (PTO-2038)</li> <li>X Authorized to be charged to deposit account any add</li> </ul>
City: Falls Church, State: VA ZIP	: <u>77047</u>	<ul> <li>X Enclosed (PTO-2038)</li> <li>X Authorized to be charged to deposit account any add fees</li> <li>8. Deposit account number: <u>5-01645</u></li> </ul>
City: Falls Church, State: VA ZIP		<ul> <li>X Enclosed (PTO-2038)</li> <li>X Authorized to be charged to deposit account any add fees</li> </ul>
<ol> <li>Statement and signature.</li> </ol>	DO NOT U	<ul> <li>X Enclosed (PTO-2038)</li> <li>X Authorized to be charged to deposit account any add fees</li> <li>8. Deposit account number: <u>5-01645</u> <ul> <li>(Attach duplicate copy of this page if paying by deposit a</li> </ul> </li> <li>SE THIS SPACE</li> </ul>
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<ul> <li>9. Statement and signature. To the best of my knowledge and bel</li> </ul>	<b>DO NOT U</b> lief, the foregoing information	<ul> <li>X Enclosed (PTO-2038)</li> <li>X Authorized to be charged to deposit account any add fees</li> <li>8. Deposit account number: <u>5-01645</u> <ul> <li>(Attach duplicate copy of this page if paying by deposit a</li> </ul> </li> <li>SE THIS SPACE         <ul> <li>is true and correct and any attached copy is a true copy of the original structure of the original structure</li></ul></li></ul>
<ul> <li>9. Statement and signature. To the best of my knowledge and bel document.</li> <li>Lilia C. Lord Name of Person Signing</li> </ul>	<b>DO NOT U</b> lief, the foregoing information	<ul> <li>X Enclosed (PTO-2038)</li> <li>X Authorized to be charged to deposit account any add fees</li> <li>8. Deposit account number: <u>5-01645</u></li> <li>(Attach duplicate copy of this page if paying by deposit a</li> <li>SE THIS SPACE</li> </ul>
<ul> <li>9. Statement and signature. <i>To the best of my knowledge and bel</i> <i>document.</i> </li> <li><u>Lilia C. Lord</u> Name of Person Signing Attorney Docket No. 239/266     </li> </ul>	DO NOT U	<ul> <li>X Enclosed (PTO-2038)</li> <li>X Authorized to be charged to deposit account any add fees</li> <li>8. Deposit account number: <u>5-01645</u> <ul> <li>(Attach duplicate copy of this page if paying by deposit a</li> </ul> </li> <li>SE THIS SPACE         <ul> <li>is true and correct and any attached copy is a true copy of the original function of the deposition o</li></ul></li></ul>
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PATENT REEL: 022963 FRAME: 0962 e (i) 7

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## ASSIGNMENT

Name and Address of Assignce	For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor has sold and assigned, and by these presents hereby sells and assigns, unto SAMSUNG ELECTRONICS CO., LTD., 416, Maetan-dong, Yeongtong-gu Suwan-si, Gyeonggi-do, Republic of Korea
	(hereinafter ASSIGNEE) all right, title and interest for the United States, its territories and possessions in and to his invention relating to

Title of Invention	SEMICONDUCTOR DEVICE AND METHODS OF FORMING AND OPERATING THE SAME
	as set forth in this United States Patent Application
	C executed concurrently herewith

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	Serial No. Filed

in and to said United States Patent Application including any and all divisions or continuations thereof and in and to any and all Letters Patent of the United States which may issue on any such application or for said invention, including any and all reissues or extensions thereof, to be held and enjoyed by said ASSIGNEE, its successors, legal representatives and assigns to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by the undersigned had this Assignment not been made;

Each of the undersigned hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all such Letters Patent to said ASSIGNEE, its successors or assigns in accordance herewith;

Each of the undersigned warrants and covenants that he has the full and unencumbered right to sell and assign the interests herein sold and assigned and that he has not executed and will not execute any document or instrument in conflict herewith;

Each of the undersigned further covenants and agrees he will communicate to said ASSIGNEE, its successors, legal representatives or assigns all information known to him relating to said invention or patent application and that he will execute and deliver any papers, make all rightful oaths, testify in any legal proceedings and perform all other lawful acts deemed necessary or desirable by said ASSIGNEE, its successors, legal representatives or assigns to perfect the to said invention, to said application including divisions and continuations thereof and to any and all Letters Patent which may be granted therefore or thereon, including reissues or extensions, in said ASSIGNEE, its successors, or assigns or to assist said ASSIGNEE, its successors, legal representatives or assigns in obtaining, reissuing or enforcing Letters Patent of the United States for said invention;

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NAMES AND SIGNATURES OF INVENTORS			
Name: Wook-Hyun KWON	Signature: for 2 R	Date: 7/2/2009	
Name: Byung-Gook PARK	Signature:	Date:	
Name: Yun-Heub SONG	Signature:	Date:	
Name: Yoon KIM	Signature:	Date:	
NAMES AND SIGNATURES OF WITNESSES			
Name:	Signature:	Date:	
Name:	Signature:	Date:	

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Name: Wook-Hyun KWON	Signature:	Date:	
Name: Byung-Gook PARK	Signature:	Date:	
Name: Yun-Heub SONG	Signature: V. M. Son	Date: 20.9.21	
Name: Yoon KIM	Signature:	Date:	
NAMES AND SIGNATURES OF WITNESSES			
Name:	Signature:	Date:	
Name:	Signature:	Date:	

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> PATENT REEL: 022963 FRAME: 0964

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Name: Yun-Heub SONG	Signature:	Date:		
Name: Yoon KIM	Signature: Margan	Date: 2009, 6, 23		
NAMES AND SIGNATURES OF WITNESSES				
Name:	Signature;	Dutc:		
Name:	Signature:	Date:		

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**RECORDED: 07/06/2009**