

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
CHIH-HSIUNG HUANG	08/07/2019
CHUNG-EN TSAI	08/10/2019
CHEE-WEE LIU	08/10/2019
KUN-WA KUOK	08/26/2019
YI-HSIU HSIAO	08/26/2019
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.
<b>Street Address:</b>	8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK
<b>City:</b>	HSINCHU
<b>State/Country:</b>	TAIWAN
<b>Postal Code:</b>	300-78
<b>Name:</b>	NATIONAL TAIWAN UNIVERSITY
<b>Street Address:</b>	NO.1, SEC. 4, ROOSEVELT ROAD
<b>City:</b>	TAIPEI
<b>State/Country:</b>	TAIWAN
<b>Postal Code:</b>	10617
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	17585020
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>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.</i>	
<b>Phone:</b>	435-252-1360
<b>Email:</b>	CRigby@mabr.com
<b>Correspondent Name:</b>	MASCHOFF BRENNAN
<b>Address Line 1:</b>	1389 CENTER DRIVE, SUITE 300
<b>Address Line 4:</b>	PARK CITY, UTAH 84098
<b>ATTORNEY DOCKET NUMBER:</b>	T1516.10599US02

<b>NAME OF SUBMITTER:</b>	R. BURNS ISRAELSEN
<b>SIGNATURE:</b>	/R. Burns Israelsen, Reg. No. 42685/
<b>DATE SIGNED:</b>	01/26/2022
<b>Total Attachments: 3</b> source=T1516.10599US02 Assignment#page1.tif source=T1516.10599US02 Assignment#page2.tif source=T1516.10599US02 Assignment#page3.tif	

ASSIGNMENT

This assignment agreement is applicable to an invention entitled (Invention Title) \_\_\_\_\_  
SEMICONDUCTOR DEVICE AND MANUFACTURING 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. 16/548,730, filed August 22, 2019
- a U.S. patent application based on PCT International Application No. \_\_\_\_\_ filed 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) 1. TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.  
2. NATIONAL TAIWAN UNIVERSITY

(Address) 1. NO. 8, LI-HSIN RD. 6, SCIENCE-BASED INDUSTRIAL PARK, HSINCHU, TAIWAN 300, R.O.C.

2. NO. 1, SEC. 4, ROOSEVELT ROAD, TAIPEI 10617, TAIWAN, R.O.C.

The 1<sup>st</sup> ASSIGNEE is:

- (check one)  An individual.
- A Partnership.
- A Corporation of TAIWAN, R.O.C.
- (other) \_\_\_\_\_

The 2<sup>nd</sup> ASSIGNEE is:

- (check one)  An individual.
- A Partnership.
- A University of TAIWAN, R.O.C.
- (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.

THIS IS PAGE 2 OF AN ASSIGNMENT FROM THE INVENTOR(S) TO

ASSIGNEE: 1. TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.

2. NATIONAL TAIWAN UNIVERSITY

INVENTION TITLE: SEMICONDUCTOR DEVICE AND MANUFACTURING 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.

Chih-Hsiang HUANG

Name of sole or first inventor

Chih-Hsiang Huang  
Signature

2019/8/7  
Date

Chung-En TSAI

Name of second inventor, if any

Chung-En Tsai  
Signature

2019/8/10  
Date

Chee-Wee LIU

Name of third inventor, if any

Chee-Wee Liu  
Signature

2019/8/10  
Date

Kun-Wa KUOK

Name of fourth inventor, if any

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Yi-Hsiu HSIAO

Name of fifth inventor, if any

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

THIS IS PAGE 2 OF AN ASSIGNMENT FROM THE INVENTOR(S) TO  
 ASSIGNEE: 1.TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.  
2.NATIONAL TAIWAN UNIVERSITY  
 INVENTION TITLE: SEMICONDUCTOR DEVICE AND MANUFACTURING  
METHOD THEREOF

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<u>Chih-Hsiung HUANG</u>	_____	_____
Name of sole or first inventor	Signature	Date
<u>Chung-En TSAI</u>	_____	_____
Name of second inventor, if any	Signature	Date
<u>Chee-Wee LIU</u>	_____	_____
Name of third inventor, if any	Signature	Date
<u>Kun-Wa KUOK</u>	<u>Kun-Wa Kuok</u>	<u>2019/08/26</u>
Name of fourth inventor, if any	Signature	Date
<u>Yi-Hsiu HSIAO</u>	<u>Yi-Hsiu Hsiao</u>	<u>2019.08.26</u>
Name of fifth inventor, if any	Signature	Date