

ABSTRACT

In a direct power converter employing a boost chopper, a peak current flowing an inductor of the boost chopper is reduced. When a rectifying duty d_r , a discharge duty d_c , a voltage between both ends V_c of a capacitor (34), and a rectified voltage V_{rec} of an AC voltage V_{in} are introduced, a virtual DC link voltage V_{dc} in an inverter (6) is expressed by $d_c \cdot V_c + d_r \cdot V_{rec}$. The discharge duty d_c is a time ratio of continuity of a switch (41). The rectifying duty d_r has a value obtained by subtracting the discharge duty d_c and a zero voltage duty d_z from 1. The zero voltage duty d_z is a time ratio for the inverter (6) to adopt a zero voltage vector regardless of a magnitude of a voltage to be output from the inverter (6). The capacitor (34) is charged in the boost chopper (3) at a part of a period during which the virtual DC link voltage V_{dc} is larger than the rectified voltage V_{rec} .