ABSTRACT

A substrate processing apparatus and an electrostatic chuck for preventing or inhibiting occurrence of abnormal discharge at a lower part of edge ring are provided. Substrate processing apparatus includes: plasma processing chamber; base table situated in plasma processing chamber; electrostatic chuck situated on base table and having substrate support surface and ring support surface; and edge ring situated on ring support surface. Groove in which heat transfer gas is diffused is formed in at least one of ring support surface or lower surface of edge ring. Heat transfer gas supply hole configured to supply heat transfer gas into groove is formed in ring support surface. In annular region including position at which heat transfer gas supply hole is formed, depth of groove in surrounding region around heat transfer gas supply hole is less than depth of groove in region other than surrounding region.

Fig. 3