

DIRECT-TYPE AC POWER CONVERSION DEVICE

ABSTRACT

In a direct power converter including a boost chopper, an average value or an effective value of a current flowing in 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 at which a switch (41) is conductive. 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 at which the inverter (6) adopts a zero voltage vector irrespective of the magnitude of a voltage output from the inverter (6). In a boost chopper (3), the capacitor (34) is charged during a part of a period during which the virtual DC link voltage (V_{dc}) is greater than the rectified voltage (V_{rec}).

Figure 1