



# 5V, 6V & 9V Regulator Board

## Assembly and Operation

SUPERDROIDROBOTS.COM

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## Assembly:

### Recommended Tools

- 25 watt soldering iron with a sharp tip
- Solder
- Solder remover (optional, this should not be needed except to correct mistakes)
- Wire cutters/strippers
- Screw Driver
- Small needle nose pliers
- Multi-meter (recommended for any troubleshooting)
- Safety glasses
- Method of holding board and electronics (optional)

### Assembly Sequence

Assembly order is not terribly important. The following steps assume basic soldering skills. SuperDroid Robots has a page on its web site addressing soldering [WWW.SuperDroidRobots.com\soldering.htm](http://WWW.SuperDroidRobots.com\soldering.htm).

#### Tips:

- Where ever possible solder joints are kept as far from traces as possible or on the top side of the board. However, great care needs to be made to ensure excess solder is not applied and shorts the junction to an adjacent trace. Before powering the board a close inspection needs to be made to ensure no shorts are present.
  - The other common mistake is creating "dry sockets". Dry sockets will look like the solder joint is fine, but upon closer examination the solder is only joined to the board or pin. These connections will yield spurious behavior that is very difficult to troubleshoot. It is important that both the board junction and the pin are heated sufficiently to allow the solder to flow and bond the two components.
  - The figure on the cover shows where all the components are located on the circuit board. The assembly sequence will require referral back this image for positioning of the electronic components.
  - All the components should be placed on the top of the board (the labeled side) and soldered from the backside.
1. Insert capacitors. The positive leg goes in the square hole that connects to the top trace. The 16V regulator goes closest to the LED. The 25V capacitor goes closest to the fuse.
  2. Insert the 220 Ohm resistors leading to the LED. Orientation is not important. Use the color bands to identify the resistors resistance.

Resistor Color Code							
Color	1st Band	2nd Band	3rd Band	Multiplier	Tolerance	Reliability	Temperature Coefficient
Black	0	0	0	$10^0$	-	-	-
Brown	1	1	1	$10^1$	±1%	1%	100ppm
Red	2	2	2	$10^2$	±2%	0.1%	50ppm
Orange	3	3	3	$10^3$	±3%	0.01%	15ppm
Yellow	4	4	4	$10^4$	±4%	0.001%	25ppm
Green	5	5	5	$10^5$	±0.5%	-	-
Blue	6	6	6	$10^6$	±0.25%	-	-
Violet	7	7	7	$10^7$	±0.1%	-	-
Gray	8	8	8	$10^8$ or $10^{-2}$	-	-	-
White	9	9	9	$10^9$ or $10^{-1}$	-	-	-
Gold	-	-	-	$10^{-1}$	±5%	-	-
Silver	-	-	-	$10^{-2}$	±10%	-	-
None	-	-	-	-	±20%	-	-

3. Insert the LED. The short leg goes in the square hole that traces to the 220 Ohm resistor.
4. Insert the fuse clips as shown. There are tabs on the outside face of the clips, make sure they face outwards so the fuse can be inserted.
5. Insert the regulator. Orientation is important, refer to the picture. If heat sink option was purchased, you will want to insert it and tighten the screw and nut before soldering.
6. Insert the fuse.

## Operation

1. Connect power leads to the terminal strip. The center terminal is common ground, the terminal closest to the fuse is the unregulated voltage input. The input voltage needs to be ~7-25VDC.
2. Connect the load to the terminal strip. The center terminal is common ground. The terminal closest to the label is regulated 5, 6, or 9 VDC up to 1Amp. The regulators are rated to 1.5Amps with a heat sink, but a larger fuse will likely be required.