

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD.,
Petitioner,

v.

GODO KAISHA IP BRIDGE 1,
Patent Owner.

Case No. IPR2016-01376
Patent Number 6,197,696

Before JUSTIN T. ARBES, MICHAEL J. FITZPATRICK, and
JENNIFER MEYER CHAGNON, *Administrative Patent Judges*.

DECLARATION OF TAKEO OHASHI, Ph.D.

TABLE OF CONTENTS

	<u>Page</u>
I. Qualifications.....	1
II. Materials Considered.....	2
III. Translation of the Word マスク	3
IV. Translation of the Word 及び	8

I, Takeo Ohashi, hereby declare under penalty of perjury under the laws of the United States of America:

I. Qualifications

1. I am currently President and owner of Ohashi High Technology Corporation of New York, New York; a role I have had since July 2001. In my work with Ohashi High Technology Corporation, I translate Japanese patents, technical articles, and business/legal documents and perform interpretations.

2. From 1995 to July 2001, I was a sole proprietor for Ohashi High Technology of New York, New York. In that capacity, I translated Japanese patents, technical articles, and business/legal documents and performed interpretations.

3. I have over 22 years of professional experience as an interpreter and translator, and am well acquainted with the Japanese language and the English language.

4. I received a Bachelors of Engineering degree in Applied Physics from the University of Tokyo in 1980; a Doctor of Philosophy degree in Electrical Engineering from Cornell University in 1985; and a Masters in Business Administration from New York University in 1993. At Cornell University, I worked on epitaxial growths of semiconductors, chip processing such as metal depositions and etching, and photolithography. From 1985 to 1990, I was

employed at IBM East Fishkill facilities and worked in a development team relating to computer chips, including epitaxial growths of semiconductors. A copy of my Curriculum Vitae is attached to this report as Exhibit A.

5. I have been retained on behalf of Patent Owner Godo Kaisha IP Bridge 1 (“IP Bridge” or “Patent Owner”) to offer opinions regarding the translation of paragraphs [0025], [0080], [0094], and [0095] of Japanese Patent Application No. 10-079371 to Aoi, entitled “Method of forming wiring structure,” which I understand has been marked in this proceeding as Exhibit 1013. I have personal knowledge of the facts and opinions set forth in this declaration, I believe them to be true, and if called upon to do so, I would testify competently to them. I have been warned that willful false statements and the like are punishable by fine or imprisonment, or both.

6. I charge an hourly rate of \$100 per hour plus expenses for my work performed in connection with this *Inter Partes* Review. I have received no additional compensation for my work in this *Inter Partes* Review, and my compensation does not depend on the contents of this report, any testimony I provide, or the ultimate outcome of this or any other *Inter Partes* Review.

II. Materials Considered

7. In developing my opinions below, I have considered the following materials:

- Japanese Patent Application No. 10-079371 to Aoi (Exhibit 1013)
- Certified Translation of Japanese Patent Application No. 10-079371 to Aoi (Exhibit 1014)
- Certified Translation of Japanese Patent Application No. 10-079371 to Aoi submitted during the prosecution of European Patent Application No. 99 105 946.0 (Exhibit 2012)
- Kenkyusha's New Japanese-English Dictionary, 4th Edition, 35th Impression (1997) (Exhibit 2021)
- All other materials referenced herein

III. Translation of the Word マスク

8. I have reviewed Japanese Patent Application No. 10-079371, as it is set forth in Exhibit 1013, and translated paragraphs [0080], [0094], and [0095]. I have also reviewed the Certified Translation of Japanese Patent Application No. 10-079371 to Aoi submitted during the prosecution of European Patent Application No. 99 105 946.0 (Exhibit 2012; the “EP Translation”). I agree with the EP Translation of each of those paragraphs. The EP Translation of each of those paragraphs is set forth below (with emphasis added for the reasons discussed below):

9. [0080] “Next, as shown in Figure 13 (c), the second resist pattern 309 is removed and the patterned second organic-containing silicon dioxide film 305A is dry-etched using the mask pattern 308 as a mask, thereby forming openings for forming wiring grooves in the patterned second organic-containing silicon dioxide film 305A. Thereafter, the patterned low-dielectric-constant SOG film 304A is dry-etched using the mask pattern 308 and the patterned second organic-containing

silicon dioxide film 305A having the openings for wiring grooves **as a mask**, thereby forming the wiring grooves 311. In forming the wiring grooves 311, by selecting such etching conditions that the first organic-containing silicon dioxide film 303A is etched at a rate sufficiently lower than that of the low-dielectric-constant SOG film 304A, sufficient selectivity can be secured for the patterned first organic-containing silicon dioxide film 303A. Accordingly, the depth of the wiring grooves 311 can be determined univocally at the sum of the thicknesses of the second organic-containing silicon dioxide film 305 and the low-dielectric-constant SOG film 304.” *See* EX2012 at 30:7-23.

