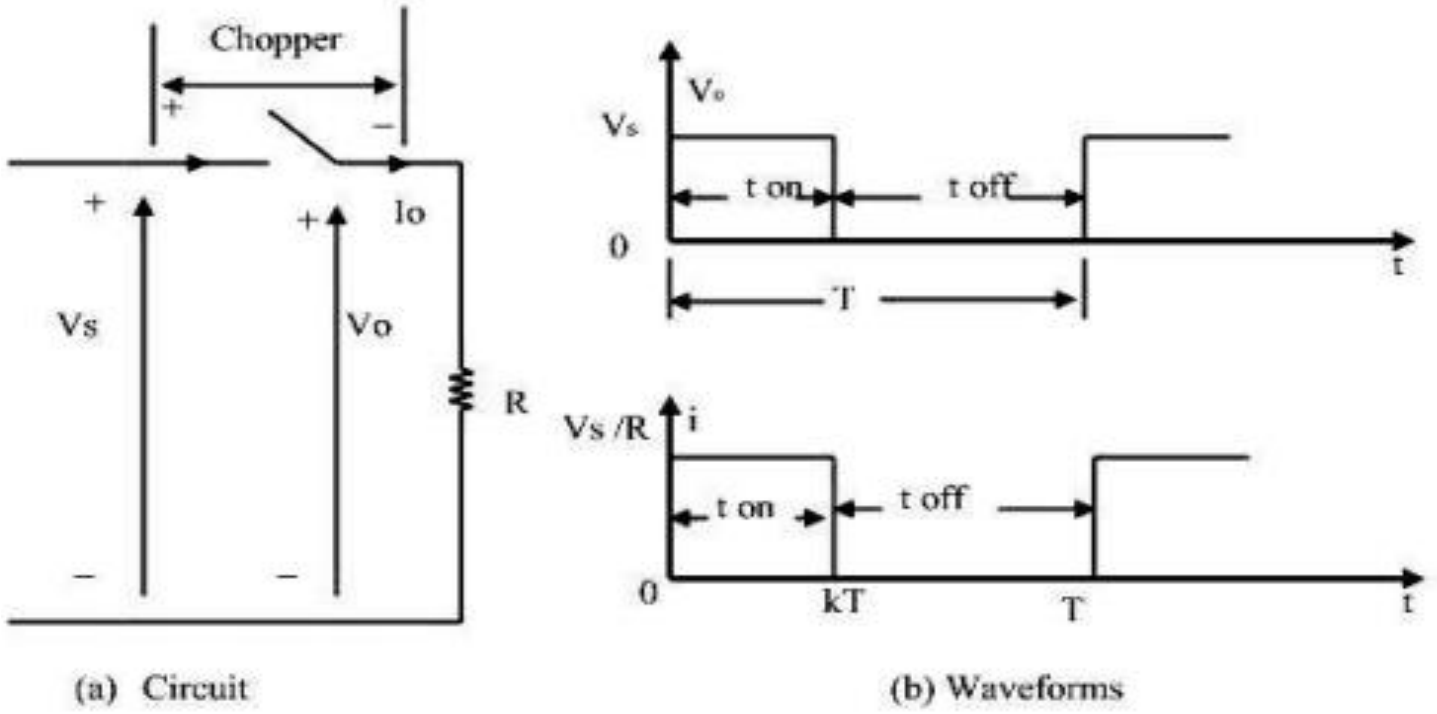
D.C. Chopper Drives

A chopper is a static power electronic device that converts fixed dc input voltage to a variable dc output voltage. A Chopper may be considered as dc equivalent of an ac transformer since they behave in an identical manner. As chopper involves one stage conversion, these are more efficient

A chopper is a high speed “on" or “off” semiconductor switch. It connects source to load and load and disconnect the load from source at a fast speed. A constant dc supply of magnitude is given as input voltage and let its output voltage across load be Vo

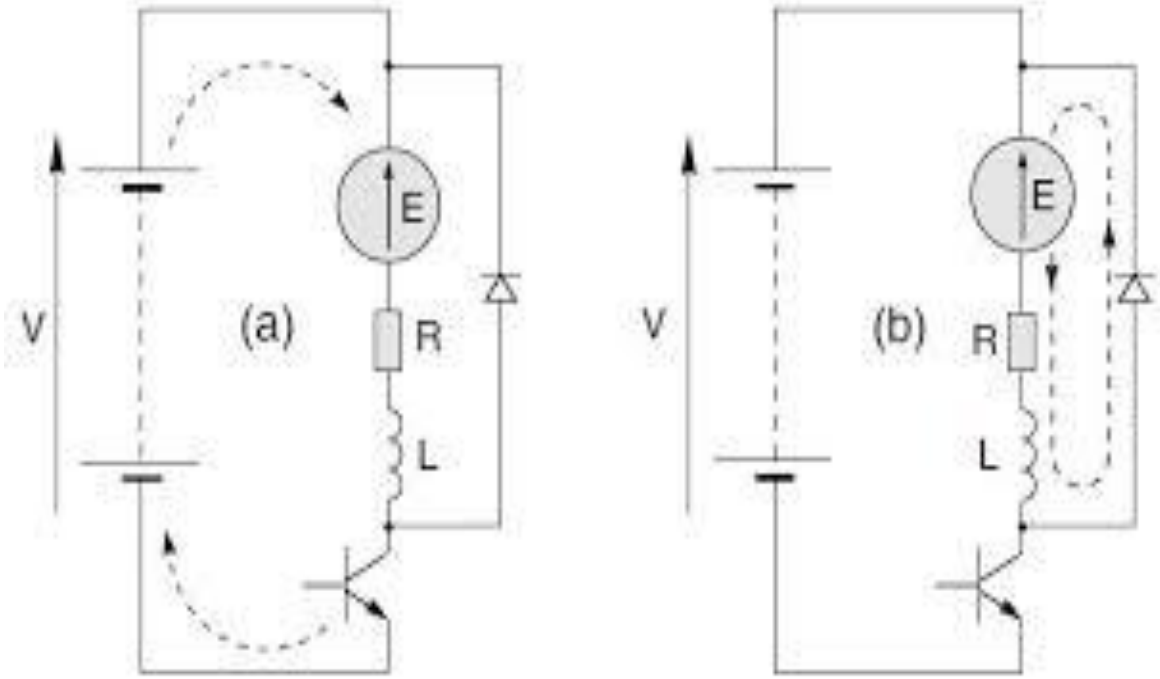


(a) Circuit

(b) Waveforms

Figure Chopper circuit diagram and its voltage and current waveform

Chopper fed DC motor Drive



- Chopper fed Dc motor Drives is shown in figure.
- Output voltage of DC chopper can be varied by varying duty cycle of Chopper.
- This varying output voltage is fed to DC motor.
- Speed of DC motor depends upon Voltage across armature.
- So by varying armature voltage of motor using Chopper speed of Dc motor can be controlled.