

## PATENT ASSIGNMENT COVER SHEET

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EPAS ID: PAT4352055

|                                                                                                                                                                                                 |                                                                      |
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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>                                                |
| SATORU TAKAKU                                                                                                                                                                                   | 03/27/2017                                                           |
| <b>RECEIVING PARTY DATA</b>                                                                                                                                                                     |                                                                      |
| <b>Name:</b>                                                                                                                                                                                    | KABUSHIKI KAISHA TOSHIBA                                             |
| <b>Street Address:</b>                                                                                                                                                                          | 1-1, SHIBAURA 1-CHOME, MINATO-KU                                     |
| <b>City:</b>                                                                                                                                                                                    | TOKYO                                                                |
| <b>State/Country:</b>                                                                                                                                                                           | JAPAN                                                                |
| <b>Postal Code:</b>                                                                                                                                                                             | 105-8001                                                             |
| <b>PROPERTY NUMBERS Total: 1</b>                                                                                                                                                                |                                                                      |
| <b>Property Type</b>                                                                                                                                                                            | <b>Number</b>                                                        |
| <b>Application Number:</b>                                                                                                                                                                      | 15451315                                                             |
| <b>CORRESPONDENCE DATA</b>                                                                                                                                                                      |                                                                      |
| <b>Fax Number:</b>                                                                                                                                                                              | (713)623-4846                                                        |
| <i>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.</i> |                                                                      |
| <b>Phone:</b>                                                                                                                                                                                   | 713-623-4844                                                         |
| <b>Email:</b>                                                                                                                                                                                   | psdocketing@pattersonsheridan.com,<br>rbermejo@pattersonsheridan.com |
| <b>Correspondent Name:</b>                                                                                                                                                                      | FREDERICK D. KIM                                                     |
| <b>Address Line 1:</b>                                                                                                                                                                          | 24 GREENWAY PLAZA, SUITE 1600                                        |
| <b>Address Line 4:</b>                                                                                                                                                                          | HOUSTON, TEXAS 77046                                                 |
| <b>ATTORNEY DOCKET NUMBER:</b>                                                                                                                                                                  | TAI/1787US                                                           |
| <b>NAME OF SUBMITTER:</b>                                                                                                                                                                       | FREDERICK D. KIM                                                     |
| <b>SIGNATURE:</b>                                                                                                                                                                               | /Frederick D. Kim/                                                   |
| <b>DATE SIGNED:</b>                                                                                                                                                                             | 04/04/2017                                                           |
| This document serves as an Oath/Declaration (37 CFR 1.63).                                                                                                                                      |                                                                      |
| <b>Total Attachments: 2</b>                                                                                                                                                                     |                                                                      |
| source=TAI_1787US_DeclarationcombinedwithAssignment#page1.tif                                                                                                                                   |                                                                      |
| source=TAI_1787US_DeclarationcombinedwithAssignment#page2.tif                                                                                                                                   |                                                                      |

AMG098954USAA2 (TAI/1787US)

**ASSIGNMENT FOR APPLICATION FOR PATENT  
WITH DECLARATION STATEMENT**

WHEREAS:

Names and Addresses of Inventors:

|    |                                          |  |  |
|----|------------------------------------------|--|--|
| 1) | Satoru TAKAKU<br>Yokohama Kanagawa Japan |  |  |
|----|------------------------------------------|--|--|

(hereinafter referred to as Assignors), have invented a certain invention entitled:

**SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING THE SAME**

enclosed herewith or for which application for Letters Patent in the United States was filed on **March 6, 2017** under Serial No. **15/451,315**; and

WHEREAS, Kabushiki Kaisha Toshiba, a Japanese corporation, having a business address at 1-1, Shibaura 1-chome, Minato-ku, Tokyo, Japan, a Japanese corporation, having a business address at (hereinafter referred to as Assignee), are desirous of acquiring the entire right, title and interest in and to said application (hereinafter referred to as Application), and the invention disclosed therein (hereinafter referred to as Invention), and in and to all embodiments of the Invention, heretofore conceived, made or discovered by said Assignors, and in and to any and all patents, inventor's certificates and other forms of protection (hereinafter referred to as Patents) thereon granted in any and all countries and groups of countries.

NOW, THEREFORE, in consideration of good and valuable consideration acknowledged by said Assignors to have been received in full from said Assignee:

1. Said Assignors hereby sell, assign, transfer and convey to Assignee the full and exclusive right, title and interest (a) in and to said Application and said Invention; (b) in and to all rights to apply for patents on said Invention in any and all countries pursuant to the International Convention for the Protection of Industrial Property or otherwise; (c) in and to any and all Applications filed and any and all Patents granted on said Invention in any and all countries and groups of countries, including each and every Application filed and each and every Patent granted on any application which is a conventional, division, substitution, or continuation of said Application; and (d) in and to each and every reissue or extension of any of said Patents.

2. Said Assignors hereby covenant and agree to cooperate with said Assignee to enable said Assignee to enjoy to the fullest extent the right, title and interest to said Invention herein conveyed in any and all countries and groups of countries. Such cooperation by said Assignors shall include prompt production of pertinent facts and documents, giving testimony, execution of petitions, oaths, specifications, declarations or other papers, and other assistance all to the extent deemed necessary or desirable by said Assignee (a) for perfecting in said Assignee the right, title and interest herein conveyed; (b) for prosecuting any of said applications; (c) for filing and prosecuting substitute, conventional, divisional, continuing or additional applications covering said Invention; (d) for filing and prosecuting applications for reissuance of any of said Patents; (e) for interference or other priority proceedings involving said Invention; and (f) for legal proceedings involving said Invention and any application therefore and any Patents granted thereon, including without limitation opposition proceedings,

cancellation proceedings, priority contests, public use proceedings, infringement actions and court actions; provided, however, that the expense incurred by said Assignors in providing such cooperation shall be paid for by said Assignee.

3. The term and covenants of this agreement shall inure to the benefit of said Assignee, its successors, assigns and other legal representatives, and shall be binding upon said Assignors, their respective heirs, legal representatives and assigns.

4. Said Assignors hereby warrant and represent that they have not entered and will not enter into any assignment, contract, or understanding in conflict herewith.

5. In the event that the filing date and/or Application No. of said Invention are not entered above at the time Assignors execute this document, and if such information is deemed necessary, Assignors hereby authorize and request the attorney/agent(s) of **Patterson & Sheridan, LLP**, to insert above the filing date and/or Application No. of said application.

6. This declaration is directed to the above-identified application.

As a below named inventor, I hereby declare that:

The above-identified application was made or authorized to be made by me;

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application; and

I acknowledge that any willful false statement made in this declaration is punishable under section 1001 of title 18 by fine or imprisonment of not more than 5 years, or both.

IN WITNESS WHEREOF, the said Assignors have executed and delivered this instrument to said Assignee on the dates indicated below.

1) March 27, 2017 (DATE)

Satoru TAKAKU  
Satoru TAKAKU