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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
CHENG-LONG CHEN	10/31/2019
YASUTOSHI OKUNO	10/31/2019
PANG-YEN TSAI	10/31/2019

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:	16535701

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	20180650/24061.3760US01
NAME OF SUBMITTER:	JANIE MARTINEZ-HOLM
SIGNATURE:	/Janie Martinez-Holm/
DATE SIGNED:	11/08/2019

Total Attachments: 3

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> **PATENT** REEL: 050956 FRAME: 0627 505764105

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PATENT REEL: 050956 FRAME: 0628



Docket No.: P20180650US00/24061.3760US01

Customer No.: 000042717

ASSIGNMENT

WHEREAS, we,

(1)	Cheng-Long Chen	of	Hsin-Chu City, Taiwan (R.O.C.)
(2)	Yasutoshi Okuno	of	Hsinchu, Taiwan (R.O.C.)

(3) Pang-Yen Tsai of Hsin-Chu Hsian, Taiwan (R.O.C.)

have invented certain improvements in

EPITAXIAL SOURCE/DRAIN AND METHODS OF FORMING SAME

for which we have executed an application for Letters Patent of the United States of America, filed on <u>August 8, 2019</u> and assigned application number <u>16/535,701</u>; and

WHEREAS, we authorize the attorney of record to update this document to include Patent Office information as deemed necessary (i.e., filing date, serial number, etc.);

WHEREAS, Taiwan Semiconductor Manufacturing Co., Ltd., ("TSMC"), 8, Li-Hsin Rd. 6, Hsinchu Science Park, Hsinchu, Taiwan 300-78, Republic of China. is desirous of obtaining the entire right, title, and interest in, to and under the said invention and the said application in the United States of America and in any and all countries foreign thereto;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and other good and valuable consideration, we have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said TSMC, its successors, legal representatives, and assigns, the entire right, title, and interest in, to and under the said invention, and the said application, and all divisional, renewal, substitutional, and continuing applications thereof, and all Letters Patent of the United States of America which may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent which may be filed for said invention in any country or countries foreign to the United States of America, and all extensions, renewals, and reissues thereof, and all prior patents and patent applications from which a filing priority of the above-described patent application may be obtained, including the right to collect past damages; and we hereby authorize and request the Commissioner of Patents of the United States of America, and any official of any country or countries foreign to the United States of America, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said invention to the said TSMC, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE HEREBY covenant that we have full right to convey the entire interest herein assigned, and that we have not executed, and will not execute, any agreement in conflict herewith.

AND WE HEREBY further covenant and agree that we will communicate to said TSMC, its successors, legal representatives and assigns, any facts known to us respecting said invention, and testify in any legal proceedings, sign all lawful papers, execute all divisional, renewal, substitutional, continuing, and reissue applications, make all rightful declarations and/or oaths and generally do everything possible to aid the said TSMC, its successors, legal representatives and assigns, to obtain and enforce proper patent protection for said invention in all countries.

0024061.03760US01 | 4812-0757-0602 v.1

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Docket No.: P20180650US00/24061.3760US01

Customer No.: 000042717

Inventor Name:	Cheng-Long Chen	
Residence Address:	Hsin-Chu City, Taiwan (R.O.C	2.)
Dated: <u>(い/3)/</u>	2019	Cheng - Long Chen Inventor Signature
Inventor Name:	Yasutoshi Okuno	
Residence Address:	Hsinchu, Taiwan (R.O.C.)	
Dated:		Inventor Signature
Inventor Name:	Pang-Yen Tsai	
Residence Address:	Hsin-Chu Hsian, Taiwan (R.O.	C.)
Dated: /0/3//	2019	Pang Jun Zi

Docket No.: P20180650US00/24061.3760US01

Customer No.: 000042717

Inventor Name:	Cheng-Long Chen	
Residence Address: Dated:	Hsin-Chu City, Taiwan (R.O.C.)
Dated,		Inventor Signature
Inventor Name:	Yasutoshi Okuno	•
Residence Address:	Hsinchu, Taiwan (R.O.C.)	
Dated: 2019/16	>/>/	Inventor Signature
Inventor Name:	Pang-Yen Tsai	
Residence Address:	Hsin-Chu Hsian, Taiwan (R.O.O	C.)
Dated:		Inventor Signature