

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

ZOND, LLC,
Patent Owner

Patent 7,808,184

IPR Case Nos. IPR2014-00799 and 00803

**DECLARATION OF JOHN C. BRAVMAN PH.D.
ON BEHALF OF PETITIONER**

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I, John C. Bravman, declare as follows:

1. My name is John C. Bravman.
2. My academic training was at Stanford University, where I received my Bachelor of Science degree in Materials Science and Engineering in 1979, and a Master of Science degree in 1981, also in Materials Science and Engineering. I completed my Doctor of Philosophy degree in 1984, with a dissertation that focused on the nature of silicon – silicon dioxide interfaces as found in integrated circuit devices.
3. From 1979 to 1984, while a graduate student at Stanford, I was employed part-time by Fairchild Semiconductor in their Palo Alto Advanced Research Laboratory. I worked in the Materials Characterization group. In 1985, upon completion of my doctorate, I joined the faculty at Stanford as Assistant Professor of Materials Science and Engineering. I was promoted to Associate Professor with tenure in 1991, and achieved the rank of Professor in 1995. In 1997 I was named to the Bing Professorship.
4. At Stanford I was Chairman of the Department of Materials Science and Engineering from 1996 to 1999, and Director of the Center for Materials Research from 1998 to 1999. I served as Senior Associate Dean of the School of Engineering from 1992 to 2001 and the Vice Provost for Undergraduate Education from 1999 to 2010. On July 1, 2010, I retired from Stanford University and

assumed the Presidency of Bucknell University, where I also became a Professor of Electrical Engineering.

5. I have worked for more than 25 years in the areas of thin film materials processing and analysis. Much of my work has involved materials for use in microelectronic interconnects and packaging, and in superconducting structures and systems. I have also led multiple development efforts of specialized equipment and methods for determining the microstructural and mechanical properties of materials and structures.

6. I have taught a wide variety of courses at the undergraduate and graduate level in materials science and engineering, emphasizing both basic science and applied technology, including coursework in the areas of integrated circuit materials and processing. More than two thousand students have taken my classes, and I have trained 24 doctoral students, most of whom now work in the microelectronics industry.

7. In the course of my research, my research group made extensive use of plasma deposition equipment for creating films of both simple (e.g. elemental) and complex (e.g. multi-element compound) materials, in both homogeneous and multilayered geometries.

8. I am a member of many professional societies, including the Materials Research Society, the Institute of Electrical and Electronic Engineers, and the

American Physical Society. I served as President of the Materials Research Society in 1994.

9. A copy of my curriculum vitae (including a list of all publications authored in the previous 10 years) is attached as Exhibit A.

10. I have reviewed the following publications in preparing this declaration:

- U.S. Patent No. 7,808,184 (the “184 Patent”) (Ex. 1001)).
- U.S. Pat. No. 6,413,382 (“Wang”) (Ex. 1005)).
- A. A. Kudryavtsev *et al*, Ionization relaxation in a plasma produced by a pulsed inert-gas discharge, Sov. Phys. Tech. Phys. 28(1), pp. 30-35, January 1983 (“Kudryavtsev”) (Ex. 1004)).
- D.V. Mozgrin, *et al*, High-Current Low-Pressure Quasi-Stationary Discharge in a Magnetic Field: Experimental Research, Plasma Physics Reports, Vol. 21, No. 5, pp. 400-409, 1995 (“Mozgrin”) (Ex. 1003)).
- Eronini Umez-Eronini “System Dynamics and Control,” 1999 (“Eronini”) (Ex. 2021)).

11. I have reviewed the above publications and any other publication cited in this declaration.

12. Also, I have reviewed papers in the *Inter Partes* Review Case Nos. IPR2014-00799 and 00803, including the Petitions and the accompanying

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