

Nova Star – Assembly Manual

These assembly instructions are written under the assumption that the purchaser has a small amount of electronics experience, but we have undertaken to make the instructions as easy as possible to follow.

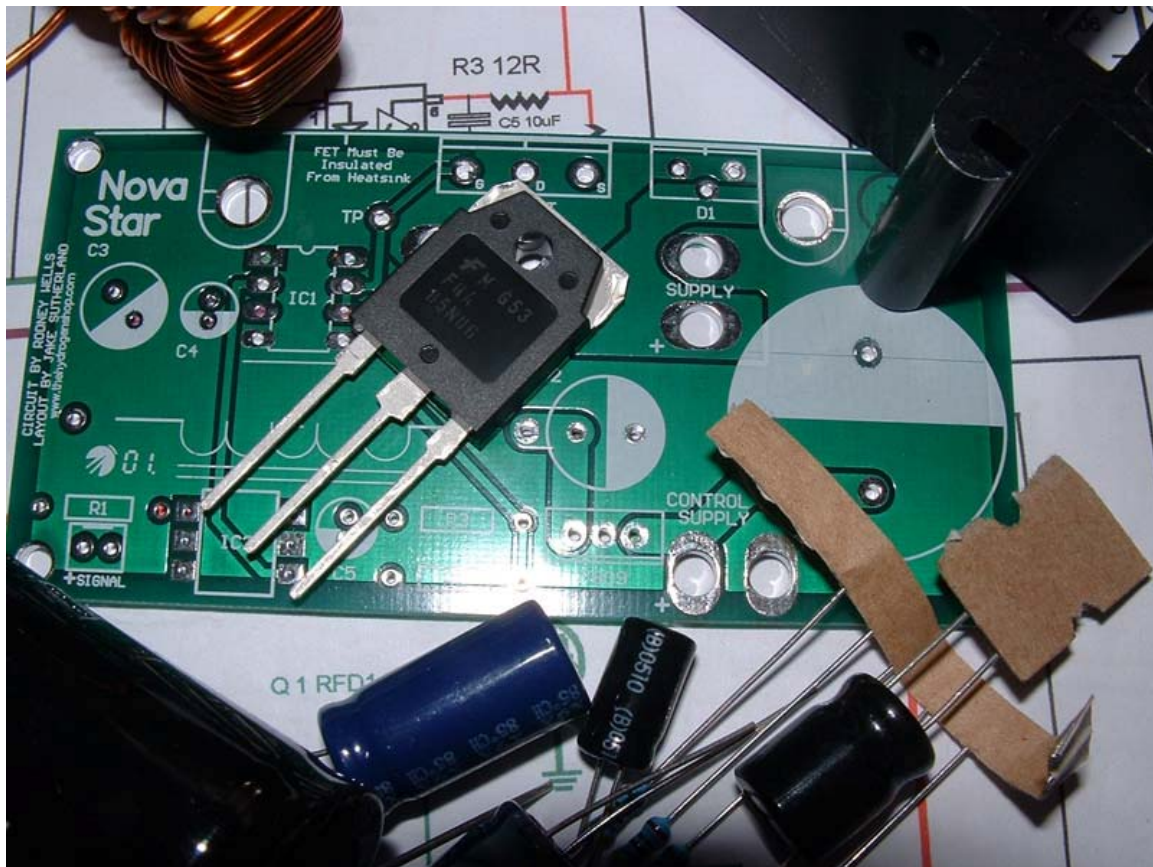
Before starting, check all parts supplied against your parts list to ensure kits are complete.

Tools required:-

- ◆ an electronic soldering iron, specifically for PCB soldering;
- ◆ resin cored solder - light gauge diameter .5 mm recommended;
- ◆ a pair of small side cutters;

Also recommended:-

- ◆ that devices are static-sensitive.
- ◆ that work is carried out in a low static-sensitive environment.

