505214499 11/30/2018

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE: NEW ASSIGNMENT NATURE OF CONVEYANCE: ASSIGNMENT

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------|----------------|
| SHIH-HAN HUANG | 09/20/2017 |
| CHIH-HUNG HSIEH | 09/20/2017 |

RECEIVING PARTY DATA

| Name: | TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD. | |
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| City: | HSINCHU | |
| State/Country: | TAIWAN | |
| Postal Code: | 300-78 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 16206539 |

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ATTORNEY DOCKET NUMBER: 2016-0969/24061.3558US02 **NAME OF SUBMITTER:** MARCY OGADO SIGNATURE: /Marcy Ogado/ **DATE SIGNED:** 11/30/2018

Total Attachments: 2

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> **PATENT** REEL: 047644 FRAME: 0531

Docket No.:P20160969US00/24061.3558US01

Customer No.: 42717

ASSIGNMENT

WHEREAS, we,

(1) Shih-Han Huang of Hsinchu, Taiwan 300-78 (R.O.C.)

(2) Chih-Hung Hsieh of Hsin-Chu, Taiwan (R.O.C.)

have invented certain improvements in

USING THREE OR MORE MASKS TO DEFINE CONTACT LINE BLOCKING COMPONENTS IN FINFET SRAM FABRICATION

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

of even date filed herewith; and filed on August 31, 2017 and assigned application number 15/691,868; 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.

Docket No.:P20160969US00/24061.3558US01

Customer No.: 42717

Inventor Name:

Shih-Han Huang

Residence Address:

No. 8, Li-Hsin Rd. 6, Hsinchu Science Park

Hsinchu, Taiwan 300-78 (R.O.C.)

Dated: 09/20/2017

Shih - Han Huang Inventor Signature

Inventor Name:

Chih-Hung Hsieh

Residence Address:

No. 88-8, 3rd floor, Ho-Pin Road

Hsin-Chu, Taiwan (R.O.C.)

Dated: Chih-Hughlsieh

1/20/2017 Inventor Signature

-2-

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PATENT REEL: 047644 FRAME: 0533