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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
TSUNG-HSIEN TSAI	02/05/2020
RUEY-BIN SHEEN	02/05/2020
CHIH-HSIEN CHANG	02/05/2020
CHENG-HSIANG HSIEH	02/05/2020

RECEIVING PARTY DATA

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LIMITED
Street Address:	NO. 8, LI-HSIN ROAD, VI
Internal Address:	HSINCHU SCIENCE PARK
City:	HSINCHU
State/Country:	TAIWAN

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16744413

CORRESPONDENCE DATA

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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: JONES DAY

Address Line 1: 250 VESEY STREET

Address Line 4: NEW YORK, NEW YORK 10281-1047

ATTORNEY DOCKET NUMBER: 181877-625439 NAME OF SUBMITTER: MATTHEW W. JOHNSON **SIGNATURE:** /Matthew W. Johnson/ **DATE SIGNED:** 03/11/2020

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Total Attachments: 2

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> **PATENT** REEL: 052077 FRAME: 0711 505960997

JOINT

ASSIGNMENT

WHEREAS, WE, Tsung-Hsien Tsai, having a mailing address of No. 8, Li-Hsin Rd. VI, Hsinchu Science Park, Hsinchu, Taiwan residing at Taoyuan City, Taiwan, RUEY-BIN SHEEN, having a mailing address of No. 8, Li-Hsin Rd. VI, Hsinchu Science Park, Hsinchu, Taiwan residing at Taichung City, Taiwan, Chih-Hsien Chang, having a mailing address of No. 8, Li-Hsin Rd. VI, Hsinchu Science Park, Hsinchu, Taiwan residing at New Taipei City, Taiwan, and Cheng-Hsiang Hsieh, having a mailing address of No. 8, Li-Hsin Rd. VI, Hsinchu Science Park, Hsinchu, Taiwan residing at Taipei City, Taiwan, ASSIGNORS, are the inventors of the invention in "OSCILLATOR CIRCUITS AND METHODS FOR REALIGNMENT OF AN OSCILLATOR CIRCUIT" for which we have executed an application for a Patent of the United States

\boxtimes	which is executed on	\boxtimes	even date herewith or		[DATE]
\boxtimes	which is identified by Jones	Day	docket no. 181877-6254	39	
	which was filed on		, Application No	:	······································
\square	We hereby authorize and re	ques	t attorney(s) at Jones Day	, to inse	ert here in parentheses (Application number
	, filed) the filin	g date ar	nd application number of said application when known.

and WHEREAS, Taiwan Semiconductor Manufacturing Company Limited, a corporation organized and existing under the laws of the Republic of China, and having an office for the transaction of business at No. 8, Li-Hsin Rd. VI, Hsinchu Science Park, Hsinchu, Taiwan, PROPRIETOR, is desirous of obtaining our entire right, title and interest in, to and under the said invention and the said application;

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, we, the said ASSIGNORS, have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said PROPRIETOR, its successors, legal representatives and assigns, our entire right, title and interest in, to and under the said invention, and the said United States application and all divisions, renewals and continuations thereof, and all Patents of the United States which may be granted thereon and all reissues and extensions thereof; and all applications for industrial property protection, including, without limitation, all applications for patents, utility models, and designs which may be filed for said invention in any country or countries foreign to the United States, together with the right to file such applications and the right to claim for the same the priority rights derived from said United States application under the Patent Laws of the United States, the International Convention for the Protection of Industrial Property, or any other international agreement or the domestic laws of the country in which any such application is filed, as may be applicable; and all forms of industrial property protection, including, without limitation, patents, utility models, inventors' certificates and designs which may be granted for said invention in any country or countries foreign to the United States and all extensions, renewals and reissues thereof; and all right to sue for infringement including past infringement.

AND WE HEREBY authorize and request the Commissioner for Patents and any Official of any country or countries foreign to the United States, whose duty it is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the said PROPRIETOR, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE HEREBY covenant and agree 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 the said PROPRIETOR, its successors, legal representatives and assigns, any facts known to us respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, reissue and foreign applications, make all rightful oaths, and generally do everything possible to aid the said PROPRIETOR, its successors, legal representatives and assigns, to obtain and enforce proper protection for said invention in all countries.

IN TESTIMONY WHEREOF, We hereumo set our hands and seals the day and year set opposite our respective signatures.

Date 20 20 , 02 ; 05	Tsung-Hsien Tsai	L.8
Date	RUEY-BIRGHEEN Sim Sheen	19
Date _>0>0/>/	Chih-Hsien Chang	L.S
Date <u>FNb 5th</u> , 7020	Cheng-haing Jail	L.