

PATENT ASSIGNMENT

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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>Ji-Do Ryu</td> <td>01/10/2012</td> </tr> <tr> <td>Hee-Seog Jeon</td> <td>01/10/2012</td> </tr> <tr> <td>Hyun-Khe Yoo</td> <td>01/10/2012</td> </tr> <tr> <td>Yong-Suk Choi</td> <td>01/10/2012</td> </tr> </tbody> </table>		Name	Execution Date	Ji-Do Ryu	01/10/2012	Hee-Seog Jeon	01/10/2012	Hyun-Khe Yoo	01/10/2012	Yong-Suk Choi	01/10/2012
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RECEIVING PARTY DATA											
Name:	Samsung Electronics Co., Ltd.										
Street Address:	416 Maetan-dong										
Internal Address:	Yeongtong-gu, Suwon-si										
City:	Gyeonggi-do										
State/Country:	REPUBLIC OF KOREA										
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>13352194</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13352194						
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Application Number:	13352194										
CORRESPONDENCE DATA											
Fax Number:	(919)854-1401										
Phone:	919-854-1400										
Email:	sfreedman@myersbigel.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:	Susan E. Freedman/MBSS										
Address Line 1:	PO BOX 37428										
Address Line 4:	RALEIGH, NORTH CAROLINA 27627										
ATTORNEY DOCKET NUMBER:	5649-3383										
NAME OF SUBMITTER:	Susan E. Freedman										
Total Attachments: 5											

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ASSIGNMENT

THIS ASSIGNMENT, made by us, **Ji-Do Ryu**, citizen of the Republic of Korea, residing at 106-1601, Maetan e-Pyeonhansesang Apt., Maetan 2-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea; **Hee-Seog Jeon**, citizen of the Republic of Korea, residing at 1159-11, Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea; **Hyun-Khe Yoo**, citizen of the Republic of Korea, residing at 615-1402, Sinnamusil Kukdong Apt., Yeongtong -dong, Paldal-gu, Suwon-si, Gyeonggi-do, Republic of Korea; and **Yong-Suk Choi**, citizen of the Republic of Korea, residing at 346-1902, Dongtan Sibeom Daeunmaeul World Apt., Bansong-dong, Hwaseong-si, Gyeonggi-do, Republic of Korea;

WITNESSETH: That,

WHEREAS, we are the joint inventors of certain new and useful improvements in **SEMICONDUCTOR DEVICES HAVING ASYMMETRIC DOPED REGIONS AND METHODS OF FABRICATING THE SAME**, for which an application for United States Letters Patent has been filed, or is being filed concurrently, in the United States Patent and Trademark Office. We hereby authorize and request Myers Bigel Sibley & Sajovec, P.A., to insert here in parentheses (Application No. 13/352,194 , filed 01-17-2012) the filing date and application number of said application when known or to file this Assignment concurrently with the application, and

WHEREAS, **Samsung Electronics Co., Ltd.**, a Korean corporation having a principal place of business at 416 Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, Republic of Korea, hereinafter referred to as assignee, is desirous of acquiring the entire right, title and interest in and to said invention as described in said application, and in and to any and all Letters Patent which shall be granted therefor in the United States of America and all foreign countries;

NOW, THEREFORE, To Whom It May Concern, be it known that for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, we have sold and by these presents do hereby sell, assign, transfer and convey unto the said assignee, its successors and assigns, the entire right, title and interest in and to the said invention and application, and in and to any and all continuations, continuations-in-part, or divisions thereof, and in and to any and all Letters Patent of the United States of America and all foreign countries or reissues thereof which may be granted therefor or thereon, for the full end of the term for which said Letters Patent may be granted, together with the right to claim the priority of said application in all foreign countries in accordance with the International



ASSIGNMENT - CONTINUED

Convention, the same to be held and enjoyed by said assignee, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by us if this assignment and sale had not been made.

We hereby request that said Letters Patent be issued in accordance with this assignment.

We further covenant and agree that, at the time of the execution and delivery of these presents, we possess full title to the invention and application above-mentioned, and that we have the unencumbered right and authority to make this assignment.

We further covenant and agree to bind our heirs, legal representatives and assigns, promptly to communicate to said assignee or its representatives any facts known to us relating to said invention, to testify in any interference or legal proceedings involving said invention, to execute any additional papers which may be requested to confirm the right of the assignee, its representatives, successors or assigns to secure patent or similar protection for the said invention in all countries and to vest in the assignee complete title to the said invention and Letters Patent, without further compensation, but at the expense of said assignee, its successors, assigns and other legal representatives.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 10 day of January, 2012.

Ji-Do Ryu (SEAL)
Ji-Do Ryu

Witnessed by:

Bong Sang Lee

Date: 2012. 1. 10



ASSIGNMENT - CONTINUED

IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 10 day
of Jan, 2017.

HEE SEOG JEON (SEAL)
Hee-Seog Jeon

Witnessed by:

Boing Sang Lee

Date: 2017.1.10



ASSIGNMENT - CONTINUED

IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 10 day
of January, 2012.

Hyun-Khe Yoo (SEAL)
Hyun-Khe Yoo

Witnessed by:

Bong Sang Lee

Date: 2012. 1. 10



ASSIGNMENT - CONTINUED

IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 10 day
of January, 2012.

Yong Suk Choi (SEAL)
Yong-Suk Choi

Witnessed by:

Bong Sang Lee

Date: 2012 1.10

SEAL

SEAL

