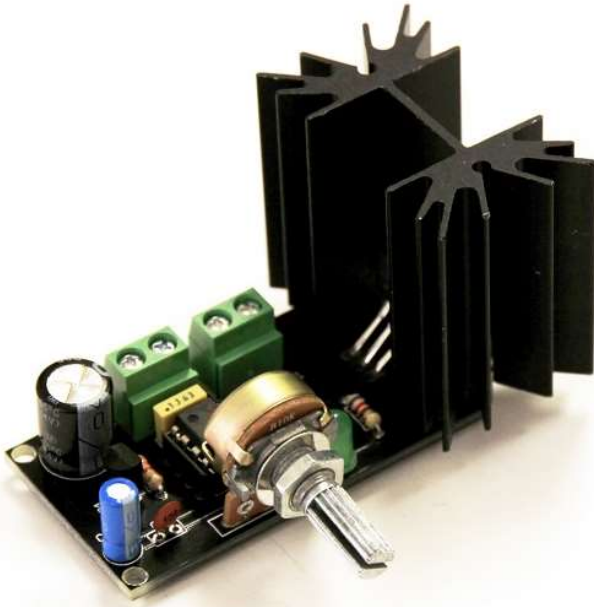


## 5A DC Motor PWM Controller

Level: Beginner AK-155



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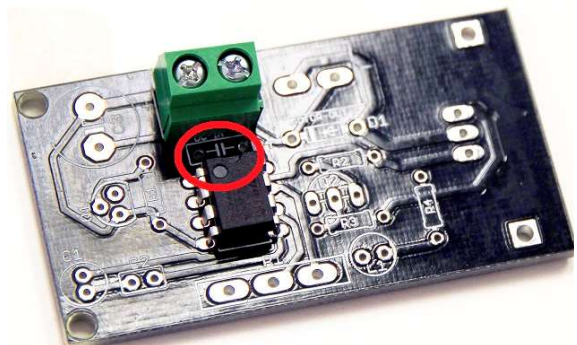
## Parts List

Quantity	Description	Remarks   PCB Reference #
1	3.3KΩ ½ Watt Resistor	Orange, Orange, Red, Gold   R1
1	4.7KΩ ½ Watt Resistor	Yellow, Violet, Red, Gold   R2
1	100 ½ Watt Resistor	Brown, Black, Black, Gold   R3
1	620KΩ ½ Watt Resistor	Blue, Red, Brown, Gold   R4
1	FR107 Fast switching diode	Pay attention to Cathode or White Band   D1
1	8 pin IC Socket	Ensure Notch is aligned with Marking on PCB   IC1
1	LM555 8 PIN-IC	Ensure Notch is aligned with socket Notch   IC1
2	Two pin Terminal block	Socket Facing Outwards   DC-IN / MOTOR-OUT
1	.1µF 50V Ceramic Capacitor	Orange-brown small capacitor   C2
1	470µF 16V Polarized Capacitor	Large tube capacitor, pay attention to polarity!   C3
1	.1µF 63V Polyester Capacitor	Yellow Square Capacitor   C4
1	1µF 50V Polarized Capacitor	Small tube capacitor, pay attention to polarity!   C1
1	A733 PNP transistor	Match with outline of PCB   Q1
1	C945 NPN transistor	Match with outline of PCB   Q2
1	3 or 5mm RED LED	Flush cut on LED housing is cathode   L1
1	10KΩ Linear Potentiometer	P1
1	Z44 Power Transistor	Place heatsink prior to soldering   Z1
1	Heatsink and Screw + Nut	Read guide for placement
1	Custom PCB Board	60/40 Tin and lead solder required!

