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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
HOU-JU LI	08/21/2018
CHUR-SHYANG FU	08/21/2018
CHUN-SHENG LIANG	08/21/2018
JENG-YA DAVID YEH	08/21/2018

RECEIVING PARTY DATA

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.		
Street Address:	NO. 8, LI-HSIN RD. 6		
Internal Address:	SCIENCE-BASED INDUSTRIAL PARK		
City:	HSINCHU		
State/Country:	TAIWAN		
Postal Code:	300		

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	16112943	

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NAME OF SUBMITTER:	DANIEL R. MCCLURE
SIGNATURE:	/Daniel R. McClure/
DATE SIGNED:	09/07/2018
	<u> </u>

Total Attachments: 2

PATENT REEL: 046816 FRAME: 0658 source=00601577#page1.tif source=00601577#page2.tif

> PATENT REEL: 046816 FRAME: 0659

ASSIGNMENT

This assignment agreement is applicable to an invention entitled (Invention Title)				
SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME				
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. 16/112,943 , filed August 27, 2018				
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:				
(check one) ⊠U.S. patent rights only.				
Worldwide patent rights. In this case, the assignee shall have the right to				
claim the benefit of the filing date of any U.S. or foreign patent application				
for this invention.				
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,				
TAIWAN 300, R.O.C.				
The ASSIGNEE is:				
(check one) An individual.				
A Partnership.				
(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: 046816 FRAME: 0660 THIS IS PAGE 2 OF AN ASSIGNMENT FROM THE INVENTOR(S) TO ASSIGNEE: TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD. INVENTION TITLE: SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME

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.

Hou-Jü LI	How-Ju LI	2018.8.21
Name of sole or first inventor	Signature	Date
Chur-Shyang FU	Chw-shong Fr	>~18-8->
Name of second inventor, if any	Signature	Date
Chun-Sheng LIANG	Chur-Show Live	>08.8.21
Name of third inventor, if any	Signature	Date
Jeng-Ya David YEH	Jenl Ych	_ 50/8/8/2/
Name of fourth inventor, if any	Signature	Date

PATENT REEL: 046816 FRAME: 0661

RECORDED: 09/07/2018