504258331 03/06/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 EPAS ID: PAT4305011 Stylesheet Version v1.2

SUBMISSION TYPE: NEW ASSIGNMENT

NATURE OF CONVEYANCE: ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MOHAMMAD AL-SHYOUKH	10/13/2014
ALEXANDER KALNITSKY	10/14/2014

RECEIVING PARTY DATA

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

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15450912

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NAME OF SUBMITTER: RANDY A. NORANBROCK

SIGNATURE: /Randy A. Noranbrock/

DATE SIGNED: 03/06/2017

Total Attachments: 1

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PATENT 504258331 REEL: 041477 FRAME: 0425

ASSIGNMENT

In consideration of the premises and other good and valuable consideration in hand paid, the receipt and sufficiency of which is hereby acknowledged, the undersigned,

- 1) Mohammad AL-SHYOUKH
- 2) Alex KALNITSKY

who has made a certain new and useful invention, hereby sells, assigns and transfers unto TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD., having a place of business at No. 8. Li-Hsin Rd. VI, Hsinchu Sojence Park, Hsinchu 300, Tajwan R.O.C.

its successors and assigns (hereinafter designated "ASSIGNEE") the entire right, title and interest for the United States of America as defined in 35 U.S.C. 100 in the invention entitled

FLIPPED GATE CURRENT REFERENCE AND METHOD OF USING

- for which an application for United States Letters Patent was filed on 2014-10-20 (a) United States Patent Application No. <u>14/518,638</u>
- for which an application for United States Letters Patent was executed on _ (b)

and the undersigned hereby authorizes and requests the United States Commissioner of Patents and Trademarks to issue any and all United States Letters Patent which may be granted therefore and any and all extensions, divisions, reissues, continuations, or continuations in part thereof, and the right to all benefits under the International Convention for the Protection of Industrial Property to the said ASSIGNEB, for its ruterest as ASSIGNEB, its successors, assigns and legal representatives; the undersigned agrees that the attorneys of record in said application shall hereafter act on behalf of said ASSIGNEE;

AND the undersigned hereby agrees to transfer a like interest, and to render all necessary assistance in making application for and obtaining original, divisional, reissued or extended Letters Patent of the United States, upon request of the said ASSIGNEE, its successors, assigns and legal representatives, and without further remuneration, in and to any improvements, and applications for patent based thereon, growing out of or related to the said invention; and to execute any papers by the said ASSIGNEE, its successors, assigns and logal representatives, deemed essential to ASSIGNEE's full protection and title in and to the invention hereby transferred.

SIGNET) on the date indicated aside my signature:

Name: Alex K.ALNITSKY

10/13/2014 Date:

PATENT

REEL: 041477 FRAME: 0426

RECORDED: 03/06/2017