5058G (r2.1) Assembly Guide

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Last Updated: July 6, 2020

Disclaimer

Zombie REC. is not liable for any damage, harm or loss of any kind resulting from the assembly and/or use of this kit. Improper soldering and handling of electricity can cause serious injury and damage to your property. Also, keep all contents away from children. Follow the guide, build carefully and pay attention when using the necessary tools.

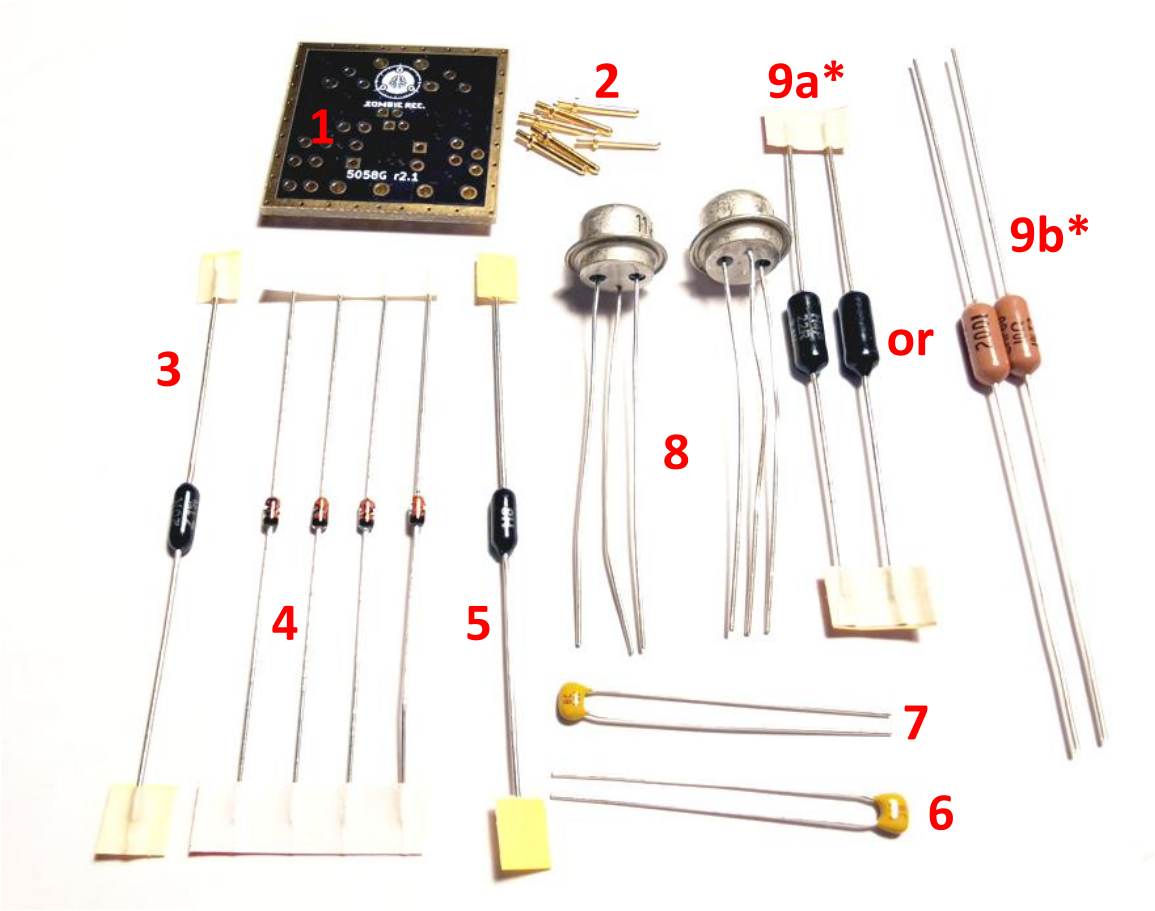
All pre-assembled PCBs are checked for proper functionality before shipping. If something is missing or damaged, contact us on *info@zombierec.com*. If the part shows signs of use beyond what was necessary to determine that it was damaged, Zombie REC. reserves the right not to replace the part. Make sure to interact with the parts only on a properly earthed working place, including the builder, in order to prevent damage to transistors.

Tools

You will require:

- A good solder iron, with adjustable temperature recommended.
- Solder. You can use leaded or lead free solder. We used lead free solder for the SMD parts.
- Good wire cutters to clip the excess of leads.

