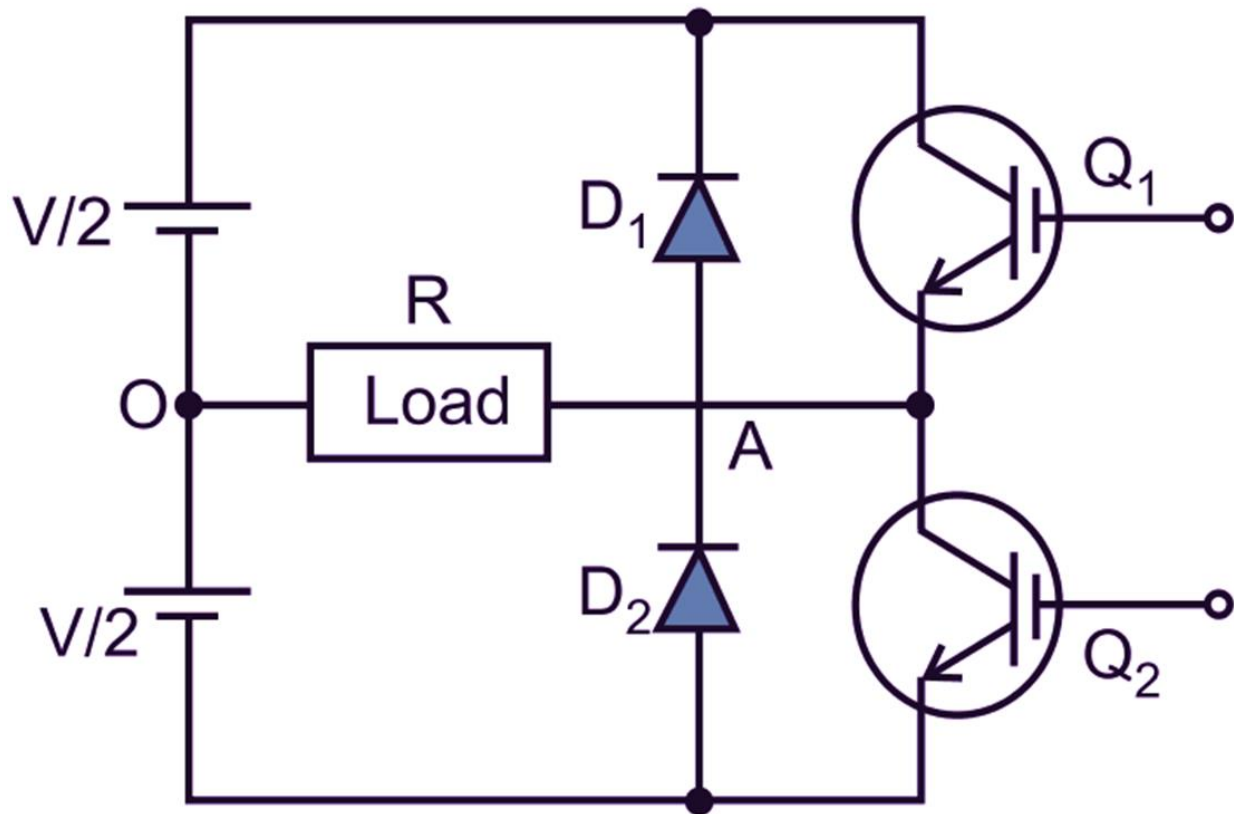


# Single Phase Half Bridge Inverter



**Fig. 1: Single Phase Half Bridge Inverter**

Fig. 1 shows a half-bridge inverter using two transistors (MOSFET or IGBT). The diodes are used to protect the IGBT from blocking negative voltage. The diodes allow free-wheeling operation in case of inductive load. When only two switching devices are used for converting DC to AC then the configuration is known as a half-bridge inverter.