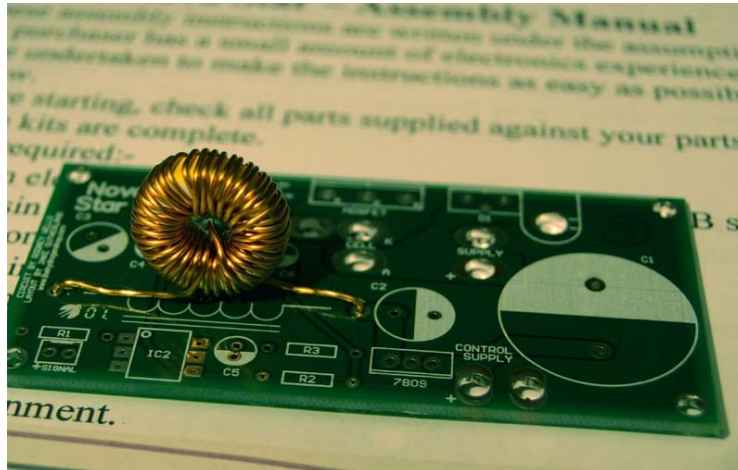


This PCB is double-sided with plated-through holes, so a reasonable amount of solder should be applied to allow the solder to flow through and soak the hole.

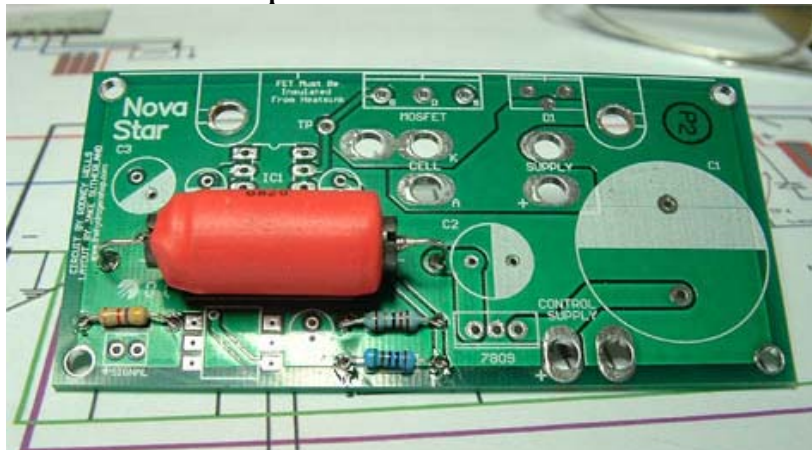
The circuit has been designed with a few options to cater for a range of users. These will be discussed as we work our way through assembly. The assembly procedure that is outlined here is only a guide.

Due to manufactures, the inductor L1 may come in a verity of packages. See photo below of some types

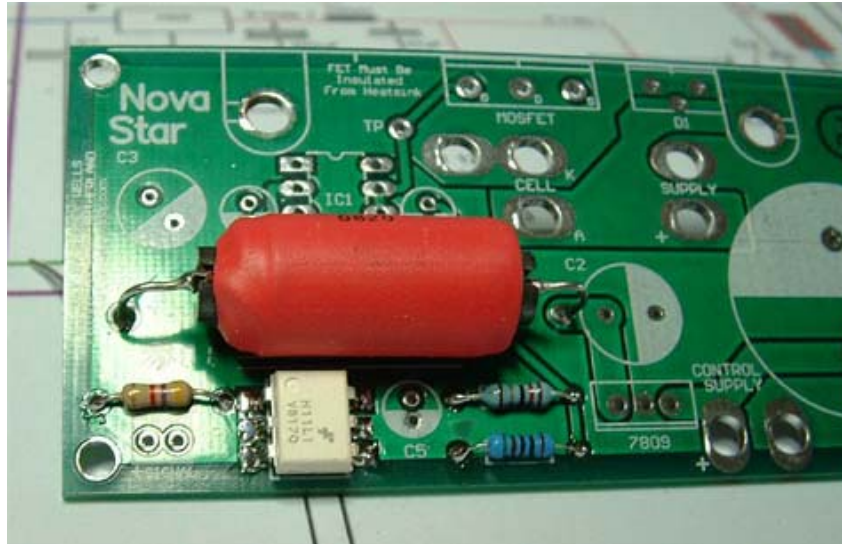
1. Locate L1, the large 100 μ H Inductor and insert in location as shown below and also marked by map number reference on the circuit board.



