505110823 09/25/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5157584

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
CHUN-CHIEH TIEN	05/10/2018
CHENG-HSUEN CHIANG	05/03/2018
CHIH-MING CHEN	05/03/2018
CHENG-MING LIN	05/03/2018
YEN-WEI HUANG	05/10/2018
KUO CHIN LIN	05/10/2018
KUAN-SHIEN LEE	05/03/2018
HAO-MING CHANG	05/03/2018

RECEIVING PARTY DATA

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

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15905543

CORRESPONDENCE DATA

Fax Number: (202)756-8087

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: 202-756-8000

Email: lcruz@mwe.com, ipdocketmwe@mwe.com,

WDCIPPTSClerks@mwe.com

Correspondent Name: MCDERMOTT WILL & EMERY LLP
Address Line 1: THE MCDERMOTT BUILDING

Address Line 2: 500 NORTH CAPITOL STREET, N.W.

Address Line 4: WASHINGTON, D.C. 20001

ATTORNEY DOCKET NUMBER: 095714-0395

NAME OF SUBMITTER: LYNN CRUZ

PATENT 505110823 REEL: 046965 FRAME: 0023

CIONATURE	/I VAIN ODUZ/
SIGNATURE:	/LYNN CRUZ/
DATE SIGNED:	09/25/2018
Total Attachments: 4	
source=095714-0395 - ASSIGNMENT#page1.tif	
source=095714-0395 - ASSIGNMENT#page2.tif	
source=095714-0395 - ASSIGNMENT#page3.tif	
source=095714-0395 - ASSIGNMENT#page4.tif	

PATENT REEL: 046965 FRAME: 0024



COMBINED DECLARATION AND ASSIGNMENT FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

I believe I am the original or an original joint inventor of a claimed invention in the application for which a patent is sought on the invention entitled:

METHOD OF MANUFACTURING PHASE SHIFT PHOTO MASKS

which	application is:
\boxtimes	attached, or
	United States application number or PCT international application numberfiled on
The al	pove-identified application was made or authorized to be made by me.
time l autho associ	event that the filing date and/or application number are not entered above at the execute this document, and if such information is deemed necessary, I hereby rize and request the registered practitioners of McDermott Will & Emery LLP, lated with the Customer Number 20277, to insert above the filing date and/or ration number of the application.
	eby acknowledge that any willful false statement made in this declaration is hable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years

ASSIGNMENT

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I hereby assign to

TAIWAN SEMICONDUCTOR MANUFACTURING CO., LTD.
No. 8, Li-Hsin Rd. 6, Science Based Industrial Park, Hsinchu, Taiwan 300

(hereinafter designated as the Assignce), the entire (100%) right, title and interest for the United States as defined in 35 USC §100, in the invention described in the application identified in this document.

I hereby confirm any prior assignment to Assignee, and to the extent that I have not already done so, agree to assign, and hereby do, sell, assign and transfer unto Assignee and its successors in interest, the full and exclusive right, title and interest in the United States of America and throughout the world, including the right to claim priority under the laws of the United States, the Paris Convention, and any foreign countries, to the inventions as described in the aforesaid application, to the aforesaid application itself, and all divisions, continuations, continuations-in-part, or other applications claiming priority directly or indirectly from the aforesaid application, and any United States or foreign Letters Patent, utility model, or other similar rights which may be granted thereon, including reissues, reexaminations and extensions thereof, and all copyright rights throughout the world in the aforesaid application and the subject matter disclosed therein, these rights, title and interest to be held and enjoyed by Assignee to the full end of the term for which the Letters Patent, utility model, or other similar rights, are granted and any extensions thereof as fully and entirely as the same would have been held by the undersigned had this assignment and sale not been made, and the right to sue for, and recover for past infringements of, or liabilities for, any of the rights relating to any of the applications, patents, utility models, or other similar rights, resulting therefrom, and the copyright rights;

I hereby covenant and agree to execute all instruments or documents required or requested for the making and prosecution of any applications of any type for patent, utility model, or other similar rights, and for copyright, in the United States and in all foreign countries including, but not limited to, any provisional, continuation, continuation-in-part, divisional, renewal or substitute thereof, and as to letters patent any reissue, re-examination, or extension thereof, and for litigation regarding, or for the purpose of protecting title and to the said invention, the United States application for patent, or Letters Patent therefor, and to testify in support thereof, for the benefit of Assignee without further or other compensation than that above set forth;

I hereby covenant that no assignment, sale, license, agreement or encumbrance has been or will be entered into which would conflict with this Assignment.

Page 2 of 4

PATENT REEL: 046965 FRAME: 0026

Legal name of inventor	
Chun-Chieh Tien	
Inventor's signature	Date
N 1 1 72	>0/8/05/10
Mundary Jaun	<u> 2010/03/10</u>
Legal name of inventor	
Cheng-Hsuen Chiang	
Inventor's signature	Date
Cheng-Hosuen Chiang	5/3/2018
-	
Legal name of inventor	
Chih-Ming Chen	S. D. J.
Inventor's signature	Date
Chil-Hing Chan	3/3/2018
China May Chang	\
Legal name of inventor	
Cheng-Ming Lin	
Inventor's signature	Nate
	Date 5/3/>/&
Cheny-May Con	77/11/0
Legal name of inventor	
Yen-Wei Huang	
Inventor's signature	Date
Yen with Harf	2018/5/10
Legal name of inventor	
Kuo Chin Lin	
	Date
	5/0 - 2018
FOUR CHA CHA	740
Legal name of inventor	
Kuan-Shien Lee	PA. A
Inventor's signature	Date
Kuan-shien Lee	5/3/2018
	()

Page 3 of 4

Attorney Docket No. 095714-0395 (P20170941US00)

Legal name of inventor	
Hao-Ming Chang	
Inventor's signature	Date
Hao-Ming Ch	ang \$/3/2018
<u> </u>	

Page 4 of 4

DM_US 90867585-1.095714.0395

PATENT REEL: 046965 FRAME: 0028

RECORDED: 09/25/2018