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PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4991524

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
JONGHAN LEE	04/26/2018
WANDON KIM	04/27/2018
JAEYEOL SONG	04/26/2018
JEONGHYUK YIM	04/26/2018
HYUNGSUK JUNG	04/26/2018

RECEIVING PARTY DATA

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State/Country:	KOREA, REPUBLIC OF	
Postal Code:	16677	

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	15990983	

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NAME OF SUBMITTER:	ALYSA N. YOUNGSON	
SIGNATURE:	/Alysa N. Youngson/	
DATE SIGNED:	06/05/2018	

Total Attachments: 4

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PATENT REEL: 045988 FRAME: 0988

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> PATENT REEL: 045988 FRAME: 0989

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 understand bassing

has invente	the undersigned, hereinafter referred to individually and collectively as Assignor, ed:
Title:	SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME
for which A for patent.	Assignor is about to make or has made United States or International application
WHEREAS,	as a below named inventor(s), I/(we) hereby declare that:
Section I. D	Declaration
This declara	ation is directed to:
\boxtimes	The attached U.S. non-provisional patent application, or
	U.S. non-provisional patent application number, filed on, or
	PCT international patent application number, filed on
The above-i	identified application was made or authorized to be made by me (us).
	ve that I am (we are) the original inventor (original joint inventors) of a claimed the above-identified application.
	eby acknowledge that any willful false statement made in this declaration is under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years,
	by state that I (we) have reviewed and understand the contents of the above pplication, including the claims.
	owledge that I (we) am (are) aware of the duty to disclose information which is patentability as defined in 37 C.F.R. § 1.56.
1 This form re	equires the use of an Application Data Sheet.
SEC Ref No.	IE-201708-031-1-US0 Attorney Ref No. SAM-56127

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

PATENT REEL: 045988 FRAME: 0990

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 16677, Republic of Korea (hereinafter designated as the Assignee), the entire (100%) right, title and interest for the United States as defined in 35 U.S.C. § 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-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.

SEC Ref No.	IE-201708-031-1-U50	Attorney Ref No.	SAM-56127

The undersigned hereby grant(s) the law firm of Muir Patent Law, PLLC 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 NVENTOR/ASSIGNOR	LEE	JONGHAN	
		1	<u> </u>
SIGNATURE	Tabas les	D 4 77	2018.64.26

LEGAL NAME OF	Family Name	First Given Name Second Given Na
SECOND INVENTOR/ASSIGNOR	KIM	WANDON
		V91 0 X4122388932
SIGNATURE	Wandon Kim	DATE 2018.04.27

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
THIRD INVENTOR/ASSIGNOR	SONG	JAEYEOL	
			i
SIGNATURE	Jacyed Song	DATE	2018, 4,26
	<i>₹</i>		

SEC Ref No. <u>IE-201708-031-1-USO</u> Attorney Ref No. <u>SAM-56127</u>

JEONGHYUK
Yrm DATE 218.4.26

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
FIFTH INVENTOR/ASSIGNOR	JUNG	HyungSuk	2
			<u> </u>
SIGNATURE	gurg GCK Jang	DATE	25H U Z
SIGNATURE	3.4 mex	DAIE	

SEC Ref No. IE-201708-031-1-USO Attorney Ref No. SAM-56127

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