10. [0094] “Next, as shown in Figure 16(c), the first silicon dioxide film 353 is dry-etched using the patterned second silicon dioxide film 355A and the patterned organic film 354A **as a mask**, thereby forming a patterned first silicon dioxide film 353A having contact holes 361. In this etching process step, the mask pattern 358 is transferred to the patterned second silicon dioxide film 355A. Accordingly, openings for forming wiring grooves are formed in the patterned second silicon dioxide film 355A.” EX2012 at 34:20-27.

11. [0095] “Thereafter, as shown in Figure 16 (d) , the patterned organic film 354A is dry-etched using the mask pattern 358 and the patterned second silicon dioxide film 355A having the openings for forming wiring grooves as a mask, thereby forming the wiring grooves 362. In forming the wiring grooves 362,

by selecting such etching conditions that the first silicon dioxide film 353A is etched at a rate sufficiently lower than that of the organic film 354A, sufficient selectivity can be secured for the patterned first silicon dioxide film 353A. Accordingly, the depth of the wiring grooves 362 can be determined univocally at the sum of the thicknesses of the second silicon dioxide film 355 and the organic film 354.” EX2012 at 35:1-11.

12. I have also reviewed Petitioner’s Certified Translation of these paragraphs, as set forth in Exhibit 1014, and compared that language to the language in the translations above. In doing so, I have discovered an inconsistency in Petitioner’s Certified Translation. In particular, in paragraph [0080], the sentence “その後、マスクパターン 3 0 8 及び配線溝形成用開口部を有するパターン化された第 2 の有機含有シリコン酸化膜 3 0 5 A をマスクとしてパターン化された低誘電率 S O G 膜 3 0 4 A に対してドライエッチングを行なって配線溝 3 1 1 を形成する。” is translated to mean: “Thereafter, the patterned low-dielectric-constant SOG film 304A is dry-etched using the mask pattern 308 and the patterned second organic constituent-incorporated silicon dioxide film 305A having the openings for wiring grooves **as a mask**, thereby forming the wiring grooves 311.” EX1014 at 14 (emphasis added). Here, the

translator has translated the word マスク to mean “a mask” (singular) in the context of the phrase “dry-etched using [two layers] as” マスク.

13. However, in paragraph [0094], the similar sentence “次に、図 1 6 (c) に示すように、パターン化された第 2 のシリコン酸化膜 3 5 5 A 及びパターン化された有機膜 3 5 4 A をマスクとして第 1 のシリコン酸化膜 3 5 3 に対してドライエッチングを行なって、コンタクトホール 3 6 1 を有するパターン化された第 1 のシリコン酸化膜 3 5 3 A を形成する。” is translated to mean: “Next, as shown in Figure 16(c), the first silicon dioxide film 353 is dry-etched using the patterned second silicon dioxide film 355A and the patterned organic film 354A as masks, thereby forming a patterned first silicon dioxide film 353A having contact holes 361.” EX1014 at 15 (emphasis added). Here, the translator has translated the same word マスク to mean “masks” (plural) in the context of the same phrase “dry-etched using [two layers] as” マスク.

14. Furthermore, in paragraph [0095], the similar sentence “次に、図 1 6 (d) に示すように、マスクパターン 3 5 8 及び配線溝形成用開口部を有するパターン化された第 2 のシリコン酸化膜 3 5 5 A をマスクとしてパターン化された有機膜 3 5 4 A に対してドライエッチングを行なって配線溝 3 6 2 を形成する。” is translated to mean: “Thereafter, as shown in Figure

16(d), the patterned organic film 354A is dry-etched using the mask pattern 358 and the patterned second silicon dioxide film 355A having the openings for the formation of wiring grooves as masks, thereby forming the wiring grooves 362.” EX1014 at 15 (emphasis added). Here again, the translator has translated the same word マスク to mean “masks” (plural) in the context of the same phrase “dry-etched using [two layers] as” マスク.

15. In the Japanese language, unlike in the English language, nouns do not have different singular or plural forms, thus the translator must use context to determine whether the singular or plural form of the noun is meant when translating from Japanese to English. Here, Petitioner’s Certified Translation inconsistently and improperly translates the same word, when used in the same context, to be singular in paragraph [0080] and plural in both [0094] and [0095].

16. This inconsistency is improper. Instead, it is my opinion that the context suggests that the word マスク, as used in each of these three paragraphs, should be translated consistently as the singular noun, to mean “a mask.” Furthermore, this is consistent with how that word is translated in other portions of the Japanese Patent Application, where the translator consistently translated the word マスク to mean “a mask.” *See, e.g.*, EX1014 at 13 ([0078]), 14 ([0082]), 16 ([0097]).

