# MAXX TRONIC

**THE QUALITY ELECTRONIC KIT SET & MODULE**

## DC MOTOR SPEED CONTROL (15A)
## CODE MX033

This DC motor speed control circuit is a small speed control and easy to use.

**Technical specifications:**
- power supply : 12/24VDC. (select jumper)
- load voltage : 12/24VDC./ 15A. max.
- output : controlled DC motor by PWM (pulse with modulation)
- range : 0-100%
- PCB dimensions : 3.28 x 1.82 inches.

**How to works:**

IC1/1 is configured as a frequency generator. This frequency is fed to pin 2 of IC1/2 (compare the voltage) for adjust the duty of signal. This duty can be adjusted from 0 to 100 precent. The signal from pin 1 of IC1/2 is fed to TR2, TR3 and TR4 for trig the gate of mosfet, causing mosfet to work in accordance with this signal for drive motor. TR1 and ZD1 is control the voltage not more then 9.4 volts.

**PCB assembly:**

Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. The LED has a flat spot on the body which lines up with the line on the overlay. Now check that you really did mount them all the right way round!
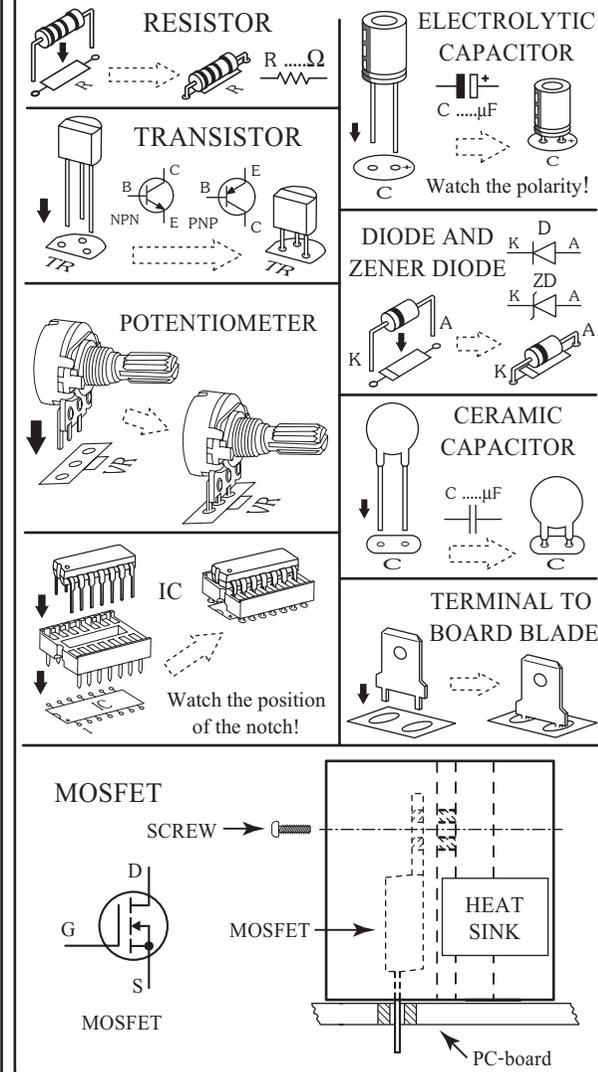
**Testing:**

Jump the jumper for select the power supply same motor such as; if use motor 12VDC, jump the jumper to "12V" point and use the power supply 12VDC to the circuit. But if use motor 24VDC, jump the jumper to "24V" point and use the power supply 24VDC to the circuit. Adjust VR10K max. counterclock- wise and connect motor to circuit and then supply the power supply to circuit. Adjust VR10K clockwise slowly. When adjust VR10K max. clockwise, motor will be rotated to maximum. This circuit can be control speed of motor or the light of lamp 15A. maximum.

**Using:**

When select the jumper is matching between motor and power supply, adjust VR10K max. counterclockwise and connect motor to "M+" and "M-" and then supply the power supply to circuit. In this time, motor will not rotated. Adjust VR10K clockwise slowly, the speed of motor will rotate following at you adjust.

## Figure 1. Installing the componants



RESISTOR

TRANSISTOR

POTENTIOMETER

IC

Watch the position of the notch!

MOSFET

ELECTROLYTIC CAPACITOR

Watch the polarity!

DIODE AND ZENER DIODE

CERAMIC CAPACITOR

TERMINAL TO BOARD BLADE

MOSFET

SCREW

HEAT SINK

PC-board

**Troubleshooting:**

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.
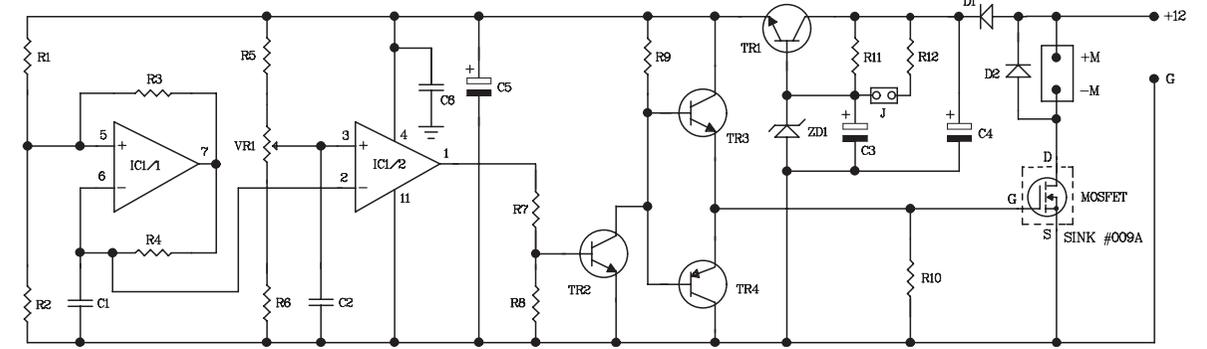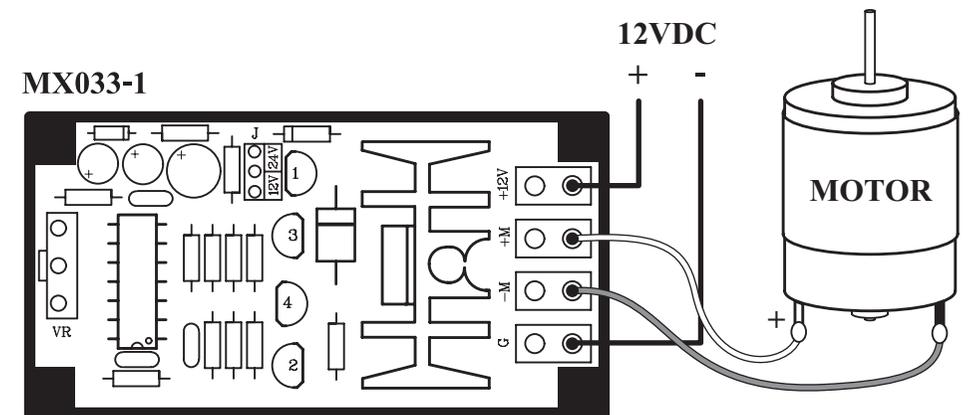


## Figure 2. the DC motor speed control (15A) circuit

## Figure 3. Connections



MX033-1

12VDC

MOTOR

### Select jumper

| 12V | 24V | 24VDC   | 12V | 24V | 12VDC |

**NOTE: Selecting the power supply for motor.**