[0005] In the techniques introduced in these documents, however, a period of charge from a rectifying circuit to a capacitor, and a period of discharge from the capacitor to the inverter are set alternately at each 1/4 of a cycle of an input AC voltage. For this reason, a magnitude of an output voltage remains at $1/\sqrt{2}$ times a crest value of the input AC voltage.

[0006] Further, an operation of the boost chopper is performed in a so-called non-continuous mode, and thus a peak current to flow in an inductor included in the boost chopper tends to be large.

[0007] Embodiments of the present invention seek to reduce a peak current to flow in an inductor included in a boost chopper. Further, embodiments of the present invention seek to provide a technique that makes an output voltage from a direct AC power converter higher than a conventional technique.

Means for Solving the Problems

[0007a] According to a first aspect of the present invention, there is provided a direct AC power converter comprising: a DC link having a first power supply line and a second power supply line, an electric potential lower than an electric potential of said first power supply line being applied to said second power supply line; a first rectifying circuit having a plurality of input terminals that input an AC voltage and a pair of output terminals, each of which is connected to said DC link; an inverter that converts a voltage applied to said DC link into another AC voltage; a boost chopper having a capacitor at an output stage; and a switch that performs discharge/non-discharge from said capacitor to said DC link, wherein in said boost chopper, charge into said capacitor is performed at least at a first period being a part of a period during which a discharge duty as a time ratio of ~~continuity~~ conductivity of said switch is larger than 0.

CLAIMS

1. A direct AC power converter comprising:

a DC link having a first power supply line and a second power supply line, an electric potential lower than an electric potential of said first power supply line being applied to said second power supply line;

a first rectifying circuit having a plurality of input terminals that input an AC voltage and a pair of output terminals, each of which is connected to said DC link;

an inverter that converts a voltage applied to said DC link into another AC voltage;

a boost chopper having a capacitor at an output stage; and

a switch that switches discharge and non-discharge from said capacitor to said DC link,

wherein in said boost chopper, charge into said capacitor is performed at least at a first period being a part of a period during which a discharge duty as a time ratio of ~~continuity~~ conductivity of said switch is larger than 0.

2. The direct AC power converter according to claim 1, wherein said capacitor is charged in said boost chopper at said first period and a part or an entire of the period during which said discharge duty is 0.

3. The direct AC power converter according to claim 2, wherein

said capacitor is charged by a charge power and discharged by a discharge power at said first period, and

said first period has a period during which said charge power is larger than said discharge power, and a period during which said discharge power is larger than said