**PATENT ASSIGNMENT COVER SHEET**

SUBMISSION TYPE: NEW ASSIGNMENT  
NATURE OF CONVEYANCE: ASSIGNMENT

### CONVEYING PARTY DATA

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<th>Name</th>
<th>Execution Date</th>
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<tr>
<td>KEIJI ISHIBASHI</td>
<td>07/31/2012</td>
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### RECEIVING PARTY DATA

<table>
<thead>
<tr>
<th>Name</th>
<th>SUMITOMO ELECTRIC INDUSTRIES, LTD.</th>
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<tbody>
<tr>
<td>Street Address</td>
<td>5-33, KITAHAMA 4-CHOME, CHUO-KU</td>
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<tr>
<td>City</td>
<td>OSAKA-SHI, OSAKA</td>
</tr>
<tr>
<td>State/Country</td>
<td>JAPAN</td>
</tr>
<tr>
<td>Postal Code</td>
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### PROPERTY NUMBERS Total: 1

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<td>14495336</td>
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### CORRESPONDENCE DATA

Fax Number: (202)842-8465

*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.*

Phone: 202-842-8800

Email: felicia.bull@dbr.com

Correspondent Name: DRINKER BIDDLE & REATH (DC)

Address Line 1: 1500 K STREET, N.W.

Address Line 2: SUITE 1100

Address Line 4: WASHINGTON, D.C. 20005-1209

### ATTORNEY DOCKET NUMBER:

201917-0080-02-US-517147

### NAME OF SUBMITTER:

FELICIA E BULL

### SIGNATURE:

/Felicia E. Bull/

### DATE SIGNED:

09/24/2014

Total Attachments: 2

source=201917-0080-02-Assignment#page1.tif

source=201917-0080-02-Assignment#page2.tif
ASSIGNMENT

WHEREAS I/We, the below named inventor(s), [hereinafter referred to as Assignor(s)], have made an invention entitled:
Substrate, Semiconductor Device, and Method of Manufacturing the Same

for which I/WE executed an application for United States Letters Patent concurrently herewith; or filed an application for United States Letters Patent on ________________, (Serial No. ____________); and

WHEREAS, Sumitomo Electric Industries, Ltd., a corporation of Japan, whose post office address is 5-33, Kitahama 4-chome, Chuo-ku, Osaka-shi, Osaka 541-0041 Japan, (hereinafter referred to as Assignee), is desirous of securing the entire right, title, and interest in and to this invention, the application for United States Letters Patent on this invention and the Letters Patent to issue upon this application;

NOW THEREFORE, be it known that, for good and valuable consideration the receipt of which from assignee is hereby acknowledged, I/WE, as assignor(s), have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the assignee, its lawful successors and assigns, MY/OUR entire right, title, and interest in and to this invention and this application, and all divisions, and continuations thereof, and all Letters Patent of the United States which may be granted thereon, and all reissues thereof; and I/WE hereby authorize and request the Commissioner of Patents and Trademarks of the United States to issue all Letters Patent for this invention to assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, I/WE HEREBY further covenant and agree that I/WE will, without further consideration, communicate with assignee, its successors and assigns, any facts known to ME/US respecting this invention and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver all papers that may be necessary or desirable to perfect the title to this invention in said assignee, its successors and assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid assignee, its successors and assigns, to obtain and enforce proper patent protection for this invention in the United States, it being understood that any expense incident to the execution of such papers shall be borne by the assignee, its successors and assigns.

AND, I/WE HEREBY authorize and request the attorneys I/WE have empowered in the Declaration and Power of Attorney in this application, to insert here in parenthesis (Application No. ) the filing date and application number of said application when known.

IN TESTIMONY WHEREOF, I/WE have hereunto set our hand(s).

<table>
<thead>
<tr>
<th>Full Name of Sole or First Assignor</th>
<th>Assignor's Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keiji ISHIBASHI</td>
<td>Keiji ISHIBASHI</td>
<td>July 31, 2012</td>
</tr>
<tr>
<td>Address</td>
<td>Citizenship</td>
<td>Japanese</td>
</tr>
<tr>
<td>c/o Itami Works of Sumitomo Electric Industries, Ltd., 1-1, Koyakita 1-chome, Itami-shi, Hyogo 664-0016 Japan</td>
<td></td>
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<tr>
<th>Full Name of Second Assignor</th>
<th>Assignor's Signature</th>
<th>Date</th>
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<td>Citizenship</td>
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Names of additional inventors attached [ ] Yes [x] No
UNITED STATES PATENT AND TRADEMARK OFFICE

AUGUST 3, 2012

DRINKER BIDDLE & REATH (DC)
1500 K STREET, N.W.
SUITE 1100
WASHINGTON, DC 20005-1209

502011098

UNITED STATES PATENT AND TRADEMARK OFFICE
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1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 08/02/2012
REEL/FRAME: 028705/0292
NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: 201917-0080

ASSIGNOR:
ISHIBASHI, KREIJI

ASSIGNEE:
SUMITOMO ELECTRIC INDUSTRIES, LTD.
5-33, KITAHAMMA 4-CHOME, CHUO-KU
OSAKA-SHI, OSAKA, JAPAN 541-0041

APPLICATION NUMBER: 13564779
FILING DATE:

PATENT NUMBER:
ISSUE DATE:

TITLE: SUBSTRATE, SEMICONDUCTOR DEVICE, AND METHOD OF MANUFACTURING THE
SAME

ASSIGNMENT RECORDATION BRANCH
PUBLIC RECORDS DIVISION

P.O. Box 1450, Alexandria, Virginia 22314-1450 • www.uspto.gov

RECORDED: 09/24/2014

PATENT
REEL: 033809 FRAME: 0011