

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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FUJITSU SEMICONDUCTOR LIMITED, FUJITSU SEMICONDUCTOR AMERICA, INC., ADVANCED  
DEVICES, INC., RENESAS ELECTRONICS CORPORATION, RENESAS ELECTRONICS AMERICA  
FOUNDRIES U.S., INC., GLOBALFOUNDRIES DRESDEN MODULE ONE LLC & CO. KG, GLOBALFOUNDRIES  
DRESDEN MODULE TWO LLC & CO. KG, TOSHIBA AMERICA ELECTRONIC COMPONENTS,  
AMERICA INC., TOSHIBA AMERICA INFORMATION SYSTEMS, INC., TOSHIBA CORPORATION,  
GILLETTE COMPANY,

Petitioners

v.

ZOND, LLC

Patent Owner

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U.S. Patent No. 7,604,716

Cases IPR2014-00807; IPR2014-00808; IPR2014-01099; IPR2014-01100

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**Patent Owner's Demonstrative Exhibits**

# '716 Patent

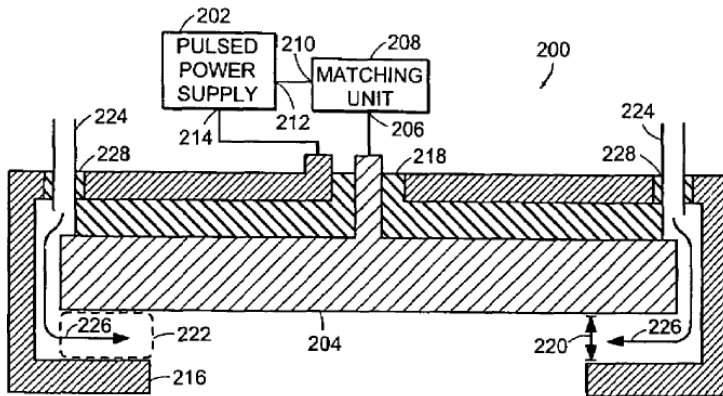


FIG. 2A

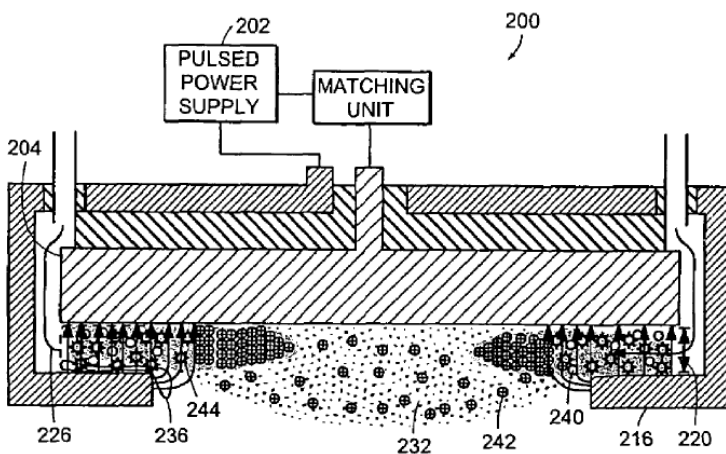


FIG. 2C

## Low Power Pulse to Create A We

A pre-ionizing voltage is applied between the cathode 204 and the anode 216 across the feed gas 226 to create the weakly-ionized plasma 232. The plasma 232 is generally formed in the region 222 and diffuses to the region 234 as the feed gas 226 is to flow. In one embodiment (not shown), a magnetic field is generated in the region 222 and around the cathode 204. This magnetic field traps the diffusing electrons from the region 222. The electrons in the weakly-ionized plasma 232 are substantially trapped in the region 222 by the magnetic field. In one embodiment, the volume of plasma in the region 222 is rapidly increased by the volume of feed gas 226.

'716 Patent at 7:63 – 8:8

# '716 Patent

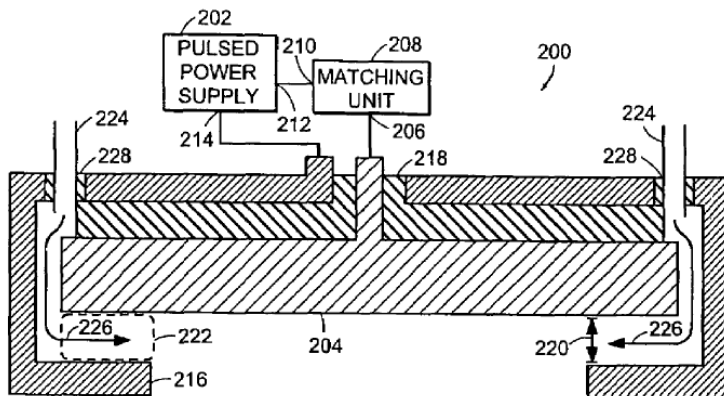


FIG. 2A

## Weakly Ionized Plasma S When High Power

Forming the weakly-ionized or pre-  
substantially eliminates the probab  
breakdown condition in the chamb  
pulses are applied between the cat  
anode 216. The probability of estab  
condition is substantially eliminat  
weakly-ionized plasma 232 has a lo  
that provides electrical conductiv  
plasma. This conductivity substant  
setup of a breakdown condition, ev  
power is applied to the plasma.

'716 Patent at 6:16-25.

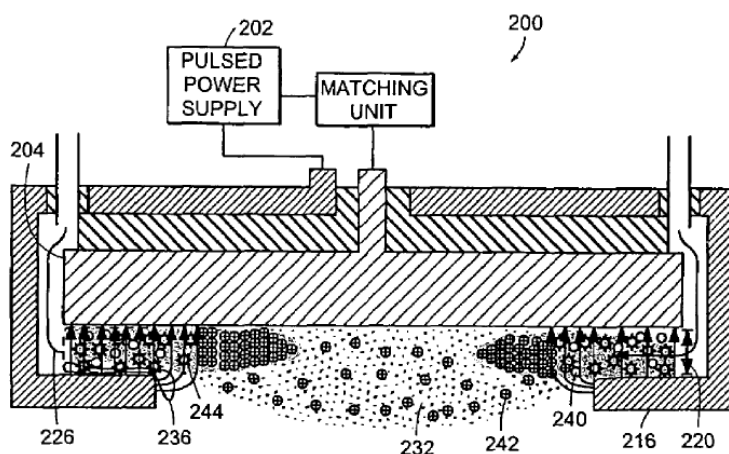


FIG. 2C



# '716 Patent

## Claim 1

An apparatus for generating a strongly-ionized plasma, the apparatus comprising

a. an ionization source that generates a weakly-ionized plasma in a gas contained in a chamber, the weakly-ionized plasma substantially eliminating the probability of developing an electrical breakdown condition in the chamber

b. a power supply that supplies power to the weakly-ionized plasma, and an electrical pulse that is applied across the weakly-ionized plasma, the electrical pulse having at least one of a magnitude and a rise-time that is sufficient to transition the weakly-ionized plasma to a strongly-ionized plasma ***without developing an electrical breakdown condition in the chamber.***

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