## Soldering Guide

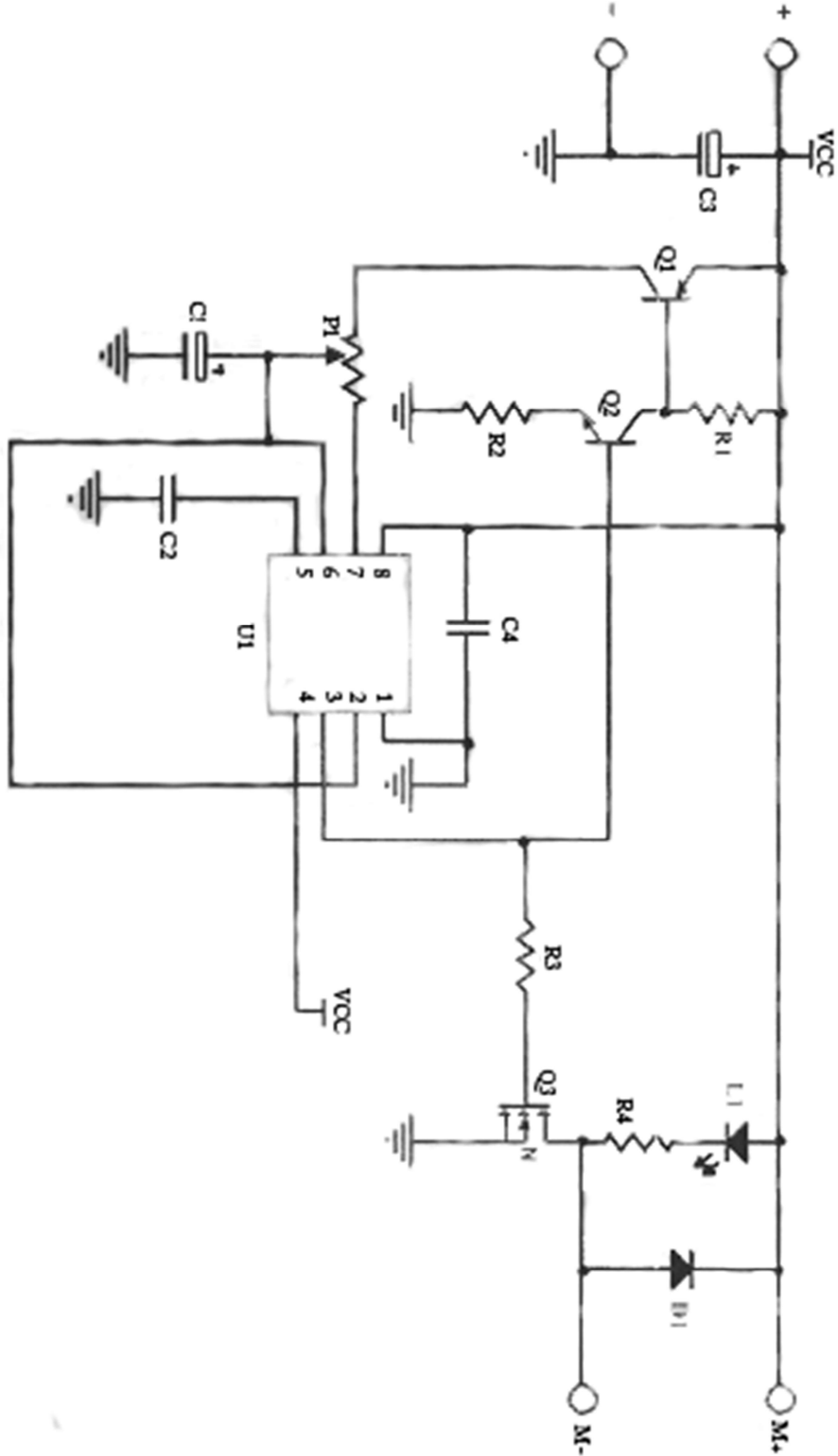
- 1) Turn on the iron to 608°F (380°C) if you are using 60/40 % Tin-Lead based solder.
- 2) Place the Resistors into the PCB first and flip the board, pull with a plier to ensure the component is flush with the board.
- 3) Solder the leads to the pad and then cut off the leads.
- 4) Repeat the previous steps with the diode.
- 5) Solder the orange and brown capacitors, you do not have to worry about polarity.
- 6) Solder the IC Socket and insert the IC, pay close attention to the notch. Make sure they match!
- 7) Solder the LED make sure the cut side matches with the marking on the PCB.
- 8) Solder the transistors and ensure the outline matches with the component, see parts list for placement.
- 9) Solder the Polarized Capacitors and pay attention to (-) white strip as it should match with the white bar on the PCB.
- 10) Solder the terminal block with the socket facing outwards. To Solder the power transistor, see back of this page.

Some 555 IC will not come with a notch. Locate a reflective circle on the IC. View the image below for a visual example of how to insert the LM555.



V1.0.0

**Note:** Screw the Power Transistor to the heatsink using the provided screw and nut. Insert the P.T into the board and bend if needed to allow the two pins from the heatsink to touch the boards' edge while allowing the pins to fit into the through-hole pad.



Schematic Diagram