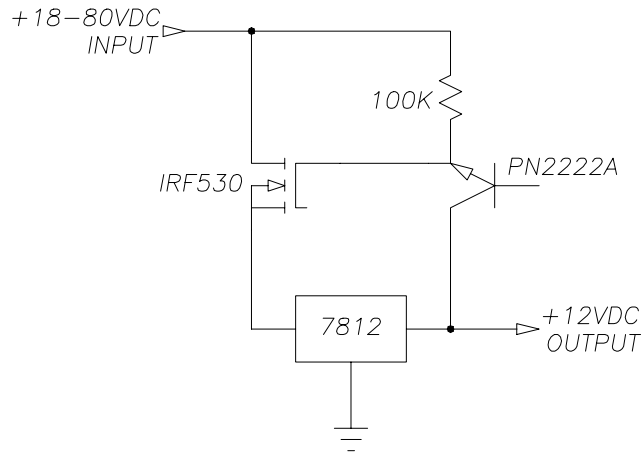


## HIGH INPUT VOLTAGE REGULATOR



This circuit uses a low input voltage (<40V) regulator like a 7805 or 7812 and puts a high voltage pre-regulator on its input. The PN2222A is connected as a temperature compensated 6.8V zener diode. The “anode” of this zener is connected to the +12V output of the 7812 regulator. This makes the zener “cathode” voltage 18.8VDC. The 100K resistor acts as the zener current limit resistor that connects to the high voltage input.

The gate of the IRF530 MOSFET is biased by the zener to 18.8V as well. The threshold voltage for the MOSFET ( $V_{gs}$ ) is about 2V. This makes the MOSFET source about 16.8V, which feeds the input of the 7812 regulator. The input/output regulator voltage difference about 4.8V, insuring the proper operation of the regulator.

The MOSFET has negative feedback around it. Any rise in the source voltage would tend to turn-off the IRF530, lowering its source voltage back to 16.8V because the gate voltage is fixed at 18.8VDC.

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