

ABSTRACT

**SHOWERHEAD ELECTRODE ASSEMBLIES AND PLASMA PROCESSING
CHAMBERS INCORPORATING THE SAME**

The present invention relates generally to plasma processing and, more particularly, to plasma processing chambers and electrode assemblies used therein. According to one embodiment of the present invention, an electrode assembly is provided comprising a thermal control plate, a silicon-based showerhead electrode, and securing hardware, wherein the silicon-based showerhead electrode comprises a plurality of partial recesses formed in the backside of the silicon-based showerhead electrode and backside inserts positioned in the partial recesses. The thermal control plate comprises securing hardware passages configured to permit securing hardware to access the backside inserts. The securing hardware and the backside inserts are configured to maintain engagement of the thermal control plate and the silicon-based showerhead electrode and to permit disengagement of the thermal control plate and the silicon-based showerhead electrode while isolating the silicon-based electrode material of the silicon-based showerhead electrode from frictional contact with the securing hardware during disengagement.

Figure: 2