401 Dulany Street Alexandria, VA 22314			Atty. Docket No.: 2557-00048 Page	
	01-23-20			
RF			EET	
To the F Please rε	1033645	ra	demarks: py thereof.	
1. Name of conveying party(ies):	2.	Name and address	s of receiving party(ies)	
Tae-wan KIM,		Name: SAMSUN	G ELECTRONICS CO., LTD.	
Kee-won KIM,		Street Address: 416 Maetan-dong, Yeongtong-gu		
Hyung-soon SHIN,		City: Suwon-si	State: Gyeonggi-do	
Seung-jun LEE,		Country: Republic of Korea		
In-jun HWANG, and				
Young-jin CHO		Additional name(s)) & address(es) attached? 🔲 YES 🔯 NO	
Additional name(s) of conveying party(ies) att	tached?		٥	
3. Nature of conveyance:			. 200 . 200 . 300	
Assignment	rity Agreement		0.0.5 5.40	
☐ Change of Name ☐ Other	:		764 164	
Execution Date: 1/2/2007, 1/2/2007, 1/2/20	07, 1/2/2007,		255 <u>-</u>	
1/2/2007, and 1/2/2007				
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a	: new application, the exe	ecution date of the	application is: 1/2/2007, 1/2/2007,	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s)	new application, the exe	ecution date of the Patent No.(s).	application is: 1/2/2007, 1/2/2007,	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2007	new application, the exe		application is: 1/2/2007, 1/2/2007,	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s).	new application, the exe 07 B. ional numbers attached?	Patent No.(s).	NO	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s). Addition Name and address of party to whom correspondence concerning documents.	new application, the executor B. ional numbers attached?	Patent No.(s). YES 1 Total No. of appli	NO cations/patents involved: One (1)	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2007. A. Patent Application No(s). Addition Name and address of party to whom correspondence concerning documents. HARNESS, DICKEY & PIERCE, P.	new application, the executor B. ional numbers attached? CL.C. 7.	Patent No.(s). YES Total No. of appli Total fee (37 C.F.	NO	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s). Addition Name and address of party to whom correspondence concerning documents. HARNESS, DICKEY & PIERCE, P. Street Address: P.O. BOX 8910	new application, the executor B. ional numbers attached? C.L.C. 7.	Patent No.(s). YES Total No. of application of the process of th	NO cations/patents involved: One (1) R. § 3.41): \$40.00	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s). Addition Name and address of party to whom correspondence concerning documents. HARNESS, DICKEY & PIERCE, P. Street Address: P.O. BOX 8910 City: RESTON State: VA ZIP: 20195	new application, the executor B. ional numbers attached? C.L.C. 7.	Patent No.(s). YES Total No. of application of the process of th	NO cations/patents involved: One (1) R. § 3.41): \$40.00 charged to deposit account,	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s). Addition Name and address of party to whom correspondence concerning documents. HARNESS, DICKEY & PIERCE, P. Street Address: P.O. BOX 8910 City: RESTON State: VA ZIP: 20195	new application, the executor B. ional numbers attached? cument should be mailed: C.L.C. 7.	Patent No.(s). YES 1 Total No. of appli Total fee (37 C.F.) Enclosed Authorized to be	NO cations/patents involved: One (1) R. § 3.41): \$40.00 charged to deposit account, d.	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s). Addition Name and address of party to whom correspondence concerning documents. HARNESS, DICKEY & PIERCE, P. Street Address: P.O. BOX 8910 City: RESTON State: VA ZIP: 20195	new application, the executor B. ional numbers attached? cument should be mailed: C.L.C. 7.	Patent No.(s). YES 1 Total No. of application of a	NO cations/patents involved: One (1) R. § 3.41): \$40.00 charged to deposit account, d. umber: 08-0750	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s). Addition Name and address of party to whom correspondence concerning documents. HARNESS, DICKEY & PIERCE, P. Street Address: P.O. BOX 8910	new application, the executor B. ional numbers attached? cument should be mailed: C.L.C. 7.	Patent No.(s). YES Total No. of application of ap	NO cations/patents involved: One (1) R. § 3.41): \$40.00 charged to deposit account, d.	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s). Additi Name and address of party to whom correspondence concerning dot Name: HARNESS, DICKEY & PIERCE, P Street Address: P.O. BOX 8910 City: RESTON State: VA ZIP: 20195 Country: USA	new application, the executor B. ional numbers attached? cument should be mailed: C.L.C. 7.	Patent No.(s). YES Total No. of application Total fee (37 C.F.) Enclosed Authorized to be if no fee attache Deposit account no (Attaclif patents)	NO cations/patents involved: One (1) R. § 3.41): \$40.00 charged to deposit account, d. umber: 08-0750 h triplicate copy of this page	
1/2/2007, and 1/2/2007 4. Application number(s) or patent number(s) If this document is being filed together with a 1/2/2007, 1/2/2007, 1/2/2007, and 1/2/2004 A. Patent Application No(s). Additi Name and address of party to whom correspondence concerning dot Name: HARNESS, DICKEY & PIERCE, P Street Address: P.O. BOX 8910 City: RESTON State: VA ZIP: 20195 Country: USA	new application, the executor B. ional numbers attached? comment should be mailed: 7. 8. DO NOT USE THE	Patent No.(s). YES 1 Total No. of application of a	NO cations/patents involved: One (1) R. § 3.41): \$40.00 charged to deposit account, d. umber: 08-0750 h triplicate copy of this page	

