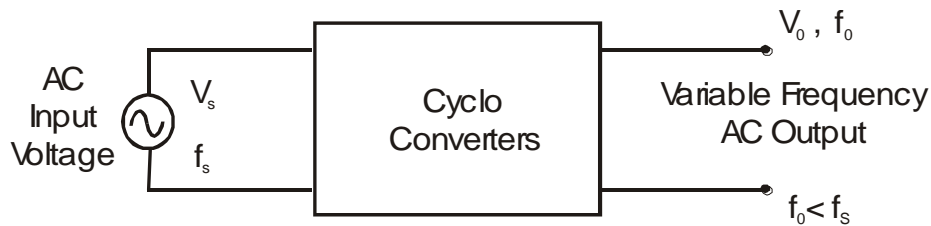


## TYPES OF POWER CONVERTERS - II

### 2. b. AC TO AC Converters with Low Output Frequency or CYCLO CONVERTERS

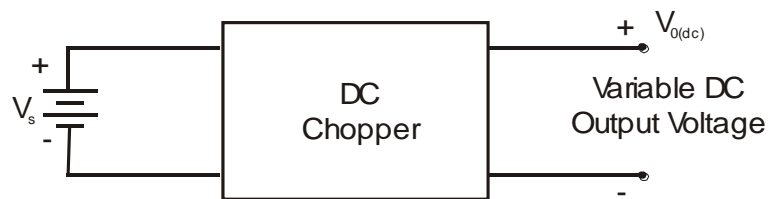


The cyclo converters convert power from a fixed voltage fixed frequency AC supply to a variable frequency and variable AC voltage at the output.

The cyclo converters generally produce output AC voltage at a lower output frequency. That is output frequency of the AC output is less than input AC supply frequency.

Applications of cyclo converters are traction vehicles and gearless rotary kilns.

### 3. CHOPPERS or DC TO DC Converters



The choppers are power circuits which obtain power from a fixed voltage DC supply and convert it into a variable DC voltage. They are also called as DC choppers or DC to DC converters. Choppers employ forced commutation to turn off the Thyristors. DC choppers are further classified into several types depending on the direction of power flow and the type of commutation. DC choppers are widely used in

- Speed control of DC motors from a DC supply.
- DC drives for sub-urban traction.
- Switching power supplies.

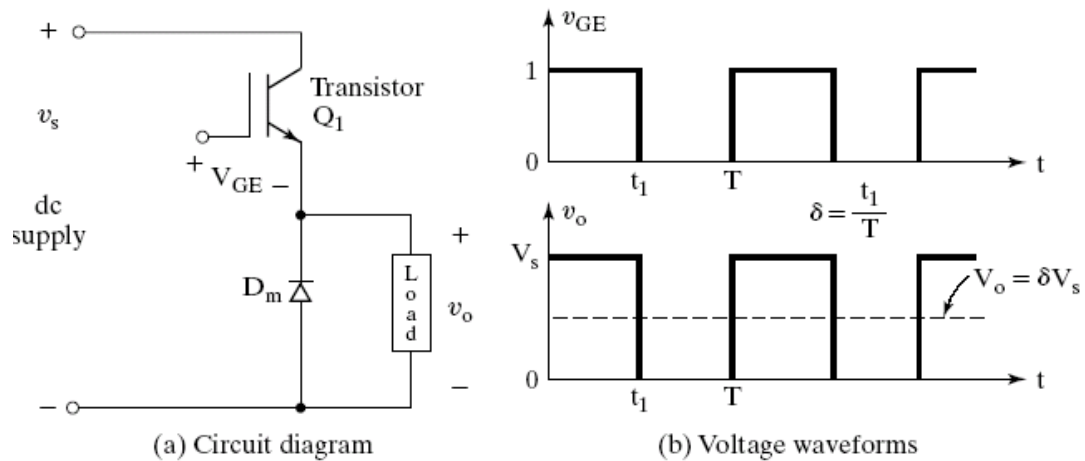
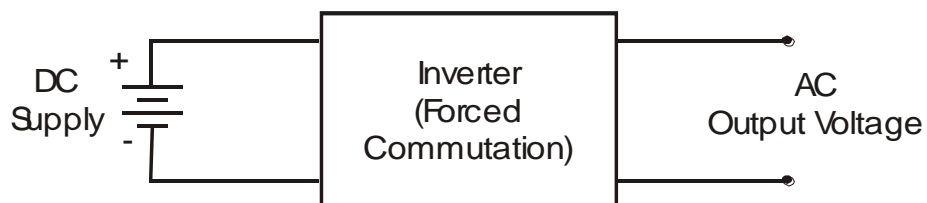


Fig.1.7: A DC Chopper Circuit (DC-DC Converter) using IGBT

#### 4. INVERTERS or DC TO AC Converters



The inverters are used for converting DC power from a fixed voltage DC supply into an AC output voltage of variable frequency and fixed or variable output AC voltage. The inverters also employ force commutation method to turn off the Thyristors.

##### Applications of inverters are in

- Industrial AC drives using induction and synchronous motors.
- Uninterrupted power supplies (UPS system) used for computers, computer labs.

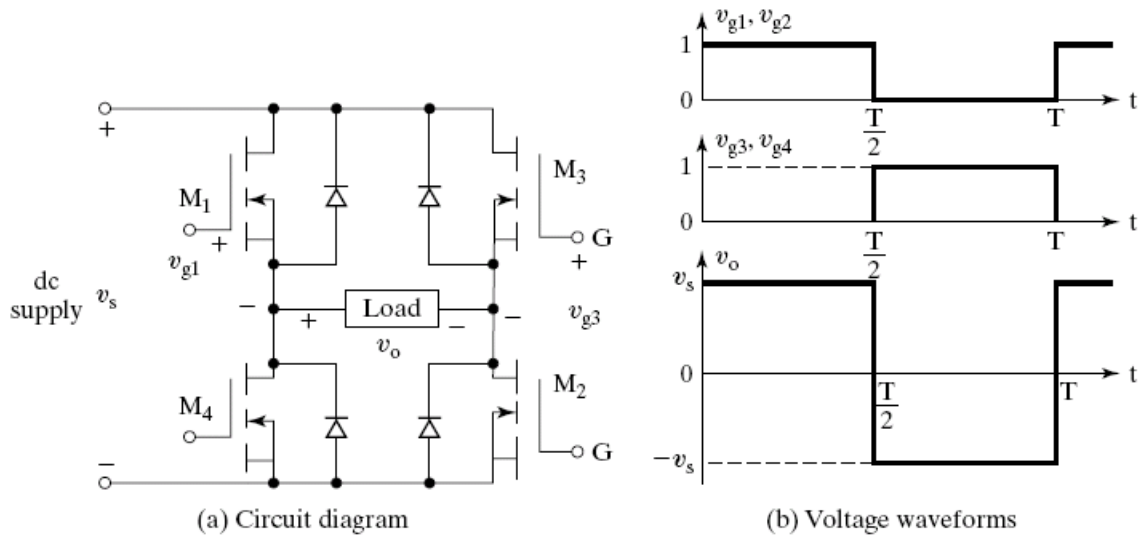


Fig.1.8: Single Phase DC-AC Converter (Inverter) using MOSFETS