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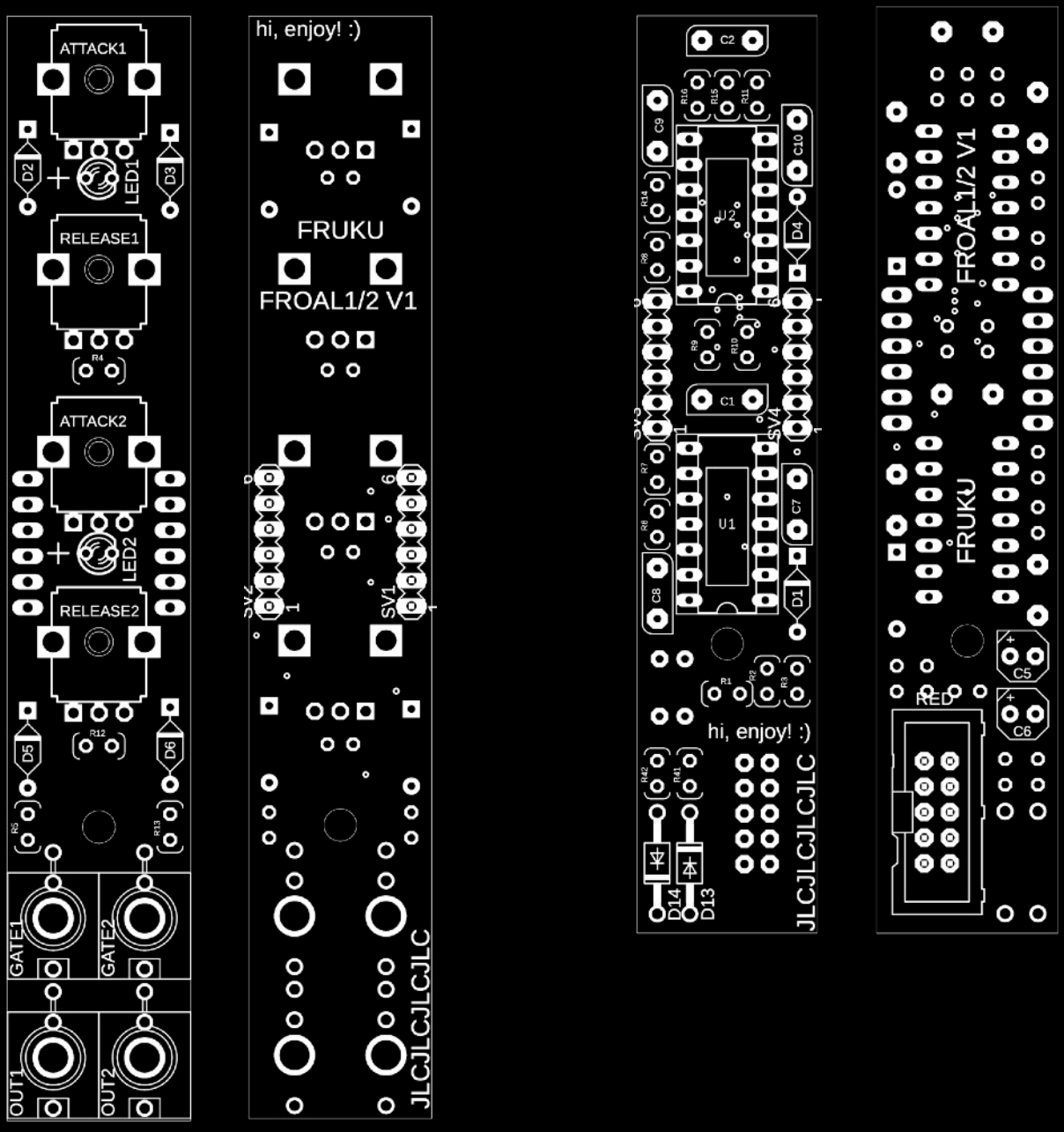
/// Froal 1/2 Build Guide

Thank you for choosing one of my products! Please follow this build guide thoroughly, even if you are an experienced DIYer. The order in which components are placed on the PCB is meant to make the assembly process as easy as possible.

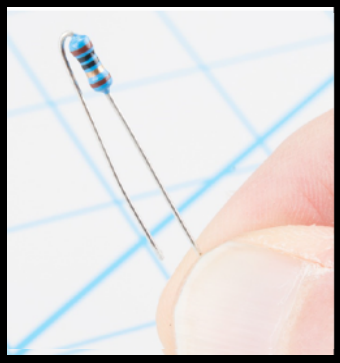
Disclaimer:
Assembly is done entirely at your own risk. Fruku cannot be held responsible for any damage, injury, or malfunction that may occur during the build process.

