PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
CHAN-HONG CHERN	06/22/2015
TSUNG -CHING HUANG	08/07/2015
CHIH-CHANG LIN	06/22/2015
MING-CHIEH HUANG	06/22/2015
FU-LUNG HSUEH	08/03/2015

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:	14630934

CORRESPONDENCE DATA

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ATTORNEY DOCKET NUMBER:	T5057-1135
NAME OF SUBMITTER:	RANDY A. NORANBROCK
SIGNATURE:	/Randy A. Noranbrock/
DATE SIGNED:	08/14/2015

Total Attachments: 3

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> PATENT REEL: 036329 FRAME: 0520

ASSIGNMENT

In consideration of the pr	emises and other g	good and valuable	consideration in h	and paid, the receipt	and sufficiency of
which is hereby acknowledged, the	undersigned,				

1)	Chan-Hong CHERN	4)	Ming-Chieh HUANG
2)	Tsung -Ching HUANG	5)	Fu-Lung HSUEH
3)	Chih-Chang LIN		

who has made a certain new and useful invention, hereby sells, assigns and transfers unto TAIWAN SEMICONDUCTOR Hsinchu

300. Ta	FACTURING COMPANY, LTD., <u>havin</u> hiwan R.O.C. essors and assigns (hereinafter designated		· ·	
	ned in 35 U.S.C. 100 in the invention entitle			
INPU	T/OUTPUT CIRCUIT			MANAGAMAN MANAGA
(a)	for which an application for United State United States Patent Application No.	es Letters Patent was filed on	2015-02-25	d identified by
(b)	for which an application for United State			
all Units continual Propert agrees to applicate ASSIG applicate ASSIG	undersigned hereby authorizes and reque- ted States Letters Patent which may be gn- tations-in-part thereof, and the right to al- y to the said ASSIGNEE, for its interest a that the attorneys of record in said application. AND the undersigned hereby agrees to tion for and obtaining original, divisional, NEE, its successors, assigns and legal repretations for patent based thereon, growing of NEE, its successors, assigns and legal represention hereby transferred.	ranted therefore and any and all benefits under the Internation ASSIGNEE, its successors, ion shall bereafter act on behalt to transfer a like interest, and reissued or extended Letters Peresentatives, and without furthout of or related to the said in the sa	I extensions, divisions, reissues, conal Convention for the Protectic assigns and legal representatives; for said ASSIGNEE; do render all necessary assistent of the United States, upon refer remuneration, in and to any improvention; and to execute any pagnivention; and to execute any pagnical controls.	ontinuations, or on of Industrial the undersigned unce in making quest of the said provements, and pers by the said
<u> </u>	D on the date indicated aside my signature		6/22/2015 :	-
2) Namié	e: Tsung -Ching HUANG			
3) (Chih-Chang LIN		06/22/2015	_
		Date	X'	
4)	1) Tong C. Afergang e: Ming-Grech HUANG	<i>_</i>	6/22/2015	_
Name	s: Ming-974th HUANG	Date	2:	
5)				

Name: Fu-Lung HSUEH

PATENT REEL: 036329 FRAME: 0521

Date:

Docket No. P20141047US00 T5057-1135

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) Chan-Hong CHERN
- 4) Ming-Chieh HUANG
- 2) Tsung-Ching HUANG
- 5) Fu-Long HSUEH

3) Chih-Chang LIN

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.

300. Taiwan R.O.C. its successors and assigns (hereinafter designated "ASSIGNEE") the entire right, title and interest for the United States of America as defined in 35 U.S.C. 100 in the invention entitled

as util	ned in 35 U.S.C. 100 in the miversion enried			
INPI	UT/OUTPUT CIRCUIT			
(a)	for which an application for United States Le United States Patent Application No. $\frac{1}{2}$	tters Patent was filed on _ 4/630,934	2015-02-25	, and identified by
(b)	for which an application for United States Le	tters Patent was executed o	58	
all Uniconting Proper agrees applica ASSIC applica ASSIC the inv	e undersigned hereby authorizes and requests tited States Letters Patent which may be granted uations-in-part thereof, and the right to all be ty to the said ASSIGNEE, for its interest as AS that the attorneys of record in said application is AND the undersigned hereby agrees to tration for and obtaining original, divisional, reiss SNEE, its successors, assigns and legal representations for patent based thereon, growing out of SNEE, its successors, assigns and legal representation hereby transferred.	d therefore and any and all mefits under the Internation SSIGNEE, its successors, thall hereafter act on behalf ansfer a like interest, and under extended Letters Partatives, and without further or related to the said in	I extensions, divisions, ronal Convention for the assigns and legal represe for said ASSIGNEE; do render all necessantent of the United States or remuneration, in and to execute the contion; and to execute the continuous and the continuous continuous and the continuous co	eissues, continuations, or Protection of Industrial entatives; the undersigned ry assistance in making I, upon request of the said o any improvements, and any papers by the said
1) Nam	e: Chan-Hong CHERN	- Date	· · · · · · · · · · · · · · · · · · ·	·····
	e: Tsung -Ching HUANG		8/2/>>>s	
Nam	e: Tsung -Ching HUANG	Date	;	
3)	e: Chih-Chang LIN			
Nam	e: Chih-Chang LIN	Date	:	
4)	e: Ming-Chieh HUANG			
Nam	e: Ming-Chieh HUANG	Date		
5)	e: Fu-Lung HSUEH			
Nam	e: Fu-Lung HSUEH	Date		

PATENT REEL: 036329 FRAME: 0522

Docket No. P20141047US00 T5057-1135

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) Chan-Hong CHERN
- 4) Ming-Chieh HUANG
- 2) Tsung -Ching HUANG
- 5) Fu-Lung HSUEH

3) Chih-Chang LIN

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as defin	ed in 35 U.S.C. 100 in the invention entitled		
INPU	T/OUTPUT CIRCUIT		
(a)	for which an application for United States Letters Patent was filed or United States Patent Application No14/630,934	n	ied by
(b)	for which an application for United States Letters Patent was execute		
all Unicontinu Proper agrees applica ASSIC applica ASSIC the inv	undersigned hereby authorizes and requests the United States Commeted States Letters Patent which may be granted therefore and any anatoms-in-part thereof, and the right to all benefits under the Interpretation of the said ASSIGNEE, for its interest as ASSIGNEE, its successor that the attorneys of record in said application shall hereafter act on be AND the undersigned hereby agrees to transfer a like interest, tion for and obtaining original, divisional, reissued or extended Letter NEE, its successors, assigns and legal representatives, and without futions for patent based thereon, growing out of or related to the sain NEE, its successors, assigns and legal representatives, deemed essentention hereby transferred.	national Convention for the Protection of Incors, assigns and legal representatives; the under chalf of said ASSIGNEE; , and to render all necessary assistance in representation of the United States, upon request of the united remuneration, in and to any improvement of invention; and to execute any papers by the process of the united invention; and to execute any papers by the protection of the united invention.	dustrial rsigned making the said hts, and he said
		Date:	
2) Nan	ne: Tsung -Ching HUANG	Date:	
3) Nan	ne: Chih-Chang LIN	Date:	
4) Nar	ne: Ming-Chieh HUANG	Date:	
5) _ Nai	ne: Fu-Lung HSUEH	August 3, 2015 Date:	

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RECORDED: 08/14/2015