				Page 1
IN THE	UNITED STAT	ES PATENT A	AND TRADEMARK OF	'FICE
BE	FORE THE PA	TENT TRIAL	AND APPEAL BOAR	2D
GLOBALFO	UNDRIES U.S	S., INC.,		
GLOBALFO	UNDRIES U.S	S., INC.,		
DRESDEN	MODULE ONE	LLC & CO. K	κG ,	
GLOBALFO	UNDRIES U.S	S., INC.,		
DRESDEN	MODULE TWO	LLC & CO.		
AND TSMC	NORTH AMER	RICA CORP.,		
			Case Nos.	
	Peti	tioners,	IPR2014-01088	2
			IPR2014-01089	)
-VS-			IPR2014-00861	
ZOND, LL	С,			
	Pate	ent Owner.		
VI	DEOTAPED DE	POSITION of	DR. UWE KORTSH	IAGEN
	Mir	neapolis, M	linnesota	
		March 2nd,	, 2015	
Reported	by:			
Amy L. T	arson. RPR			
Job No.	90908			

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1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	<ul> <li>APPEARANCES: RADULESCU 350 Fifth Avenue New York, NY 10118</li> <li>By: Maria Granovsky, Ph.D., Esq. For: Zond, LLC</li> <li>WHITE &amp; CASE 701 Thirteenth Street NW Washington, D.C. 20005</li> <li>By: David Tennant, Esq. For: Global Foundries</li> <li>WHITE &amp; CASE 3000 El Camino Real 5 Palo Alto Square Palo Alto, California 94306</li> <li>By: Brett Rismiller, Esq. For: Global Foundries</li> <li>HAYNES AND BOONE 2505 North Plano Road Richardson, Texas 75082</li> <li>By: Gregory Huh, Esq.</li> <li>For: Taiwan Semiconductor Manufacturing Company Limited and TSMC North America</li> <li>FOLEY &amp; LARDNER Washington Harbour 3000 K Street NW Washington, D.C. 20007</li> <li>By: John Feldhaus, Esq. (via telephone)</li> <li>For: Renesas</li> </ul>	1       INDEX:         2       EXAMINATION BY:       PAGE         3       Ms. Granovsky
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Page 3 INDEX: (Cont'd.) BAKER BOTTS One Shell Plaza 910 Louisiana Street Houston, Texas 77002 By: Robinson Vu, Esq. (via telephone). For: Toshiba ALSO PRESENT: Kraig Hildahl, Videographer	Page 51DR. UWE KORTSHAGEN2THE VIDEOTAPED DEPOSITION OF DR. UWE KORTSHAGEN,3taken on this 2nd day of March, 2015, at4The Commons Hotel, 615 Washington Avenue, S.E.,5Minneapolis, Minnesota, commencing at6approximately 8:07 a.m.778PROCEEDINGS9710THE VIDEOGRAPHER: We are on the11record. This is the start of tape labeled12number 1 of the videotaped deposition of13Dr. Uwe Kortshagen in the matter of14Taiwan Semiconductor Manufacturing Company15vs. Zond, LLC, in the U.S. Patent & Trademark16Office before the Patent Trial & Appeal17Board, Patent Number 6,806,652, IPR numbers182014-01088, also 2014-01-089 [sic], and192014-00861.20This deposition is being held at21The Commons Hotel in Minneapolis, Minnesota,22on March 2nd, 2015. The time is23approximately 8:07 a.m. My name is Kraig

