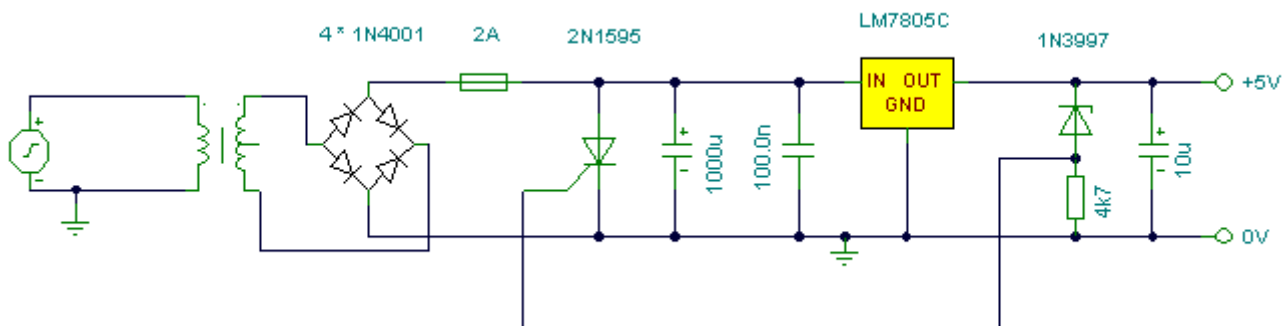


# Logic PSU with Over Voltage Protection

The 5 volt regulated power supply for TTL and 74LS series integrated circuits, has to be very tolerant. These IC's are easily damaged from over voltage. A fuse will only blow when its current rating is exceeded, but with this circuit the fuse will blow when the voltage exceeds a set amount.

## Fast Protection

An ordinary so called "quick blow" fuse takes several milliseconds to go open circuit, in a fraction of this time several logic IC's can be destroyed. This system uses the crowbar method, where a thyristor will short circuit the supply and cause the fuse to blow. This will take place in a few microseconds or less, and so offers much greater protection than an ordinary fuse.



## Notes:

I have not specified a transformer as power supplies differ from country to country. However, the dc input to the regulator needs to be a few volts higher than the regulator voltage. In the case of a 5v regulator, I would use a secondary voltage of 8-10volts ac.

The zener diode is a 5V6 type and is normally off. In the event of the output voltage rising to 5.6 volts or higher, the zener conducts, the small positive voltage across the resistor turns on the thyristor and short circuits the supply, causing the fuse to blow. Within the first few microseconds, the short circuit reduces the output voltage before the fuse will blow, safeguarding the precious logic IC's.

By choosing a different regulator and zener diode, you can build an over voltage trip at any value. I have a simulated transient graph of this over voltage protection circuit in the Design section.