

DIRECT AC POWER CONVERTER

ABSTRACT

5 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
10 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
15 voltage V_{rec} .

Figure 1