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(54) Title: METHODS AND APPARATUS FOR DETECTING THE CONFINEMENT STATE OF PLASMA IN A PLASMA PROCESSING SYSTEM

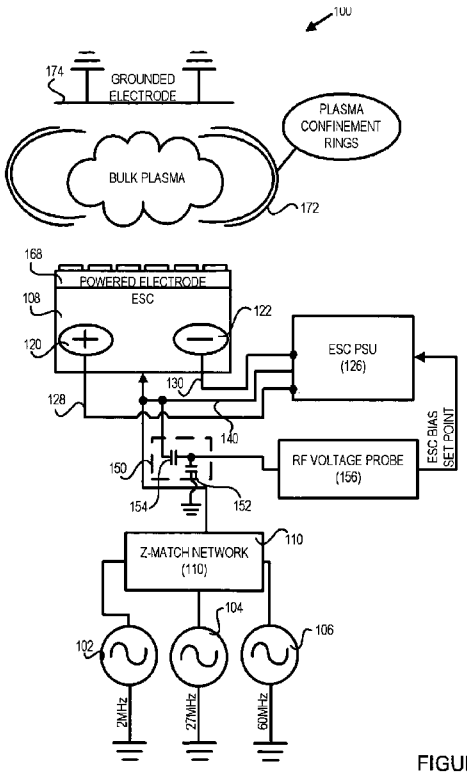


FIGURE 1

(57) Abstract: Methods and systems for detecting a change in the state of plasma confinement within a capacitively coupled RF driven plasma processing chamber are disclosed. In one or more embodiments, the plasma unconfinement detection methods employ an analog or digital circuit that can actively poll the RF voltage at the powered electrode in the form of an Electrostatic Chuck(ESC) as well as the open loop response of the power supply(PSU) responsible for chucking a wafer to ESC. The circuit provides a means detecting both a change in RF voltage delivered to the ESC as well as a change in the open loop response of the PSU. By simultaneously monitoring these electrical signals, the disclosed algorithm can detect when plasma changes from a confined to an unconfined state.

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