505628312 08/19/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5675117

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|-----------------|----------------|
| CHUN-WEN CHENG | 12/10/2013 |
| HUNG-CHIA TSAI | 12/10/2013 |
| LAN-LIN CHAO | 12/10/2013 |
| YUAN-CHIH HSIEH | 12/13/2013 |
| PING-YIN LIU | 12/13/2013 |

RECEIVING PARTY DATA

| Name: | TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD. | |
|-----------------|--|--|
| Street Address: | NO. 8, LI-HSIN RD. VI, HSINCHU SCIENCE PARK | |
| City: | HSINCHU | |
| State/Country: | TAIWAN | |
| Postal Code: | 300 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number | | |
|---------------------|----------|--|--|
| Application Number: | 16544234 | | |

CORRESPONDENCE DATA

Fax Number: (703)518-5499

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: 7036841111 Email: tsmc@ipfirm.com

Correspondent Name: HAUPTMAN HAM, LLP (TSMC)

Address Line 1: 2318 MILL ROAD SUITE 1400

Address Line 4: ALEXANDRIA, VIRGINIA 22314

| ATTORNEY DOCKET NUMBER: | T5057-987B | |
|----------------------------------|---------------------|--|
| NAME OF SUBMITTER: | RANDY A. NORANBROCK | |
| SIGNATURE: /Randy A. Noranbrock/ | | |
| DATE SIGNED: 08/19/2019 | | |
| | | |

Total Attachments: 1

PATENT REEL: 050090 FRAME: 0682

505628312

source=EfiledAssgn#page1.tif

PATENT REEL: 050090 FRAME: 0683

| ASSIGNMENT | | | | | |
|--|---|--|--|--|--|
| In consideration of the premises and other good and valuable consideration in hand paid, the receipt and sufficiency of which is hereby acknowledged, the undersigned, | | | | | |
| 1) | Chun-wen CHENG | 4) | Yuan-Chih HSIEH | | |
| 2) | Hung-Chia TSA1 | 5). | Ping-Yin LIU | | |
| 3) | Lan-Lin CHAO | | | | |
| who has made a certain new and useful invention, hereby sells, assigns and transfers unto TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD., having a place of business at No. 8, Li-Hsin Rd. VI, Hsinchu Science Park, Hsinchu 300, Taiwan R.O.C. | | | | | |
| as defined in 3 | find assigns (hereinalter designated "ASI 5 U.S.C. 100 in the invention entitled | SIGNEE. |) the entire right, title and interest for the United States of America | | |
| MICRO EI | LECTROMECHANICAL SYS | TEM S | ENSOR AND METHOD OF FORMING THE | | |
| SAME | 18.00 Marie 19.00 Marie 19 | THE BEST OF THE STATE OF THE ST | | | |
| CAITE | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | |
| (a) for which an application for United States Letters Patent was filed on December 20, 2013 , and identified by United States Patent Application No. 14/135,615 ; or | | | | | |
| (b) for which an application for United States Letters Patent was executed on, | | | | | |
| and the undersigned hereby authorizes and requests the United States Commissioner of Patents and Trademarks to issue any and all United States Letters Patent which may be granted therefore and any and all extensions, divisions, reissues, continuations, or continuations-in-part thereof, and the right to all benefits under the International Convention for the Protection of Industrial Property to the said ASSIGNEE, for its interest as ASSIGNEE, its successors, assigns and legal representatives; the undersigned agrees that the attorneys of record in said application shall hereafter act on behalf of said ASSIGNEE; | | | | | |
| application for ASSIGNEE, it applications for ASSIGNEE, it | and obtaining original, divisional, reissi as successors, assigns and legal represen or patent based thereon, growing out o | ued or ext tatives, as of or relat | like interest, and to render all necessary assistance in making tended Letters Patent of the United States, upon request of the said and without further remuneration, in and to any improvements, and ted to the said invention; and to execute any papers by the said leemed essential to ASSIGNEE's full protection and title in and to | | |
| SIGNED on th | e date indicated aside my signature: | | | | |
| 1) [] | www. Chenz -wen CHENG | | . >013.12,10 | | |
| Name: Chun- | -wen CHENG | - | Date: | | |
| 11 | - ohra Tai | | 2013, 12.10 | | |
| Name: Hung | | • | Date: | | |
| 3) _ Zan | - Li arao | - | >013.12.10 | | |
| Name: Lan-L | | - | Date: | | |
| 4) Ywan | | . ! | <u>~~13.12.13</u> | | |
| Name: Yuan- | -Chih HSIEH | | Date: | | |

PATENT REEL: 050090 FRAME: 0684

RECORDED: 08/19/2019