505456140 05/01/2019

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
PENG-REN CHEN	09/10/2015
SHIANG-BAU WANG	09/10/2015
WEN-HAO CHENG	09/10/2015
YUNG-JUNG CHANG	09/16/2015
WEI-CHUNG HU	09/10/2015
YI-AN HUANG	09/10/2015
JYUN-HONG CHEN	09/10/2015

RECEIVING PARTY DATA

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD
Street Address:	NO. 8, LI-HSIN RD. 6, HSINCHU SCIENCE PARK
City:	HSINCHU
State/Country:	TAIWAN
Postal Code:	300

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16400833

CORRESPONDENCE DATA

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NAME OF SUBMITTER:	RANDY A. NORANBROCK
SIGNATURE:	/Randy A. Noranbrock/
DATE SIGNED:	05/01/2019

505456140 PATENT REEL: 049054 FRAME: 0447

Total Attachments: 2

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> PATENT REEL: 049054 FRAME: 0448

ASSIGNMENT

WHEREAS, Peng-Ren CHEN, Shiang-Bau WANG, Wen-Hao CHENG, Yung-Jung CHANG, Wei-Chung HU, Yi-An HUANG, and Jyun-Hong CHEN

hereafter referred to as ASSIGNOR, has/have invented certain new and useful improvements as described and set forth in the below identified application for United States Letters Patent:

Title: MI	<u>ETHOD AND SYSTEM FO</u>	R DIAGNOSING A S	EMICONDUCTOR	R WAFER
Filed:	2015-09-18	Serial No.	14/858,049	
Executed	l on:			

WHEREAS, <u>Taiwan Semiconductor Manufacturing Co.</u>, <u>Ltd.</u> of <u>No.8</u>, <u>Li-Hsin Road. 6</u>, <u>Science-Based Industrial Park</u>, <u>Hsin-Chu</u>, <u>Taiwan 300-77</u>, <u>R.O.C.</u> hereinafter referred to as ASSIGNEE, is desirous of acquiring ASSIGNOR'S interest in the said invention and application and in any U.S. Letters Patent which may be granted on the same;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN: Be it known that, for good and valuable consideration, receipt of which is hereby acknowledged by Assignor, Assignor has/have sold, assigned and transferred, and by these presents does/do sell, assign and transfer unto the said Assignee, and Assignee's successors and assigns, all his/her/their rights, title and interest in and to the said invention and application and all future improvements thereon, and in and to any Letters Patent which may hereafter be granted on the same in the United States, the said interest to be held and enjoyed by said Assignee as fully and exclusively as it would have been held and enjoyed by said Assignor had this Assignment and transfer not been made, to the full end and term of any Letters Patent which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignor further agrees/agree that he/she/they will, without charge to said Assignee, but at Assignee's expense, cooperate with Assignee in the prosecution of said application and/or applications, execute, verify, acknowledge and deliver all such further papers, including applications for Letters Patent and for the reissue thereof, and instruments of assignment and transfer thereof, and will perform such other acts as Assignee lawfully may request, to obtain or maintain Letters Patent for said invention and improvement, and to vest title thereto in said Assignee, or Assignee's successors and assigns.

IN TESTIMONY WHEREOF, Assignor has/have signed his/her/their name(s) on the date(s) indicated.

PATENT REEL: 049054 FRAME: 0449

ASSIGNMENT

12015,9,10	Peng-Ren Name: Peng-Ren CHEN	Chen
Date	Name: Peng-Ren CHEN	(Last name: CHEN)
	Shign SauWai Name: Shiang Bau WANG	Last name: WANG)
Date	Name: Wen-Hao-CHENG	CLast name: CHENG)
~		(Duby Manney 0112110)
2015, 9, 16	Mane: Yung-Jung CHANG	(Last name: CHANG)
	gg	(,
7015/9/10 Date	Name: Wei-Chung HU	(Last name: HII)
Date	Name. Wel-Chang ITO	(Last natic. 110)
2015/9/10	Yiantlyang. Name: Yi-An HUANG	
Date	Name: Yi-An HUANG	(Last name: HUANG)
/ w15/9/10	V Jy44-Hong Chin Name: Jyun-Hong CHEN	
Date	Name: Jyun-Hong CHEN	(Last name: CHEN)