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PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5272053

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
CHUN-HUNG LIAO	10/26/2018
CHUNG-WEI HSU	10/29/2018
TSUNG-LING TSAI	10/26/2018
CHEN-HAO WU	10/26/2018
CHU-AN LEE	10/26/2018
SHEN-NAN LEE	10/26/2018
TENG-CHUN TSAI	10/26/2018
HUANG-LIN CHAO	10/26/2018

RECEIVING PARTY DATA

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD.	
Street Address:	NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK	
City:	HSINCHU	
State/Country:	TAIWAN	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16170539

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	18506-1471
NAME OF SUBMITTER:	ANTHONY KING
SIGNATURE:	/Anthony King/
DATE SIGNED:	12/07/2018

PATENT REEL: 047707 FRAME: 0403

Total Attachments: 3

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PATENT REEL: 047707 FRAME: 0404

ASSIGNMENT

WHEREAS, I(we), <u>LIAO</u>, <u>CHUN-HUNG</u>, <u>HSU</u>, <u>CHUNG-WEI</u>, <u>TSAI</u>, <u>TSUNG-LING</u>, <u>WU</u>, <u>CHEN-HAO</u>, <u>LEE</u>, <u>CHU-AN</u>, <u>LEE</u>, <u>SHEN-NAN</u>, <u>TSAI</u>, <u>TENG-CHUN</u> and <u>CHAO</u>, <u>HUANG-LIN</u> whose post office address(es) appear(s) below, hereinafter referred to as ASSIGNOR, have invented certain new and useful invention entitled

SLURRY AND MANUFACTURING SEMICONDUCTOR USING THE SLURRY

(hereinafter referred to as the INVENTION) for is executed on even date herewith unless at le	r which an application for U	Inited States Lett	ers Patent /Utility Patent
☐ United States Design Patent was	-was one of the temption is is	weeked,	
□ executed on:			
☐ filed on: 25 October 2018 ☐ established by PCT International Pate United States of America	OCHELIU.	70,539 filed:	designating the
☐ issued onas U.	.S. Patent No.:		
WHEREAS TAYWAN SEMICONDUCTOR	PAN MANITOLATINA	Ta'il a'ilain mare i nere	I F W and the

WHEREAS, TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD. whose post office address is NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK, HSINCHU, TAIWAN, R.O.C. hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to the same in the United States and its territorial possessions;

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, I (we), ASSIGNOR, by these presents do sell, assign and transfer unto said ASSIGNEE, the entire right, title, and interest in and to said INVENTION and application throughout the United States of America, including any and all Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application for the full term or terms for which the same may be granted, including all priority rights under any International Convention.

ASSIGNOR further covenants that no assignments, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this Assignment;

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) in the United States for said INVENTION, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said INVENTION, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to identify and communicate to ASSIGNEE at ASSIGNEE'S request documents and information concerning the INVENTION that are within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance, litigation and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ALSO, ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all Letters Patent referred to above to ASSIGNEE, as the ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE's sole use and behoof; and for the use and behoof of ASSIGNEE's legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Assignor Name LIAO, CHUN-HUNG	NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK, HSINCHU, TAIWAN (R.O.C.)
Signature of Assignor (X) UVW, (M)W-MUNG) Name of Witness (optional)	Date of Signature (X) 7018110 - Vb
Signature of Witness (optional)	Name of Witness (optional) Signature of Witness (Optional)

- (-

Assignor Name HSU, CHUNG-WEI	NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK, HSINCHU, TAIWAN (R.O.C.)
Signature of Assignor (X) Mung - Wed Idea	Date of Signature (X) 70/8 , /0 . ≥ 9
Name of Witness (sptional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)
[p	
Assignor Name TSAI, TSUNG-LING TSAI, TSUNG-LING	Address NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK, HSINCHU, TAIWAN (R.O.C.)
Signature of Assignor (X) TSAT TSAG - UTIOG	Date of Signature (X) > \(\delta\) \(\delta\). (0.26
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)
F	
Assignor Name WU, CHEN-HAO	NO.8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK, HSINCHU, TAIWAN (R.O.C.)
Signature of Assignor (X) W1), CHEN-HAD	Date of Signature (X) >018, 10, >6
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)
Assignor Name LEE, CHU-AN	5F., NO.25, LN. 19, GUANXIN RD., EAST DIST., HSINCHU, TAIWAN (R.O.C.)
Signature of Assignor (X) (hu-An Lee	Date of Signature (X) \(\sigma \)/8, \(\sigma \)
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)
<u> </u>	<u>i</u>
Assignor Name LEE, SHEN-NAN	Address 11F., NO.16, LANE 121, SINGFU RD.,
	JHUDONG TOWNSHIP, HSINCHU COUNTY 310, TAIWAN (R.O.C.)
LEE, SLZI) - NAN Signature of Assignor (X) LEZ, SHZN-NAN	Date of Signature (X) >0/8. /0.26
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)

Assignor Name TSAI, TENG-CHUN	Address 11F., NO.188, GUANXIN W. ST., EAST DIST., HSINCHU CITY, TAIWAN (R.O.C.)
Signature of Assignor TBAI, TENG-CHUN	Date of Signature 2018, 10, 26
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)

Assignor Name CHAO, HUANG-LIN	Address 4585 SE TEAKWOOD STREET, HILLSBORO OR 97123, U.S.A.
Signature of Assignor (X)	Date of Signature (X) 20/8/10/2-6
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)