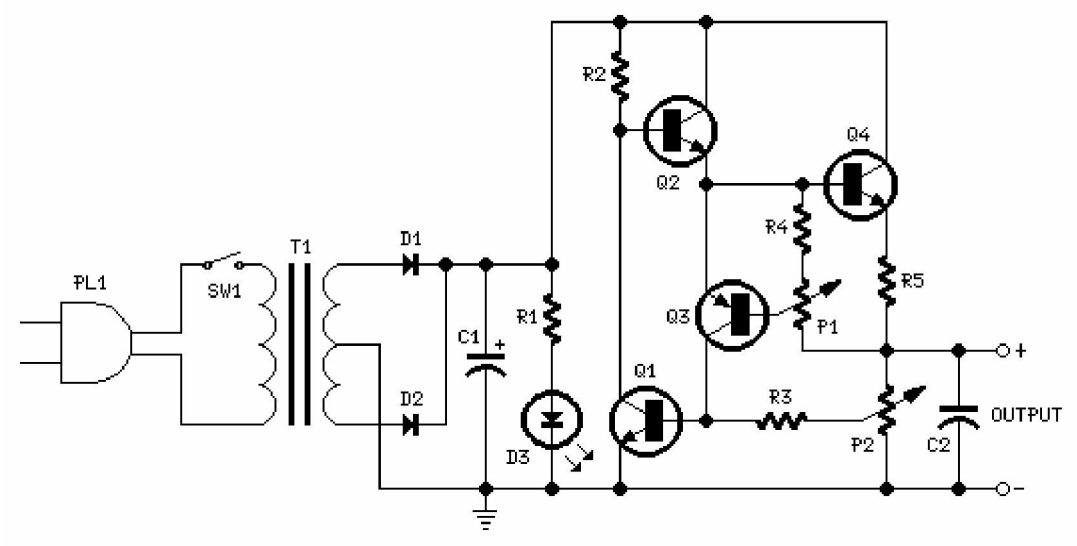
Variable DC Power Supply

Voltage range: 0.7 - 24V
Current limiting range: 50mA - 2A



Parts:

P1_____500R Linear Potentiometer
P2_____10K Log. Potentiometer
R1,R2_____2K2 1/2W Resistors
R3_____330R 1/4W Resistor
R4_____150R 1/4W Resistor
R5_____1R 5W Resistor
C1_____3300µF 35V Electrolytic Capacitor (see Notes)
C2_____1µF 63V Polyester Capacitor
D1,D2_____1N5402 200V 3A Diodes
D3_____5mm. Red LED
Q1_____BC182 50V 100mA NPN Transistor
Q2_____BD139 80V 1.5A NPN Transistor
Q3_____BC212 50V 100mA PNP Transistor
Q4 _____2N3055 60V 15A NPN Transistor
T1_____220V Primary, 36V Center-tapped Secondary 50VA Mains transformer (see Notes)

Device purpose:
A Variable DC Power Supply is one of the most useful tools on the electronics hobbyist's workbench. This circuit is not an absolute novelty, but it is simple, reliable, "rugged" and short-proof, featuring variable voltage up to 24V and variable current limiting up to 2A. Well suited to supply the circuits shown in this website. You can adapt it to your own requirements as explained in the notes below.

Notes:
P1 sets the maximum output current you want to be delivered by the power supply at a given output voltage.
P2 sets the output voltage and must be a logarithmic taper type, in order to obtain a more linear scale voltage indication.
You can choose the Transformer on the grounds of maximum voltage and current output needed.
Best choices are: 36, 40 or 48V center-tapped and 50, 75, 80 or 100VA.
Capacitor C1 can be 2200 to 6800µF, 35 to 50V.
Q4 must be mounted on a good heatsink in order to withstand sustained output short-circuit.
In some cases the rear panel of the metal box in which you will enclose the circuit can do the job.
The 2N3055 transistor (Q4) can be replaced with the slightly less powerful TIP3055 type.
Excellent quality-price ratio: enjoy!