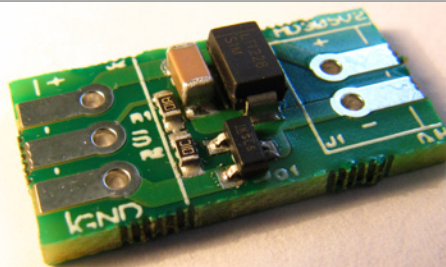




Carbon Frog

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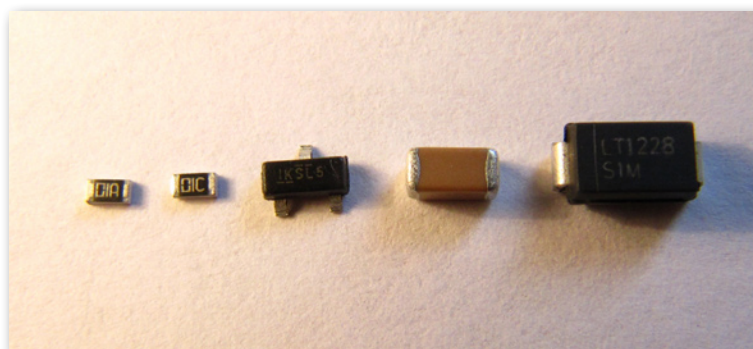
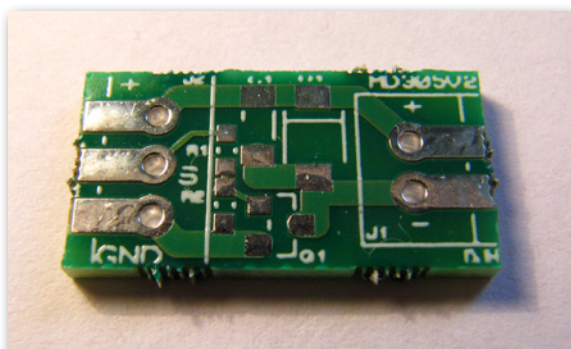
MD305V2 MOSFET Driver



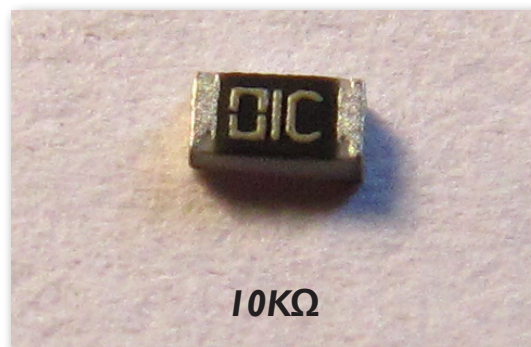
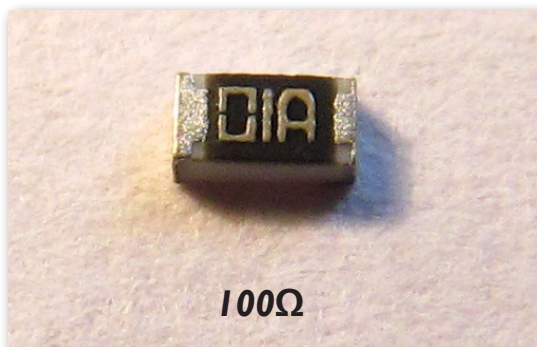
SMT Reflow Soldering Instructions

By Dan Hamer

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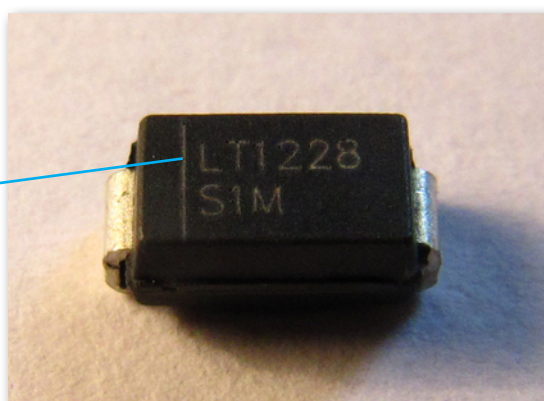


Identify all parts, remove packaging and layout ready to be placed on the board. Make sure you know which resistor is which, they are each marked as shown. The packet the 100ohm resistor comes in is marked with a red line.



