06/08/2018 504951988

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4998735

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
CHING-CHUNG SU	03/15/2016
JIECH-FUN LU	03/15/2016
JIAN WU	03/14/2016
CHE-HSIANG HSUEH	03/14/2016
MING-CHI WU	03/14/2016
CHI-YUAN WEN	03/14/2016
CHUN-CHIEH FANG	03/14/2016
YU-LUNG YEH	03/14/2016

RECEIVING PARTY DATA

Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD.
Street Address:	NO. 8, LI-HSIN RD. 6
Internal Address:	HSINCHU SCIENCE PARK
City:	HSINCHU
State/Country:	TAIWAN
Postal Code:	300-78

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15990162

CORRESPONDENCE DATA

Fax Number: (214)200-0853

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: 214-651-5000

Email: ipdocketing@haynesboone.com

HAYNES AND BOONE, LLP IP SECTION Correspondent Name:

2323 VICTORY AVENUE Address Line 1:

Address Line 2: SUITE 700

Address Line 4: DALLAS, TEXAS 75219

ATTORNEY DOCKET NUMBER:	20151291 / 24061.3500US02
NAME OF SUBMITTER:	JANIE MARTINEZ-HOLM

PAIENI REEL: 046031 FRAME: 0185 504951988

SIGNATURE:	/Janie Martinez-Holm/
DATE SIGNED:	06/08/2018
Total Attachments: 3	
source=24061-3500US02_ Assignment	_Parent#page1.tif
source=24061-3500US02_ Assignment	_Parent#page2.tif
source=24061-3500US02 Assignment	Parent#page3.tif

PATENT REEL: 046031 FRAME: 0186

Your Ref.: P20151291US00

US ONLY

ASSIGNMENT

WHEREAS, I(we), <u>SU. CHING-CHUNG</u>, <u>LU. JIECH-FUN</u>, <u>WU. JIAN</u>, <u>HSUEH</u>, <u>CHE-HSIANG</u>, <u>WU. MING-CHI</u>, <u>WEN, CHI-YUAN</u>, <u>FANG</u>, <u>CHUN-CHIEH</u> and <u>YEH, YU-LUNG</u> whose post office address(es) appear(s) below, hereinafter referred to as ASSIGNOR, have invented certain new and useful invention entitled

SEMICONDUCTOR STRUCTURE AND MANUFACTURING METHOD THEREOF

(hereinafter referred to as the lis executed on even date herevalled United States Design	NVENTION) for which an application for with unless at least one of the following i	United States Lets checked:	tters Patent /Utility Patent
_	ratent was		
☐ executed on:			
☐ filed on:	Serial No.:		
established by PCT In	ternational Patent Application No.:	filed:	designating the
United States of America			5 5
☐ issued on	as U.S. Patent No.:		
Marine de Analysaasi eess.	(ICONDICTION DE LE VIENE COMP		

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 SU, CHING-CHUNG	Address NO.92, LANE 209, JHONGJHENG RD, YONGKANG DIST., TAINAN CITY, TAIWAN (R.O.C.)
Signature of Assignor Su CHING-CHUNG (X)	Date of Signature 70/6 / 3 / 15
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Witness (Optional)

