

1 IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3 \_\_\_\_\_  
4 TAIWAN SEMICONDUCTOR  
5 MANUFACTURING COMPANY, LTD.  
6 AND TSMC NORTH AMERICA CORP., Case Nos.  
7 IPR2014-00800  
8 Petitioners, IPR2014-00802  
9 IPR2014-00805  
10  
11 -vs-  
12 ZOND, LLC,  
13 Patent Owner.  
14 \_\_\_\_\_

15  
16  
17  
18  
19  
20  
21  
22  
23  
24 VIDEOTAPED DEPOSITION of DR. UWE KORTSHAGEN  
25 Minneapolis, Minnesota  
December 23rd, 2014

24 Reported by:  
25 Amy L. Larson, RPR  
Job No. 88563

1 APPEARANCES:  
 2 RADULESCU  
 3 350 Fifth Avenue  
 4 New York, NY 10118  
 5 By: Maria Granovsky, Ph.D., Esq.  
 6 For: Zond, LLC

7 CHAO HADIDI STARK & BARKER  
 8 176 East Main Street  
 9 Westborough, MA 01581  
 10 By: Bruce Barker, Esq.  
 11 For: Zond, LLC

12 DUANE MORRIS  
 13 100 High Street  
 14 Boston, MA 02110  
 15 By: Anthony Fitzpatrick, Esq.  
 16 For: Taiwan Semiconductor Manufacturing  
 17 Company Limited and  
 18 TSMC North America

19 HAYNES AND BOONE  
 20 2323 Victory Avenue  
 21 Dallas, Texas 75219  
 22 By: David McCombs, Esq.  
 23 For: Taiwan Semiconductor Manufacturing  
 24 Company Limited and  
 25 TSMC North America

HAYNES AND BOONE  
 2505 North Plano Road  
 Richardson, Texas 75082  
 By: Gregory Huh, Esq.  
 For: Taiwan Semiconductor Manufacturing  
 Company Limited and  
 TSMC North America

1 APPEARANCES: (CONT'D.)  
 2 WHITE & CASE  
 3 701 Thirteenth Street NW  
 4 Washington, D.C. 20005  
 5 By: David Tennant, Esq.  
 6 For: Global Foundries

7 WHITE & CASE  
 8 3000 El Camino Real  
 9 5 Palo Alto Square  
 10 Palo Alto, California 94306  
 11 By: Brett Rismiller, Esq.  
 12 For: Global Foundries

13 BAKER BOTTS  
 14 One Shell Plaza  
 15 910 Louisiana Street  
 16 Houston, Texas 77002  
 17 By: Robinson Vu, Esq. (via telephone)  
 18 For: Toshiba

19 ALSO PRESENT: Adam Wallin, Videographer

1 INDEX:  
 2 EXAMINATION BY: PAGE  
 3 Ms. Granovsky.....8  
 4 EXHIBITS MARKED FOR IDENTIFICATION:  
 5 Exhibit 1.....9  
 6 U.S. Patent 7,811,421 B2

1 DR. UWE KORTSHAGEN  
 2 THE VIDEOTAPED DEPOSITION OF DR. UWE KORTSHAGEN,  
 3 taken on this 23rd day of December, 2014, at The  
 4 Commons Hotel, 615 Washington Avenue, S.E.,  
 5 Minneapolis, Minnesota, commencing at  
 6 approximately 8:02 a.m.

7 P R O C E E D I N G S  
 8 THE VIDEOGRAPHER: We are on the  
 9 record. This is the videotaped deposition of  
 10 Dr. Uwe Kortshagen in the matter of Taiwan  
 11 Semiconductor Manufacturing Company Limited,  
 12 et al., vs. Zond, LLC, in the United States  
 13 Patent and Trademark Office before the  
 14 Patent Trial and Appeal Board, IPR2014-00800,  
 15 IPR2014-00802, IPR 2014-00805.

16 This deposition is being held at The  
 17 Commons Hotel in Minneapolis, Minnesota.  
 18 Today's date is December 23rd, 2014. The  
 19 time is approximately 8:04 a.m.

20 My name is Adam Wallin, I'm the legal  
 21 video specialist from TSG Reporting,  
 22 Incorporated, headquartered at 747 Third  
 23 Avenue, New York, New York. The court  
 24 reporter is Amy Larson in association with  
 25 TSG Reporting.

