

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY,
LTD., TSMC NORTH AMERICA CORP., FUJITSU
SEMICONDUCTOR LIMITED, FUJITSU SEMICONDUCTOR
AMERICA, INC., THE GILLETTE COMPANY, ADVANCED MICRO
DEVICES, INC., RENESAS ELECTRONICS CORPORATION,
RENESAS ELECTRONICS AMERICA, INC., GLOBALFOUNDRIES
U.S., INC., GLOBALFOUNDRIES DRESDEN MODULE ONE LLC &
CO. KG, GLOBALFOUNDRIES DRESDEN MODULE TWO LLC &
CO. KG, TOSHIBA AMERICA ELECTRONIC COMPONENTS, INC.,
TOSHIBA AMERICA INC., TOSHIBA AMERICA INFORMATION
SYSTEMS, INC., and TOSHIBA CORPORATION

Petitioners

v.

ZOND, LLC
Patent Owner

Case IPR2014-00821¹
Patent 6,853,142

ZOND LLC'S PATENT OWNER RESPONSE

¹ Cases IPR2014-00863, IPR2014-01013, and IPR2014-01057 have been joined with the instance proceeding.

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 1. Scope and content of prior art. 22

 a. Kudryavtsev – A. A. Kudryavtsev and V.N. Skerbov, Ionization relaxation in a plasma produced by a pulsed inert-gas discharge, Sov. Phys. Tech. Phys. 28(1), pp. 30-35, January 1983 (Ex. 1106), 22

 b. Lantsman – U.S. Pat. No. 6,190,512 (Exhibit 1104) 25

 c. Wang – U.S. Patent No. 6,413,382 (Exhibit 1105)..... 26

 2. The Petitioners Failed To Show That It Would Have Been Obvious To Combine The DC Power System Without Pulses Of Lantsman With The Pulsed Power System Of Wang To Achieve the Claimed Invention With A Reasonable Expectation Of Success 28

3.	The Petitioners Failed To Show That It Would Have Been Obvious To Combine The Cylindrical Tube System Without A Magnet Of Kudryavtsev With The Wang Magnetron System.	33
B.	The Petition failed to demonstrate how the alleged combinations teach every element of the challenged claims.	41
1.	The cited references do not teach “a gas line that supplies feed gas to the strongly-ionized plasma, the feed gas diffusing the strongly-ionized plasma, thereby allowing additional power from the pulsed power supply to be absorbed by the strongly ionized plasma,” as recited in independent claim 1 and as similarly recited in independent claim 10.	42
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4.	The cited references do not teach a “selecting at least one of a pulse amplitude and a pulse width of the electrical pulse in order to increase an ionization rate of the strongly-ionized plasma,” as required by dependent claim 14.	51
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Exhibit List

Exhibit No.	Description
Ex. 2004	U.S. Patent 6,398,929 to Chiang
Ex. 2005	Declaration of Dr. Hartsough, Patent Owner's expert.
Ex. 2006	Sinha, Naresh, K., Control Systems, Holt, Rinehart and Winston, 1986.
Ex. 2007	Eronini Umez-Eronini, System Dynamics and Control, Brooks Cole Publishing Co., CA, 1999, pp. 10-13.
Ex. 2008	Excerpts from Weyrick, Fundamentals of Automatic Control, McGraw-Hill Book Company, 1975.
Ex. 2009	Excerpts from Kua, Automatic Control, Prentice Hall Inc., 1987.
Ex. 2010	Transcript of deposition of Dr. Kortshagen, Petitioners' expert, for the '759 Patent
Ex. 2011	Transcript of deposition of Dr. Kortshagen, Petitioners' expert, for the '142 Patent

I. INTRODUCTION

The Petitioners' arguments hinge on fanciful misreadings of the prior art by their proffered expert, Dr. Uwe Kortshagen. As will be shown below, neither Wang nor Lantsman teaches supplying "feed gas to the strongly-ionized plasma, the feed gas diffusing the strongly-ionized plasma, thereby allowing additional power from the pulsed power supply to be absorbed by the strongly ionized plasma" as required by independent claims 1 and 10 of the '142 patent. Once the Board recognizes that Dr. Kortshagen essentially invented some of the alleged "teachings" in Wang and Lantsman to suit the Petitioners' objectives, the Board should agree to confirm the challenged claims.

The '142 patent discloses and illustrates in FIG. 2C feed gas entering a chamber in a gap 220 between a cathode 204 and an anode 216 in the vicinity of the strongly ionized plasma so that it can diffuse the plasma, thereby allowing additional power from the pulsed power supply to be absorbed by the strongly ionized plasma.²

Wang, in contrast, does not teach feed gas diffusing the strongly-ionized plasma to thereby allow additional power from the pulsed power supply to be

² Exhibit 1101, '142 patent, FIG. 2C, col. 9, ll. 48-57.

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