Kit Contents



1. 5058G Premounted PCB
2. 6x Mill Max Gold Pins
3. 1x 20k Resistor (R1)
4. 4x Diode (D3, D4, D5, D6)
5. 1x 12k Resistor (R8)
6. 1x 47pF Ceramic Capacitor (C1)
7. 1x 10pF Ceramic Capacitor (C6)
8. 2x Germanium Transistor, matched pair (Q8, Q9)
9. **9a**: 2x 22ohm for the original version **OR 9b**: 2x 10ohm for the enhanced version (R13, R14)

Only these components that need to be assembled are marked on the silkscreen of the PCB.

The PCB comes premounted with all transistors, except the germanium transistors.

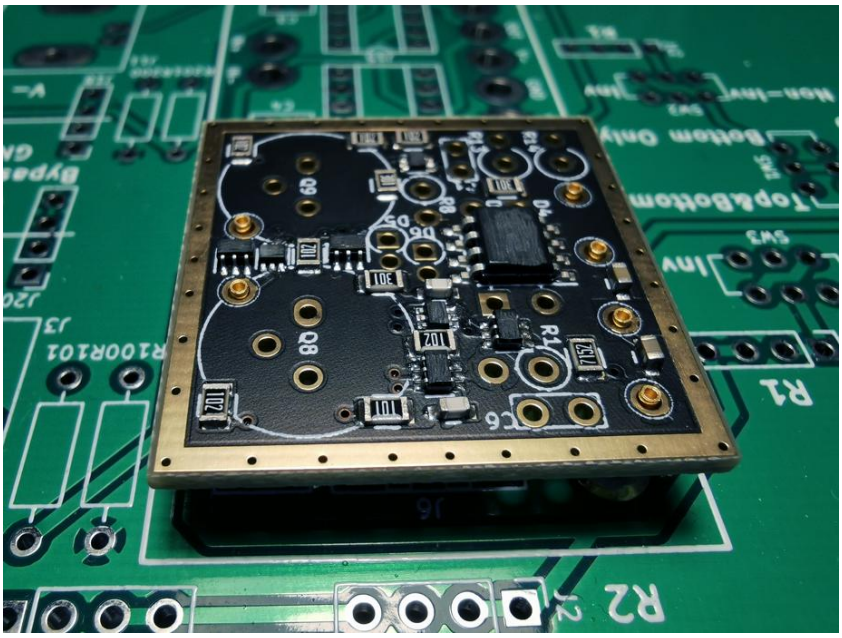
Step 1 - Mill Max Pins

It's advisable to solder the pins first, as they are very hard to solder once the germanium transistors are in.

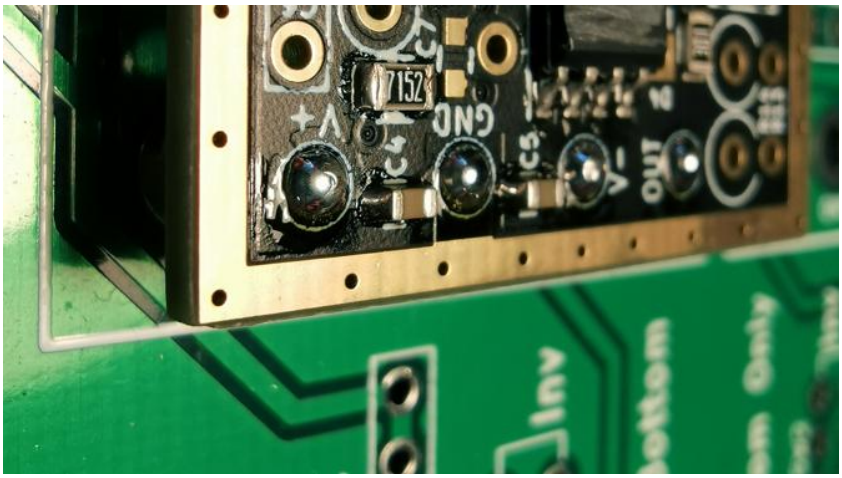
There are two ways to go about this:

- Either the pins can be put into an existing DOA socket and the PCB can be put on top according to its drill holes:

