

106D THYRISTOR DEMONSTRATION BOARD

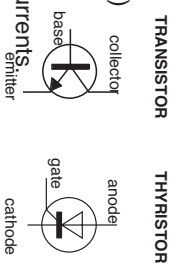
The following photocopiable sheet can be used as the basis for valuable demonstrations or experiments. It is photocopied and bonded to a sheet of polystyrene or other thin material. The thyristor is soldered onto a small piece of copper strip board and then leads are taken underneath the main board to a series of binding posts made up from 4mm screws and nuts and solder tags. When the board is complete and a suitable battery supply is connected, various input and output devices can be attached using crocodile clip leads.

For example, the thyristor board can be used to demonstrate many permutations of input triggering (and different outputs) for alarm systems. A high value "pull down" resistor (e.g. between 100k - 1M) should be connected between the gate and -ve. This prevents unwanted switching that might arise, for example, because of moisture on the copper strip board.

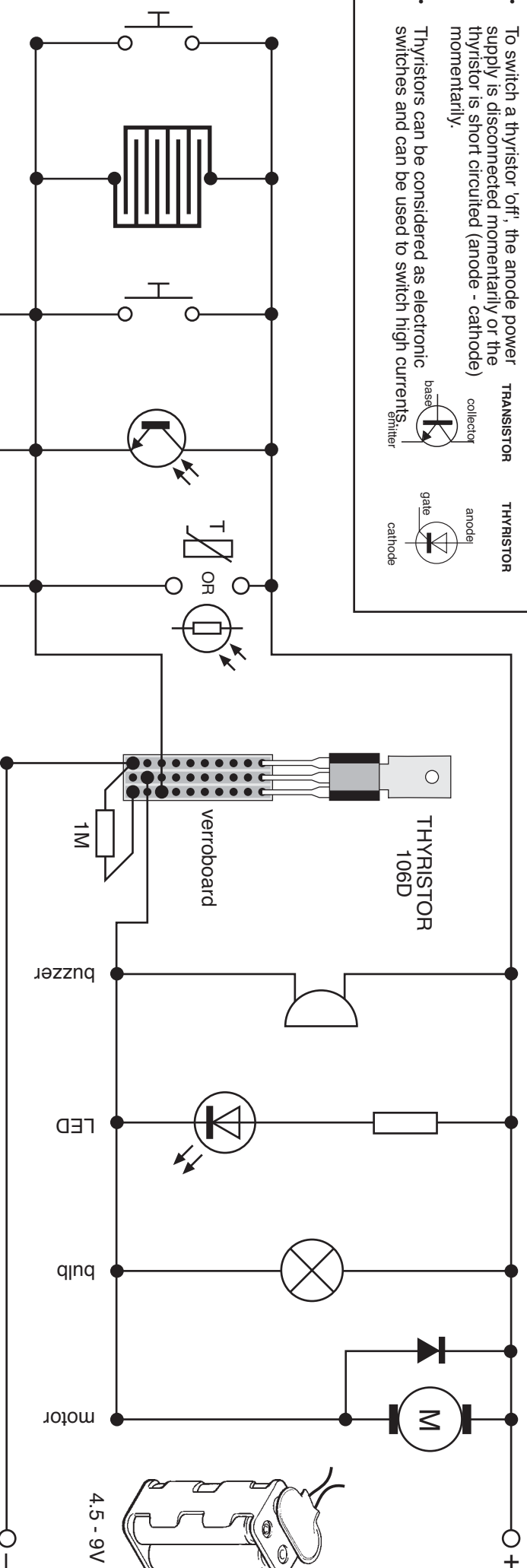
THYRISTOR DEMONSTRATION BOARD

1. What Thyristors do

- A small voltage applied to the gate of a thyristor causes current to flow between anode and cathode.
- A thyristor can be compared to a transistor. **However**, once the gate is 'triggered' with a small voltage, the thyristor continues to conduct anode to cathode. This is called latching.
- To switch a thyristor 'off', the anode power supply is disconnected momentarily or the thyristor is short circuited (anode - cathode) momentarily.
- Thyristors can be considered as electronic switches and can be used to switch high currents.



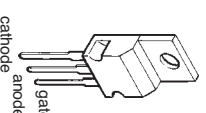
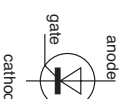
POSSIBLE OUTPUTS



2. Technical Information on Thyristor 106D

Voltage: 50V max.

