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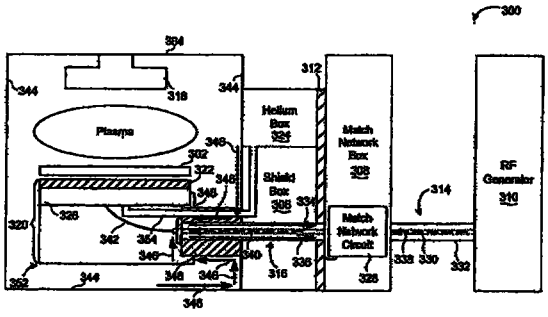
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(54) Title: PLASMA PROCESSING SYSTEM, APPARATUS, AND METHOD FOR DELIVERING RF POWER TO A PLASMA PROCESSING CHAMBER



(57) Abstract: The present invention provides a plasma processing apparatus, system, and method for providing RF power to a plasma processing chamber. The plasma processing system (300) includes an RF generator (310), a plasma chamber (304), a match network box (308), a first cable (314), a second cable (316), and means for electrically isolating (312) the match network box. The RF generator generates RF power for transmission to the plasma chamber. The plasma chamber receives the RF power for processing the wafer (302) and is characterized by an internal impedance during the plasma processing. The plasma chamber has one or more walls (344) for returning RF currents. The match network box is capable of receiving the RF currents and generates an impedance that matches the internal impedance of the plasma chamber to the impedance of the RF generator. The first cable is coupled between the RF generator and the match network box for transmitting RF power between the RF generator and the match network box. The second cable is coupled between the match network box and the plasma chamber for transmitting RF power between the match network and the plasma chamber. The second cable provides a return path for an RF return current from the plasma chamber to the match network box. The electrically isolating means electrically isolates the match network box from electrical contacts with the plasma chamber such that only the second cable provides the return path for the RF return current from the plasma chamber to the match network box.

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