506352378 11/12/2020

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
JAU-YI WU	10/01/2019
WIN-SAN KHWA	10/01/2019
JIN CAI	10/01/2019
YU-SHENG CHEN	10/01/2019

RECEIVING PARTY DATA

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.
Street Address:	8, LI-HSIN RD. 6
Internal Address:	HSINCHU SCIENCE PARK
City:	HSINCHU
State/Country:	TAIWAN
Postal Code:	300-78

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	17095664	

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 4352521360

Email:gschneider@mabr.comCorrespondent Name:R. BURNS ISRAELSENAddress Line 1:MASCHOFF BRENNAN

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NAME OF SUBMITTER:R. BURNS ISRAELSENSIGNATURE:/R. Burns Israelsen, Reg. No. 42685/DATE SIGNED:11/12/2020

Total Attachments: 2

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PATENT 506352378 REEL: 054354 FRAME: 0096

ASSIGNMENT

This assignment agreement is applicable to an invention entitled (Invention Title)			
MEMORY DEVICE AND METHOD THEREOF			
The PATENT RIGHTS referred to in this agreement are:			
(check one) a patent application for this invention, executed by the ASSIGNOR(S)			
concurrently with this assignment.			
☑U.S. patent application Serial No. 16/590,232 , filed October 1, 2019			
☐ a U.S. patent application based on PCT International Application			
Nofiled on (date)(U.S. patent application			
Serial No, if known).			
U.S. patent No, issued			
The PATENT RIGHTS also include all divisions, reissues, continuations and extensions of			
the patents and patent applications identified above.			
The PATENT RIGHTS assigned under this agreement are:			
☑U.S. patent rights only.			
The $ASSIGNOR(S)$ referred to in this agreement is (or are) the inventor(s) whose signatures			
appear on page 2 of this Assignment and any Supplemental Sheet(s).			
The ASSIGNEE referred to in this agreement is:			
(Name of Assignee) TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.			
(Address) NO.8, LI-HSIN RD.6, SCIENCE-BASED INDUSTRIAL PARK, HSINCHU,			
<u>TAIWAN 300, R.O.C.</u>			
The ASSIGNEE is:			
(check one) ☐ An individual.			
☐A Partnership.			
☐ A Corporation ofTAIWAN, R.O.C(specify state or country)			
other)			
The ASSIGNOR(S), in consideration of \$10.00 paid by the ASSIGNEE, and other good and			
valuable consideration, receipt of which is acknowledged, hereby assign(s) the following			
rights to the ASSIGNEE, its successors and assigns:			
the full and exclusive right to the invention;			
the entire right, title and interest in and to the PATENT RIGHTS;			
the right to sue and recover for any past infringement; and			
the right to claim priority under 35 USC 119, 35 USC 120, or any other applicable			
provisions, based on any earlier patent applications for this invention.			

PATENT REEL: 054354 FRAME: 0097 1978-001 001.36364

RECORDED: 11/12/2020

THIS IS PAGE 2 OF AN ASSIGNMENT FROM THE INVENTOR(S) TO ASSIGNEE: TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD. INVENTION TITLE: MEMORY DEVICE AND METHOD THEREOF

As to all U.S. patent applications assigned under this agreement, the ASSIGNOR(S) hereby authorize(s) and request(s) the Commissioner of Patents and Trademark to issue all Letters Patent to the ASSIGNEE as the assignee of the entire right, title and interest, for the sole use and enjoyment of said ASSIGNEE, its successors and assigns.

Further, the ASSIGNOR(S) agree(s) to communicate to said ASSIGNEE, or its representatives, any fact known to the ASSIGNOR(S) with respect to said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitute, renewal, reexamination and reissue applications, execute all necessary assignment papers to cause and all Letter Patent to be issued to said ASSIGNEE, make all rightful oaths and generally do everything necessary or desirable to aid said ASSIGNEE, its successors and assigns, to obtain and enforce proper protection for said invention.

The ASSIGNOR(S) authorize(s) the attorneys and agents who have the power of attorney in this application to check any appropriate boxes and to insert the Serial Number and filing date in this document after it has been executed.

Jau-Yi WU	Tau-Xi Wu	Oct. 1, 2019
Name of sole or first inventor	Signature	Date
Win-San KHWA	D-6/4-	Oct. 2, 2019
Name of second inventor, if any	Signature	Date
Jin CAI	Im Gi	Oct. 1,201
Name of third inventor, if any	Signature	Date
Yu-Sheng CHEN	Yu-Shory Chen	000,1,2019
Name of fourth inventor, if any	Signature	Date

PATENT REEL: 054354 FRAME: 0098