

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5317515

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
SHIGEKI KOYA	01/07/2019
TAKAYUKI TSUTSUI	01/07/2019
KAZUHITO NAKAI	01/07/2019
YUSUKE TANAKA	01/07/2019
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	MURATA MANUFACTURING CO., LTD.
<b>Street Address:</b>	10-1, HIGASHIKOTARI 1-CHOME, NAGAOKAKYO-SHI
<b>City:</b>	KYOTO-FU
<b>State/Country:</b>	JAPAN
<b>Postal Code:</b>	617-8555
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	16243943
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(703)390-1277
<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>	(703)390-9051
<b>Email:</b>	info@sbpatentlaw.com
<b>Correspondent Name:</b>	STUDEBAKER & BRACKETT PC
<b>Address Line 1:</b>	8255 GREENSBORO DRIVE
<b>Address Line 2:</b>	SUITE 300
<b>Address Line 4:</b>	TYSONS, VIRGINIA 22102
<b>ATTORNEY DOCKET NUMBER:</b>	002000-MM0534
<b>NAME OF SUBMITTER:</b>	JOSEPH J. BUCZYNSKI
<b>SIGNATURE:</b>	/Joseph J. Buczynski/
<b>DATE SIGNED:</b>	01/09/2019
This document serves as an Oath/Declaration (37 CFR 1.63).	
<b>Total Attachments: 8</b>	

source=Dec\_Asn#page1.tif  
source=Dec\_Asn#page2.tif  
source=Dec\_Asn#page3.tif  
source=Dec\_Asn#page4.tif  
source=Dec\_Asn#page5.tif  
source=Dec\_Asn#page6.tif  
source=Dec\_Asn#page7.tif  
source=Dec\_Asn#page8.tif

**COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT OF APPLICATION  
FOR UNITED STATES LETTERS PATENT**

Title of Invention:

**SEMICONDUCTOR DEVICE**

私は、以下に記名された発明者として、ここに下記の通り  
宣言する：

As a below named inventor, I hereby declare that:

本宣言書は、以下の出願に対するものである：

This declaration is directed to:

- ☐ 添付された出願、あるいは、  
☐ 米国出願番号またはPCT国際出願番号は、  
\_\_\_\_\_であり、且つ  
\_\_\_\_\_の日に  
(該当する場合) 出願された出願

- ☒ The attached application, or  
☐ United States application or PCT international  
application number \_\_\_\_\_  
filed on \_\_\_\_\_

上記出願書(明細書及び図面)は、私が作成したもの  
か、あるいは私がその作成を許可したものである。

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

私は、本米国出願の請求範囲で記載された発明に  
対する原発明者であるか、或いは、原共同発明者  
であると信じている。

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

私は、ここでの宣誓または陳述において故意に偽りを述べ  
た場合、合衆国法典第18巻第1001条に基づき、罰金  
あるいは5年以下の懲役、または、両方の懲罰を受けるこ  
とを認める。

I hereby acknowledge that any willful false statement  
made in this declaration is punishable under 18  
U.S.C. 1001 by fine or imprisonment of not more than  
five (5) years, or both.

**STATEMENT OF ACCURATE TRANSLATION IN  
ACCORDANCE WITH 37 CFR 1.69(b):**

The Declaration and Assignment for Patent and Design  
Applications is an accurate translation of the corresponding  
English language Declaration and Assignment for Patent  
and Design Applications

Signature: 

Date: 11/15/2012

**WHEREAS** the undersigned, hereinafter referred to as the assignor, has invented a certain improvement relating to the above identified application.

The inventor declaration for said application is combined herewith.

☒ said application to be filed in the United States Patent and Trademark Office;

☐ said application having been filed in the United States Patent and Trademark Office on, \_\_\_\_\_ authorization being hereby given to the practitioners associated with STUDEBAKER & BRACKETT PC's CUSTOMER NUMBER 78198, to insert here in parentheses (Application Serial No. \_\_\_\_\_) the application serial number of said application when known;

☐ said application having been filed under the Patent Cooperation Treaty on \_\_\_\_\_, as  
Serial No. \_\_\_\_\_, the United States of America being designated.

**AND WHEREAS** Murata Manufacturing Co., Ltd. of 10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto-fu 617-8555 JAPAN, hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

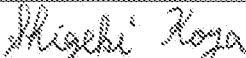
**NOW**, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

The undersigned hereby grants the law firm of STUDEBAKER & BRACKETT PC the power to insert on the Assignment portion of this combined Declaration and Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

This combined Declaration and Assignment has been executed by the undersigned on the date opposite the undersigned name.