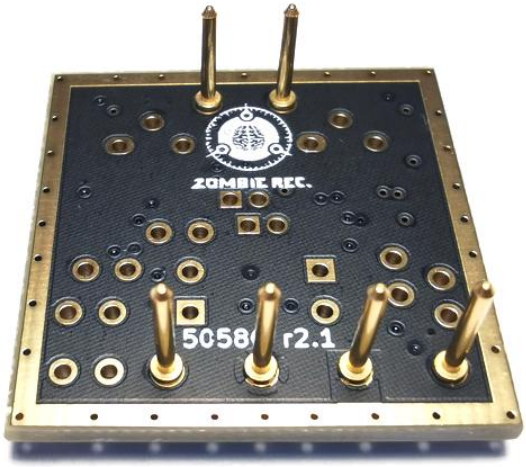
⚠ Warning: Take care not to damage the device with the socket used for soldering. Stay well grounded.



Solder the pins from the top:



- In case you don't have an existing socket you can or want to use, you can flip the PCB on its back and due to the fact that the SMD transistors are already soldered on, it will rest enough above ground to be able to solder the pins from the bottom:



Make sure to heat the pins and the contact surface for a few seconds by gently pushing the soldering iron onto the pin edge and the contact surface on the PCB, then apply enough solder for it to flow to the other side of the PCB.

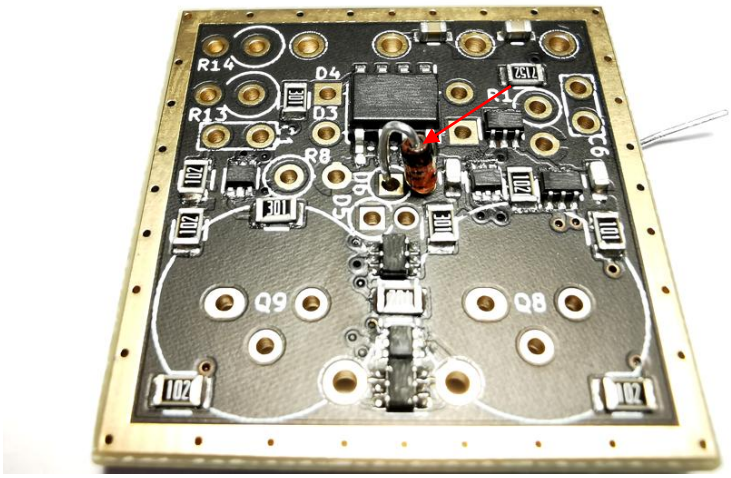
Step 2 - Diodes

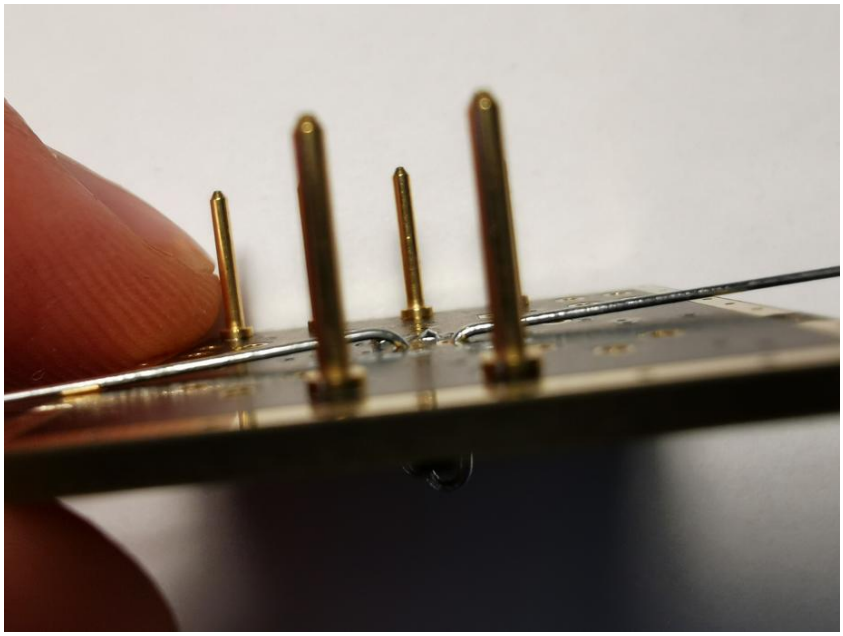
There are 4 diodes to solder: D3, D4, D5, D6. Start with D6:

Take two diodes and bend the leads at the tip of the diode with the black band (cathode) like so