2. Locate R1, R2 and R3 and insert them in their appropriate locations and solder into place.

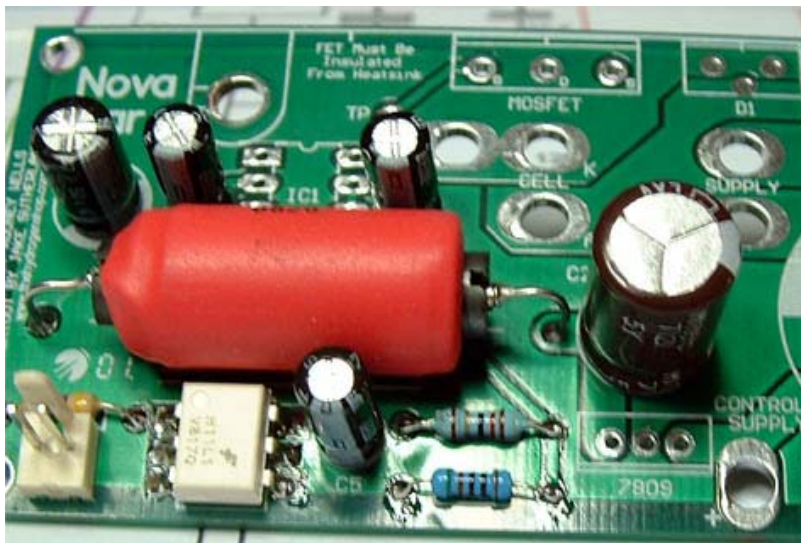


3. From your parts bag, locate IC2, a small 6 pin device in a surface mount package. Place the IC gently on top of the circuit boards locating pins, being careful to line it up as shown in the picture and reflow solder the IC to the board, one pin at a time. Be very careful not to bridge any tracks with solder.



Once you are satisfied with the placement of the IC, the capacitors will follow. Be aware that once C5 has been placed on the board, re-soldering of IC2 will be difficult.

4. Locate all capacitors from C2 to C6, excluding C1 at this time.



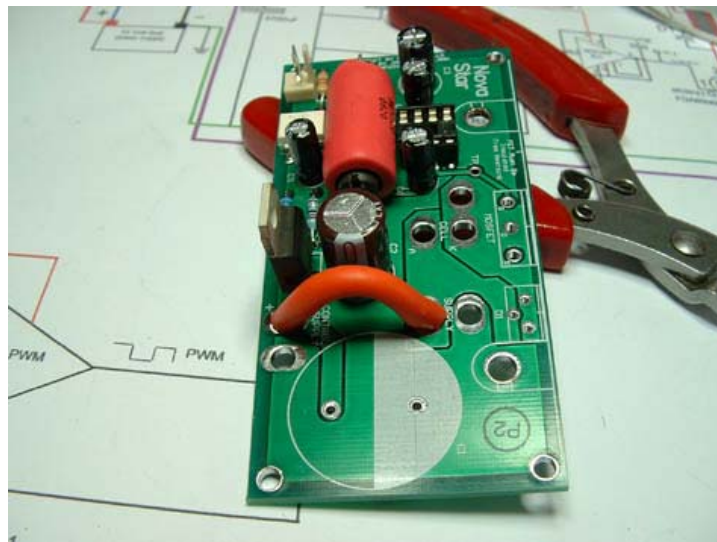
Identify all components against the parts list and solder into the appropriate positions, including the 8 pin IC socket for IC1.

5.



