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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. IPR2014-00827¹

PETITIONER'S DEMONSTRATIVE EXHIBITS FOR ORAL ARGUMENT

¹ Case Nos. IPR2014-00865, IPR2014-01015, and IPR2014-01063 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** 6,057,244 A 5/2000 Hausmann et al. 438/706
6,238,537 B1 5/2001 Kahn et al. 204/598.04
6,296,742 B1 10/2001 Kouznetsov 204/192.12
6,361,667 B1 3/2002 Kobayashi et al. 204/298.11
6,413,382 B1 7/2002 Wang et al. 204/192.12
6,413,383 B1 7/2002 Chiang et al. 204/192.13
6,432,260 B1 8/2002 Mahoney et al. 156/345.35
6,436,251 B2 8/2002 Gopalraja et al. 204/298.12
6,451,703 B1 9/2002 Liu et al. 438/710

(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.

(21) Appl. No.: **10/065,629**
(22) Filed: **Nov. 4, 2002**

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(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

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 4,588,490 A 5/1986 Cuomo et al. 204/298
4,953,174 A 8/1990 Eldridge et al. 372/87
5,015,493 A 5/1991 Gruen 427/38
5,041,760 A 8/1991 Kolbe 315/111.41
5,083,061 A 1/1992 Koshishi et al. 315/111.81
5,247,531 A 9/1993 Muller-Horshe 372/38
5,286,360 A 2/1994 Szyrbowski et al. . 204/298.08
5,433,288 A 7/1995 Barnes et al. 156/643.1
5,696,428 A 12/1997 Pasch 315/111.21
5,718,813 A 2/1998 Drummond et al. ... 204/192.12
5,728,278 A 3/1998 Okamura et al. 204/298.11
5,733,418 A 3/1998 Henskovich et al. . 204/192.11
5,795,452 A 8/1998 Kinoshita et al. 204/298.37
5,916,455 A 6/1999 Kumagai 216/68
5,993,761 A 11/1999 Czernichowski et al. ... 423/210

EP 0 650 183 A1 4/1995
WO 98/40532 9/1998
WO 01/58553 A1 12/2001

OTHER PUBLICATIONS

US 5,863,392, 1/1999, Drummond et al. (withdrawn)
Booth, et al., The Transition From Symmetric To Asymmetric Discharges In Pulsed 13.56 MHz Capacity Coupled Plasmas, J. Appl. Phys., Jul. 15, 1997, pp. 552-560, vol. 82(2), American Institute of Physics.

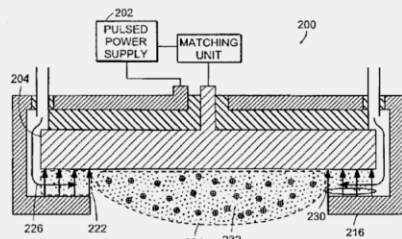
(List continued on next page.)

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(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



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

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

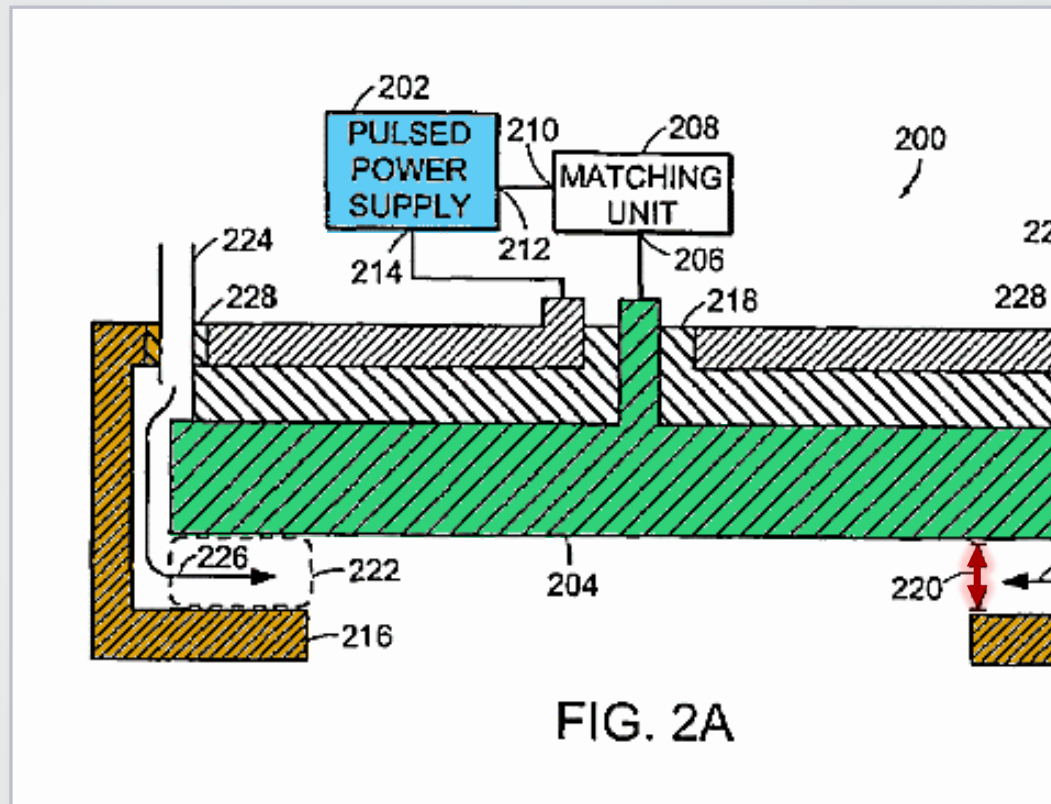
The '142 Patent – Fig. 2A

Cathode (204)

Anode (216)

Gap (220)

Pulsed power supply (202)



'142

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