発明者氏名/ Legal Name of Inventor	Shigeki KOYA	
発明者の署名/ Signature		日付/ Date 7th Jan, 2019

**COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT OF APPLICATION  
FOR UNITED STATES LETTERS PATENT**

Title of Invention:

**SEMICONDUCTOR DEVICE**

私は、以下に記名された発明者として、ここに下記の通り  
宣言する：

As a below named inventor, I hereby declare that:

本宣言書は、以下の出願に対するものである：

This declaration is directed to:

- ☐ 添付された出願、あるいは、  
☐ 米国出願番号またはPCT国際出願番号は、  
\_\_\_\_\_であり、且つ  
\_\_\_\_\_の日に出願された出願  
(該当する場合)

☒ The attached application, or  
☐ United States application or PCT international  
application number \_\_\_\_\_  
filed on \_\_\_\_\_

上記出願書(明細書及び図面)は、私が作成したもの  
か、あるいは私がその作成を許可したものである。

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

私は、本米国出願の請求範囲で記載された発明に  
対する原発明者であるか、或いは、原共同発明者  
であると信じている。

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

私は、ここでの宣誓または陳述において故意に偽りを述べ  
た場合、合衆国法典第18巻第1001条に基づき、罰金  
あるいは5年以下の懲役、または、両方の懲罰を受けるこ  
とを認める。

I hereby acknowledge that any willful false statement  
made in this declaration is punishable under 18  
U.S.C. 1001 by fine or imprisonment of not more than  
five (5) years, or both.

**STATEMENT OF ACCURATE TRANSLATION IN  
ACCORDANCE WITH 37 CFR 1.69(b):**

The Declaration and Assignment for Patent and Design  
Applications is an accurate translation of the corresponding  
English language Declaration and Assignment for Patent  
and Design Applications

Signature: \_\_\_\_\_

Date: 11/15/2012

**WHEREAS** the undersigned, hereinafter referred to as the assignor, has invented a certain improvement relating to the above identified application.

The inventor declaration for said application is combined herewith.

☒ said application to be filed in the United States Patent and Trademark Office;

☐ said application having been filed in the United States Patent and Trademark Office on, \_\_\_\_\_ authorization being hereby given to the practitioners associated with STUDEBAKER & BRACKETT PC's CUSTOMER NUMBER 78198, to insert here in parentheses (Application Serial No. \_\_\_\_\_) the application serial number of said application when known;

☐ said application having been filed under the Patent Cooperation Treaty on \_\_\_\_\_, as  
Serial No. \_\_\_\_\_, the United States of America being designated.

**AND WHEREAS** Murata Manufacturing Co., Ltd. of 10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto-fu 617-8555 JAPAN, hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

**NOW**, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

The undersigned hereby grants the law firm of STUDEBAKER & BRACKETT PC the power to insert on the Assignment portion of this combined Declaration and Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

This combined Declaration and Assignment has been executed by the undersigned on the date opposite the undersigned name.

発明者氏名/ Legal Name of Inventor	Takayuki TSUTSUI
発明者の署名/ Signature	日付/ Date 07 Jan 2019

**COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT OF APPLICATION  
FOR UNITED STATES LETTERS PATENT**

**Title of Invention:**

**SEMICONDUCTOR DEVICE**

私は、以下に記名された発明者として、ここに下 記の通り宣言する： As a below named inventor, I hereby declare that:

本宣言書は、以下の出願に対するものである：

This declaration is directed to:

- ☐ 添付された出願、あるいは、  
☐ 米国出願番号またはPCT国際出願番号は、  
\_\_\_\_\_ であり、且つ  
\_\_\_\_\_ の日に提出された出願  
(該当する場合)

- ☒ The attached application, or  
☐ United States application or PCT international  
application number \_\_\_\_\_  
filed on \_\_\_\_\_

上記出願書(明細書及び図面)は、私が作成したものか、あるいは私がその作成を許可したものである。

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

私は、本米国出願の請求範囲に記載された発明に対する原発明者であるか、或いは、原共同発明者であると信じている。


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

私は、ここでの宣誓または陳述において故意に偽りを述べた場合、合衆国法典第18巻第1001条に基づき、罰金あるいは5年以下の懲役、または、両方の懲罰を受けることを認める。

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

**STATEMENT OF ACCURATE TRANSLATION IN  
ACCORDANCE WITH 37 CFR 1.69(b):**

The Declaration and Assignment for Patent and Design Applications is an accurate translation of the corresponding English language Declaration and Assignment for Patent and Design Applications

Signature: 

Date: 11/15/2012

**WHEREAS** the undersigned, hereinafter referred to as the assignor, has invented a certain improvement relating to the above identified application.

The inventor declaration for said application is combined herewith.

☒ said application to be filed in the United States Patent and Trademark Office;

☐ said application having been filed in the United States Patent and Trademark Office on, \_\_\_\_\_ authorization being hereby given to the practitioners associated with STUDEBAKER & BRACKETT PC's CUSTOMER NUMBER 78198, to insert here in parentheses (Application Serial No. \_\_\_\_\_) the application serial number of said application when known;

☐ said application having been filed under the Patent Cooperation Treaty on \_\_\_\_\_ as  
Serial No. \_\_\_\_\_, the United States of America being designated.

