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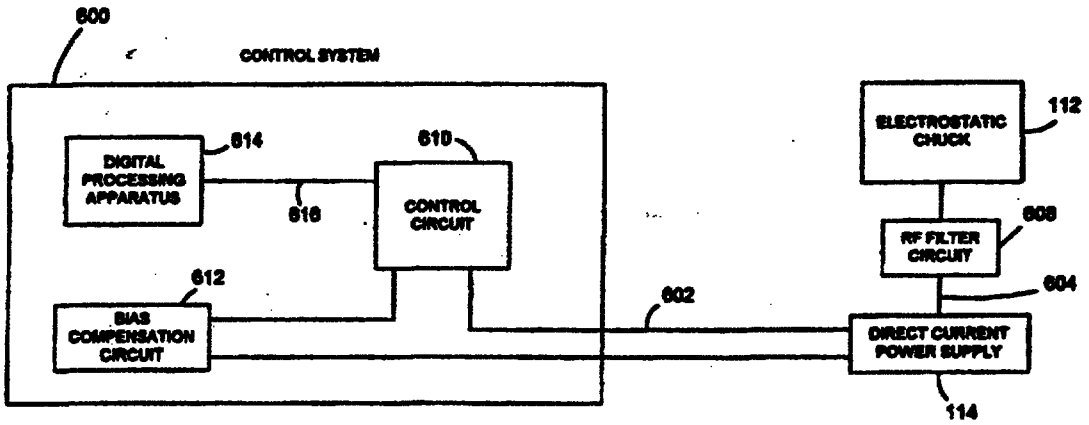
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(54) Title: METHODS AND APPARATUSES FOR CLAMPING AND DECLAMPING A SEMICONDUCTOR WAFER IN A WAFER PROCESSING SYSTEM



(57) Abstract

A method for clamping a wafer to an electrostatic chuck having a substantially resistive dielectric layer disposed thereon. The method includes the step of providing a build-up voltage having a first polarity to a pole of the electrostatic chuck to cause a potential difference to build up between a first region of the substantially resistive dielectric layer and a second region of the wafer that overlies at least a portion of the first region. This potential difference gives rise to a clamping force to clamp the wafer to the electrostatic chuck. The method further includes the step of terminating the build-up voltage when the clamping force substantially reaches a predefined level. There is further included the step of providing a holding voltage to the pole of the electrostatic chuck to substantially maintain the clamping force at the predefined level. This holding voltage has the first polarity and a magnitude that is lower than a magnitude of the build-up voltage. There is further included the step of providing a declamping voltage to the pole of the electrostatic chuck to substantially remove the clamping force, the declamping voltage having a polarity that is opposite to the first polarity.