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1	DR. UWE KORTSHAGEN	1	DR. UWE KORTSHAGEN
2	New York. The court reporter is Amy Larson	2	O. Okay. Are you taking any medications that
3	also in association with TSG Reporting.	3	might impact your memory?
4	Will counsel please identify themselves	4	A. No. I don't.
5	for the record.	5	O. Okay. What did you do to prepare for today's
6	MS. GRANOVSKY: Maria Granovsky	6	deposition?
7	from Radulescu, LLP for patentholder Zond.	7	A. I reread to the best of my ability my
8	MR. TENNANT: David Tennant of	8	declarations, the board decisions, the
9	White & Case for Global Foundries U.S., Inc.,	9	references that were cited. I briefly met
10	Global Foundries Dresden Module One, LLC &	10	with my lawyers vesterday evening. In total.
11	Co. KG and Global Foundries Dresden Module	11	I think I spent maybe 10 to 12 hours
12	Two, LLC, and Co. KG.	12	preparing myself.
13	MR. RISMILLER: Brett Rismiller,	13	O. Okay. I'm handing you a document that was
14	White & Case, also on behalf of Global	14	formerly marked as TSMC-1101. Do you
15	Foundries.	15	recognize this, Doctor?
16	MR. HUH: Gregory Huh,	16	A. I do.
17	Haynes & Boone, LLC, on behalf of TSMC and	17	O. What is it?
18	Fujitsu.	18	A. It is the U.S. Patent 6,806,652.
19	MR. TENNANT: Anybody on the	19	Q. And you have seen this document before?
20	phone, please, please announce yourself.	20	A. I have.
21	MR. FELDHAUS: John Feldhaus of	21	Q. And when was the last time you reviewed it?
22	Foley & Lardner for Renesas.	22	A. Probably on Friday.
23	THE VIDEOGRAPHER: Will the court	23	Q. Okay.
24	reporter please swear in the witness and then	24	A. And I looked at it probably Saturday and
25	we can proceed.	25	Sunday, but, yeah.
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1	DR. UWE KORTSHAGEN	1	DR. UWE KORTSHAGEN
2	generation of a plasma and the generation of	2	A Yes that is correct
3	excited atoms go hand in hand. When you're	3	O. Is it your understanding that this limitation
4	creating a plasma, you will generate excited	4	requires the electric field generated by the
5	atoms.	5	pour supply to super-ionize the initially
6	BY MS. GRANOVSKY:	6	plasma to generate a high-density plasma?
7	O. Can you generate excited atoms without	7	MR. TENNANT: Objection to form.
8	generating a plasma?	8	THE WITNESS: Could you please
9	A. Yeah, I think there are other means of	9	repeat your question just so that I
10	generating excited atoms.	10	MS. GRANOVSKY: Sure.
11	Q. So the two are not synonymous, in your	11	THE WITNESS: can be sure that
12	opinion?	12	I accurately understand it?
13	MR. TENNANT: Objection to form.	13	BY MS. GRANOVSKY:
14	THE WITNESS: I think when you're	14	Q. Is it your understanding that this limitation
15	creating a plasma you will create excited	15	requires the electric field generated by the
16	atoms. I think there are other ways of	16	power supply to super-ionize the initial
17	creating excited atoms without using a	17	plasma to generate a high-density plasma?
18	plasma.	18	MR. TENNANT: Same objection.
19	BY MS. GRANOVSKY:	19	THE WITNESS: So claim limitation
20	Q. Subpart C also has this term, "From a volume	20	D uses the term electric field twice. It
21	of feed gas"; is that correct?	21	says, "A power supply that generates an
22	A. That is correct, yes.	22	electric field between the cathode and the
23	Q. Do you have an understanding of what the term	23	anode," and then it continues, "The electric
24	"a volume of gas" means?	24	field super-ionizing the initial plasma so as
25	MR. TENNANT: Objection to form.	25	to generate."
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1	DR. UWE KORTSHAGEN	1	DR. UWE KORTSHAGEN
2	marked Intel 1002. Do you recognize it?	2	A. Yes, that's correct.
3	A. I do.	3	Q. Okay. And is it your assertion that this
4	Q. What is it?	4	reference, Fahey, discloses limitation 1-C?
5	A. It is my declaration concerning claims 1	5	A. That is my opinion, yes.
6	through 17 of the U.S. Patent Number	6	O. Can you please point me to where Fahey
7	6,806,652.	7	discloses the generation of plasma?
8	O. And when did you last review it?	8	A. So in the introduction paragraph of Fahev.
9	A. Sometime this weekend.	9	which is on page 381, the right column. Fahev
10	MR. TENNANT: Maria, the copy you	10	noticed. "A novel meta beam" "metastable
11	gave me is in black and white but there were	11	beam source was recently described by
12	color figures throughout the declaration	12	Leasure et al 1975 whose design employed
13	MS_GRANOVSKY: Lanologize I	13	a weak high-voltage corona discharge between
14	just have the black and white	14	a sharp needle and a cone shaped anode. The
15	MR TENNANT: Okay Can we just	15	discharge was maintained across a substantial
16	note for the record that the witness ween't	16	prossure gradient "
17	note for the record that the witness wash t	17	And then in the second percercent of the
19	given the true and correct copy.	18	And then in the second paragraph of the
10	MS. GRANOVSKY: Right, it's a	10	introduction Faney continues and says, we
20	black and white copy.	20	report here modifications to the Leasure,
20	BY MS. GRANOVSKY:	20	et al., design which result in a further
21	Q. I handed you an exhibit previously marked as		simplification, enhanced beam flux,
22	TSMC-1105; is that correct?	22	species-independent energies, and
23	A. That is correct.	23	importantly, beam energies only slightly in
24	Q. What is it?	24	excess of thermal energies."
25	A. This is the paper the High Flux Beam Source	25	So Fahey so, first of all, let me back
1	Page 15		Page 17
	_		
1	DR. UWE KORTSHAGEN	1	DR. UWE KORTSHAGEN
1 2	DR. UWE KORTSHAGEN of Thermal Rare-Gas Metastable Atoms that we	1 2	DR. UWE KORTSHAGEN up. In the first sentence Fahey talks about
1 2 3	DR. UWE KORTSHAGEN of Thermal Rare-Gas Metastable Atoms that we commonly refer to as Fahey.	1 2 3	DR. UWE KORTSHAGEN up. In the first sentence Fahey talks about the beam source that he is modifying, which
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1 2 3 4 5	DR. UWE KORTSHAGEN of Thermal Rare-Gas Metastable Atoms that we commonly refer to as Fahey. Q. Have you read it before? A. I.did. yes.	1 2 3 4 5	DR. UWE KORTSHAGEN up. In the first sentence Fahey talks about the beam source that he is modifying, which is based on weak high-voltage corona discharge, and that means that a plasma is
1 2 3 4 5 6	<ul><li>DR. UWE KORTSHAGEN</li><li>of Thermal Rare-Gas Metastable Atoms that we commonly refer to as Fahey.</li><li>Q. Have you read it before?</li><li>A. I did, yes.</li><li>Q. Did you read it in conjunction with forming</li></ul>	1 2 3 4 5 6	DR. UWE KORTSHAGEN up. In the first sentence Fahey talks about the beam source that he is modifying, which is based on weak high-voltage corona discharge, and that means that a plasma is created here, because creating a corona
1 2 3 4 5 6 7	<ul> <li>DR. UWE KORTSHAGEN</li> <li>of Thermal Rare-Gas Metastable Atoms that we commonly refer to as Fahey.</li> <li>Q. Have you read it before?</li> <li>A. I did, yes.</li> <li>Q. Did you read it in conjunction with forming your opinions about the '652 patent?</li> </ul>	1 2 3 4 5 6 7	DR. UWE KORTSHAGEN up. In the first sentence Fahey talks about the beam source that he is modifying, which is based on weak high-voltage corona discharge, and that means that a plasma is created here, because creating a corona discharge involves the generation of a
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# DOCKET



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