

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FUJITSU SEMICONDUCTOR LIMITED,
FUJITSU SEMICONDUCTOR AMERICA, INC.,
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.,
TOSHIBA CORPORATION, and
THE GILLETTE COMPANY,
Petitioners,

v.

Zond, LLC.
U.S. Patent No. 6,853,142
IPR Case No. IPR2014-00821¹

PETITIONER'S DEMONSTRATIVE EXHIBITS FOR ORAL ARGUMENT

¹ Case Nos. IPR2014-00863, IPR2014-01013, and IPR2014-01057 have been joined with this proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

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**

(65) **Prior Publication Data**
US 2004/0085023 A1 May 6, 2004

- (51) **Int. Cl.** **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

(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

(List continued on next page.)
FOREIGN PATENT DOCUMENTS

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

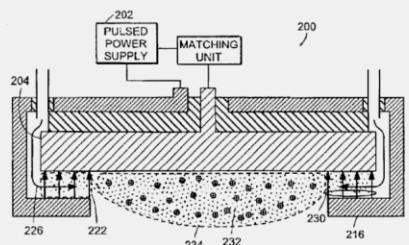
OTHER PUBLICATIONS
US 5,863,392, 1/1999, Drummond et al. (withdrawn)
Booth, et al., The Transition From Symmetric To Asymmetric Discharges In Pulsed 13.56 MHz Capacity Coupled Plasmas, J. Appl. Phys., Jul. 15, 1997, pp. 552-560, vol. 82(2), American Institute of Physics.

(List continued on next page.)
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



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

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

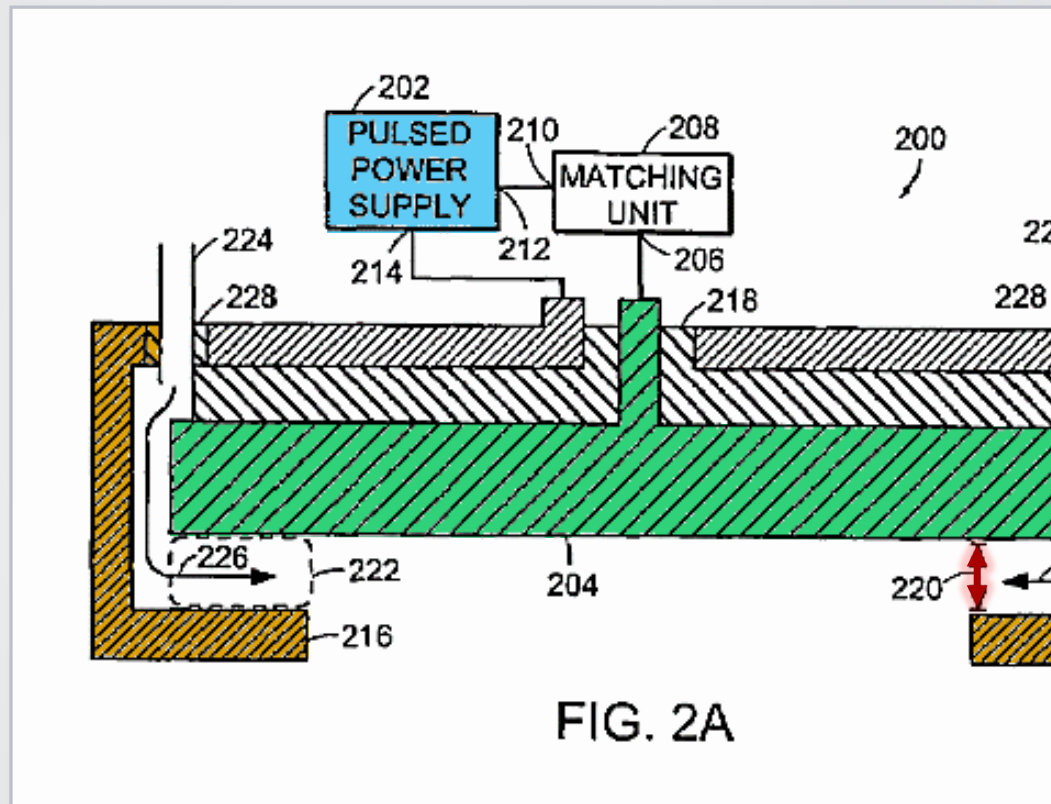
The '142 Patent – Fig. 2A

Cathode (204)

Anode (216)

Gap (220)

Pulsed power supply (202)



'142

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.