1 DR. UWE KORTSHAGEN  
 2 Will counsel please identify themselves  
 3 for the record.  
 4 MS. GRANOVSKY: Maria Granovsky  
 5 from Radulescu, LLP, for patent owner  
 6 Zond, LLC.  
 7 MR. FITZPATRICK: Anthony  
 8 Fitzpatrick from Duane, Morris, LLP on behalf  
 9 of Taiwan Semiconductor Manufacturing Company  
 10 Limited and TSMC North America.  
 11 MR. TENNANT: David Tennant from  
 12 White & Case for Global Foundries Dresden  
 13 Module One LLC & and Co. KG, Global Foundries  
 14 Dresden Module Two LLC & Co. KG, and Global  
 15 Foundries U.S., Inc.  
 16 MR. MCCOMBS: David McCombs with  
 17 Haynes & Boone for TSMC, TSMC North America  
 18 and Fujitsu.  
 19 MR. HUH: Gregory Huh with  
 20 Haynes & Boone for TSMC, TSMC North America  
 21 and Fujitsu.  
 22 MR. RISMILLER: Brett Rismiller  
 23 with White & Case, LLP, for Global Foundries.  
 24 THE VIDEOGRAPHER: Will the court  
 25 reporter please swear in the witness.

1 DR. UWE KORTSHAGEN  
 2 MR. FITZPATRICK: Do we have  
 3 anybody on the phone?  
 4 MR. BARKER: Before we start, as  
 5 we took the role call -- this is Bruce  
 6 Barker -- the only one I could really hear  
 7 well was Dave McCombs, so I don't know where  
 8 the microphone is placed, but if you could --  
 9 so that I don't interrupt, before we start if  
 10 you could place it closer to the witness,  
 11 that would be helpful.  
 12 MR. VU: Also, this is Robinson Vu  
 13 with Baker, Botts for Toshiba.  
 14  
 15 DR. UWE KORTSHAGEN,  
 16 a witness in the above-entitled action,  
 17 after having been first duly sworn, was  
 18 deposed and says as follows:  
 19 MR. FITZPATRICK: Before we begin,  
 20 I just want to state on the record that  
 21 objections made to questions apply to all  
 22 petitioners so that we avoid duplicate  
 23 objections. We've been doing that throughout  
 24 the depositions, and I believe it's  
 25 understood, but I just wanted to confirm it.

1 DR. UWE KORTSHAGEN  
 2 on the record.  
 3 EXAMINATION  
 4 BY MS. GRANOVSKY:  
 5 Q. Good morning, Dr. Kortshagen.  
 6 A. Good morning, Dr. Granovsky.  
 7 Q. You understand that you have just taken an  
 8 oath to testify truthfully?  
 9 A. I do.  
 10 Q. And is there any reason why you cannot  
 11 testify truthfully?  
 12 A. There is no reason.  
 13 Q. Is there any medication that you're taking  
 14 that will prevent you from testifying  
 15 truthfully?  
 16 A. No.  
 17 Q. Okay. I handed you a document previously  
 18 marked as TSMC 1002, and I'll represent to  
 19 you that this is from IPR Number 2014-00800.  
 20 Do you recognize this document?  
 21 A. I do.  
 22 Q. What is it?  
 23 A. It is my declaration regarding claims 1, 2,  
 24 8, 10 through 13, 15 through 17, 22 through  
 25 25, 27 through 30, 33, 34, 38, 39, 42, 43

1 DR. UWE KORTSHAGEN  
 2 and 46 through 48 of Patent 7,811,421.  
 3 Q. Okay.  
 4 (Whereupon, Exhibit 1 was  
 5 marked for identification.)  
 6 BY MS. GRANOVSKY:  
 7 Q. And the court reporter just handed you a  
 8 document marked Exhibit 1. Do you recognize  
 9 this document?  
 10 A. I do.  
 11 Q. What is it?  
 12 A. It is the Patent 7,811,421.  
 13 Q. Okay. And you have reviewed this document  
 14 before?  
 15 A. I have reviewed this document, yes.  
 16 Q. Okay. And before we begin, actually, what  
 17 have you done to prepare for this deposition?  
 18 A. For this deposition I prepared over the  
 19 weekend, and I -- I think I spent maybe half  
 20 an hour to an hour yesterday evening looking  
 21 at some documents again. That is pretty much  
 22 what I've done.  
 23 Q. Did you speak to counsel yesterday as well or  
 24 did you just look at the documents?  
 25 A. We did have -- got together for breakfast

1 DR. UWE KORTSHAGEN

2 this morning. We did have some discussions  
3 about the deposition today.