17. Consistent with my opinion, the EP Translation translates the word マスク in paragraphs [0080], [0094], and [0095] to mean “a mask.” *See* EX2012 at 30:7-23, 34:20-35:11.

IV. Translation of the Word 及び

18. I have further translated the eighth and ninth steps in paragraph [0025] and the eighth and ninth steps of [claim 8] of Japanese Patent Application No. 10-079371. My translations of each of those portions of those paragraphs match the EP Translations of each of those paragraphs. The EP Translations of each of these paragraphs are set forth below (with emphasis added for the reasons discussed below):

19. [0025] “...an eighth step of dry-etching the third insulating film using the first **and** second resist patterns as a mask under such conditions that the third insulating film is etched at a relatively high rate and that the second insulating film and the first and second resist patterns are etched at a relatively low rate, thereby patterning the third insulating film to have the openings for forming contact holes; a ninth step of dry-etching the second insulating film using the first **and** second resist patterns as a mask under such conditions that the second insulating film is etched at a relatively high rate and that the first and third insulating films and the first and second resist patterns are etched at a relatively low rate, thereby

patterning the second insulating film to have the openings for forming contact holes; ...” EX2012 at 13:19-14:5.

20. [Claim 8] “... an eighth step of dry-etching the third insulating film using the first **and** second resist patterns as a mask under such conditions that the third insulating film is etched at a relatively high rate and that the second insulating film and the first and second resist patterns are etched at a relatively low rate, thereby patterning the third insulating film to have the openings for forming contact holes;

a ninth step of dry-etching the second insulating film using the first **and** second resist patterns as a mask under such conditions that the second insulating film is etched at a relatively high rate and that the first and third insulating films and the first and second resist patterns are etched at a relatively low rate, thereby patterning the second insulating film to have the openings for forming contact holes; ...” EX2012 at 4:18-5:4.

21. I have also reviewed Petitioner’s Certified Translation of these paragraphs, as set forth in Exhibit 1014, and compared that language to the language in the translations above. In doing so, I have discovered at least one error in Petitioner’s Certified Translation. In particular, the word 及び, which appears twice in paragraph [0025] and twice in [claim 8], is translated to mean “or” in the context of the phrase “using the first resist pattern 及び the second resist pattern as

the mask.” EX1014 at 5, 8. These translations are incorrect, as the proper translation of the word 及び is “and.” *See, e.g.,* EX2021 (Kenkyusha’s New Japanese-English Dictionary (1997)) at 1335 (defining 及び as “and; as well as.” Thus, the phrase should be translated to mean “using the first **and** second resist patterns as a mask.”

22. Consistent with my opinion, the EP Translation translates the word 及び in the eighth and ninth steps in paragraph [0025] and the eighth and ninth steps of [claim 8] to mean “and.” *See* EX2012 at 4:18-5:4, 13:19-14:5.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on this 13th day of April, 2017



Takeo Ohashi, Ph.D.

At: 5121 Rosemead Blvd Apt F, San Gabriel, CA 91776

EXHIBIT A



Takeo Ohashi, Ph.D.

Summary:

Translation and interpretation experiences over twenty years.
Hands-on experiences of epitaxial growths of semiconductors, chip processing such as metal depositions and etching, and photolithography at Cornell Univ. and IBM.
Registered U.S. patent agent (Reg. No. 69,701)

Work History:

President and owner 7/01 - Present

Ohashi High Technology Corporation (NY, NY)

Ohashi established the firm.

Ohashi assists Japanese customers with U.S. patent filing and prosecutions.

Ohashi translates Japanese patents, technical articles, and business/legal documents and performs interpretations.

Sole Proprietor 1995 – 7/01

Ohashi High Technology (NY, NY)

Ohashi established the sole proprietorship.

Ohashi translated Japanese patents, technical articles, and business/legal documents and performed interpretations.

Director, Business Development 1/90 – 1/98

Yamada International Corp. (NY, NY)

Helped establish and grow export business for American aerospace firms as a consultant. Provided technical interfaces between U.S. hardware suppliers and Japanese customers.

Staff Engineer 10/85 – 1/90

IBM Corp. (East Fishkill, NY)

Was employed at IBM East Fishkill facilities and worked in a development team of computer chips.

Education:

M.B.A. New York University 9/89 – 7/93

Ph.D. Cornell University (Elec. Eng.) 6/81 – 9/85

B.E. University of Tokyo (Applied Physics) 4/75 – 3/80

Others:

Naturalized U.S. Citizen

Native speaker of the Japanese language

Studied several law courses (contracts, torts, criminal law, constitutional law, civil and criminal procedures, evidence, real properties, remedies, corporation)