



SMD Soldering

Information & Instructions

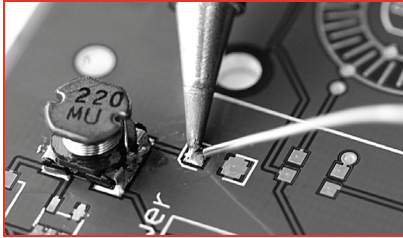


This is a walkthrough of a SMD Soldering Workshop. The following information and instructions can be used as a simple method for soldering SMD components. The recipient of this information should acknowledge the danger of soldering (*written on the back page of this pamphlet*) before attempting to solder.

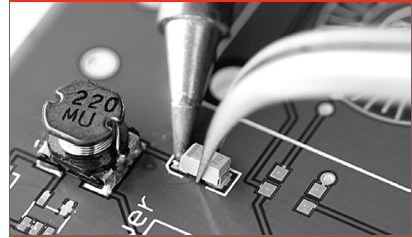
Recommended Tools:

- Soldering Iron
- Solder
- Tweezers
- Solder Wick
- Flux Pen

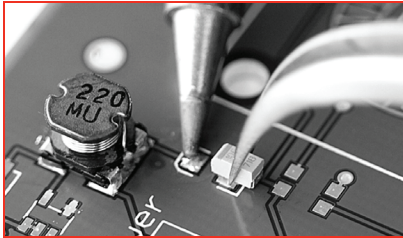
- 1 Add solder to one pad.



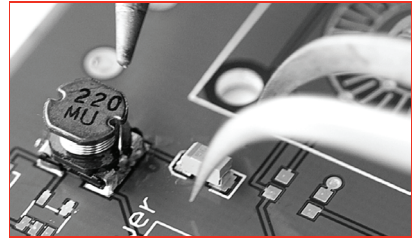
- 3 Align the component while connection is still molten.



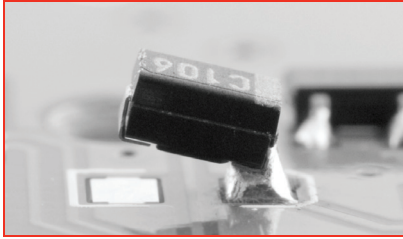
- 2 While that pad is molten, slide the component into place. Do not push down from the top - slide the component into the blob of solder horizontally.



- 4 Once you have good alignment, continue to hold the component in place, and remove your iron. Continue to hold component for 1-2 seconds while the solder joint solidifies.



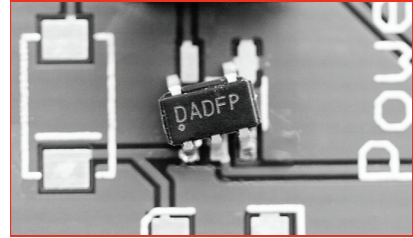
- 5 From above, the alignment looked good. From the side, you can see the rear pad is hovering slightly above the PCB. This can lead to problems on multi-pin components (open connections). Be sure the component is flush up against the PCB before soldering more connections. Re-grip the component, re-heat pad 1 and push the component flush against the PCB.



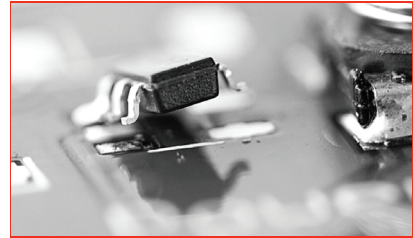
- 6 This is how a tantalum capacitor should look after making both solder connections.



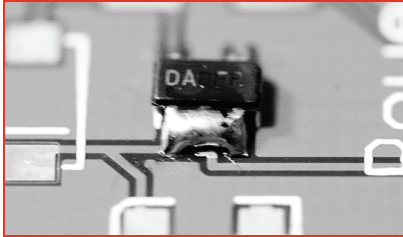
- 7 If alignment is not good, do not solder more than 1 pad! Re-heat the joint, re-adjust component until aligned correctly, then move on to soldering other connections.



