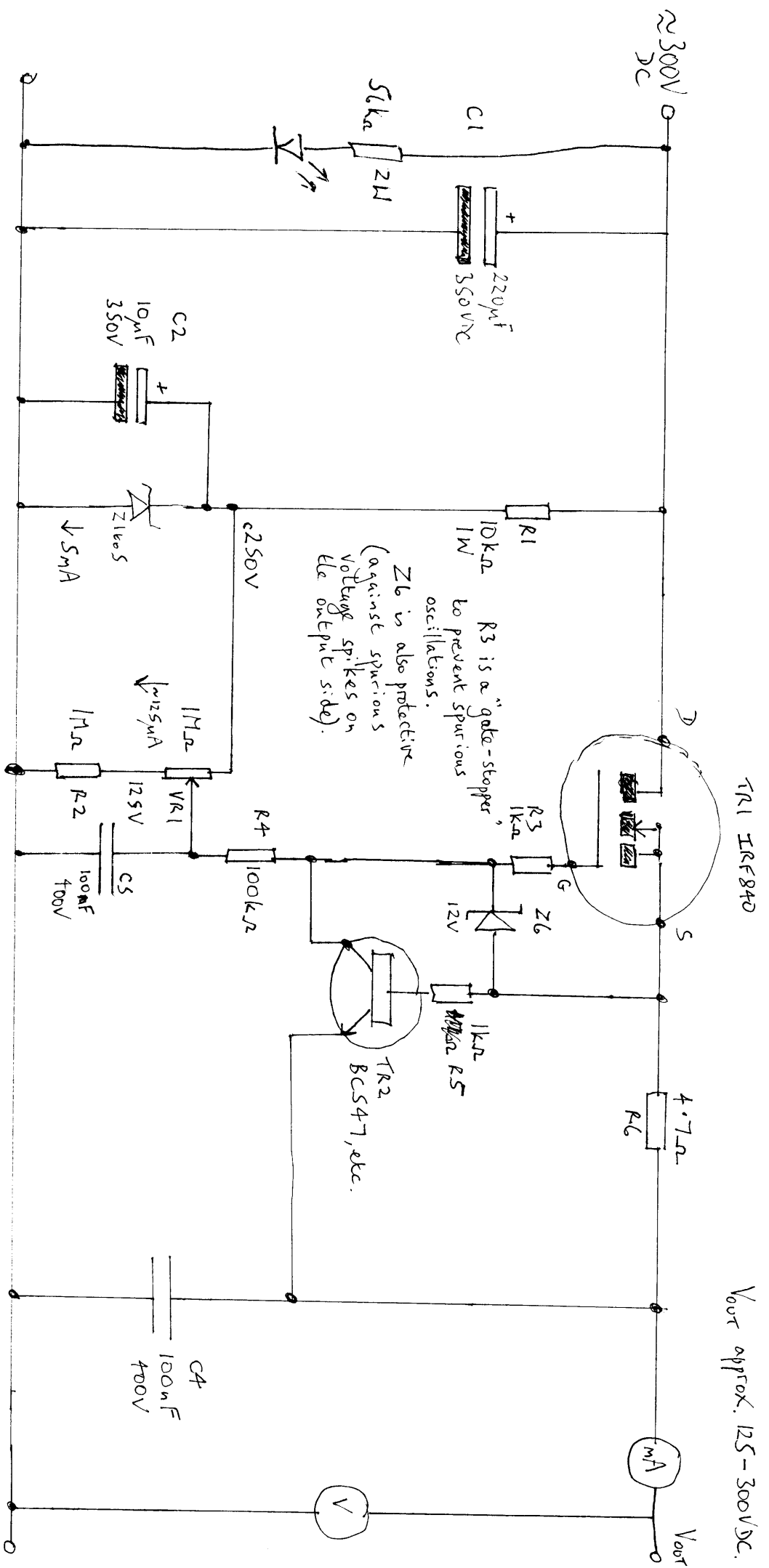




* Z1 to 5 547V Zeners in series

PD across $R1 \approx 50V$
 Let Zener current $\approx 5mA$
 $R1 = 10k\Omega$
 $\therefore V1$, Power dissipated by $R1 \approx 50 \times 5 \times 10^{-3} = 250mW$

$R6$ is current sensing resistor. It is chosen so that it drops $0.6V$ at the required maximum current. When V_{BE} of $TR2 = 0.6V$ it turns on and acts as a short circuit between the source and gate of $TR1$ (because of the huge input impedance of $TR1$, $R3$ and $R6$ have negligible resistance compared to it). So V_{S-G} will be zero and $TR1$ will switch off causing I_{out} to drop to zero, protecting the circuit from overload.
 So, if required max. $I_{out} = 100mA$, then $R6 = \frac{0.6}{100 \times 10^{-3}} = 6\Omega$
 4.7Ω will limit I_{out} to about $125mA$.

IRL840

V_{out} approx. $125-300VDC$.