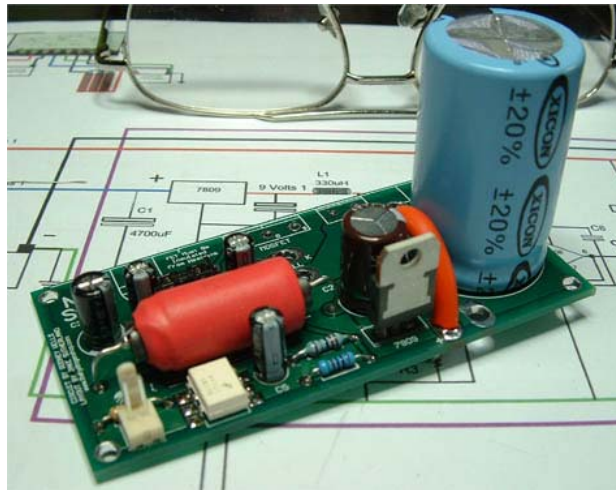
Locate the 7809 Voltage Regulator and place in its orientation as shown in the picture, with the back of the regulator facing the front of the board.

6. Take the short piece of 25amp linking cable supplied and link the two supply rails together as shown in the picture below. This is one of the user options mentioned earlier. This link option has been created to give advance users the choice of disconnecting diode D1 from its shunt location.

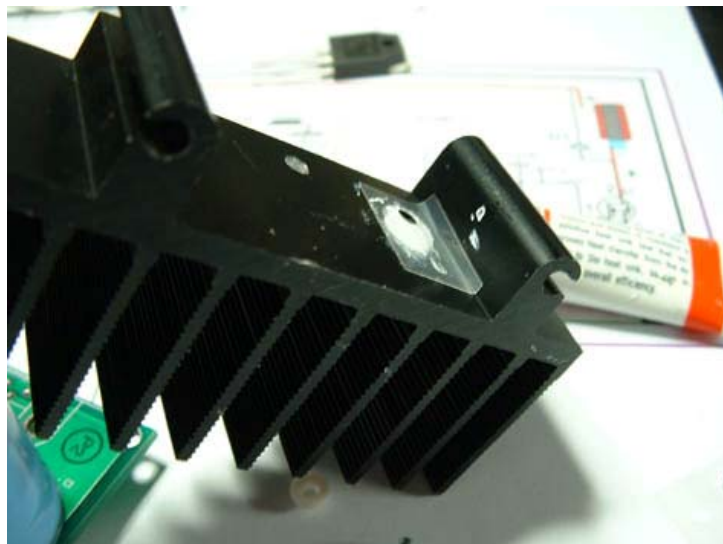


If you are an advanced user you will realize the need to maybe disconnect the reverse voltage shunt from this circuit. For general users I recommend the link be inserted for standard applications.

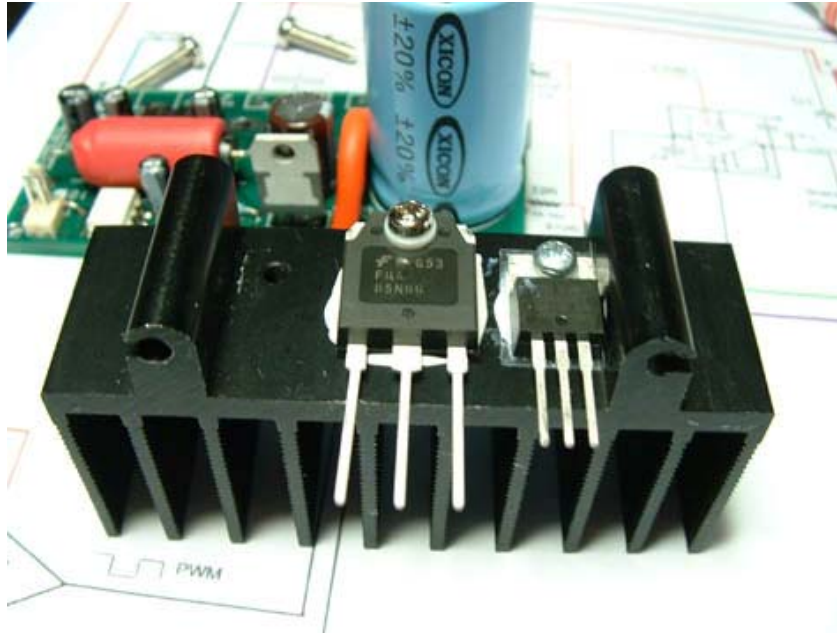
7. With the linkage inserted you can now install C1.