4 Q. Okay. So if you turn in your declaration to  
5 page 11.

6 A. Yes.

7 Q. To the section that says, quote, "Overview of  
8 the '421 patent."

9 A. Yes.

10 Q. It says that, "The claims of the '421 patent  
11 are directed to using a single voltage pulse  
12 to generate a so-called weakly ionized plasma  
13 and then a strongly ionized plasma in a  
14 manner that avoids arcing"; is that correct?

15 A. That is correct.

16 Q. What is your understanding of a single  
17 voltage pulse?

18 A. My understanding of a single voltage pulse is  
19 a pulse that can have a certain waveform, for  
20 instance, going from a lower voltage to a  
21 higher voltage and then decreasing to a lower  
22 level again.

23 Q. And is it your understanding that that single  
24 voltage pulse has to generate both a weakly  
25 ionized plasma and then a strongly ionized

1 DR. UWE KORTSHAGEN

2 plasma from the weakly ionized plasma,  
3 according to this invention?

4 MR. FITZPATRICK: Object to the  
5 form of the question.

6 THE WITNESS: So this is in  
7 paragraph 29, a summary statement which was  
8 made. I'm not sure that this statement is  
9 applicable to each of the individual claims  
10 that I expect we will be discussing. So from  
11 that point of view, I would not overinterpret  
12 this summary statement, but would prefer, if  
13 we want to discuss the action of the voltage  
14 pulse creating weakly and strongly ionized  
15 plasma, and whether this is a single pulse,  
16 if we discuss that with respect to particular  
17 claims.

18 Q. And we will do that, but --

19 A. Yeah.

20 Q. -- my question is, in general, if -- if a  
21 statement says a single pulse to generate a  
22 weakly ionized plasma and then a strongly  
23 ionized plasma, do you expect the same pulse  
24 to have to do both?

25 MR. FITZPATRICK: Object to the

1 DR. UWE KORTSHAGEN

2 form.

3 THE WITNESS: Yeah. I mean, if  
4 I -- I consider a pulse to be a pulse which  
5 goes from a low -- let's say a low level of  
6 voltage to a high level of voltage, and this  
7 pulse maintains a weakly ionized plasma at  
8 the low level of voltage and then creates a  
9 strongly ionized plasma at the high level of  
10 voltage, I would say this is the same pulse  
11 doing this.

12 BY MS. GRANOVSKY:

13 Q. What is your interpretation of creating a  
14 weakly ionized plasma?

15 MR. FITZPATRICK: Object to the  
16 form.

17 THE WITNESS: Creating a weakly  
18 ionized plasma? So if we talk about the  
19 creation of a plasma, I would assume that we  
20 talk about the mechanism, which is typically  
21 referred to as ignition of the plasma where  
22 you go from a state where you do not have a  
23 plasma present to a state where you now have  
24 a plasma present.

25 MS. GRANOVSKY: Okay.

1 DR. UWE KORTSHAGEN

2 BY MS. GRANOVSKY:

3 Q. Let's turn to claim 1 of the '421 patent.

4 A. Yes.

5 Q. Subpart B of the claim --

6 A. Yes.

7 Q. -- reads, "A power supply that generates a  
8 voltage pulse between the anode and the  
9 cathode assembly that creates a weakly  
10 ionized plasma and then a strongly ionized  
11 plasma from the weakly ionized plasma without  
12 an occurrence of arcing between the anode and  
13 the cathode assembly, an amplitude, a  
14 duration and a rise time of the voltage pulse  
15 being chosen to increase a density of ions in  
16 the strongly ionized plasma"; is that  
17 correct?

18 A. That is correct, yes.

19 Q. Is it your understanding that this claim  
20 limitation requires the same voltage pulse to  
21 create both a weakly ionized plasma and then  
22 a strongly ionized plasma from the weakly  
23 ionized plasma?