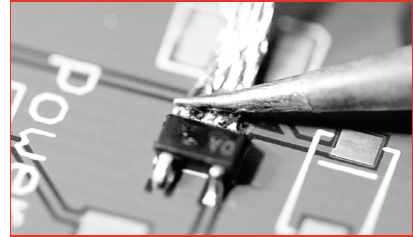
- 8 This is bad. It would be nearly impossible to finish the connections on this part. Make sure you have the component flush against the PCB.



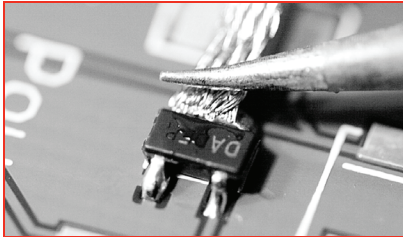
- 9 If you solder multiple pins together, don't worry about it! It can be easily fixed. Do not worry about jumpers! There are actually three pins under that blob.



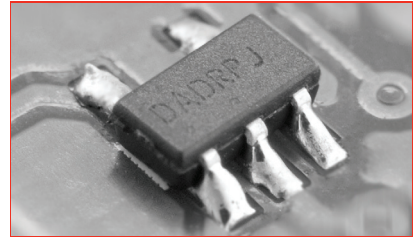
- 11 Hold still for 2-3 seconds. You will see solder start to flow up the wick. Once the excess solder has flowed into the wick, carefully lift up the wick and your iron in one fluid motion.



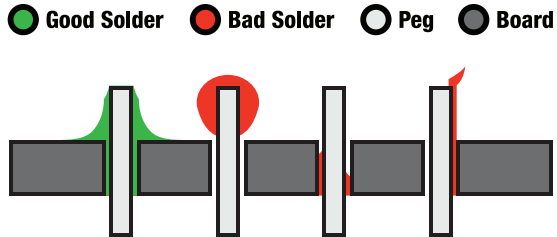
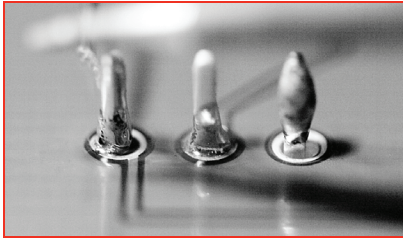
- 10 Pull out some solder wick. Put a small amount of solder on the end of your iron (this will transfer heat from iron to wick to the jumper). Sandwich the wick in between the iron and the solder jumper.



- 12 Nice and clean!



- 13 Bad bad bad. There was not enough solder for the connection on the left. Middle pin is lacking solder and should have been heated for longer. Right pin has had solder applied by an iron rather than applied to two metal contacts (the board and the pin).



TIPS & TRICKS



A Solder flows smooth all the way to the bottom.



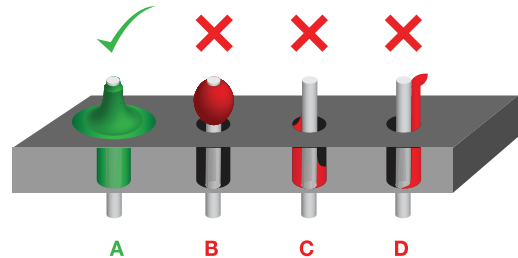
B **Error:** Solder balls up on top of pad, not connecting pin to pad.
Solution: Flux then wick. If you wick too much add solder.



C **Error:** Too little solder makes for weak connection.
Solution: Flux then add solder.



D **Error:** Bad Connection... and ugly... oh so ugly.
Solution: Flux then add solder.



Safety Issues

Soldering

The tip of the iron is normally 700 °F, hot enough to melt metal. It is normal for the handle of the soldering iron to heat up a bit. Hold it like a pencil and move your hand further away from the tip if the heat is uncomfortable. The solder smokes because the rosin inside the solder is burning off - it's not harmful.