504934335 05/29/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4981081

SUBMISSION TYPE:			NEW ASSIGNMENT		
ATURE OF CONVEYANCE: ASSIGNMENT					
CONVEYING PARTY DA	ТА				
			Name	Execution Date	
SUNG-MIN HWANG				03/02/2018	
JOON-SUNG LIM				03/02/2018	
GILSUNG LEE				03/02/2018	
EUNSUK CHO				03/02/2018	
RECEIVING PARTY DAT	A				
Name:	SAMS	UNG E	ELECTRONICS CO., LTD.		
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City:	SUWC	N-SI,	, GYEONGGI-DO		
State/Country:	KORE	A, RE	PUBLIC OF		
Postal Code:	16677				
PROPERTY NUMBERS T	otal: 1				
Property Type			Number]	
Application Number:		1598	39477	-	
				J	
CORRESPONDENCE DA	TA				
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ATTORNEY DOCKET NUMBER:			8947-001256-US		
NAME OF SUBMITTER:			JOHN A. CASTELLANO REG. NO.: 35,094		
SIGNATURE:			/John A. Castellano/		
DATE SIGNED:			05/29/2018	05/29/2018	
Fotal Attachments: 4			-		
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PATENT REEL: 045921 FRAME: 0852

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:

Title: SEMICONDUCTOR MEMORY DEVICE AND METHOD OF MANUFACTURING THE SAME

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 declarati	on is directed to:	
\boxtimes	The attached U.S. non-provisional patent application, or	
	U.S. non-provisional patent application number	, filed
	PCT international patent application number	, filed on

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.

	1 This form requi	ires the use of an Application Data S	heet.	
	SEC Ref No.	IC-201705-002-1-US0	Attorney Ref No.	8947-001256-US
	COMBINED DEC	LARATION (37 CFR 1.63) FOR UT Pa	ILITY PATENT APPLICATION ge_of 4	AND ASSIGNMENT FORM
∃ash PA§	哥(메모리)/황성민/080	23061/2018-02-28 17:43	휭성민 Senior Engineer REEI	PATENT /Flash pA 600 231/2018 02-28 L: 045921 FRAME: 085

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 16677, 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,

2

SEC Ref No.

IC-201705-002-1-US0

Attorney Ref No. 8947-(

8947-001256-US

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

황성민 Senior Engineer/Flash PA 팀(메모르))/2018-02-28 REEL: 045921 FRAME: 0854 divisional, renewal or substitute thereof, and as to letters patent any reissue, reexamination, 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 Harness, Dickey & Pierce, P.L.C. 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	Flash HWANG PERIO	Sung-Min	
SIGNATURE	Sungain Awang	DATE	3/2/2018

3				
SEC Re	ef No.	IC-201705-002-1-US0	Attorney Ref No.	8947-001256-US
COMB	INED DEC	LARATION (37 CFR 1.63) FOR UT	FILITY PATENT APPLICATION age of 4	AND ASSIGNMENT FORM
Flash PA튐(메모리)/	황성민/08(023051/2018-02-28 17:43	황성민 Senior Engineer, REFL	PATENT /Flash PA (1019-01/2018-02-28 _: 045921 FRAME: 0855

LEGAL NAME OF SECOND	Family Name	First Given Name	Second Given Name
	LIM	Joon-Sung	
SIGNATURE	20	DATE	1P. 3. 2

LEGAL NAME OF	Family Name	First Given Name	Second Given Name
THIRD INVENTOR/ASSIGNOR	LEE	Gilsung	
SIGNATURE	1244	DATE	3/2/2018

LEGAL NAME OF FOURTH	Family Name	First Given Name	Second Given Name
INVENTOR/ASSIGNOR	СНО	Eunsuk	
SIGNATURE	CHIP EUNGUL	DATE	3/2/2018

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4			
SEC Ref No.	IC-201705-002-1-US0	Attorney Ref No	8947-001256-US
COMBINED DEC	CLARATION (37 CFR 1.63) FOR UT Pr	TILITY PATENT APPLICATION age of 4	AND ASSIGNMENT FORM
팀(메모리)/황성민/08(ORDED: 05/2	023061/2018-02-28_17:43 9/2018	황경민 Senior Engineer, REEI	/Flash PRATENT L: 045921 FRAME: 0856