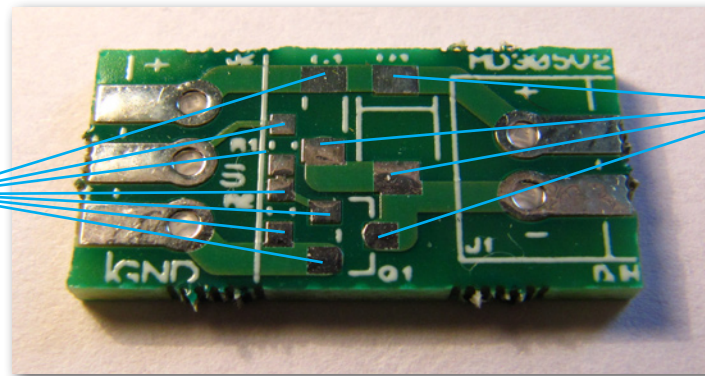
Also ensure that the diode will go in the correct way round. The cathode, the end you want connected to the positive rail, is marked with a line.

***This line marks
the cathode***



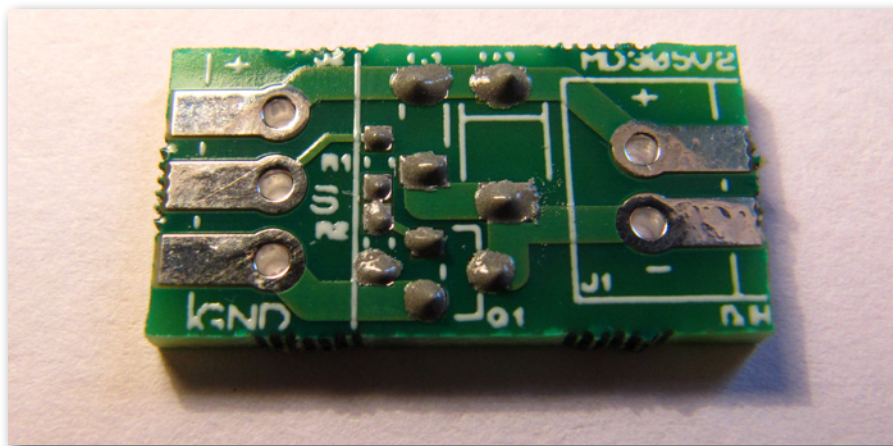
Before you begin clean the boards pads, preferably with isopropyl and put some flux on each of the pads. Also make sure the legs of the components are clean.

**Clean and
Apply Flux**

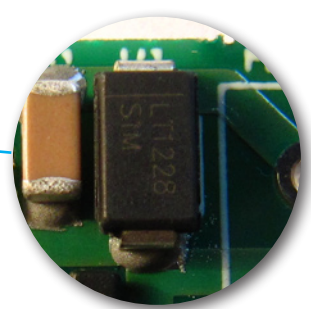
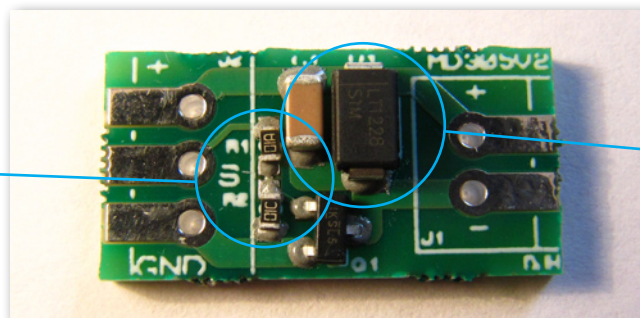
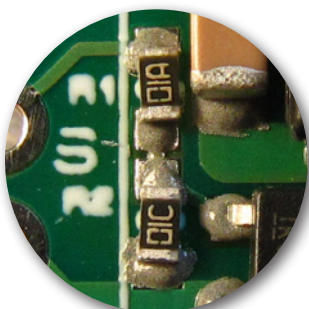


**Clean and
Apply Flux**

Then using a tooth pick put a dot of solder paste on each pad. Don't use too much and avoid splats and bridges. Less is more with solder paste.



