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MODULE TWO LLC & CO. KG, TOSHIBA AMERICA ELECTRONIC
COMPONENTS, INC., TOSHIBA AMERICA INC., TOSHIBA
AMERICA INFORMATION SYSTEMS, INC.,
TOSHIBA CORPORATION, and
THE GILLETTE COMPANY,
Petitioners,

v.

Zond, LLC.
U.S. Patent No. 6,853,142
IPR Case No. IPR2014-00819¹

PETITIONER'S DEMONSTRATIVE EXHIBITS FOR ORAL ARGUMENT

¹ Case Nos. IPR2014-00867, IPR2014-01014, and IPR2014-01046 have been joined with this proceeding.

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The '142 Patent:

GlobalFoundries U.S. Inc., GlobalFoundries Dresden Module One LLC & Co. KG, GlobalFoundries Dresden Module Two LLC & Co. KG, The Gillette Company, Fujitsu Semiconductor Limited, Fujitsu Semiconductor America, Inc., Advanced Micro Devices, Inc., Renesas Electronics Corporation, Renesas Electronics America, Inc., Toshiba America Electronic Components, Inc., Toshiba America Inc., Toshiba America Information Systems, Inc., and Toshiba Corporation

v.

Zond LLC

IPR2014-00818, IPR2014-00819, IPR2014-00821, and IPR2014-00822

GlobalFoundries U.S. Inc., GlobalFoundries Dresden Module One LLC & Co. KG, GlobalFoundries Dresden Module Two LLC & Co. KG, and The Gillette Company

v.

Zond LLC

IPR2014-01098

Overview

- Overview of the '142 Patent
- Grounds Instituted
- Overview of Prior Art
- Summary of Disputes and Responses Related to Independent Claims
- Summary of Disputes and Responses Related to Dependent Claims

The '142 Patent



US006853142B2

(12) **United States Patent**
Chistyakov

(10) **Patent No.:** US 6,853,142 B2
(45) **Date of Patent:** Feb. 8, 2005

- (54) **METHODS AND APPARATUS FOR GENERATING HIGH-DENSITY PLASMA**
- (75) **Inventor:** Roman Chistyakov, Andover, MA (US)
- (73) **Assignee:** Zond, Inc., Mansfield, MA (US)
- (*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
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(List continued on next page.)

Primary Examiner—Wilson Lee
(74) *Attorney, Agent, or Firm*—Kurt Rauschenbach; Rauschenbach Patent Law Group, LLC

(57) **ABSTRACT**

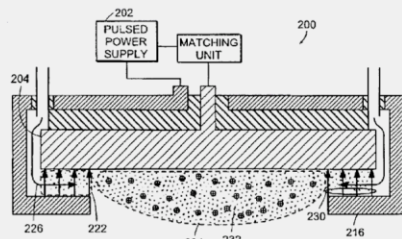
Methods and apparatus for generating a strongly-ionized plasma are described. An apparatus for generating a strongly-ionized plasma according to the present invention includes an anode and a cathode that is positioned adjacent to the anode to form a gap there between. An ionization source generates a weakly-ionized plasma proximate to the cathode. A power supply produces an electric field in the gap between the anode and the cathode. The electric field generates excited atoms in the weakly-ionized plasma and generates secondary electrons from the cathode. The secondary electrons ionize the excited atoms, thereby creating the strongly-ionized plasma

43 Claims, 13 Drawing Sheets

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- (22) **Filed:** Nov. 4, 2002
- (65) **Prior Publication Data**
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- (51) **Int. Cl.7** C23C 16/452
- (52) **U.S. Cl.** 315/111.41; 156/345.33; 118/723.1
- (58) **Field of Search** 315/111.01-111.91; 156/345.21, 345.29, 345.33, 345.42, 345.44, 345; 204/298.06, 298.04, 298.08; 118/723 FE, 723.1, 723 MP; 423/210, 246, 248
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(10) **Patent No.:** US 6,853,142 B2
(45) **Date of Patent:** Feb. 8, 2005

(54) **METHODS AND APPARATUS FOR GENERATING HIGH-DENSITY PLASMA**



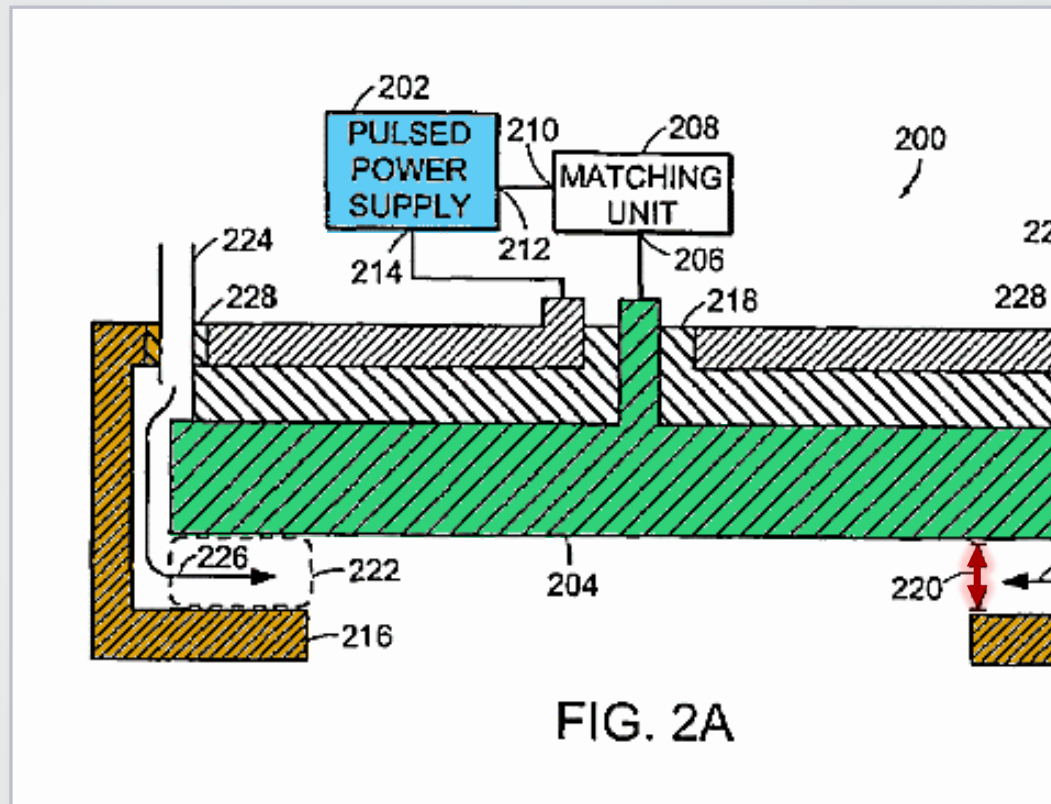
The '142 Patent – Fig. 2A

Cathode (204)

Anode (216)

Gap (220)

Pulsed power supply (202)



'142

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