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COMPONENTS, INC., TOSHIBA AMERICA INC., TOSHIBA
AMERICA INFORMATION SYSTEMS, INC.,
TOSHIBA CORPORATION, and
THE GILLETTE COMPANY,
Petitioners,

v.

Zond, LLC.
Patent Owner of U.S. Patent No. 6,805,779
Trial No. IPR2014-00828¹

PETITIONER'S DEMONSTRATIVE EXHIBITS FOR ORAL ARGUMENT

¹ Cases IPR2014-00856, IPR2014-01022, and IPR2014-01070 have been joined with the instant proceeding.

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The '779 Patent:

GlobalFoundries U.S. Inc., GlobalFoundries Dresden Module One LLC & Co. K
GlobalFoundries Dresden Module Two LLC & Co. KG, The Gillette Company, Fu
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Renesas Electronics Corporation, Renesas Electronics America, Inc., Toshiba America E
Components, Inc., Toshiba America Inc., Toshiba America Information Systems, Inc.
Toshiba Corporation

v. Zond, LLC

IPR2014-00828, IPR2014-00829, and IPR2014-00917

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

IPR2014-01073 and IPR2014-01076

Overview

- Overview of '779 Patent
- Grounds Instituted
- Overview of Prior Art
- Summary of Disputes and Responses Related to Independent
- Summary of Disputes and Responses Related to Dependent

The '779 Patent



US06805779B2

(12) **United States Patent**
Chistyakov

(10) **Patent No.:** US 6,805,779 B2
(45) **Date of Patent:** Oct. 19, 2004

(54) **PLASMA GENERATION USING MULTI-STEP IONIZATION**

(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.

(21) **Appl. No.:** 10/249,202

(22) **Filed:** Mar. 21, 2003

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(52) **U.S. Cl.:** 204/298.36; 204/298.37; 204/298.38; 118/723 VE; 118/723 R; 315/111.81; 315/111.81

(53) **Field of Search:** 315/111.81, 111.91, 315/111.71, 111.41, 111.21; 204/298.37, 298.38, 298.36; 118/723 VE, 723 R, 723 EB, 723 E; 250/28, 283, 377, 423, 435, 489

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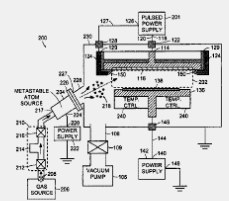
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(57) **ABSTRACT**

The present invention relates to a plasma generator that generates a plasma with a multi-step ionization process. The plasma generator includes an excited atom source that generates excited atoms from ground state atoms supplied by a feed gas source. A plasma chamber confines a volume of excited atoms generated by the excited atom source. An energy source is coupled to the volume of excited atoms confined by the plasma chamber. The energy source raises an energy of excited atoms in the volume of excited atoms so that at least a portion of the excited atoms in the volume of excited atoms is ionized, thereby generating a plasma with a multi-step ionization process.

46 Claims, 13 Drawing Sheets



(10) **Patent No.:** US 6,805,779 B2
(45) **Date of Patent:** Oct. 19, 2004

(54) **PLASMA GENERATION USING MULTI-STEP IONIZATION**

'779 Patent and Admitted Prior Art

Plasma Chamber

Anode

Cathode Assembly

Power Supply

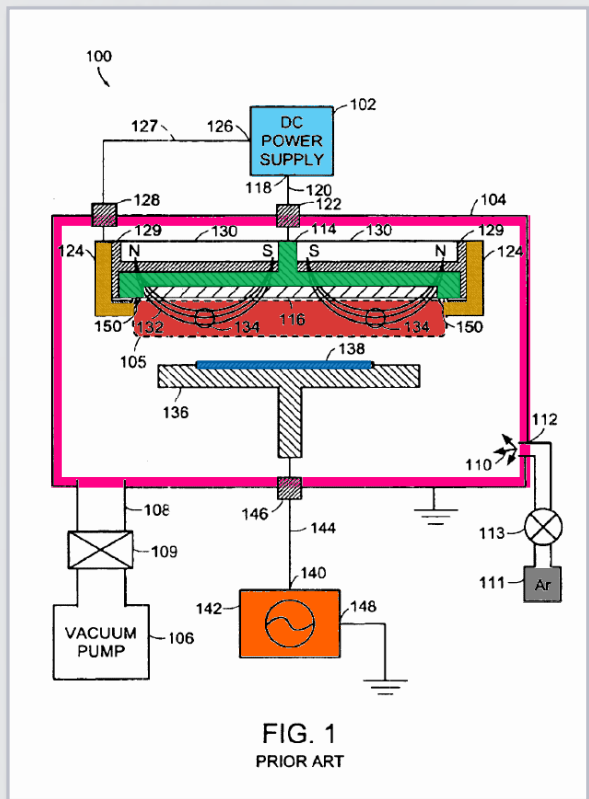
Metastable Atom Source

Plasma

Substrate

Feed Gas Source

Bias Power Supply



'779 Patent, Fig. 1

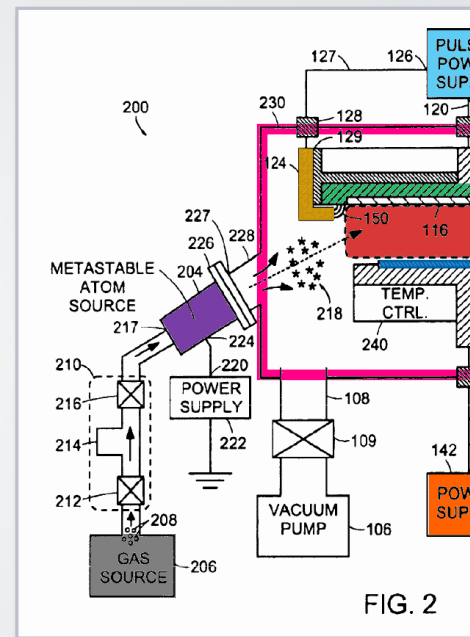


FIG. 2

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