Carefully position each component (starting with the smallest) using a pair of tweezers. At this point a magnifying ring or head mounted magnifying goggles can really help.

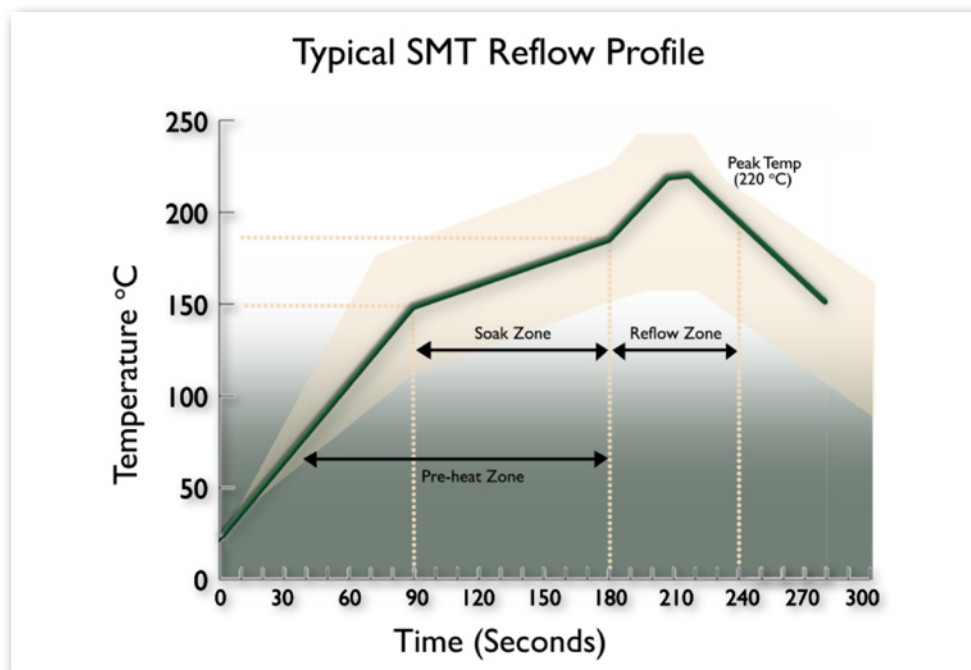


WARNING! Make sure the diode is the correct way round and that the two resistors are in their correct positions.

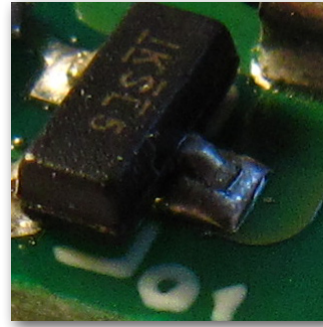
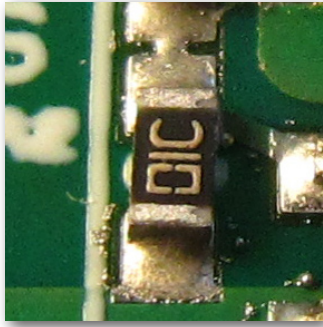
Place the board on a hot plate and prepare for soldering. It is also a good idea to place the board on an aluminium plate if have one. This not only makes it easier to move around but also at the end of the reflow process you can pick up the plate with a pair of pliers and put it elsewhere to cool. Doing this will allow it to cool quicker and avoid over heating caused by thermal inertia.



Ideally the solder paste should go through a reflow profile specific to that particular paste. But they are all fairly similar and as long as you try to follow the profile you should get good results.

