

PLASMA PROCESSING APPARATUS AND ETCHING METHOD

ABSTRACT

5 A plasma treatment device according to the present invention comprises: a
plasma treatment chamber; a substrate support body that includes a lower
electrode, an electrostatic chuck, and an edge ring; an upper electrode that is
disposed above the substrate support body; a source RF power supply that
supplies source RF power to the upper electrode or the lower electrode; a bias
10 power supply that supplies bias power to the lower electrode; a direct-current
power supply that applies direct-current voltage that has negative polarity to the
edge ring; an RF filter that is electrically connected between the edge ring and the
direct-current power supply and includes at least one variable passive element;
and a control unit that is configured to control the direct-current power supply and
15 the variable passive element so as to adjust the incidence angle of the ions in
plasma at an edge region of a substrate mounted on the electrostatic chuck and
adjust the voltage of the bias power to an allowable range.

Fig. 1