

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GLOBALFOUNDRIES U.S., INC., GLOBALFOUNDRIES DRESDEN
MODULE ONE LLC & CO. KG, GLOBALFOUNDRIES DRESDEN
MODULE TWO LLC & CO. KG, and
THE GILLETTE COMPANY,
Petitioners,

v.

Zond, LLC.
Patent Owner of U.S. Patent No. 6,806,652
Trial No. IPR2014-01088¹

PETITIONER'S DEMONSTRATIVE EXHIBITS FOR ORAL ARGUMENT

¹ Case IPR2014-01000 has been joined with the instant proceeding.

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

The '652 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

IPR2014-00861

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

IPR2014-01088 and IPR2014-01089

Overview

- Overview of the '652 Patent
- Grounds Instituted
- Overview of Prior Art
- Summary of Disputes with Respect to Independent Claims
- Summary of Disputes with Respect to Dependent Claims

The '652 Patent



US00680652B1

(12) **United States Patent**
Chistyakov

(10) **Patent No.:** US 6,806,652 B1
(45) **Date of Patent:** *Oct. 19, 2004

(54) **HIGH-DENSITY PLASMA SOURCE USING EXCITED ATOMS**

(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.

This patent is subject to a terminal disclaimer.

(21) **Appl. No.:** 10/249,844
(22) **Filed:** May 12, 2003

Related U.S. Application Data

(63) **Continuation-in-part of application No. 10/249,595, filed on Apr. 22, 2003.**

(51) **Int. Cl.:** H01J 7/24
(52) **U.S. Cl.:** 315/111.21; 315/111.41; 156/345.44; 118/723 DC

(58) **Field of Search** 315/111.21, 315/111.41, 315/111.43, 111.71, 111.81, 111.91, 304/708.07, 298.08, 298.121, 298.161, 298.2, 298.21, 298.22, 156/345.33, 345.35, 345.38, 345.39, 345.4, 345.41, 345.42, 345.43, 345.44, 345.46; 118/723 ME, 723 DC, 723 I, 723 IR

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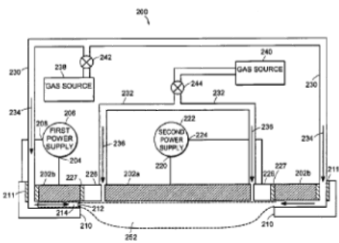
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(57) **ABSTRACT**

The plasma source includes a cathode assembly. An anode is positioned adjacent to the cathode assembly. An excited atom source generates an initial plasma and excited atoms from a volume of feed gas. The initial plasma and excited atoms are located proximate to the cathode assembly. A power supply generates an electric field between the cathode assembly and the anode. The electric field super-ionizes the initial plasma so as to generate a high-density plasma.

35 Claims, 19 Drawing Sheets



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(10) **Patent No.:** US 6,806,652 B1
(45) **Date of Patent:** *Oct. 19, 2004

(54) **HIGH-DENSITY PLASMA SOURCE USING EXCITED ATOMS**

US Patent 6,806,652 (Ex. 1101)

Independent Claims

Claim 1

Claim 1

“Excited Atom Source”

1. A high-density plasma source comprising:
 - a) a cathode assembly;
 - b) an anode that is positioned adjacent to the cathode assembly;
 - c) an excited atom source that generates an initial plasma and excited atoms from a volume of feed gas, the initial plasma and excited atoms being proximate to the cathode assembly; and
 - d) a power supply that generates an electric field between the cathode assembly and the anode, the electric field super-ionizing the initial plasma so as to generate a high-density plasma.

'652 Patent, Claim 1 (Ex. 1101)

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