

## PATENT ASSIGNMENT

Electronic Version v1.1  
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SUBMISSION TYPE:	NEW ASSIGNMENT								
NATURE OF CONVEYANCE:	ASSIGNMENT								
CONVEYING PARTY DATA									
<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Sua KIM</td> <td>07/13/2012</td> </tr> <tr> <td>Jin Ho KIM</td> <td>07/18/2012</td> </tr> <tr> <td>Chulwoo PARK</td> <td>07/13/2012</td> </tr> </tbody> </table>		Name	Execution Date	Sua KIM	07/13/2012	Jin Ho KIM	07/18/2012	Chulwoo PARK	07/13/2012
Name	Execution Date								
Sua KIM	07/13/2012								
Jin Ho KIM	07/18/2012								
Chulwoo PARK	07/13/2012								
RECEIVING PARTY DATA									
Name:	SAMSUNG ELECTRONICS CO., LTD.								
Street Address:	129, Samsung-ro, Yeongtong-gu								
City:	Suwon-si, Gyeonggi-do								
State/Country:	KOREA, REPUBLIC OF								
Postal Code:	443-742								
PROPERTY NUMBERS Total: 1									
<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13586018</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13586018				
Property Type	Number								
Application Number:	13586018								
CORRESPONDENCE DATA									
Fax Number:	5166928889								
Phone:	516-692-8888								
Email:	mail@chauiplaw.com								
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.</i>									
Correspondent Name:	F. CHAU & ASSOCIATES, LLC								
Address Line 1:	130 WOODBURY ROAD								
Address Line 4:	WOODBURY, NEW YORK 11797								
ATTORNEY DOCKET NUMBER:	8836-802								
NAME OF SUBMITTER:	Frank Chau								
Total Attachments: 3 source=8836-802_Assignment#page1.tif source=8836-802_Assignment#page2.tif source=8836-802_Assignment#page3.tif									

OP \$40.00 13586018

ASSIGNMENT DOCKET NO.: 8836-802 (ID-210972-US)

AS A BELOW NAMED INVENTOR, I, and each of us, individually hereby declare that: IN CONSIDERATION of the sum of TEN (\$10.00) dollars or the equivalent thereof, and other good and valuable consideration, the receipt of which from the hereinafter named Assignee is hereby acknowledged, I do hereby sell, assign and forever grant and convey unto:

ASSIGNEE: Samsung Electronics Co., Ltd.

ADDRESS: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-742,  
Republic of Korea

Who is my Assignee, and to the successes and assigns of my Assignee, all my right, title and interest, in and for the United States of America and all other countries, including all rights of priority, in and to the invention entitled:

TITLE: SEMICONDUCTOR DEVICES INCLUDING A VERTICAL CHANNEL  
TRANSISTOR AND METHODS OF FABRICATING THE SAME

invented by me (if only one inventor is named below) or us (if more than one inventor is named below) and described in an application for a United States patent the specification of which is either attached hereto or otherwise accompanies this Assignment or indicates an attorney docket no.: 8836-802 (ID-210972-US) or is more particularly identified as:

\_\_\_\_\_ executed on even date herewith, or

\_\_\_\_\_ Serial No. \_\_\_\_\_ filed in the U.S. Patent & Trademark Office on \_\_\_\_\_,  
or

\_\_\_\_\_ executed on \_\_\_\_\_,

and in and to all United States patents which may be granted thereon and therefore, and in and to all certificates of corrections, divisions, continuations, continuations-in-part, reissued and re-examined patents, and to any extensions thereof, said interest being the entire ownership of the patent when granted, to be held and enjoyed by said **SAMSUNG ELECTRONICS CO., LTD.**, my Assignee, its successors, assigns or other legal representatives, to the full end of the term, terms, or any extension or renewal thereof, for which said patent or patents may be granted, as fully and entirely as the same would have been held and enjoyed by me or us if this assignment, sale and conveyance had not been made;

AND I hereby covenant and agree to sign and execute any further documents or instruments which may from time-to-time be either necessary, lawful, proper or requested by the Assignee, in the prosecution of the above-named application or in the preparation and prosecution of any certificate of correction, division, continuation, continuation-in-part, reissue, re-examination, in any amendment, extension, or interference proceeding, whether administrative or judicial, or otherwise, to secure the title hereto in said Assignee;

AND I do hereby authorize and request the Commissioner of Patents and Trademarks to issue said Patent or Patents to the Assignee, and I hereby appoint as my, or our attorney, and authorize and request Frank Chau, Reg. No. 34,136, to insert on this Assignment any further identification or to complete such identification which may be either necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

PATENT

REEL: 028789 FRAME: 0445

IN WITNESS WHEREOF, I and we have set our hands and seals on the dates written beside my and our respective names:

<u>INVENTOR(S)</u>	<u>Date Signed</u>
1) <u>Sua Kim</u> Sua Kim	<u>July 13 '12</u>
2) _____ Jin Ho Kim	_____
3) <u>Chul Woo Park</u> Chulwoo Park	<u>July 13 '12</u>

IN WITNESS WHEREOF, I and we have set our hands and seals on the dates written beside my and our respective names:

INVENTOR(S)

Date Signed

1) \_\_\_\_\_  
Sua Kim

\_\_\_\_\_

2) 김진호  
Jin Ho Kim

07-18-2012

3) \_\_\_\_\_  
Chulwoo Park

\_\_\_\_\_