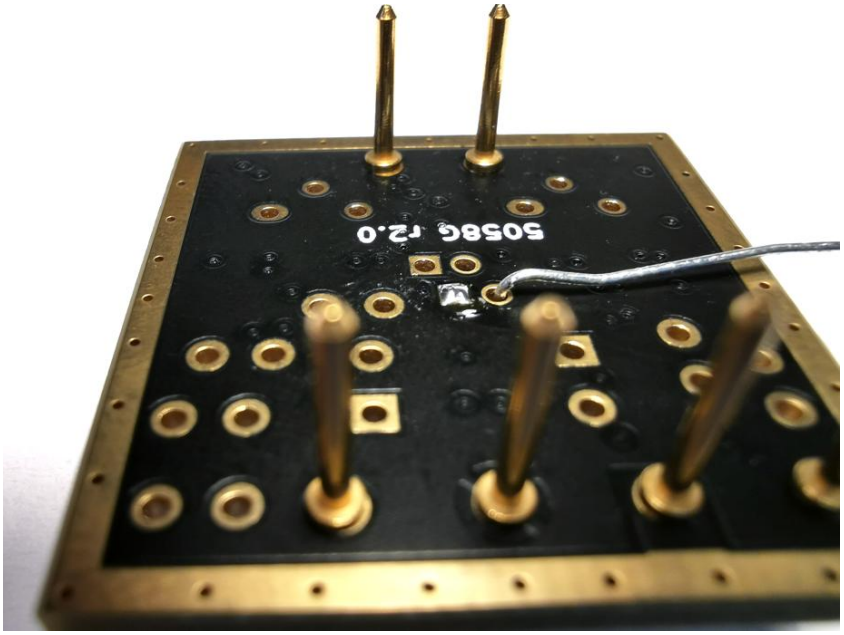
Insert the first diode into D6 as in the next picture. Then bend its leads as close to the underside of the PCB as possible, to get a tight fit.

⚠ Warning: Make sure to make the black band of the diode face the white ring on the silkscreen (insert the diode exactly as in the picture)





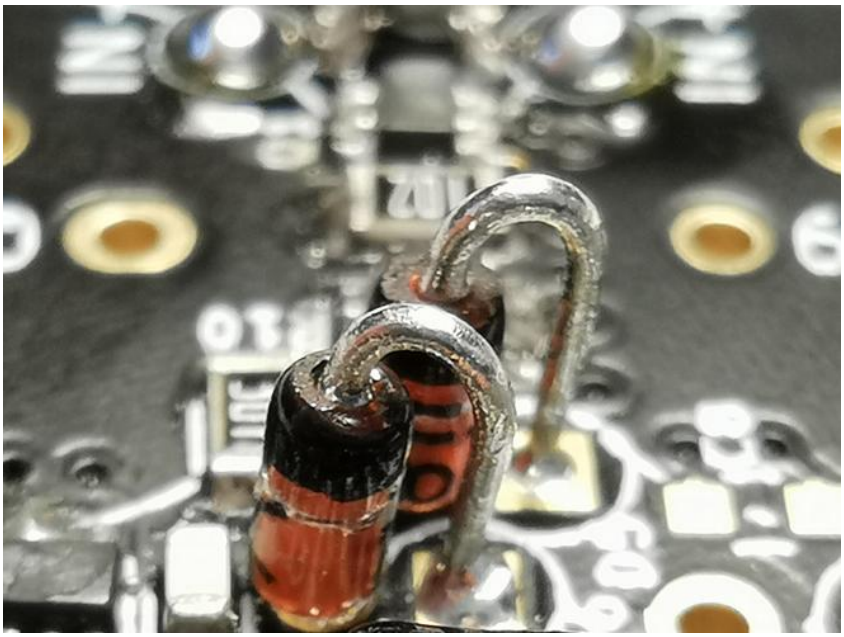
Now clip the first lead in such a way, that the remaining lead overhangs and acts like an anchor for the part and keeps it nice in place, then solder it:

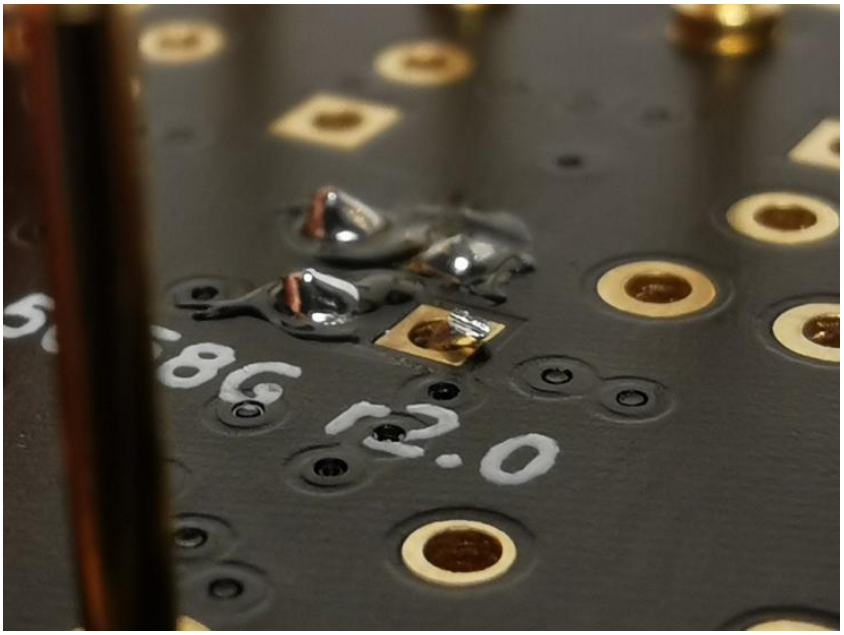


Make sure not to use too much solder.

Now clip the other side the same way and solder it. Use this approach for All following parts as well.

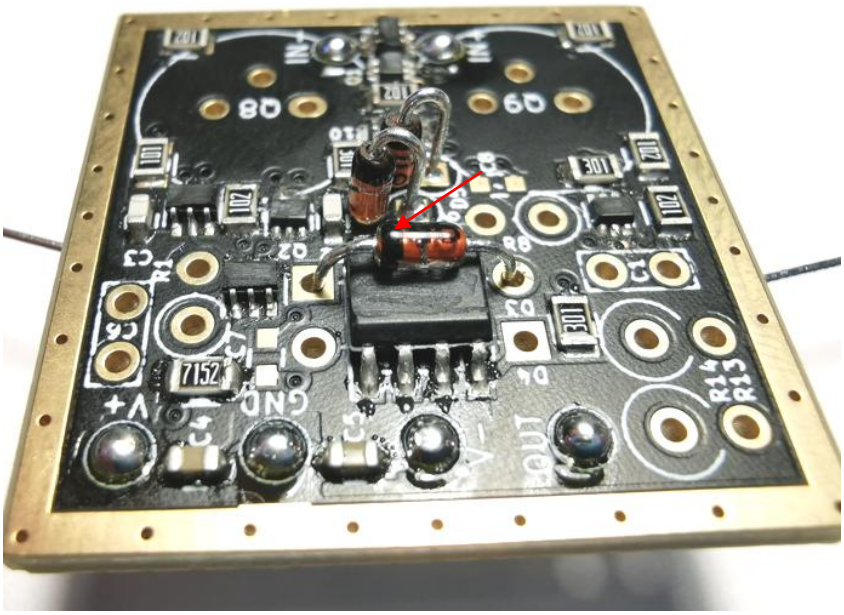
Now insert the second diode you prepared into D5 (right next to D6) and make it face the exact same way as D6 before.





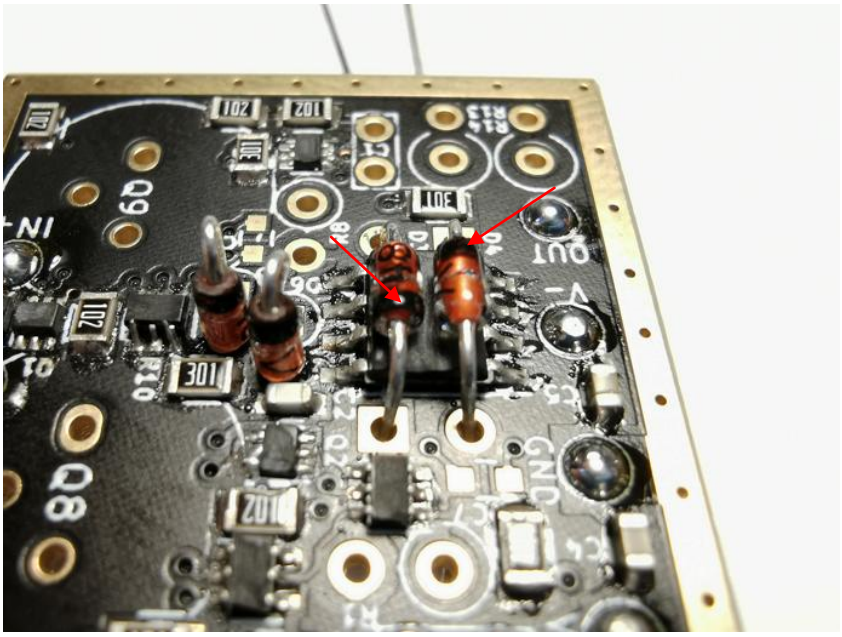
Now take the remaining two diodes (D3, D4). They will be strapped across the large SOIC chip. To do this, bend both leads of the first diode so that it will fit into the D3 marking, across the chip. Make the black band of the diode face towards the next chip above. Make also sure, that the diode is strapped across one half of the chip and making contact with it. Solder it in the same manner as before and make sure the position and contact remains.