## Working of Single-Phase Half Bridge Inverter

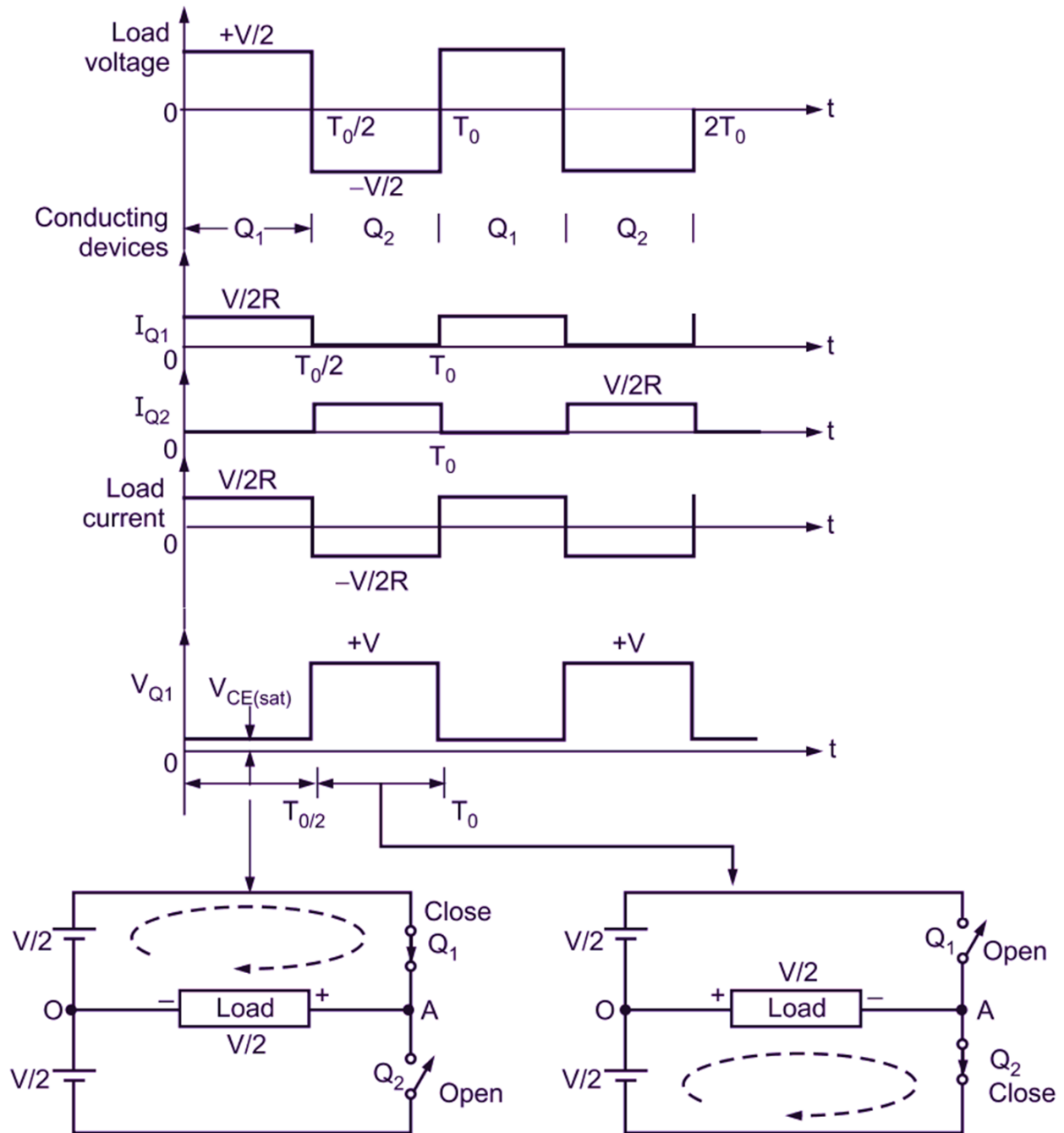
The working of the half-bridge inverter is as follows:

The transistor (MOSFET or IGBT)  $Q_1$  is turned ON for a time  $T_o/2$  which makes the  $V/2$  voltage appear across the load, resistance 'R'. The value of output voltage ( $V_o$ ) is given by

$$V_o = \frac{V}{2}$$

Similarly, when transistor  $Q_2$  is turned ON at the instant  $T_o/2$  until time  $T_o$ , by turning OFF  $Q_1$  then  $-V/2$  voltage appears across the load Resistance 'R'. The waveforms are shown in Fig. 2. The amount of current flowing through the load is given by,

$$\text{Load current} = \frac{V/2}{R} = \frac{V}{2R}$$



**Fig. 2: Load voltage and current waveforms with resistive load for half bridge inverter**