

## 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>
CHUN-YANG TSAI	11/20/2012
YU-WEI TING	11/20/2012
KUO-CHING HUANG	11/20/2012
<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:	14697849
<b>CORRESPONDENCE DATA</b>	
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<b>ATTORNEY DOCKET NUMBER:</b>	P20120758US01
<b>NAME OF SUBMITTER:</b>	KYLE HOWARD
<b>SIGNATURE:</b>	/KYLE HOWARD/
<b>DATE SIGNED:</b>	04/30/2015
<b>Total Attachments: 2</b>	
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source=P20120758US01_240612278US02_OathDeclaration#page5.tif	

**ASSIGNMENT**

WHEREAS, we,

- |     |                 |    |  |
|-----|-----------------|----|--|
| (1) | Chun-Yang Tsai  | of | No. 19-6, Houhu Hubei Village, Linkou District<br>New Taipei City 244, Taiwan, R.O.C.                    |
| (2) | Yu-Wei Ting     | of | 2F, No. 14, Alley 69, Lane 66, Wende Road, Neihu District<br>Taipei City 114, Taiwan, R.O.C.             |
| (3) | Kuo-Ching Huang | of | 6F-1, No. 419-3, Sec. 2, Gongdao 5 <sup>th</sup> Road, East District<br>Hsinchu City 300, Taiwan, R.O.C. |

have invented certain improvements in

**METHOD AND STRUCTURE FOR RESISTIVE SWITCHING RANDOM  
ACCESS MEMORY WITH HIGH RELIABLE AND HIGH DENSITY**

for which we have filed an application for Letters Patent of the United States of America on \_\_\_\_\_,  
as U.S. Serial No. \_\_\_\_\_; and

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

Inventor Name: Chun-Yang Tsai

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New Taipei City 244, Taiwan, R.O.C.

Dated: ✓ 蔡政揚

✓ 2012/11/20  
Inventor Signature

Inventor Name: Yu-Wei Ting

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Dated: ✓ 丁詠偉

✓ 2012/11/20  
Inventor Signature

Inventor Name: Kuo-Ching Huang

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Dated: ✓ 黃國欽

✓ 2012/11/20  
Inventor Signature