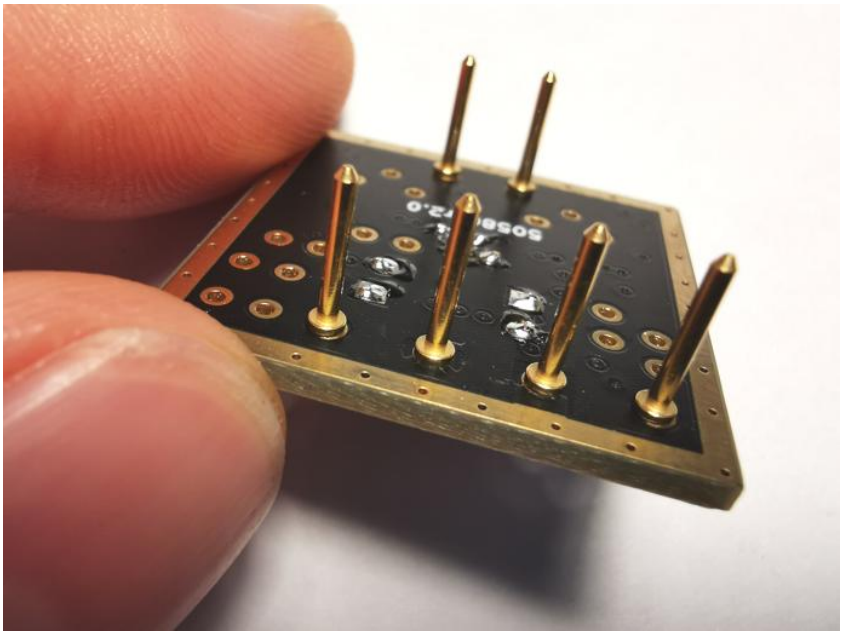
Note: The PCB used for some photographs is an older revision than the current r2.1 and therefore might look slightly different than what you have.



Now do the same thing for the last diode D4. **Make it face the other direction than D3 does!**

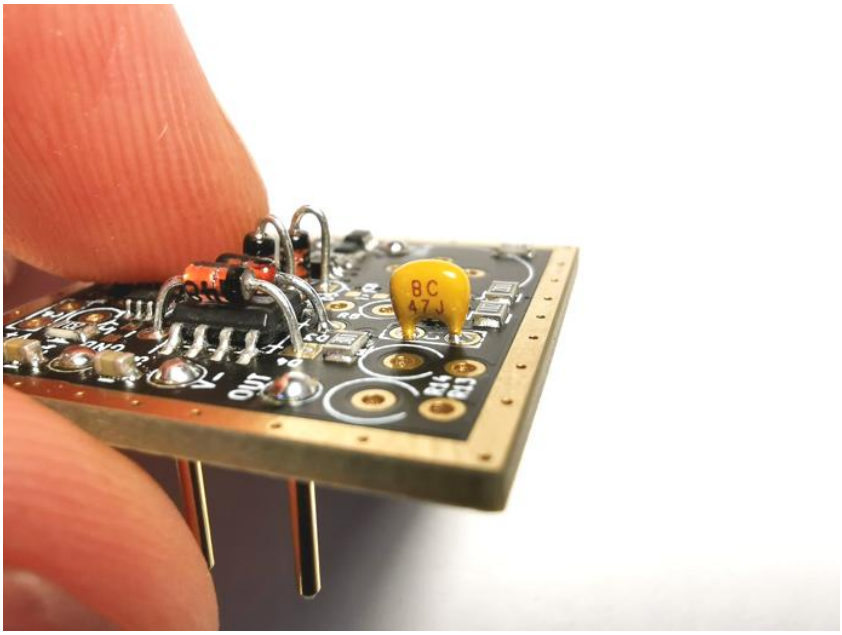
Place the second diode properly above the other half of the chip and make sure it has contact.



