PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5760008

| SUBMISSION TYPE: | CORRECTIVE ASSIGNMENT | |
|-----------------------|--|--|
| NATURE OF CONVEYANCE: | Corrective Assignment to correct the TYPOGRAPHICAL ERROR IN 1ST INVENTOR'S LAST NAME previously recorded on Reel 036403 Frame 0354. Assignor(s) hereby confirms the ASSIGNMENT OF ASSIGNOR'S INTEREST. | |

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------|----------------|
| KUO-CHENG CHIANG | 09/18/2019 |
| CHI-WEN LIU | 09/18/2019 |
| YING-KEUNG LEUNG | 09/17/2019 |

RECEIVING PARTY DATA

| Name: | Taiwan Semiconductor Manufacturing Company, Ltd. | | |
|-----------------|--|--|--|
| Street Address: | 8, Li-Hsin Rd. 6, Hsinchu Science Park | | |
| City: | Hsinchu | | |
| State/Country: | TAIWAN | | |
| Postal Code: | 300-78 | | |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 14739294 | |

CORRESPONDENCE DATA

Fax Number: (972)732-9218

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.

Phone: 972-732-1001

Email: docketing@slatermatsil.com

Correspondent Name: SLATER MATSIL, LLP

Address Line 1: 17950 PRESTON RD., SUITE 1000

Address Line 4: DALLAS, TEXAS 75252

| ATTORNEY DOCKET NUMBER: | TSM15-0147 |
|-------------------------|-------------------|
| NAME OF SUBMITTER: | MARANDA BRALLEY |
| SIGNATURE: | /MARANDA BRALLEY/ |
| DATE SIGNED: | 10/08/2019 |

Total Attachments: 6

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PATENT REEL: 050671 FRAME: 0284

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PATENT REEL: 050671 FRAME: 0285



UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

AUGUST 25, 2015

PTAS

SLATER & MATSIL, L.L.P. 17950 PRESTON RD., SUITE 1000 DALLAS, TX 75252 503449056

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PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 08/24/2015 REEL/FRAME: 036403/0354

NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: TSM15-0147

ASSIGNOR:

CHING, KUO-CHENG DOC DATE: 08/19/2015

ASSIGNOR:

LIU, CHI-WEN DOC DATE: 08/19/2015

ASSIGNOR:

LEUNG, YING-KEUNG DOC DATE: 08/19/2015

ASSIGNEE:

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.
NO. 8, LI-HSIN RD. 6, SCIENCE-BASED INDUSTRIAL PARK
HSIN-CHU, TAIWAN 300-77

APPLICATION NUMBER: 14739294 FILING DATE: 06/15/2015

PATENT NUMBER: ISSUE DATE:

TITLE: WRAP AROUND SILICIDE FOR FINFETS

 ASSIGNMENT RECORDATION BRANCH PUBLIC RECORDS DIVISION

PATENT REEL: 050671 FRAME: 0287



United States Patent and Trademark Office

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Electronic Patent Assignment System

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PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

 SUBMISSION TYPE:
 NEW ASSIGNMENT

 NATURE OF CONVEYANCE:
 ASSIGNMENT

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------|----------------|
| KUO-CHENG CHING | 08/19/2015 |
| CHI-WEN LIU | 08/19/2015 |
| YING-KEUNG LEUNG | 08/19/2015 |

RECEIVING PARTY DATA

| Name: | Taiwan Semiconductor Manufacturing Company, Ltd. | | |
|-----------------|---|--|--|
| Street Address: | No. 8, Li-Hsin Rd. 6, Science-Based Industrial Park | | |
| City: | Hsin-Chu | | |
| State/Country: | TAIWAN | | |
| Postal Code: | 300-77 | | |

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
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| Application Number: | 14739294 | |

CORRESPONDENCE DATA

Fax Number: (972)732-9218 **Phone:** 972-732-1001

Email: docketing@slater-matsil.com

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.

Correspondent Name: SLATER & MATSIL, L.L.P.
Address Line 1: 17950 PRESTON RD., SUITE 1000

Address Line 4: DALLAS, TEXAS 75252

| ATTORNEY DOCKET NUMBER: | TSM15-0147 | |
|----------------------------|--|--|
| NAME OF SUBMITTER: | LISETTE REYES-WASHINGTON | |
| Signature: | /Lisette Reyes-Washington/ | |
| Date: | 08/24/2015 | |
| | This document serves as an Oath/Declaration (37 CFR 1.63). | |

Total Attachments: 1

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RECEIPT INFORMATION

EPAS ID: PAT3495682 **Receipt Date:** 08/24/2015

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ATTORNEY DOCKET NO. TSM15-0147

ASSIGNMENT

WHEREAS, I, the undersigned inventor (or one of the undersigned joint inventors), of residence as listed, having invented certain new and useful improvements as below entitled, for which application for United States Letters Patent is made; and