01/18/2007 CNGUYEN2 00000057 11654002

05 FC:8021 40.00 OP JAC:dpg

ASSIGNMENT

Atty. Docket No. 2657-000468/US

WHEREAS, the undersigned, hereinafter referred to collectively as Assignor, has invented:

MAGNETIC TUNNELING JUNCTION BASED LOGIC CIRCUITS AND METHODS OF OPERATING THE SAME

patent	(a)		executed on even date preparatory to filing (each inventor should sign this Assignment on the same day as he/she signs the Declaration and
			Power of Attorney);
	(þ)	口	executed on,; or
	(c)		filed on, and assigned Serial No or PCT International Application No;
	(d)		U.S. Patent No; and
si, Gye an Inter	onggi-d	o, Repu	amsung Electronics Co., Ltd., 416, Maetan-Dong, Yeongtong-Gu, Suwon- blic of Korea, hereinafter referred to as Asalgnee, is desirous of acquiring

NOW. THEREFORE, for good and valuable consideration, the receipt and adequacy whereof is hereby acknowledged, Assignor by these presents 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 all foreign countries, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the said invention as described in the aforesaid application, said application for patent and all Letters Patent therefor to be held and enjoyed by Assignee to the full end of the term for which said Letters Patent 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 recover for past infringements of, or liabilities for, any of the rights relating to any of said applications or patents resulting therefrom;

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 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 Assigned without further or other compensation than that above set forth;

Assignor hereby covenants that no assignment, sale or agreement or encumbrance has been or will be entered into which would conflict with this Assignment; and

Assignor hereby requests the Commissioner of Patents and Trademarks to Issue gald Letters Patent of the United States of America to Assignee, and requests that any official of gny country or countries foreign to the United States, whose duty it is to issue or grant patents and applications as aforesaid, to issue said Letters Patent, Utility Model Registration or Inventor's Certificate to Assignee.

The undersigned hereby grant(s) the law firm of Harness, Dickey & Pierce, P.L.C. the power to insert on this 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.

Page 1 of 2

PATENT REEL: 018808 FRAME: 0503

ASSIGNMENT

Tae-wah Kim

Jan/2/2007

Dated

Kee-won KIM

Jan/2/2007

Dated

0.5511

Hyung-soon SHIN

Jan/2/2007

Dated

Soung-Jun LEE

Jan/2/2007

Dated

In-Jun HWANG

Jan/2/2007

Dated

Young-Jin CHO

Jan/2/2007

Dated

Page 2 of 2

PATENT REEL: 018808 FRAME: 0504