**AND WHEREAS** Murata Manufacturing Co., Ltd. of 10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto-fu 617-8555 JAPAN, hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

**NOW**, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

**AND** said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

**AND** said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

The undersigned hereby grants the law firm of STUDEBAKER & BRACKETT PC the power to insert on the Assignment portion of this combined Declaration and Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

This combined Declaration and Assignment has been executed by the undersigned on the date opposite the undersigned name.

発明者氏名/ Legal Name of Inventor	Kazuhito NAKAI
発明者の署名/ Signature	Kazuhito Nakai
日付/ Date	January 7, 2019



**COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT OF APPLICATION  
FOR UNITED STATES LETTERS PATENT**

Title of Invention:

**SEMICONDUCTOR DEVICE**

私は、以下に記名された発明者として、ここに下記の通り  
宣言する：

As a below named inventor, I hereby declare that:

本宣言書は、以下の出願に対するものである：

This declaration is directed to:

- ☐ 添付された出願、あるいは、  
☐ 米国出願番号またはPCT国際出願番号は、  
\_\_\_\_\_であり、且つ  
\_\_\_\_\_の日に出願された出願  
(該当する場合)

- ☒ The attached application, or  
☐ United States application or PCT international  
application number \_\_\_\_\_  
filed on \_\_\_\_\_

上記出願書(明細書及び図面)は、私が作成したもの  
か、あるいは私がその作成を許可したものである。

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

私は、本米国出願の請求範囲で記載された発明に  
対する原発明者であるか、或いは、原共同発明者  
であると信じている。

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

私は、ここでの宣誓または陳述において故意に偽りを述べ  
た場合、合衆国法典第18巻第1001条に基づき、罰金  
あるいは5年以下の懲役、または、両方の懲罰を受けるこ  
とを認める。

I hereby acknowledge that any willful false statement  
made in this declaration is punishable under 18  
U.S.C. 1001 by fine or imprisonment of not more than  
five (5) years, or both.

**STATEMENT OF ACCURATE TRANSLATION IN  
ACCORDANCE WITH 37 CFR 1.69(b):**

The Declaration and Assignment for Patent and Design  
Applications is an accurate translation of the corresponding  
English language Declaration and Assignment for Patent  
and Design Applications

Signature: \_\_\_\_\_

Date: 11/15/2012

WHEREAS the undersigned, hereinafter referred to as the assignor, has invented a certain improvement relating to the above identified application.

The inventor declaration for said application is combined herewith.

☒ said application to be filed in the United States Patent and Trademark Office;

☐ said application having been filed in the United States Patent and Trademark Office on, \_\_\_\_\_ authorization being hereby given to the practitioners associated with STUDEBAKER & BRACKETT PC's CUSTOMER NUMBER 78198, to insert here in parentheses (Application Serial No. \_\_\_\_\_) the application serial number of said application when known;

☐ said application having been filed under the Patent Cooperation Treaty on \_\_\_\_\_, as  
Serial No. \_\_\_\_\_, the United States of America being designated.

AND WHEREAS Murata Manufacturing Co., Ltd. of 10-1, Higashikotari 1-chome, Nagaokakyo-shi, Kyoto-fu 617-8555 JAPAN, hereinafter referred to as the assignee, is desirous of acquiring the entire right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof;

NOW, that for and in consideration of One Dollar (\$1.00), and other good and valuable consideration paid by said assignee to said assignor, the receipt of which is hereby acknowledged, said assignor hereby assigns, sells and transfers to said assignee, and said assignee's successors and assigns, the full and exclusive right, title and interest in and to said application, including any and all divisions and continuations thereof, and in and to said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof; said assignee, and said assignee's successors and assigns, to have, hold, exercise and enjoy the said application, including any and all divisions and continuations thereof, and the said invention and any and all patents which may be granted therefor, including any and all renewals, reissues and prolongations thereof, with all the rights, powers, privileges and advantages in anywise arising from or appertaining thereto, for and during the term or terms of any and all such patents when granted, including any and all renewals, reissues and prolongations thereof, for the use and benefit of said assignee, and said assignee's successors and assigns, in as ample and beneficial a manner as the said assignor might or could have held and enjoyed the same, if this assignment had not been made.

AND said assignor hereby agrees to perform, upon the request of said assignee, or said assignee's successors or assigns, any and all acts relating to the obtaining or to the asserting of said patents, including any and all renewals, reissues and prolongations thereof.

AND said assignor authorizes and requests the Commissioner of Patents and Trademarks to issue Letters Patent on said application, and on any and all divisions and continuations thereof, to said assignee, and said assignee's successors and assigns, in accordance herewith.

The undersigned hereby grants the law firm of STUDEBAKER & BRACKETT PC the power to insert on the Assignment portion of this combined Declaration and Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

This combined Declaration and Assignment has been executed by the undersigned on the date opposite the undersigned name.

発明者氏名/ Legal Name of Inventor	Yusuke TANAKA
発明者の署名/ Signature	Yusuke Tanaka
日付/ Date	January 17, 2019