

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
XIONG-FEI YU	08/26/2011
CHUN-YUAN CHOU	08/26/2011
DA-YUAN LEE	08/26/2011
KUAN-YUAN HSU	08/29/2011
JEFF J. XU	08/26/2011
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.
<b>Street Address:</b>	NO. 8, LI-HSIN RD. 6
<b>Internal Address:</b>	SCIENCE-BASED INDUSTRIAL PARK
<b>City:</b>	HSIN-CHU
<b>State/Country:</b>	TAIWAN
<b>Postal Code:</b>	300-77
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	16721283
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(214)200-0853
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<b>Correspondent Name:</b>	HAYNES AND BOONE, LLP (24061) IP SECTION
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<b>ATTORNEY DOCKET NUMBER:</b>	2011-0515/24061.3000US06
<b>NAME OF SUBMITTER:</b>	MARCY OGADO
<b>SIGNATURE:</b>	/Marcy Ogado/
<b>DATE SIGNED:</b>	01/06/2021

**Total Attachments: 3**

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**ASSIGNMENT**

WHEREAS, we,

- |     |                |    |   |
|-----|----------------|----|---|
| (1) | Xiong-Fei Yu   | of | No. 11, #2F-3, Jinshan Street 25<br>Hsinchu 300 Taiwan, R.O.C.                            |
| (2) | Chun-Yuan Chou | of | 8F, No 129, TongBei Street<br>Taipei Taiwan, R.O.C.                                       |
| (3) | Da-Yuan Lee    | of | 10F., No.172, Sec. 2, Jiafong S. Road<br>Jhubei City, Hsinchu County 302<br>Taiwan R.O.C. |
| (4) | Kuan-Yuan Hsu  | of | No.7, Ln. 190, Beiyang Road<br>Fongyuan City, Taichung County 420<br>Taiwan R.O.C.        |
| (5) | Jeff J. Xu     | of | No. 296-5, 14F, Guangming 6th Road, E. Section 1<br>Jhubei City, Hsinchu County, Taiwan   |

have invented certain improvements in

**TECHNIQUES PROVIDING METAL GATE DEVICES WITH  
MULTIPLE BARRIER LAYERS**

for which we have executed an application for Letters Patent of the United States of America on September 1, 2011, as U.S. Serial No. 13/224,033; 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

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FULL NAME OF INVENTOR: Xiong-Fei Yu

INVENTOR'S SIGNATURE: Yin Xiong Fei

DATED: 2011/08/26

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POST OFFICE ADDRESS: No. 11, #2F-3, Jinshan Street 25  
Hsinchu 300 Taiwan, R.O.C.

CITIZENSHIP: Singapore

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FULL NAME OF INVENTOR: Chun-Yuan Chou

INVENTOR'S SIGNATURE: Chun-Yuan Chou

DATED: 2011/08/26

RESIDENCE: Taipei Taiwan, R.O.C.

POST OFFICE ADDRESS: 8F, No 129, TongBei Street  
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CITIZENSHIP: Taiwan, R.O.C.

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FULL NAME OF INVENTOR: Da-Yuan Lee

INVENTOR'S SIGNATURE: Da-Yuan Lee

DATED: 2011/08/26

RESIDENCE: Jhubei City, Hsinchu County 302 Taiwan R.O.C.

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CITIZENSHIP: Taiwan, R.O.C.

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Docket No.: 2011-0515 / 24061.1881  
Customer No.: 42717

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Inventor Name: Kuan-Yuan Hsu

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Dated: 08/29/2011

Kuan-Yuan Hsu  
Inventor Signature

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Inventor Name: Jeff J. Xu

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Jhubei City, Hsinchu County, Taiwan

Dated: 08/26/2011

[Signature]  
Inventor Signature