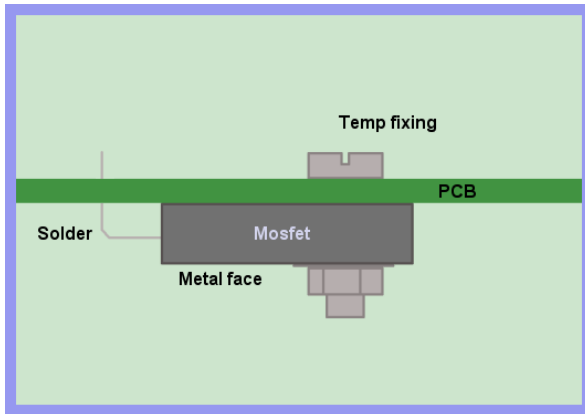


The next job is to mount the power FETs. These mount underneath the PCB and involve the use of temporary nuts and bolts to align and secure them prior to soldering. Failure to do this correctly could cause a FET to fracture when PCB is secured to the heatsink. The temporary screws need to be a snug fit so that the FET holes align well with the PCB holes.



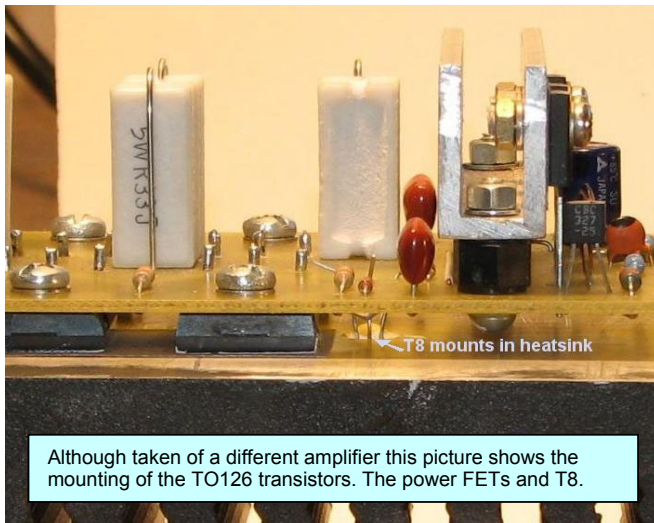
1. Measure and bend the FET leads so that they pass through the PCB solder holes and the FET mounting hole aligns with the PCB hole. Note that the metal side of the FET faces the heatsink with the leads bent in the opposite direction.
2. Secure the FETs using the temporary nuts and bolts and tighten taking care that the FETs remain in position.
3. Check to see that the plastic side of the FET is hard against the PCB then solder all the leads. Remove the nuts and bolts.

Finally solder the long insulated link connecting the 2 PCB ground points. Solder only at the points shown.

Examine the board looking for errors and the tracks for any unintentional shorts between tracks or poorly soldered joints. Your PCB is finished.

The Heatsink

Using the centre holes marked earlier, drill and tap the heatsink to take whatever mounting bolts you intend to use. Fine thread self tapping screws can also be used. Completely de-burr all the holes using a countersink bit or larger drill bit. This prevents any metal that de-forms during the threading process from piercing the FET insulating pads.



Drill the hole for T8 so that it is a snug fit and is deep enough to just take the whole transistor body. T8 is mounted under the board (take care of the pin-out orientation) so that it slides into the heatsink hole when the PCB is mounted. This is done by inserting the leads of T8 through the underside of the PCB so that it hangs. Bend the leads a little so that it is retained. Using a few screws and 5mm spacers carefully place the PCB onto the heatsinks so that all the mounting holes line up. Make sure that the T8's body goes in the hole and then on the top side of the PCB bend T8's legs down fully. Lift the PCB off without any side movement then carefully solder one leg only of T8. Re-mount the PCB

and check T8's alignment. Once you are satisfied lift the PCB again and solder the remaining 2 legs.

Put a little thermal grease in T8's mounting hole, place insulating pads in position under the power FETs and permanently mount the board. Use the photograph as a guide. Tighten all the screws then using a multimeter check for shorts by measuring between the heatsink and the FETs drain (centre) lead. You should see an open circuit. If a short is measured lift the PCB and check for burrs or other damage to the pad.

Final Set up and Adjustment

No attempt should be made to set up or test a power amplifier module that is not correctly mounted on a heatsink. Make sure the main power supply is fused and the work area is clear. First check all your work and make sure the output devices are insulated from heatsink. The set up is done without an input or a load connected to the power amplifier.

1. Check the power supply is operating correctly and verify the rail voltages. Switch the power supply off and check with a multimeter that the rail capacitors have discharged.
2. Correctly connect the ground, positive and negative leads to the power amp module.
3. Remove the PCB fuses and replace with 100 ohm 5 watt resistors. Connect a multimeter that is set to the 20 volt scale across one of the 100 ohm resistors.
4. Check that the power supply connections are correct one last time and switch on. If the multimeter reading goes off-scale, turn off immediately and find the problem. Check also the 100 ohm 5 watt resistors; they may have gone open cct.
5. If everything seems ok adjust VR2 to set the output stage bias current, by measuring the voltage across one of the 100 ohm resistors. Adjust for a reading of 3 volts per output FET pair. I.e. For a 6 FET board set for a voltage of 9 volts. This equates to a bias current of 30mA per FET pair or 90 mA total. For a 10 FET board set for a voltage of 15 volts.
6. If everything seems ok, check the output offset voltage and adjust VR1 to achieve an offset of less than 10 mV.
7. All being well switch off and replace the 100 ohm resistors with 10 ohm 1 watt resistors. Switch on again and re-adjust VR2 to get 0.3 volts per FET pair.
8. Switch off, remove the resistors and put the fuses back in. Switch on, re-check the offset voltage and adjust with VR1 if necessary.

The amp module is ready, connect the input and output and enjoy.