

How to Solder

Before beginning to assemble your BugBrain™, you should be comfortable with soldering. If you are not a skilled solderer, take some time to learn and practice. The time you spend now will be well invested — in easier assembly and fewer mistakes.

Basic Soldering Tools Needed:

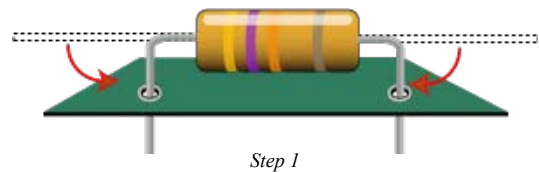
- soldering gun
- small sponge
- solder for electronics
- needle nose pliers
- side cutters
- solder vacuum (for removal of solder mistakes)

Preparation:

Heat up the soldering iron, and moisten the sponge. When the iron is hot, touch a small amount of solder to the tip in order to “tin” it. While soldering, wipe the tip of the iron across the sponge periodically to keep it clean.

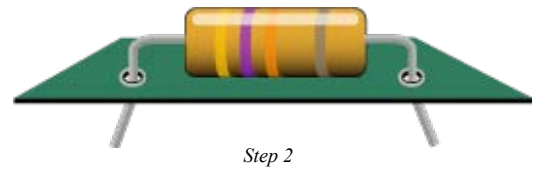
Step One:

Bend the leads for the first component to fit into the holes on your board, and insert.



Step Two:

Adjust the component and the bends in the leads so that the component sits flush on the surface of the board. If you bend the legs out slightly at an angle, the legs will hold your component in place while you solder it.

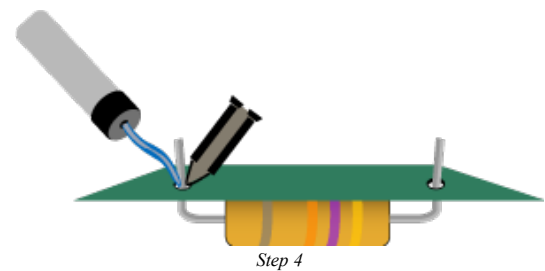


Step Three:

Wipe the solder tip clean on the sponge, and tin the end with a small bit of solder.

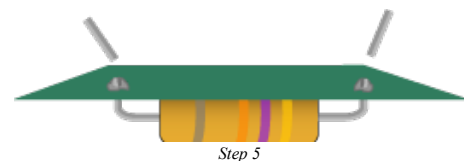
Step Four:

Place the solder gun tip against the component lead and the circuit board pad, and then touch the solder to the lead and pad for 1-2 seconds until the solder flows. Do not hold the solder against the solder gun tip or you will get too much solder material at the joint.



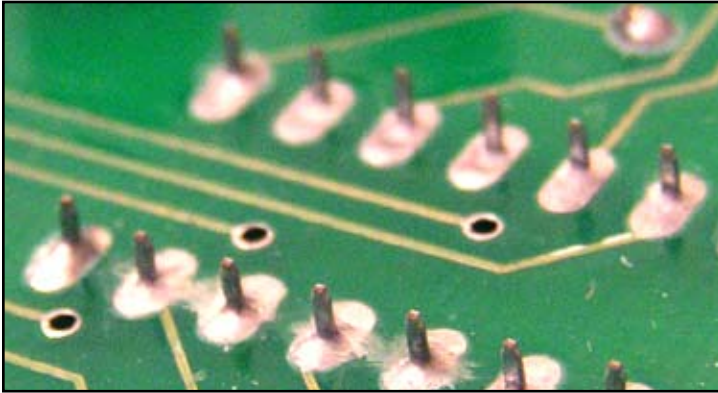
Step Five:

Once you are sure that you have all parts soldered correctly, trim the excess from each lead with your side cutters.



What Does a Good Solder Look Like?

The joint has a smooth appearance, and the lead and the pad look continuous. The solder does not overlap any other leads or pads. There is not a large blob of solder, just a neat, smooth rounded drop.



What Should I Fix?

If the joint looks bulky or connects multiple pads, or if the joint looks fuzzy, dull, bumpy or non-continuous, re-heat the joint and remove the solder with a solder vacuum. Then re-solder it. If the joint looks fuzzy or dull, or if there is a bumpy or non-continuous surface between the pad and the component lead, you should re-heat the joint and remove the solder with a solder vacuum. Then re-solder it.

Soldering Tips

1. Adjust the board to get a good working angle.
2. Spread the legs of each component, when possible, to hold it in place while you solder.
3. For small components that stick up from the board, use small objects to support the board to keep the component from tilting while you are soldering it.
4. Avoid overheating the components or traces of the circuit board. Overheating parts can damage them. Overheating the traces can cause them to fall off the board!