PATENT REEL: 046031 FRAME: 0187

prost	2016/03/14	09 104 130

5	
Assignor Name	Address
LU, JIECH-FUN	NO.157-2, JHONGSHAN RD., MADOU
	TOWNSHIP, TAINAN COUNTY 721, TAIWAN
1 7 0 F	(R.O.C.)
Lu Jack-Fun Signature of Assignor (X) Lu Treck-Fun	
Signature of Assignor	D . 20
(V) P T P T	Date of Signature
(A) Lu, Leer-Jun	(X) 5016/3/15
Name of Witness (optional)	Name of Witness (optional)
	in the state of th
Signature of Witness (optional)	
Signature of Winters (optional)	Signature of Witness (Optional)
	<u> </u>
Assignor Name	Address
WU, ЛАN	ROOM 501, NO. 41, LANE 2111, CHENTA
, .	ROAD, SONGJIANG DISTRICT, SHANGHAI,
	CHINA (P.R.C.)
Signature of devices of	
Signature of Assignor	Date of Signature
(X) taw M.	(X) 2016/03/14
Name of Witness (optional)	Name of Witness (optional)
The state of the s	Name of vitness (optional)
C:	
Signature of Witness (optional)	Signature of Witness (Optional)
Assignor Name	Address
HSUEH, CHE-HSIANG	NO.3, ALY, 3, LN. 140, BADE ST.,
	YONGKANG DIST., TAINAN CITY 710,
11 laciona Herry	TAIWAN (R.O.C.)
Signature of Assignor (X) Une-Wing House	
Signature of Assignor	Date of Signature
(X) Une-Winne Hough	(X) >016/3/14
Name of Witness (optional)	
Traine of a micho (optional)	Name of Witness (optional)
TOLLING CHYP.	
Signature of Witness (optional)	Signature of Witness (Optional)
	· · · · · · · · · · · · · · · · · · ·
Assignor Name	Address
Assignor Name WU, MING-CHI	
	NO.302, ZILI IST RD., SANMIN DIST.
WŮ, MING-CHI	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.)
WU, MING-CHI Signature of Assignor,	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.)
WŮ, MING-CHI	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.)
WU, MING-CHI Signature of Assignor (X) Miny Chi - Wu	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X)
WU, MING-CHI Signature of Assignor,	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.)
WU, MING-CHI Signature of Assignor (X) Miny Chi — Wu Name of Witness (optional)	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional)
Signature of Assignor (X) Miny Chi - Wn	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X)
WU, MING-CHI Signature of Assignor (X) Miny Chi — Wu Name of Witness (optional)	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional)
WU, MING-CHI Signature of Assignor (X) Miny Chi — Wu Name of Witness (optional)	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional)
Signature of Assignor (X) Miny Chi - W u Name of Witness (optional)	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional)
Signature of Assignor: (X) Ming Chā — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X)
Signature of Assignor: (X) May Chi — Wu Name of Witness (optional) Signature of Witness (optional)	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X)
Signature of Assignor. (X) Ming Chi — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X)
Signature of Assignor. (X) Ming Chi — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X)
Signature of Assignor. (X) Mry Chā - Wn Name of Witness (optional) Signature of Witness (optional) Assignor Name WEN, CHI-YUAN	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X)
Signature of Assignor (X) Ming Chi — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name WEN, CHI-YUAN	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional) Signature of Witness (Optional) Address NO.77, YUHE RD., EAST DISTRICT, TAINAN CITY 701, TAIWAN (R.O.C.) Date of Signature (X)
Signature of Assignor (X) Ming Chi — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name WEN, CHI-YUAN Signature of Assignor (X) Chi — Wan Wan	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional) Signature of Witness (Optional) Address NO.77, YUHE RD., EAST DISTRICT, TAINAN CITY 701, TAIWAN (R.O.C.) Date of Signature (X) Date of Signature (X)
Signature of Assignor (X) Ming Chi — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name WEN, CHI-YUAN	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional) Signature of Witness (Optional) Address NO.77, YUHE RD., EAST DISTRICT, TAINAN CITY 701, TAIWAN (R.O.C.) Date of Signature (X)
Signature of Assignor (X) Ming Ch. — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name WEN, CHI-YUAN Signature of Assignor (X) Chi — Wan Name of Witness (optional)	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional) Signature of Witness (Optional) Address NO.77, YUHE RD., EAST DISTRICT, TAINAN CITY 701, TAIWAN (R.O.C.) Date of Signature (X) Date of Signature (X)
Signature of Assignor (X) Ming Ch. — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name WEN, CHI-YUAN Signature of Assignor (X) Chi — Wan Wan	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional) Signature of Witness (Optional) Address NO.77, YUHE RD., EAST DISTRICT, TAINAN CITY 701, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional)
Signature of Assignor (X) Ming Chi — Wu Name of Witness (optional) Signature of Witness (optional) Assignor Name WEN, CHI-YUAN Signature of Assignor (X) Chi — Wan Name of Witness (optional)	NO.302, ZILI 1ST RD., SANMIN DIST., KAOHSIUNG CITY 807, TAIWAN (R.O.C.) Date of Signature (X) Name of Witness (optional) Signature of Witness (Optional) Address NO.77, YUHE RD., EAST DISTRICT, TAINAN CITY 701, TAIWAN (R.O.C.) Date of Signature (X) Date of Signature (X)

Assignor Name FANG, CHUN-CHIEH	Address NO.12, ALY. 87, LN. 20, ZHONGPU VILLAGE, ZHONGPU TOWNSHIP, CHIAYI COUNTY 606, TAIWAN (R.O.C.)
Signature of Assignor	Date of Signature
(X) FANG, CHUN- CHIEH	(X) \ \20/6 / \ \ / \X
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Wilness (Optional)
Assignor Name YEH, YU-LUNG	Address NO.23, ALY. 23, LN. 209, GUIYANG RD.,
Assignor Name YEH, YU-LUNG	Address
Assignor Name YEH, YU-LUNG	Address NO.23, ALY. 23, LN. 209, GUIYANG RD., XIAOGANG DIST., KAOHSIUNG CITY 812, TAIWAN (R.O.C.)
Assignor Name	Address NO.23, ALY. 23, LN. 209, GUIYANG RD., XIAOGANG DIST., KAOHSIUNG CITY 812,