UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY, LTD., TSMC NORTH AMERICA CORPORATION, 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,

Petitioner

v.

ZOND, LLC
Patent Owner

U.S. Patent No. 7,808,184

Inter Partes Review Case No. 2014-00803[1]

PATENT OWNER RESPONSE
UNDER 37 CFR § 42.220

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[1] Cases IPR2014-00858, IPR2014-00996, and IPR2014-01061 have been joined with the instant proceeding.

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I. Introduction

The present petition challenges dependent claims 6 – 10, and 16 – 20. The patentability of parent claims 1 and 11 was already discussed at length in the Patent Owner's Response in IPR2014-00799. The present response therefore repeats much of the analysis from the response in IPR2014-00803, but also adds some key additional arguments directed to the unique aspects of dependent claims 7, 17.

Petitioner's arguments hinge on fanciful misreadings of the prior art by its proffered expert, Mr. Richard DeVito.[2] As will be shown below, neither Wang nor Kudryavtsev teach ***controlling the amplitude or rise time of a voltage pulse*** in order to increase the "ionization rate so that a rapid increase in electron density and a formation of a strongly-ionized plasma occurs without forming an arc," as required by the claims of the '184 patent. Once the Board recognizes that Mr. DeVito essentially invented some of the alleged

[2] In its Institution Decision, the Board erroneously referred to Mr. DeVito as "Dr. DeVito." IPR2014-00799, Decision to Institute, page 9. However, Mr. DeVito was never awarded a doctorate of any kind. *See* Ex. 1102, De Vito Declaration ¶2 - ¶4.

"teachings" in Wang and Kudryavtsev to suit the Petitioner's objectives, the Board should agree to confirm the challenged claims.

Neither Wang nor Kudryavtsev teach the claimed voltage control. The '184 patent discloses carefully "controlling" the amplitude and rise time of a voltage pulse. The patent shows that, with proper control of voltage amplitude and rise time, the inventor, Dr. Chistyakov, was able to ignite a plasma ***without arcing***, rapidly grow that plasma to a high density, and sustain that density for a relatively long duration, again all without arcing.[3] Mr. DeVito and Petitioners erroneously argue that incidental, ***uncontrolled*** variations in voltage that occur in Wang and Kudryavtsev meet this limitation.

Importantly, Wang's system controls the ***power*** of its pulses to a constant target level, as opposed to the claimed control of pulse ***voltage*** in order to avoid arcing during the ***transition to a strongly ionized plasma***. Constant power pulses, such as used in Wang, have a voltage and current that will vary ***uncontrollably*** as the system attempts to control the power (*i.e.*, the product of voltage and current**)** to a desired level. Since such power supplies are designed to control the ***product*** of voltage and current to a target level—and not voltage, the power supplies will allow the voltage to reach extremely high values when the current

[3] Ex. 2015, Declaration of Patent Owner's Expert.

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