Current handling: 4A



POSSIBLE INPUTS

IR530 POWER MOSFET DEMONSTRATION BOARD

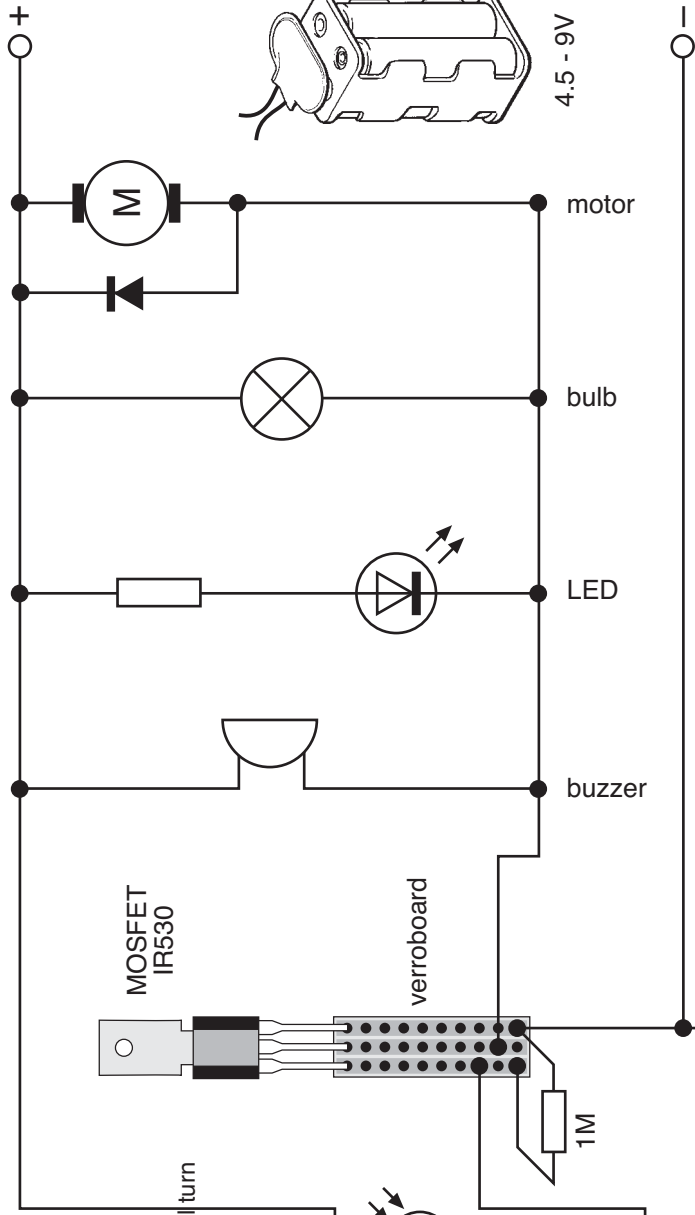
The following photocopiable sheet can be used as the basis for valuable demonstrations or experiments. It is photocopied and bonded to a sheet of polystyrene or other thin material. The MOSFET is soldered onto a small piece of copper strip board and then leads are taken underneath the main board to a series of binding posts made up from 4mm screws and nuts and solder tags. When the board is complete and a suitable battery supply is connected, various input and output devices can be attached using crocodile clip leads.

For example, the MOSFET board will show that practically any output device available in schools can be fully switched on using practically any "standard" input method - such as a moisture probe. A high value "pull down" resistor (e.g. between 100k - 1M) should be connected between the gate and -ve. This prevents unwanted switching that might arise, for example, because of moisture on the copper strip board.

1. What FETs do

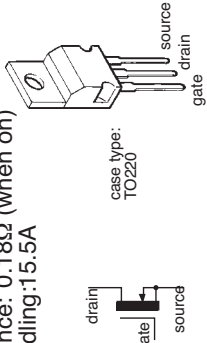
- FET is the acronym for field effect transistor. 'MOS' in MOSFET stands for metal oxide semi-conductor which describes the construction of the device.
- A small voltage applied to the gate of a MOSFET causes current to flow between drain and source.
- A MOSFET can be compared to a bipolar transistor such as a BC108. The bipolar transistor requires base current to cause current to flow collector to emitter. The gate of the MOSFET requires only a voltage to "turn on" the device.
- MOSFETs can be considered as electronic switches with a very low 'on' resistance.
- Power MOSFETs can be used to switch high currents. Small logic signals will turn them on.

POSSIBLE OUTPUTS



2. Technical Information on MOSFET IR530

Voltage: 100V
Resistance: 0.18Ω (when on)
Current handling: 15.5A



Static Warning
Static will destroy MOSFETs!!
Typical voltages acquired by:-
walking on carpet - 35,000V
handling polythene bag - 20,000V

- Try to avoid unnecessary handling.
- Touch earth point before handling.

POSSIBLE INPUTS

