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(54) **Title**: THERMAL PLATE WITH PLANAR THERMAL ZONES FOR SEMICONDUCTOR PROCESSING

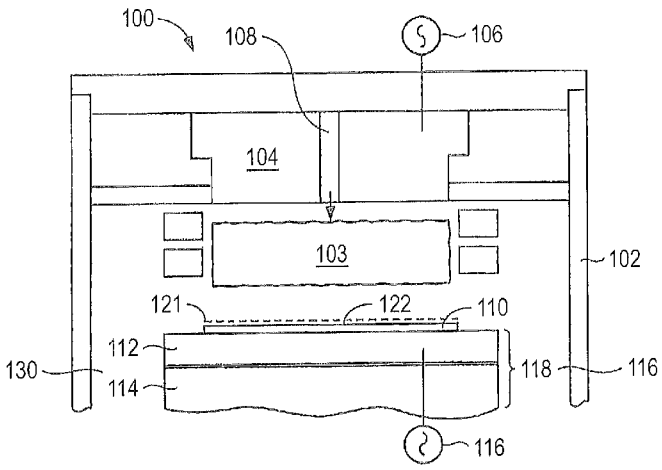


FIG. 1

(57) **Abstract**: A thermal plate for a substrate support assembly in a semiconductor plasma processing apparatus, comprises multiple independently controllable planar thermal zones arranged in a scalable multiplexing layout, and electronics to independently control and power the planar heater zones. Each planar thermal zone uses at least one Peltier device as a thermoelectric element. A substrate support assembly in which the thermal plate is incorporated includes an electrostatic clamping electrode layer and a temperature controlled base plate. Methods for manufacturing the thermal plate include bonding together ceramic or polymer sheets having planar thermal zones, positive, negative and common lines and vias.

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