PCBs for reference:

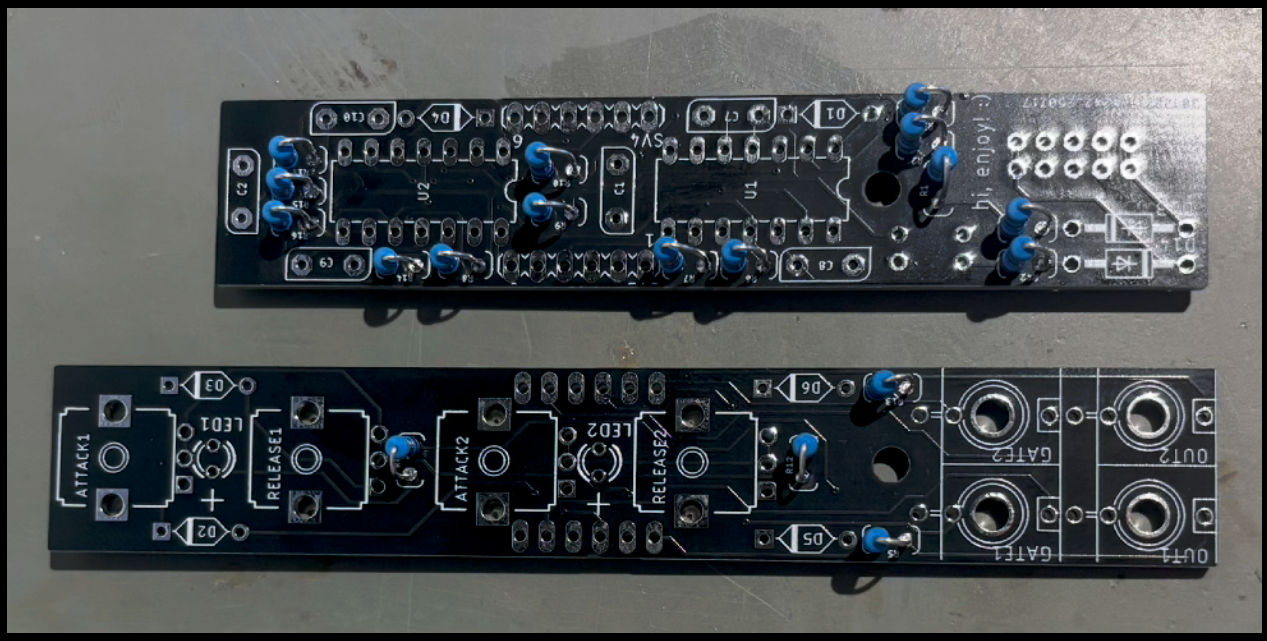


/// Resistors

Start with soldering the resistors, these need to be placed **“standing up”**. Make sure the “bend” is as **low** as possible (see picture). The values of the resistors are written on the tape. If you are unsure, use a Multimeter to check the value. Check the **BOM** file, there you will find which resistor values correspond to the part numbers written on the PCB.



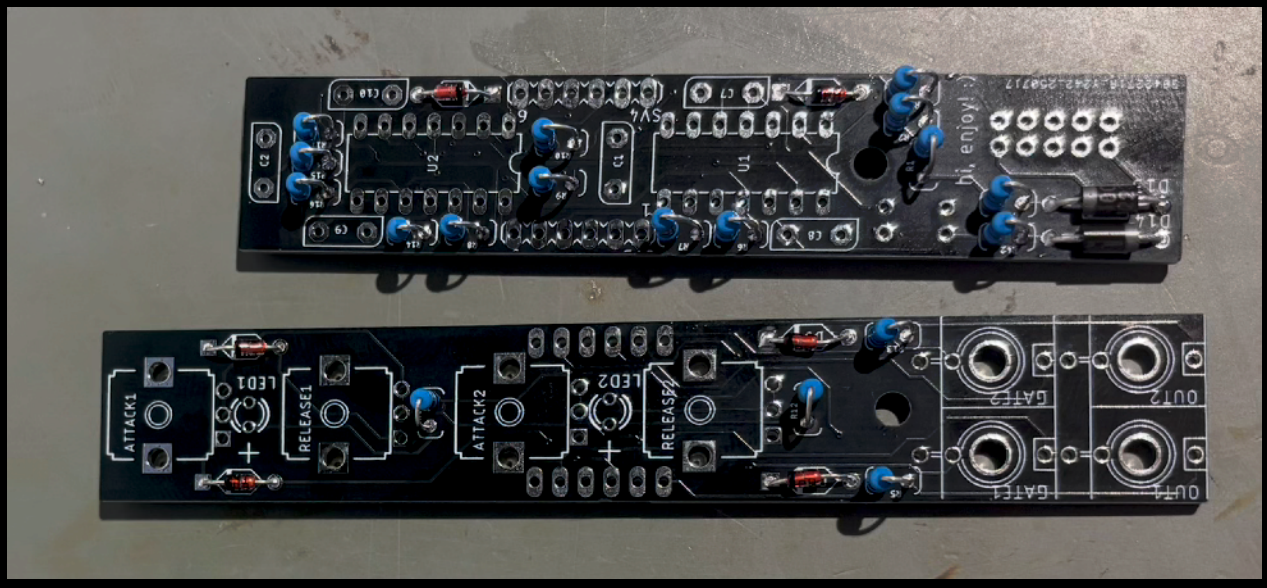
After soldering the resistors your boards should look like this:



/// Diodes

Now solder the diodes, look at the **BOM** for the values and placements. Diodes are **polarized** so please take notice of the **positive** and **negative** side.

After soldering the diodes your boards should look like this:



/// IC Sockets

Solder the 14 pin IC socket to **U1**. Take care to orientate it properly. The **notch** on one end should match the silkscreen on the PCB. First solder just 2 opposite pins and check if the socket is aligned flat to the PCB. If not, slightly press down on the socket and reheat the pins, the socket should slide into place. Now solder all remaining pins. Leave the IC **out** for now.

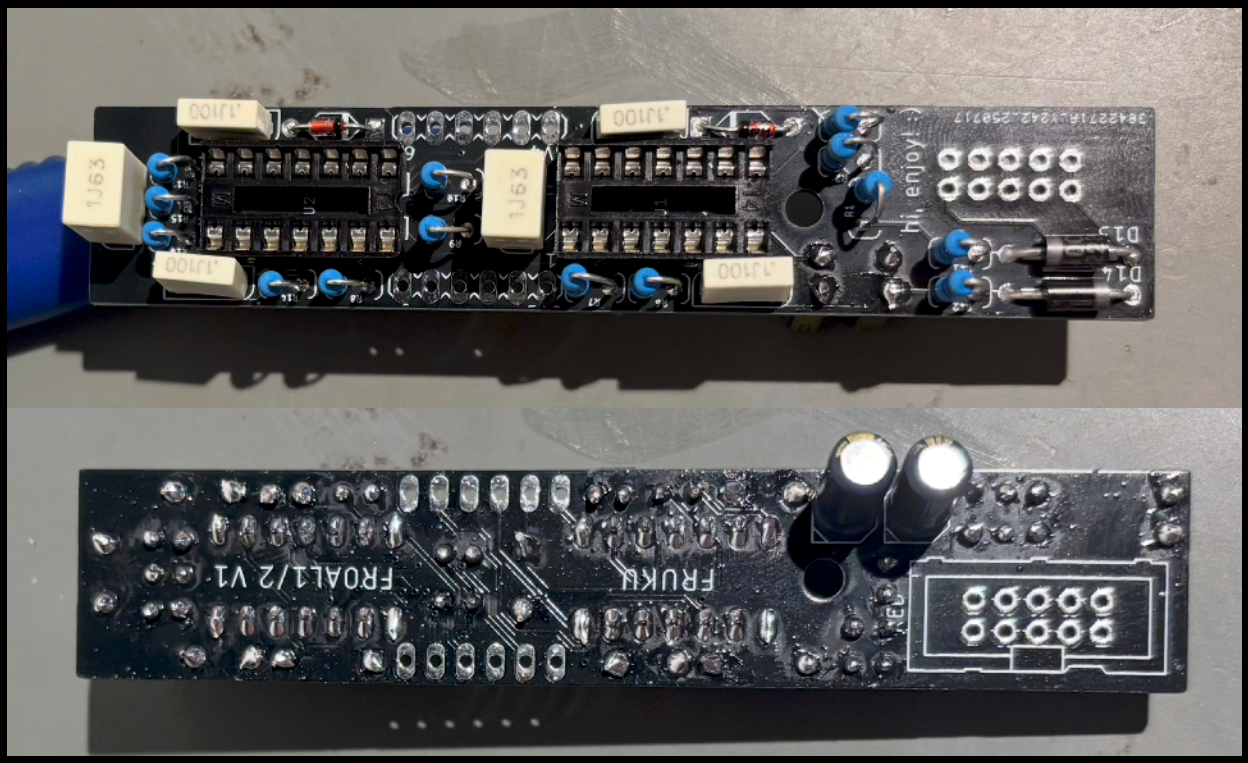
Repeat this step for **all** the IC sockets.