24 A. Yeah, it is my understanding that this claim  
25 limitation talks about a voltage pulse which

1 DR. UWE KORTSHAGEN  
 2 creates a weakly ionized plasma and then  
 3 creates -- so following the creation of a  
 4 weakly ionized plasma, then creates a  
 5 strongly ionized plasma from the weakly  
 6 ionized plasma, yes.  
 7 Q. And it is the same pulse that creates both,  
 8 right?  
 9 A. That is what the claim language seems to  
 10 imply, yes.  
 11 Q. Okay. Is it your understanding that this  
 12 claim element requires that both the creation  
 13 of a weakly ionized plasma and then a  
 14 strongly ionized plasma from the weakly  
 15 ionized plasma occurs without arcing?  
 16 MR. FITZPATRICK: I object to the  
 17 form of the question.  
 18 THE WITNESS: Could you repeat the  
 19 question, please?  
 20 MS. GRANOVSKY: Sure.  
 21 BY MS. GRANOVSKY:  
 22 Q. Is it your understanding that this claim  
 23 element requires that both the creation of a  
 24 weakly ionized plasma and then a strongly  
 25 ionized plasma from the weakly ionized

1 DR. UWE KORTSHAGEN  
 2 plasma and the end?  
 3 A. Is there a comma? No.  
 4 Q. Is there a comma -- strike that.  
 5 Is it possible to interpret the claim as  
 6 referring to both -- as without the --  
 7 without an occurrence of arcing referring to  
 8 both the creation of the weakly ionized  
 9 plasma and then a strongly ionized plasma  
 10 from the weakly ionized plasma?  
 11 MR. FITZPATRICK: Object to form.  
 12 THE WITNESS: Is it possible to  
 13 interpret it like this? I -- I think we're  
 14 getting into the realm of legal  
 15 interpretation, which is not my strength. I  
 16 think I was asked to be here for my technical  
 17 expertise.  
 18 But from my -- my plain reading of the  
 19 claim language and from my understanding,  
 20 when a pulse plasma is the highest  
 21 probability of arcing occurs, namely, during  
 22 the creation of the strongly ionized plasma,  
 23 from my plain reading of the language it  
 24 would be that the -- without occurrence of an  
 25 arc or without occurrence of arcing, applies

1 DR. UWE KORTSHAGEN  
 2 plasma occurs without arcing?  
 3 A. Aha.  
 4 MR. FITZPATRICK: Same objection.  
 5 THE WITNESS: So you said that  
 6 both the weakly ionized plasma -- the  
 7 creation of the weakly ionized plasma and the  
 8 strongly ionized plasma from the weakly  
 9 ionized plasma occurs without arcing?  
 10 MS. GRANOVSKY: Yes.  
 11 THE WITNESS: You used the word  
 12 both. I see. So if I read the claim  
 13 language, it seems to imply that the without  
 14 occurrence of arcing refers to the creation  
 15 of the strongly ionized plasma from the  
 16 weakly ionized plasma, because it says -- it  
 17 talks about a voltage pulse that creates a  
 18 weakly ionized plasma, and it says, "And  
 19 then," so following that creation of the  
 20 weakly ionized plasma it creates a strongly  
 21 ionized plasma from the weakly ionized plasma  
 22 without an occurrence of arcing.  
 23 MS. GRANOVSKY: Okay.  
 24 BY MS. GRANOVSKY:  
 25 Q. Is there a comma between weakly ionized

1 DR. UWE KORTSHAGEN  
 2 to the creation of the strongly ionized  
 3 plasma.  
 4 MS. GRANOVSKY: I was actually  
 5 looking for your plain English  
 6 interpretation, so not the legal definition,  
 7 so that's fine.  
 8 THE WITNESS: Well, I think I gave  
 9 you my plain English interpretation by  
 10 pointing out that the claim talks about the  
 11 creation of a weakly ionized plasma as one  
 12 step, and then as the second step, the  
 13 creation of a strongly ionized plasma from a  
 14 weakly ionized plasma without occurrence of  
 15 arcing. That was my plain English reading of  
 16 what is described here.  
 17 Q. As we discussed before, there is no comma  
 18 between weakly ionized plasma and then a  
 19 strongly ionized plasma; is that correct?  
 20 MR. FITZPATRICK: Objection; asked  
 21 and answered, form.  
 22 THE WITNESS: There is indeed no  
 23 comma, I agree.  
 24 MS. GRANOVSKY: Okay.  
 25 BY MS. GRANOVSKY:

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.