

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
KABUSHIKI KAISHA TOSHIBA		06/30/2017
RECEIVING PARTY DATA		
Name:	TOSHIBA MEMORY CORPORATION	
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Internal Address:	MINATO-KU	
City:	TOKYO	
State/Country:	JAPAN	
Postal Code:	105-8001	
PROPERTY NUMBERS Total: 36		
Property Type	Number	
Application Number:	15443084	
Application Number:	15455608	
Application Number:	15262575	
Application Number:	15265067	
Application Number:	15267925	
Application Number:	15258195	
Application Number:	15460600	
Application Number:	15261162	
Application Number:	15251659	
Application Number:	15252894	
Application Number:	15252993	
Application Number:	15254310	
Application Number:	15254335	
Application Number:	15254077	
Application Number:	15254065	
Application Number:	15409786	
Application Number:	15429542	
Application Number:	15441465	
Application Number:	15446966	

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Property Type	Number
Application Number:	15449689
Application Number:	15449712
Application Number:	15449384
Application Number:	15449233
Application Number:	15449654
Application Number:	15449671
Application Number:	15449278
Application Number:	15449308
Application Number:	15074338
Application Number:	15074395
Application Number:	15227493
Application Number:	15266552
Application Number:	15269506
Application Number:	15269523
Application Number:	15270682
Application Number:	15465034
Application Number:	15465049

CORRESPONDENCE DATA

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DATE SIGNED:	07/21/2017

Total Attachments: 3

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PATENT ASSIGNMENT

WHEREAS KABUSHIKI KAISHA TOSHIBA, 1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001 Japan, (hereinafter "Assignor") is the owner of the following United States Letters Patent(s), and the invention(s) set forth therein, as shown by the records of the United States Patent and Trademark Office:

U.S. PATENT APPLICATION NO.	FILING DATE	TITLE
15/443,084	02/27/2017	SEMICONDUCTOR MEMORY DEVICE INCLUDING VARIABLE RESISTANCE ELEMENT
15/455,608	03/10/2017	SEMICONDUCTOR MEMORY DEVICE
15/262,575	09/12/2016	RESISTANCE RANDOM ACCESS MEMORY DEVICE AND METHOD FOR OPERATING SAME
15/265,067	09/14/2016	MEMORY DEVICE
15/267,925	09/16/2016	MEMORY DEVICE
15/258,195	09/07/2016	SEMICONDUCTOR DEVICE
15/460,600	03/16/2017	MEMORY DEVICE AND METHOD FOR DRIVING SAME
15/261,162	09/09/2016	NON-VOLATILE SEMICONDUCTOR MEMORY DEVICE
15/251,659	08/30/2016	IMAGE PROCESSING METHOD AND IMAGE PROCESSING PROGRAM
15/252,894	08/31/2016	CONTROL DEVICE AND CONTROL METHOD OF SEMICONDUCTOR MANUFACTURING APPARATUS
15/252,993	08/31/2016	SCANNING PROBE MICROSCOPE AND MEASUREMENT METHOD USING THE SAME
15/254,310	09/01/2016	ETCHING METHOD AND ETCHANT
15/254,335	09/01/2016	TOPOGRAPHY SIMULATION APPARATUS, TOPOGRAPHY SIMULATION METHOD, AND TOPOGRAPHY SIMULATION PROGRAM
15/254,077	09/01/2016	TOPOGRAPHY SIMULATION APPARATUS, TOPOGRAPHY SIMULATION METHOD, AND TOPOGRAPHY SIMULATION PROGRAM
15/254,065	09/01/2016	PARTICLE MEASURING APPARATUS
15/409,786	01/19/2017	SEMICONDUCTOR DEVICE
15/429,542	02/10/2017	DRESSER, METHOD OF MANUFACTURING DRESSER, AND METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE
15/441,465	02/24/2017	SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF
15/446,966	03/01/2017	SUBSTRATE PROCESSING DEVICE AND METHOD OF MANUFACTURING

15/449,689	03/03/2017	METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICE
15/449,712	03/03/2017	SEMICONDUCTOR DEVICE MANUFACTURING METHOD
15/449,384	03/03/2017	ANALYSIS DEVICE
15/449,233	03/03/2017	SEMICONDUCTOR DEVICE MANUFACTURING METHOD AND SEMICONDUCTOR MANUFACTURING APPARATUS
15/449,654	03/03/2017	SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF
15/449,671	03/03/2017	COMPOSITION ANALYSIS METHOD AND COMPOSITION ANALYSIS SYSTEM
15/449,278	03/03/2017	SUBSTRATE HOLDING APPARATUS
15/449,308	03/03/2017	SUBSTRATE PROCESSING DEVICE AND METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE
15/074,338	03/18/2016	SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING SAME
15/074,395	03/18/2016	SEMICONDUCTOR MEMORY DEVICE
15/227,493	08/03/2016	SEMICONDUCTOR MEMORY DEVICE
15/266,552	09/15/2016	SEMICONDUCTOR MEMORY DEVICE
15/269,506	09/19/2016	SEMICONDUCTOR MEMORY DEVICE
15/269,523	09/19/2016	SEMICONDUCTOR MEMORY DEVICE
15/270,682	09/20/2016	SEMICONDUCTOR MEMORY DEVICE
15/465,034	03/21/2017	SEMICONDUCTOR MEMORY DEVICE
15/465,049	03/21/2017	SEMICONDUCTOR MEMORY DEVICE AND METHOD OF MANUFACTURING THE SAME

WHEREAS TOSHIBA MEMORY CORPORATION, 1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001 Japan (hereinafter referred to as "Assignee") is desirous of acquiring the full right, title and interest in and to said invention for the United States of America, and in and to said United States Patent Application;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by Assignor, Assignor has sold, assigned, transferred and set over, and by these presents hereby sells, assigns, transfers and sets over to Assignee the entire and exclusive right, title and interest in and to said inventions for the United States of America, and in and to said application for Letters Patent listed above, including any and all divisional, continuation, continuation-in-part, reissues or extensions thereof, to be held and enjoyed by Assignee for its own use as fully and entirely as the same would have been held and enjoyed by Assignor had this assignment not been made; the Commissioner of Patents and Trademarks of the United States of America is hereby authorized to transfer the portion of the title indicated to said application to said Assignee in accordance herewith; this assignment being under covenant, not only that full power to make the same is had by the Assignor, but also that such assigned rights are not encumbered by any grant, license, or other right theretofore given; Assignor hereby

undertakes to execute and deliver to Assignee upon request all lawful documents which may be requested by Assignee, and to furnish Assignee with all facts relating to said invention as may be requested.

The undersigned hereby grant the firm of FOLEY & LARDNER LLP, the power to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

KABUSHIKI KAISHA TOSHIBA

Date: June 30, 2017

By: Ikuko Shimogawara
Name: Ikuko SHIMOOGAWARA
Title: General Manager, Intellectual Property Division