8. Locate the large black heat sink and the 2 small insulation kits provided. Some heat sink compound would also be useful at this point. Take note that in the picture below the mica insulation washer has been bent upwards to accommodate its location next to the heat sink's retaining post. This is important as the diode, D1, must be insulated properly from the heat sink.



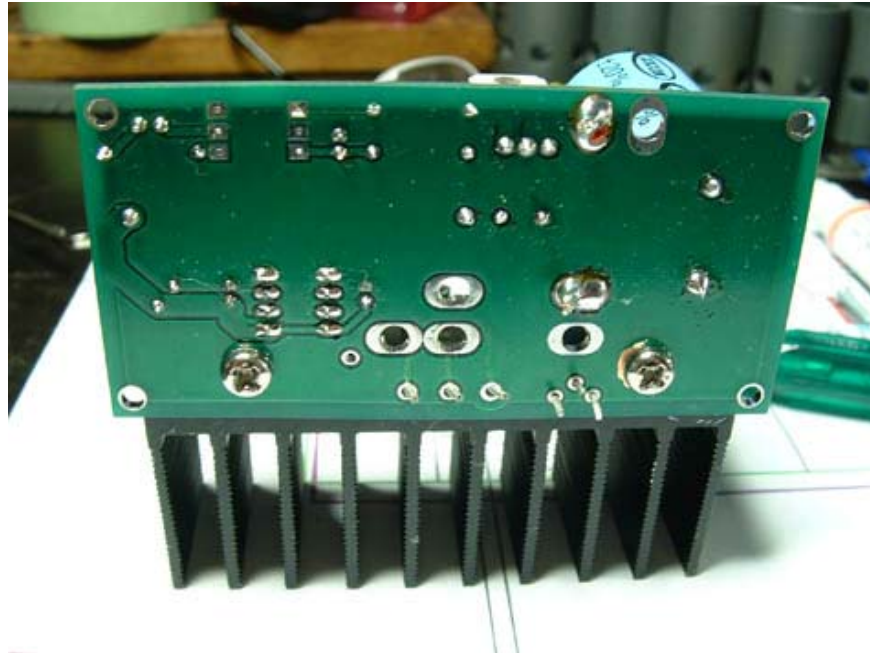
Also note that both devices must be electrically insulated from the heat sink. If you are uncertain after following the mounting procedure, check for insulation by doing a continuity test with your multi-meter.



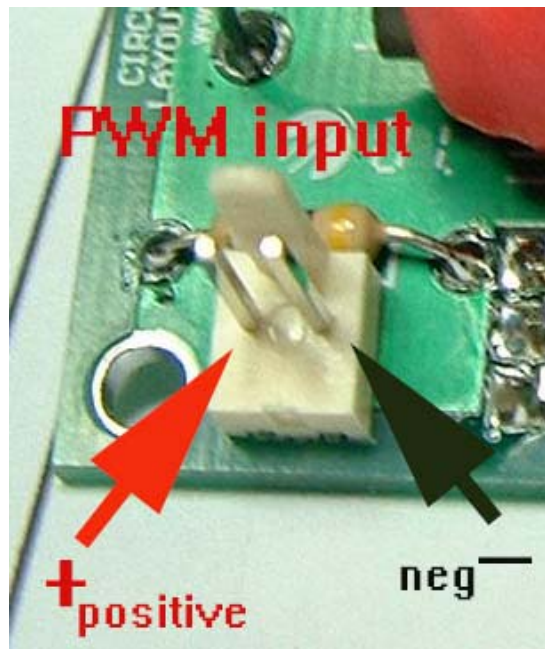
9. With both devices firmly attached to the heat sink, place the heat sink onto the circuit board, at the same time making sure that the legs of the 2 devices i.e. MOSFET and diode are in their appropriate PCB holes. The photo below should provide a reasonable guide.



