503879163 06/20/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3925812

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MAKI HASEGAWA HASEGAWA	09/04/2014
MASAHIRO KATO	09/04/2014
SHINYA NAKAGAWA	09/04/2014
HISASHI KAWAFUJI	09/04/2014
TORU IWAGAMI	09/04/2014

RECEIVING PARTY DATA

Name:	MITSUBISHI ELECTRIC CORPORATION
Street Address:	7-3, MARUNOUCHI 2-CHOME, CHIYODA-KU,
City:	TOKYO
State/Country:	JAPAN
Postal Code:	100-8310

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	29568598

CORRESPONDENCE DATA

Fax Number: (703)390-1277

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: 703 390 9051

Email: info@sbpatentlaw.com

Correspondent Name: STUDEBAKER & BRACKETT PC Address Line 1: 12700 SUNRISE VALLEY DRIVE

Address Line 2: SUITE 102

Address Line 4: RESTON, VIRGINIA 20191

ATTORNEY DOCKET NUMBER:	002500-ME0157	
NAME OF SUBMITTER:	DONALD R. STUDEBAKER	
SIGNATURE:	/Donald R. Studebaker/	
DATE SIGNED:	06/20/2016	
This document serves as an Oath/Declaration (37 CFR 1.63).		

PATENT REEL: 038958 FRAME: 0402

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PATENT REEL: 038958 FRAME: 0403



Title of Invention:		
POWER 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:		
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、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	
ヨ 9 の物合)		
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: 7	
•	Date: <u>11/15/2012</u>	

Page 1 of 10



The inventor declaration for said application is combined herewith.		
[X] 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 <u>STUDEBAKER & BRACKETT PC's CUSTOMER NUMBER 78198</u> , 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 MITSUBISHI ELECTRIC CORPORATION of 7-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8310 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 Maki HASEGAWA		
発明者の署名/ Signature 日付/ Date		
Mati Hasenawa September U 2014		



Title of Invention:	
POWER SEMIC	ONDUCTOR 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:	
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
二、1の後に)	
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: <u>11/15/2012</u>

Page 3 of 10



The inventor declaration for said application is combined herewith.	
[X] 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 MITSUBISHI ELECTRIC CORPORATION of 7-3, Marunouchi 2-chome. Chiyoda-ku. Tokyo 100-8310 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 Masahiro KATO	
発明者の署名/ Signature 日付/ Date	
Masahim Kato September 4 2014	



Title of Invention:	
POWER SEMICO	NDUCTOR 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:	
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
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.
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Page 5 of 10



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[] said application having been filed in the United States Patent and Trademark Office on,authorization being hereby given to the practitioners associated with <u>STUDEBAKER & BRACKETT PC's CUSTOMER NUMBER 78198</u> , 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 Tr Serial No, the United States of Americ	eaty on, as a being designated.	
AND WHEREAS <u>MITSUBISHIFLECTRIC CORPORATION</u> Chiyoda-ku, Tokyo 100-8310 JAPAN, hereinafter referred to as the a entire right, title and interest in and to said application, including any ar and in and to said invention and any and all patents which may be granewals, reissues and prolongations thereof;	ssignee, is desirous of acquiring the nd all divisions and continuations 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.		
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This combined Declaration and Assignment has been execut opposite the undersigned name.	ed by the undersigned on the date	
発明者氏名/ Legal Name of Inventor Shinya NAKA	AGAWA	
発明者の署名/ Signature 日付/ Date		
Shinya Nakagawa Septer	mher 4 2014	



Title of Invention:		
POWER SEMICO	NDUCTOR 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	
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	Signature: 11/15/2012	

Page 7 of 10



	The inventor declaration for said application is combined herewith.
	[X] 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 MITSUBISHIELECTRIC CORPORATION of 7-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo 100-8310 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 Hisashi KAWAFUJI
-	発明者の署名/ Signature 日付/ Date
	Heashi Kamahiji September, 4.2014

Page 8 of 10



Title of Invention:			
	·		
POWER 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	The attached application, or United States application or PCT international application number		
当する場合)			
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.		
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	Signature: 7		
	Date: <u>11/15/2012</u>		

Page 9 of 10



RECORDED: 06/20/2016

Attorney Docket No. 002500-ME

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 co	mbined herewith.
[X] said application to be filed in the United State	es Patent and Trademark Office;
[] said application having been filed in the United authorization being hereby given to the practition CUSTOMER NUMBER 78198, to insert here in papplication serial number of said application when	ers associated with <u>STUDEBAKER & BRACKETT PC's</u> parentheses (Application Serial No) the
[] said application having been filed under the Pa Serial No, the Unit	atent Cooperation Treaty on, as led States of America being designated.
Chiyoda-ku, Tokyo 100-8310 JAPAN, hereinafter entire right, title and interest in and to said applications.	IC CORPORATION of 7-3, Marunouchi 2-chome, referred to as the assignee, is desirous of acquiring the tion, including any and all divisions and continuations thereof, into which may be granted therefor, including any and all
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 per- successors or assigns, any and all acts relating to any and all renewals, reissues and prolongations	form, upon the request of said assignee, or said assignee's o the obtaining or to the asserting of said patents, including a thereof.
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This combined Declaration and Assignm opposite the undersigned name.	ent has been executed by the undersigned on the date
発明者氏名/ Legal Name of Inventor	Toru IWAGAMI
発明者の署名/ Signature	百付/ Date
Toru Iwagam	September 4.2014

Page 10 of 10