

UPPER ELECTRODE MECHANISM, CURRENT CONTROL METHOD FOR RADIO FREQUENCY COIL, AND SEMICONDUCTOR PROCESSING APPARATUS

ABSTRACT

Embodiments of the present disclosure provide an upper electrode mechanism of a semiconductor processing apparatus and a semiconductor processing apparatus. The upper electrode mechanism includes a radio frequency (RF) coil, a current sensor, and a current adjustment device. The RF coil includes at least two parallelly-connected branches. The current sensor is arranged on each of the branches configured to detect a branch current corresponding to the branch. The current adjustment device is connected to the RF coil and is configured to adjust the branch current of at least one of the branches according to the detected branch current to cause the branch currents of the branches to be equal. Thus, the situation that the energy of the plasma coupled to the chamber through the dielectric window is uneven due to the different currents of the parallelly-connected branches of the coil may be avoided. Thus, the uniformity of the etching process may be ensured.

Fig. 3