WHEREAS, Taiwan Semiconductor Manufacturing Company, Ltd. ("Assignee"), a corporation organized and existing under the laws of Taiwan, the Republic of China, with its principal office at No. 8, Li-Hsin Rd. 6 Science-Based Industrial Park, Hsin-Chu 300-77 Taiwan, R.O.C., is desirous of acquiring my entire right, title and interest in and to said invention, and to said application and any Letters Patent that may issue thereon in the United States and all other countries throughout the world;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, I hereby sell and assign to said Assignee, its successors and assigns, my entire right, title and interest in and to said invention and in and to said application and all patents which may be granted therefor, and all future non-provisional applications including divisions, reissues, substitutions, continuations, and extensions thereof; and I hereby authorize and request the Commissioner for Patents to issue all patents for said invention, or patent resulting therefrom, insofar as my interest is concerned, to said Assignee, as assignee of my entire right, title and interest. I declare that I have not executed and will not execute any agreement in conflict herewith.

I also hereby sell and assign to Assignee, its successors and assigns, my foreign rights to the invention disclosed in said application, in all countries of the world, including, but not limited to, the right to file applications and obtain patents under the terms of the International Convention for the Protection of Industrial Property, and of the European Patent Convention, and further agree to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights.

I hereby further agree that I will communicate to said Assignee, or to its successors, assigns, and legal representatives, any facts known to me respecting said invention or the file history thereof, and at the expense of said Assignee, its legal representatives, successors, or assigns, will testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, reissue and substitute applications, make all lawful oaths, and generally do everything possible to aid said Assignee, its legal representatives, successors, and assigns, to obtain and enforce proper patent protection for said invention in all countries.

IN WITNESS WHEREOF, I hereunto set my hand and seal this day and year;

| TITLE OF INVENTION | Wrap Around Silicide for Finfets | | | |
|---|----------------------------------|------------------|-----------------|--|
| SIGNATURE OF INVENTOR AND NAME | Kuo-Cheng Ching | Chi-We Li | WKC | |
| DATE | LAT 18/19 | 12015/8/19 | V 19/8/2015 | |
| RESIDENCE | Zhubei City, Taiwan | Hsin-Chu, Taiwan | Hsinchu, Taiwan | |

ATTORNEY DOCKET NO. TSM15-0147

ASSIGNMENT

WHEREAS, I, the undersigned inventor (or one of the undersigned joint inventors), of residence as listed, having invented certain new and useful improvements as below entitled, for which application for United States Letters Patent is made; and

WHEREAS, Taiwan Semiconductor Manufacturing Company, Ltd. ("Assignee"), a corporation organized and existing under the laws of Taiwan, with its principal office at 8, Li-Hsin Rd. 6 Hsinchu Science Park, Hsinchu 300-78. Taiwan, is desirous of acquiring my entire right, title and interest in and to said invention, and to said application and any Letters Patent that may issue thereon in the United States and all other countries throughout the world;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, it hereby sell and assign to said Assignee, its successors and assigns, my entire right, title and interest in and to said invention and in and to said application and all patents which may be granted therefor, and all future non-provisional applications including divisions, reissues, substitutions, continuations, and extensions thereof; and I hereby authorize and request the Commissioner for Patents to issue all patents for said invention, or patent resulting thereform, insofar as my interest is concerned, to said Assignee, as assignee of my entire right, title and interest. I declare that I have not executed and will not execute any agreement in conflict herewith.

I also hereby sell and assign to Assignee, its successors and assigns, my foreign rights to the invention disclosed in said application, in all countries of the world, including, but not limited to, the right to file applications and obtain patents under the terms of the International Convention for the Protection of Industrial Property, and of the European Patent Convention, and further agree to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights.

I hereby further agree that I will communicate to said Assignee, or to its successors, assigns, and legal representatives, any facts known to me respecting said invention or the file history thereof, and at the expense of said Assignee, its legal representatives, successors, or assigns, will testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, reissue and substitute applications, make all lawful oaths, and generally do everything possible to aid said Assignee, its legal representatives, successors, and assigns, to obtain and enforce proper patent protection for said invention in all countries.

IN WITNESS WHEREOF, I hereunto set my hand and seal this day and year;

| TITLE OF INVENTION | Wrap Around Silicide for FinFETs | | | |
|---|----------------------------------|-----------------|--------------------------|--|
| SIGNATURE OF INVENTOR AND NAME | Kuo-Cheng dhiang | Chi-Wen Li | VICC Ying-Keung Leung | |
| DATE | 2019/9/8 | 2019/9/18 | 2019/9/17 | |
| RESIDENCE | Zhubei Ciiy, Taiwan | Hsinchu, Taiwan | Hsinchu City, Taiwan | |

Page 1 of 1

Assignment

PATENT REEL: 050671 FRAME: 0291