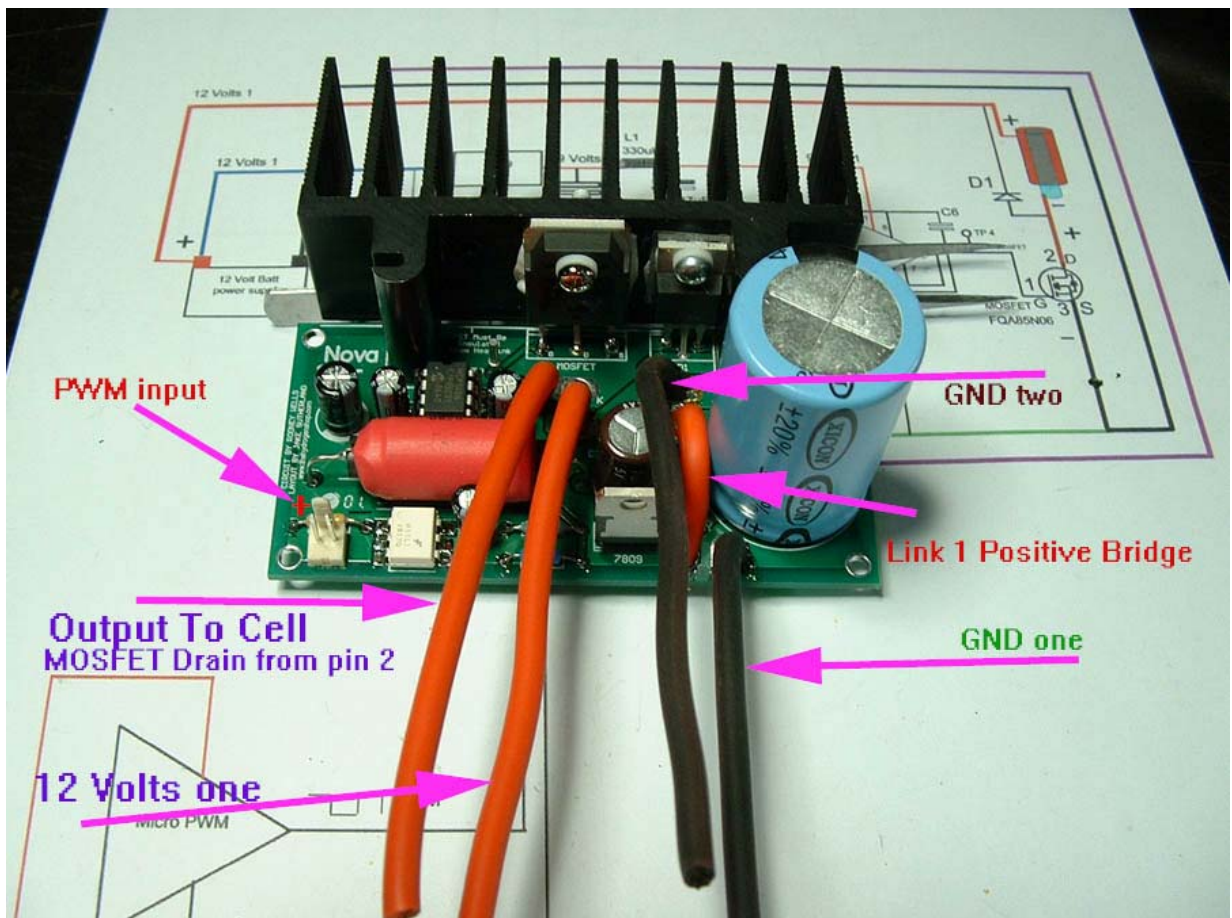
10. Bolt the heat sink to the PCB with the two 4mm bolts provided and fasten securely into place.



11. Install the small 2 pin connector in the lower left hand corner. Please note in the picture below, the polarity of the pins for reference from your signal source.



12. Install the supply rail wiring and the cell output connection wiring. Please note that Ground 1 and Ground 2 are electrically common to one another. In theory you would only need one of these wires to make the circuit functional but because of potential high current loads that can be drawn from this unit it was deemed necessary to have 2 electrical ground connections to ensure stability.



MMG DRIVER version 4