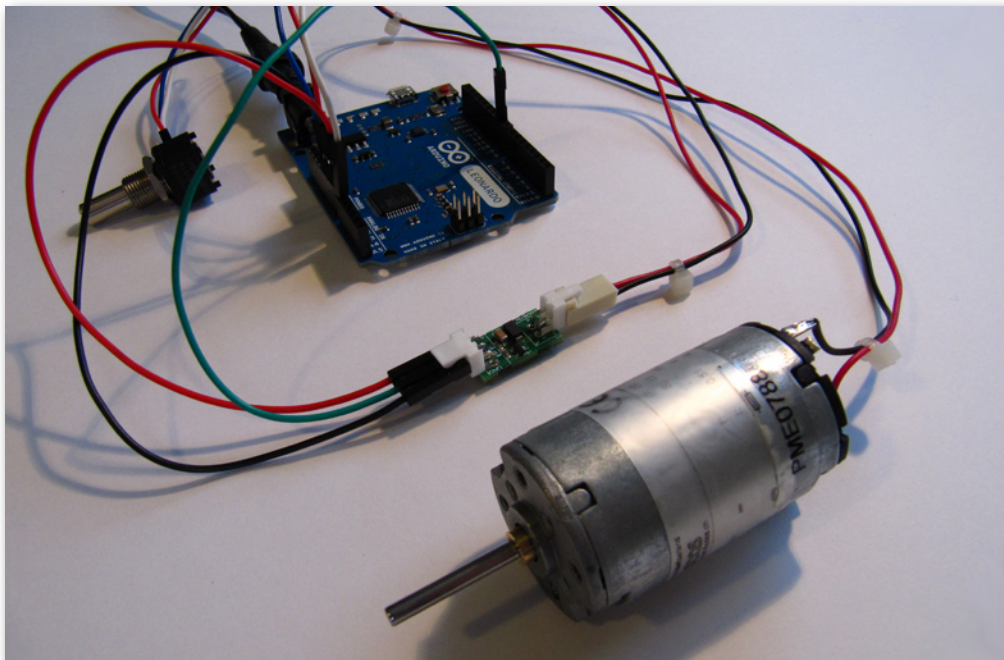
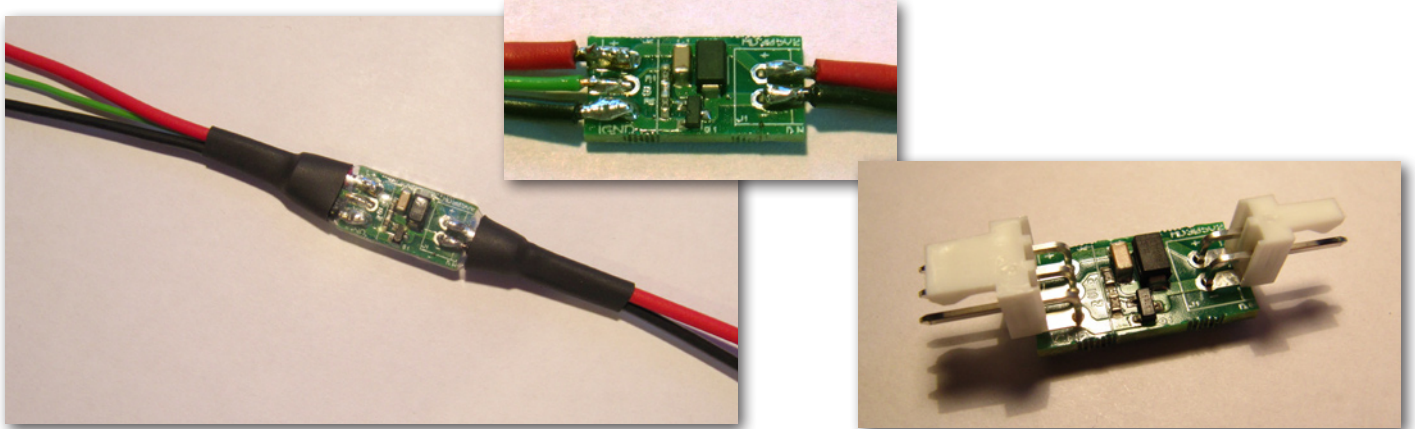


Heat to about 200°C - 230°C (390°F - 450°F) using a thermometer, try to follow the reflow profile. After a few minutes you should see the solder turn shiny and flow, you should also see a little puff of vapour. Don't let it get too hot or peek too long as this can burn the board and damage the components.



You are looking for a blend into the pad and the components terminal. This is known as wetting. It should have the appearance of draped cloth. If it looks like a bead of liquid then its a bad joint.

If you do make a bad joint just put some flux on it and reheat with a soldering iron.



After the board has cooled down check the solder joints. Then solder in headers or wires as preferred.

Finally its a good idea to test the board before connecting it to a microcontroller. Use a multimeter and a power supply with 12v and 5v, connect the 12V to the positive rail and take the signal to 5V.