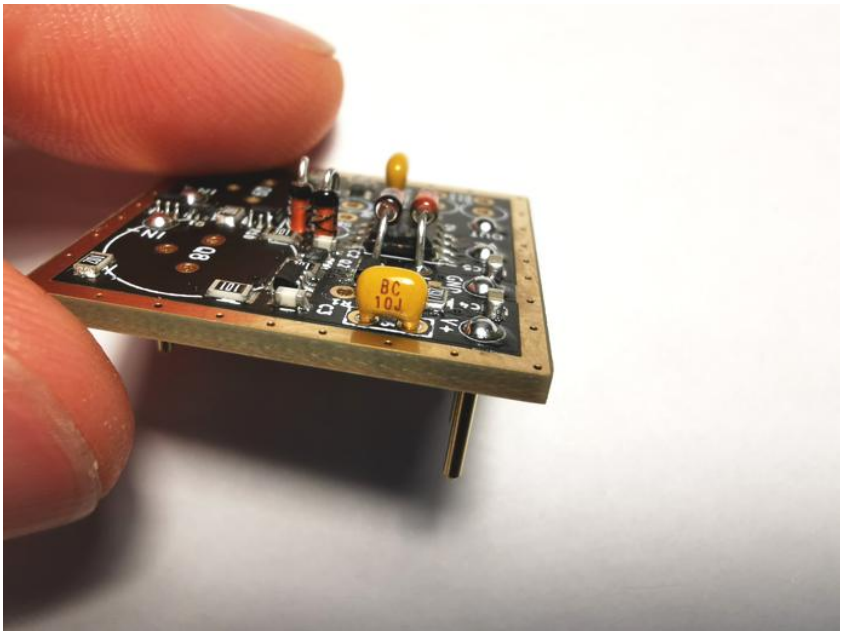


Step 3 - Capacitors

First solder the 47pF (C1) capacitor. It is marked with 47J. On the PCB, the capacitor is located right next to D3 and D4 and its orientation does not matter.



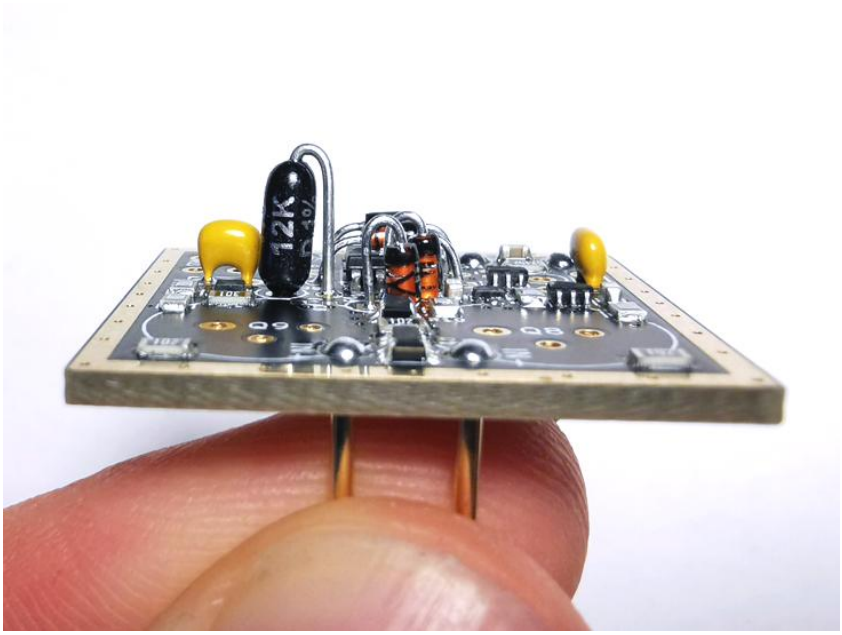
Then solder the 10pF (C6) capacitor. Its marked with 10J and It is located on the other side of the PCB. Again, orientation does not matter:



