



## Push-Pull DC to DC Converter

When designing amplifier circuits that are battery powered, the need arises for generating plus and minus voltages. These voltages are usually larger than the supply voltage and must be able to provide a fair amount of power, as well as be simple and inexpensive.

The circuit above uses a CMOS 555 timer to generate a clock (approx. 50KHz). The 555 drives a CMOS flip-flop which gives a 50% duty cycle clock. The Q and Q not outputs of the flip-flop are used to drive N channel FET's, which form a push pull driver to the transformer. The output of the transformer is then rectified and filtered to provide plus and minus voltage. This configuration was set up to deliver plus and minus 25 volts at 30 watts. FET's were used in this design (as opposed to bipolar transistors) to minimize the problem of cross-conduction due to storage time of the drive devices.

The efficiency of the supply can be improved by using a high quality transformer core. The LC filtering on the output helps quiet the output without having to use regulators.