

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT3739389

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
CHIH-YUAN TING	04/07/2014
CHUNG-WEN WU	04/08/2014
RECEIVING PARTY DATA	
Name:	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.
Street Address:	NO. 8, LI-HSIN ROAD 6,
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Postal Code:	300-77
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	15018207
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ATTORNEY DOCKET NUMBER:	24061.2662US02
NAME OF SUBMITTER:	LADONNA JOHNSON
SIGNATURE:	/LaDonna Johnson/
DATE SIGNED:	02/15/2016
Total Attachments: 2	
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source=TSMC2013-1150 HB DMO (02-06-2016) - Assignment - 2662US02#page2.tif	

Docket No.: 2013-1150 /24061.2662
Customer No.: 000042717

ASSIGNMENT

WHEREAS, we,

(1) Chih-Yuan Ting of 6F, No.8-1 Lane 269
Roosevelt Road, Sec.3, Taipei City
106 Taiwan

(2) Chung-Wen Wu of No.565, Jiadong Road, Jiali District
Tainan City 722, Taiwan R.O.C.

have invented certain improvements in

**SYSTEMS AND METHODS FOR IN SITU MAINTENANCE OF A THIN HARDMASK
DURING AN ETCH PROCESS**

for which we have filed an application for Letters Patent of the United States of America on March 28, 2014, as U.S. Serial No. 14/229,521; and

WHEREAS, we authorize the attorney of record to update this document to include Patent Office information as deemed necessary (i.e., filing date, serial number, etc.);

WHEREAS, Taiwan Semiconductor Manufacturing Company, Ltd., ("TSMC"), No. 8, Li-Hsin Rd. 6, Science-Based Industrial Park Hsin-Chu, Taiwan 300-77, Republic of China. is desirous of obtaining the entire right, title, and interest in, to and under the said invention and the said application in the United States of America and in any and all countries foreign thereto;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and other good and valuable consideration, we have sold, assigned, transferred and set over, and by these presents do hereby sell, assign, transfer and set over, unto the said TSMC, its successors, legal representatives, and assigns, the entire right, title, and interest in, to and under the said invention, and the said application, and all divisional, renewal, substitutional, and continuing applications thereof, and all Letters Patent of the United States of America which may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent which may be filed for said invention in any country or countries foreign to the United States of America, and all extensions, renewals, and reissues thereof, and all prior patents and patent applications from which a filing priority of the above-described patent application may be obtained, including the right to collect past damages; and we hereby authorize and request the Commissioner of Patents of the United States of America, and any official of any country or countries foreign to the United States of America, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said invention to the said TSMC, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

AND WE HEREBY covenant 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 said TSMC, its successors, legal representatives and assigns, any facts known to us respecting said invention, and testify in any legal proceedings, sign all lawful papers, execute all divisional, renewal, substitutional, continuing, and reissue applications, make all rightful declarations and/or oaths and generally do everything possible to aid the

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said TSMC, its successors, legal representatives and assigns, to obtain and enforce proper patent protection for said invention in all countries.

Inventor Name: Chih-Yuan Ting

Residence Address: 6F, No.8-1 Lane 269, Roosevelt Road, Sec.3, Taipei City, 106 Taiwan

Dated: 2014/4/7

Chih-Yuan Ting
Inventor Signature

Inventor Name: Chung-Wen Wu

Residence Address: No.565, Jiadong Road, Jiali District, Tainan City 722, Taiwan R.O.C.

Dated: 2014/4/8

Chung-Wen Wu
Inventor Signature