Title (en)

DIELECTRIC ETCH CHAMBER WITH EXPANDED PROCESS WINDOW

Title (de)

DIELEKTRISCHE ÄTZKAMMER MIT ERWEITERTEM PROZESSFENSTER

Title (fr)

CHAMBRE DE GRAVURE DIELECTRIQUE A FENETRE DE TRAITEMENT EXPANSEE

Publication

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Application

EP 01993018 A 20011101

Priority

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Abstract (en)

[origin: WO0237541A2] A thermally controlled plasma etch chamber with an expanded processing window and having a thermally controlled chamber liner, thermally differentiated gas inlets, a high evacuation capability, a magnetic confinement and adhesion improving surface textures is provided. The chamber configured may have internal wall surfaces conditioned according to one or several surface texturing treatments adapted to improve by-product adhension to the conditioned surface. The expanded flow capability enables short residence time for increased process window and selectivity. Chamber liner configured according to the present invention flows a fluid through the one or more fluid passages formed at least partially therein and the chamber liner may comprise a first liner, a second liner or both a first liner and a second liner. A plurality of gas nozzles or mini-distribution plates having a small thermal mass and thermally differentiated from the temperature controlled liner or liners is provided to introduce process gases intot he processing chamber. A plasma confinement system is provided that preventes plamsa and by products from entering the high volume pumping channel or exhaust system components. The substrate support includes an electrostatic chuck formed from material having a predetermeined resistivity, dual zone backside cooling, and a robust electrode. The expanded process window enables high flow, low pressure gas flow operating regimes with improved gaseous species residence time control, with increased RF power levels, and increased magnetic field strength.

[origin: WO0237541A2] A thermally controlled plasma etch chamber with an expanded processing window has a thermally controlled chamber liner, thermally differentiated gas inlets, a high evacuation capability, a magnetic confinement and adhesion improving surface textures. The internal wall surfaces of the chamber are conditioned according to one or several surface texturing treatments adapted to improve by-product adhesion thereon. The expanded flow capability enables short residence. A fluid through the one or more fluid passages formed at least partially in the chamber liner may comprise a first liner, a second liner or both a first liner and a second liner. A plurality of gas nozzles or mini-distribution plates having a small thermal mass and thermally differentiated from the temperature controlled liner or liners is introduce process gases in to the processing chamber. A plasma confinement system prevents plasma and by products from extering the pumping channel or exhaust system components. The substrate support includes an electrostatic chuck, dual zone backside cooling, and a robust electrode. The support comprises a ceramic substrate support of predetermined resistivity, a support plate having a fluid channel, and a thermally conductive layer inbetween which may comprise a presure sensitive acrylic adhesive and a metal or metal alloy.

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CPC (source: EP KR)

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