After soldering IC sockets your board should look like this:

/// Capacitors

Now solder the capacitors, look at the **BOM** for the values and placements. Please take notice of the **positive** and **negative** side with the **electrolytic** capacitors. The electrolytic capacitors need to be placed on the **bottom** side of the PCB.

After soldering the capacitors your board should look like this:

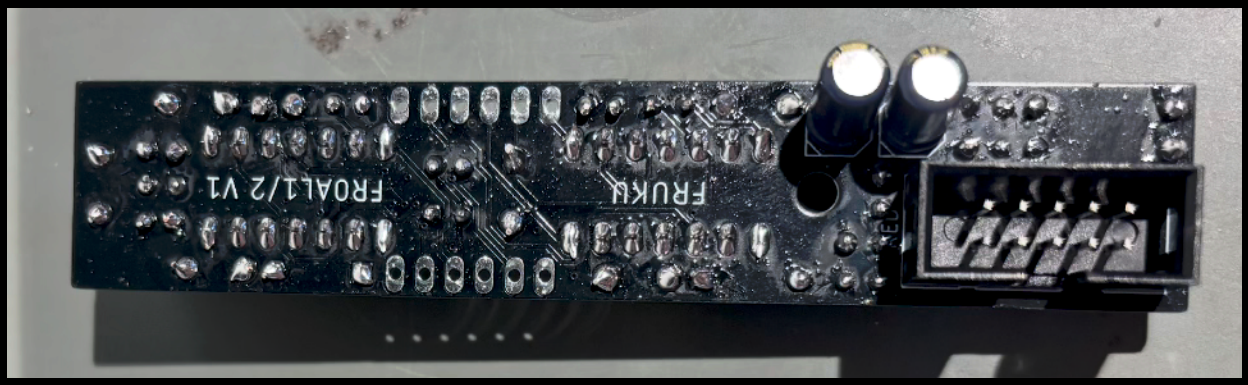


/// Power Header

Insert the 10 pin shrouded power header into place. This part also has an **orientation**; the open side. Make sure the part matches the silkscreen on the PCB.

Solder one pin and check if the header is aligned flat to the PCB. If not, slightly press down on the header and reheat the pin, it should slide into place. Now solder all remaining pins.

After soldering the power header your board should look like this:



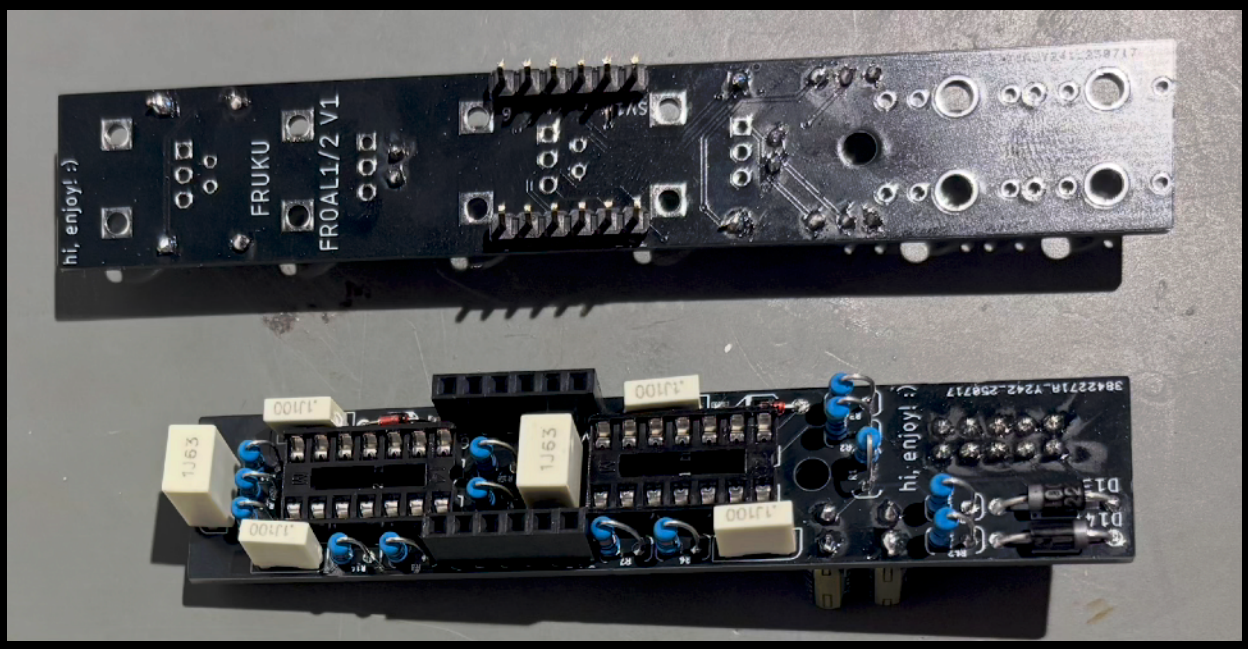
/// Pin Headers

Insert the female and male 6 pin headers into place, look at the **BOM** for the placements.

Solder one pin and check if the header is aligned flat to the PCB. If not, slightly press down on the header and reheat the pin, it should slide into place. Now solder all remaining pins.

Repeat this step for all pin headers.

After soldering the pin headers your boards should look like this:



/// Potentiometers, Jack Sockets & LEDs

Insert the potentiometers on the top side of the PCB, also insert the jack sockets and the LEDs (beware of the **orientation** of the LEDs). **Do not** solder yet! Now place the front panel over the potentiometers and jack sockets and use a few nuts from the jack sockets and potentiometers to hold the front panel in place. Push the LEDs up and into the hole in the front panel, then bend their legs so they won't slide down.

Now solder the potentiometers, jack sockets and LEDs.

After soldering the potentiometers, jack sockets and LEDs your board should look like this: (front panel removed)

/// IC

Take the ICs out of the foam. Usually the ICs don't have their legs bend far enough to fit in the socket, so bend the legs to **90** degrees using a **flat** surface.

Then insert them while taking care that the **notch** matches the IC **socket** and **silkscreen** on the PCB. Press the ICs firmly into the socket.

/// PCBs

Now connect both PCBs through previously soldered pin headers. Optionally, you can use the hardware (listed in the **BOM**) to secure the two PCBs together.

/// Knob

Turn all potentiometers fully **CCW** and place the knobs. Take care that all lines point to the **same** angle. Then push them down, while holding the back of the PCB. Depending on the type of knobs you might need to tighten them with a screwdriver, the type of knobs that need to be tightened have a small screw on the side. Please be careful to **not** over tighten the small screw.

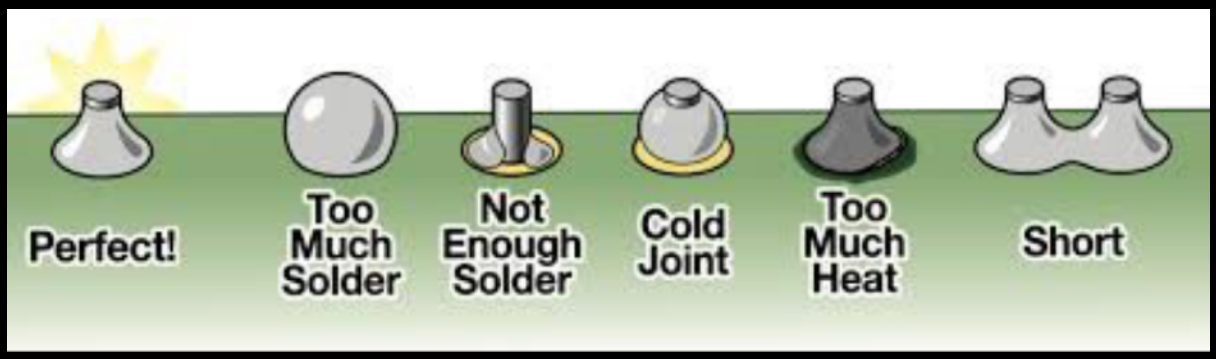
/// Testing

As a last check, look over the PCB and check the soldering, check for shorts and polarity.

Insert the power cable while holding the back of the PCB and connect it to your modular system.
Turn on the power. Check if nothing blows! If all is well, proceed: **Patch** :)

/// Troubleshooting

If the module does not work, check the **orientation** of the ICs, electrolytic capacitors, transistors and diodes. Check your **soldering**. It should be perfect, like in this picture:



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