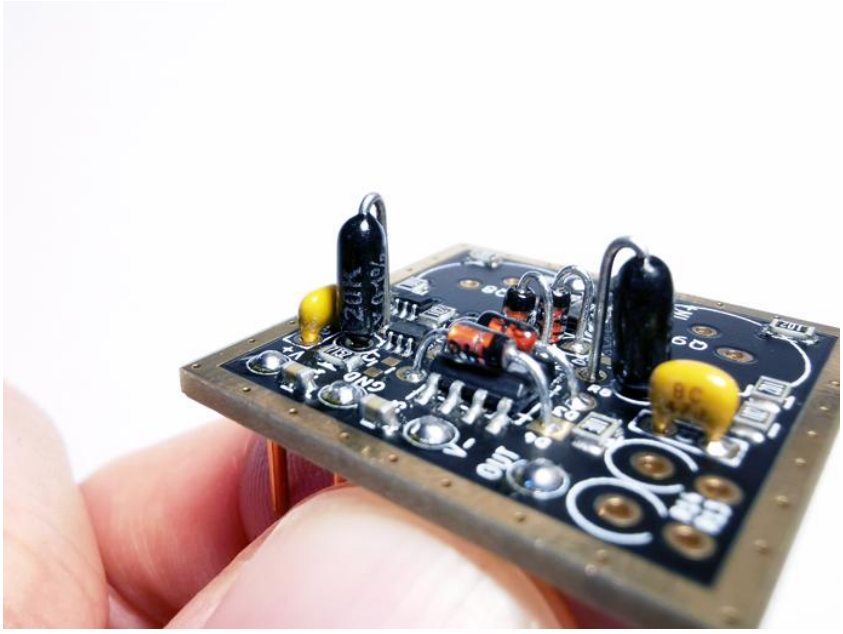
Step 4 - Resistors

Prepare the 4 black resistors (or 2 black and 2 brown if you're building the enhanced version) by bending one of the leads the same way as before with the diodes. The values are written on the resistors themselves:

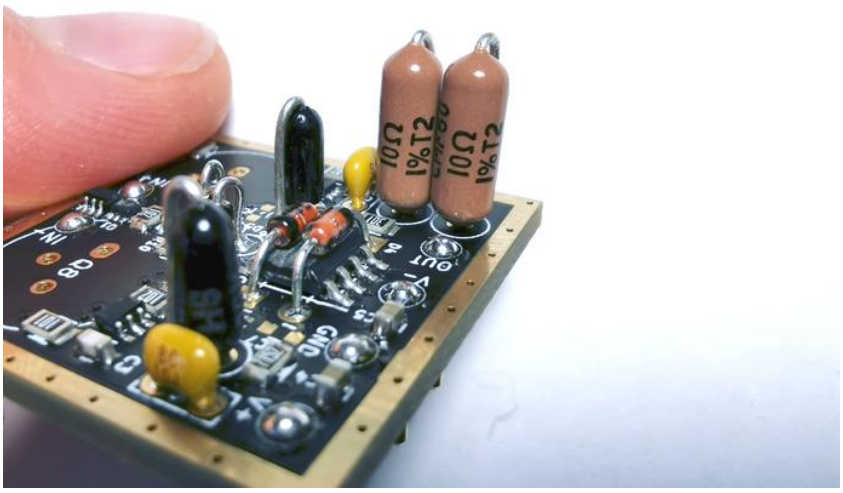
Start with the 12k resistor (R8). Its located right next to the 47pF (C1) capacitor.



Now the 20k (R1) resistor. Its located right next to the 10pF (C6) capacitor.



And finally solder the two large output resistors (R13, R14). Again, they are either black 22ohm or brown 10ohm depending on the kit ordered:



Step 5 - Germanium Transistors

Last but not least. The two germanium transistors Q8 and Q9. Make sure that the transistors are flush with the PCB.

⚠ Warning: The metal cans get very hot very fast when soldering the transistors!

Step 6 - Final check

There is not much to mess up in this build:

Most attention needs to be paid on the orientation of the diodes, are they soldered in correctly?

Are the resistor and capacitor values placed correctly on the board?

Are the solder joints well soldered? Is there any excess of solder? Are there any solder bridges?

Step 7 - Cleaning

After everything is done, give the back of the board a good scrub with isopropyl alcohol and a brush (or toothbrush).