505997193 04/02/2020

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
CHUN-YUAN CHEN	09/03/2019
SHIH-CHUAN CHIU	09/03/2019
JIA-CHUAN YOU	09/03/2019
CHIA-HAO CHANG	09/03/2019
TIEN-LU LIN	09/03/2019
YU-MING LIN	11/28/2019

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:	16573719

CORRESPONDENCE DATA

Fax Number: (214)200-0853

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using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 2146515000

Email: ipdocketing@haynesboone.com

Correspondent Name: HAYNES & BOONE,

Address Line 1: 2323 VICTORY AVE. #700 Address Line 4: DALLAS, TEXAS 75219

ATTORNEY DOCKET NUMBER:	2018-3244/24061.3865US01
NAME OF SUBMITTER:	MARCY OGADO
SIGNATURE:	/Marcy Ogado/
DATE SIGNED:	04/02/2020

PATENT 505997193 REEL: 052296 FRAME: 0200

Total Attachments: 6 source=24061-3865US01_Assignment#page1.tif source=24061-3865US01_Assignment#page2.tif source=24061-3865US01_Assignment#page3.tif source=24061-3865US01_Assignment#page4.tif source=24061-3865US01_Assignment#page5.tif source=24061-3865US01_Assignment#page6.tif

PATENT REEL: 052296 FRAME: 0201



Docket No.: P20183244US00/24061.3865US01 Customer No.: 000042717

ASSIGNMENT

WHEREAS, we,

(1)	Chun-Yuan Chen	of	Hsinchu, Taiwan (R.O.C.)
(2)	Shih-Chuan Chiu	of	Hsinchu, Taiwan (R.O.C.)
(3)	Jia-Chuan You	of	Taoyuan County, Taiwan (R.O.C.)
(4)	Chia-Hao Chang	of	Hsinchu City, Taiwan (R.O.C.)
(5)	Tien-Lu Lìn	of	Hsinchu City, Taiwan (R.O.C.)
(6)	Yu-Ming Liu	of	Hsinchu City, Taiwan (R.O.C.)

have invented certain improvements in

IMPROVED CONTACT RESISTANCE BETWEEN VIA AND CONDUCTIVE LINE

for which we have executed an application for Letters Patent of the United States of America,

X	of even date filed herewith; and		
	filed on September 17, 2019 and assigned application number 16/573,719; 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.

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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.

Inventor Name: Chun-Yuan Chen	
Residence Address: Hsinchu, Taiwan (R.O.C.)	
Dated: 9/3/2019	<u> Lum-Juan Chin</u> Inventor Signature
Inventor Name: Shih-Chuan Chiu	
Residence Address: Hsinchu, Taiwan (R.O.C.)	
Dated: 9/3/>0/9	Shih-Chuah Chiu
Inventor Name: Jia-Chuan You Residence Address: Taoyuan County, Taiwan (R.C	D.C.)
Dated: 9/3/2019	Tig- Chan You Inventor Signature
Inventor Name: Chia-Hao Chang Residence Address: Hsinchu City, Taiwan (R.O.C.)
Dated: 9/3/2019	Mia-Hao Mana Inventor Signature

4831-1113-9490 v.t

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Customer No.: 000042717

Inventor Name:

Tien-Lu Lin

Residence Address:

Hsinchu City, Taiwan (R.O.C.)

Datech

Inventor Signature

Inventor Name:

Yu-Ming Liu

Residence Address:

Hsinchu City, Taiwan (R.O.C.)

Dated: C

Inventor Signatur

- 3 -

Customer No.: 42717

ASSIGNMENT

WHEREAS, we.

(1)	Chun-Yuan Chen	of	Hsinchu, Taiwan (R.O.C.)
(2)	Shih-Chuan Chiu	of	Hsinchu, Taiwan (R.O.C.)
(3)	Jia-Chuan You	of	Taoyuan County, Taiwan (R.O.C.)
(4)	Chia-Hao Chang	of	Hsinchu City, Taiwan (R.O.C.)
(5)	Tien-Lu Lin	of	Hsinchu City, Taiwan (R.O.C.)
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IMPROVED CONTACT RESISTANCE BETWEEN VIA AND CONDUCTIVE LINE

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X	of even date filed herewith; and			
	filed on <u>09-17-2019</u>	and assigned application number	16/573,719	; 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, 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.

4812-7102-7885 v.1

Customer No.: 42717

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.

Inventor Name: Residence Address:	Chun-Yuan Chen Hsinchu, Taiwan (R.O.C.)	
Dated:		Inventor Signature
Inventor Name:		
	Hsinchu, Taiwan (R.O.C.)	
Dated:		Inventor Signature
Inventor Name:		
Residence Address:	Taoyuan County, Taiwan (R.O.	C.)
Dated:		Inventor Signature
Inventor Name:		
Residence Address:	Hsinchu City, Taiwan (R.O.C.)	
Dated:		Inventor Signature

4812-7102-7885 v.1

Customer No.: 42717

Inventor Name:

Tien-Lu Lin

Residence Address:

Hsinchu City, Taiwan (R.O.C.)

Dated:____

Inventor Signature

Inventor Name:

Yu-Ming Lin

Residence Address:

Hsinchu City, Taiwan (R.O.C.)

Dated:

Inventor Signature

4812-7102-7885 v.1

RECORDED: 04/02/2020

PATENT REEL: 052296 FRAME: 0207