

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

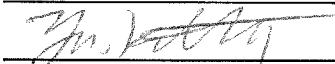
EPAS ID: PAT4400480

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
KAI-HUNG YU	02/10/2017
MANABU OIE	02/14/2017
KAORU MAEKAWA	02/10/2017
CORY WAJDA	02/13/2017
GERRIT J. LEUSINK	02/10/2017
YUUKI KIKUCHI	02/10/2017
HIROAKI KAWASAKI	02/13/2017
HIROYUKI NAGAI	02/13/2017
RECEIVING PARTY DATA	
Name:	TOKYO ELECTRON LIMITED
Street Address:	AKASAKA BIZ TOWER
Internal Address:	3-1 AKASAKA 5-CHOME
City:	MINATO-KU, TOKYO
State/Country:	JAPAN
Postal Code:	107-6325
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	15428749
CORRESPONDENCE DATA	
Fax Number:	
<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>	
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Email:	TEHIPDocket@us.tel.com
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Address Line 1:	2400 GROVE BLVD.
Address Line 4:	AUSTIN, TEXAS 78741
ATTORNEY DOCKET NUMBER:	TTCA-593US2-ORD
NAME OF SUBMITTER:	AUDUNN LUDVIKSSON

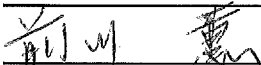
SIGNATURE:	/Audunn Ludviksson/
DATE SIGNED:	05/05/2017
	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 9 source=TTCA-593US2-ORD#page1.tif source=TTCA-593US2-ORD#page2.tif source=TTCA-593US2-ORD#page3.tif source=TTCA-593US2-ORD#page4.tif source=TTCA-593US2-ORD#page5.tif source=TTCA-593US2-ORD#page6.tif source=TTCA-593US2-ORD#page7.tif source=TTCA-593US2-ORD#page8.tif source=TTCA-593US2-ORD#page9.tif	


to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the undersigned had this Assignment not been made. I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, for the ASSIGNEE, whenever requested by the ASSIGNEE.


As an undersigned inventor, I acknowledge prior and ongoing obligations to sell, assign, and/or transfer my rights in the Invention to the ASSIGNEE. I have not sold, assigned, or otherwise transferred my rights in the Invention to another, and I am under no obligation to sell, assign, or otherwise transfer my rights in the Invention to another. I also hereby grant the ASSIGNEE, the right to insert in this Declaration and Assignment any further identification (including, but not limited to, patent application number and filing date) which may be necessary or desirable for recording this Declaration and Assignment.

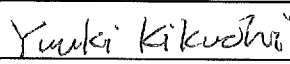
(1) Legal name of Inventor: Kai-Hung Yu
 Inventor's Signature:  Date: 2017/2/10
 Residence City/State/Country: Watervliet, NY, US
 Mailing Address: 174 Harvard Road, Watervliet, NY 12189, US
 Citizenship: TW

(2) Legal name of Inventor: Manabu Oie
 Inventor's Signature: _____ Date: _____
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 Mailing Address: 405 Beryl Way, Watervliet, NY 12189, US
 Citizenship: JP

(3) Legal name of Inventor: Kaoru Maekawa
 Inventor's Signature:  Date: 2017/2/10
 Residence City/State/Country: Albany, NY, US
 Mailing Address: 255 Fuller Road, Suite 214, Albany, NY 12203, US
 Citizenship: JP

(4) Legal name of Inventor: Cory Wajda
 Inventor's Signature:  Date: 13/Feb/2017
 Residence City/State/Country: Sand Lake, NY, US
 Mailing Address: 479 Taborton Road, Sand Lake, NY 12203, US
 Citizenship: US

(5) Legal name of Inventor: Gerrit J. Leusink
 Inventor's Signature:  Date: 2/10/2017
 Residence City/State/Country: Rexford, NY, US
 Mailing Address: 10 Ferry Drive, Rexford, NY 12148, US
 Citizenship: NL

(6) Legal name of Inventor: Yuuki Kikuchi
 Inventor's Signature:  Date: 2/10/17
 Residence City/State/Country: Nirasaki, Yamanashi, Japan
 Mailing Address: 650 Mitsuzawa, Hosaka-cho
Nirasaki, Yamanashi 407-0192, Japan
 Citizenship: JP

(7) Legal name of Inventor: Hiroaki Kawasaki
 Inventor's Signature: _____ Date: _____
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 Mailing Address: 650 Mitsuzawa, Hosaka-cho
Nirasaki, Yamanashi 407-0192, Japan
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(8) Legal name of Inventor: Hiroyuki Nagai
 Inventor's Signature: _____ Date: _____
 Residence City/State/Country: Kai, Yamanashi, Japan
 Mailing Address: 5-19 Nagatsuka, Kai-shi, Yamanashi 400-0125, Japan
 Citizenship: JP

**DECLARATION (37 CFR 1.63) AND ASSIGNMENT FOR
NONPROVISIONAL UTILITY OR DESIGN PATENT APPLICATION**

**INTEGRATION OF A SELF-FORMING BARRIER LAYER AND A RUTHENIUM
METAL LINER IN COPPER METALLIZATION**

As a below named inventor, I hereby declare that:

This declaration and assignment is directed to:

☐ The attached application having a docket number and title identified above, or
☒ United States application number or PCT international application number
15/428,749 filed on February 9, 2017

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 above-identified application.

I have reviewed and understand the contents of the above-identified application, including the claims.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

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.

Assignor(s): The Assignor(s) is/are the undersigned inventor(s). The inventor(s) named below has/have made certain inventions, improvements, and/or discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application.

Assignee: The Assignee is **Tokyo Electron Limited**, a corporation of Japan having a place of business at Tokyo, Japan (herein referred to as the "ASSIGNEE"). The term "ASSIGNEE" used herein includes successors, legal representatives, and assigns of the ASSIGNEE. The ASSIGNEE desires to acquire the entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents obtained from the Invention.

As an undersigned inventor, I hereby assign to the ASSIGNEE my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefrom in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, granted for the invention, to the ASSIGNEE, and I authorize and request foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE. The entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE,

to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by the undersigned had this Assignment not been made. I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, for the ASSIGNEE, whenever requested by the ASSIGNEE.

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 Citizenship: TW

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 Inventor's Signature: Manabu Oie Date: 2/14/2017
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As an undersigned inventor, I hereby assign to the ASSIGNEE my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefrom in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, granted for the invention, to the ASSIGNEE, and I authorize and request foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE. The entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE,

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Nirasaki, Yamanashi 407-0192, Japan
Citizenship: JP

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Inventor's Signature: Hiroiyuki Nagai Date: 2/13/2017
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