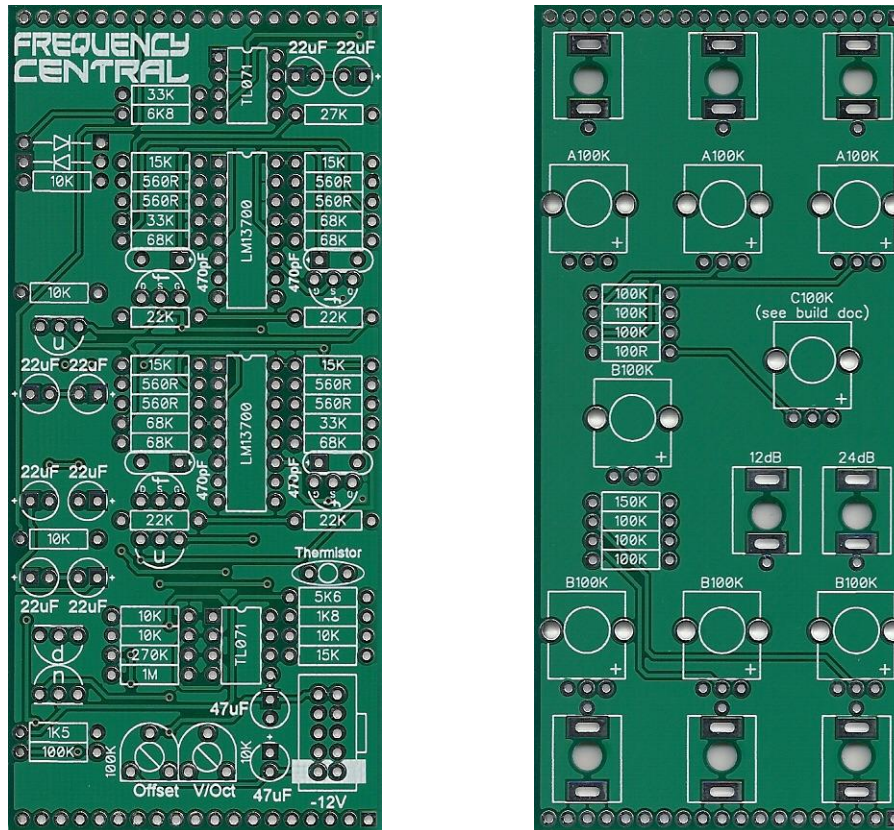


FREQUENCY CENTRAL

Build documentation for:

SYSTEM X FILTER 2

Based on the Roland System 100m VCF with additional 12dB/oct output



Key to PCB screen print:

- n:** This signifies NPN BC547 transistors. Note the correct pinout as shown by the half circles.
- p:** This signifies PNP BC557 transistors. Note the correct pinout as shown by the half circles.

The PCB shows the correct orientation for BC547/BC557. Other transistor types can be used (eg 2N3904/2N3906), but please observe the correct pinout.

Please observe the correct polarity of the electrolytic capacitors.

Bill of Materials

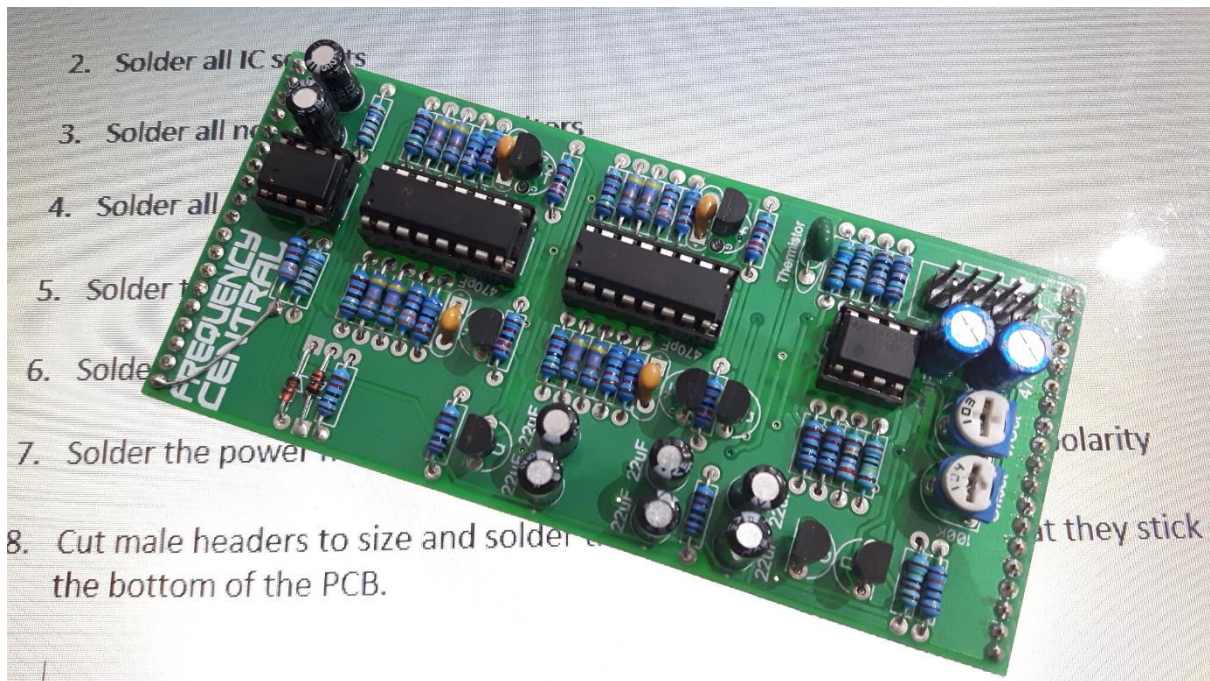
100R x 1 560R x 8 1K5 x 1 1K8 x 1 5K6 x 1 6K8 x 1 10K x 6 15K x 5 22K x 4 27K x 1 33K x 3 68K x 6 100K x 7 150K x 1 270K x 1 1M x 1 All resistors ¼ watt metal film	470pF x 4 22uF electrolytic x 8 47uF electrolytic x 2 10K thermistor x 1	TL071 x 2 LM13700 x 2 BC547 x 3 BC557 x 1 2N5485 x 4 1N4148 x 2 8 pin socket x 2 16 pin socket x 2	A100K x 3 (or these)* B100K x 3 (or these)* B100K x 1 C100K x 1** (or these) (or C50K) 10K trimmer x 1 100K trimmer x 1 3.5mm socket x 8 Male 40 pin header Female 40 pin header power header (cut to size) Big knob Little knob
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* I prefer the Song Huei tall trimmers because they have a longer shaft and a white notch.

** Circuit calls for C100K. C50K is cool too. If you can't get C50K, use B100K instead.

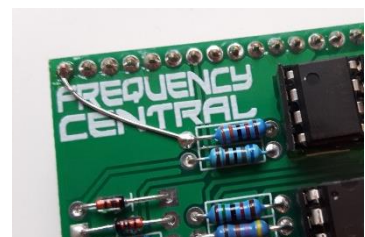
Main PCB assembly

1. Solder all resistors.
2. Solder all IC sockets
3. Solder all non-electrolytic capacitors
4. Solder all transistors
5. Solder the thermistor
6. Solder all electrolytic capacitors
7. Solder the power header – if you're using box type, observe correct polarity
8. Cut male headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.



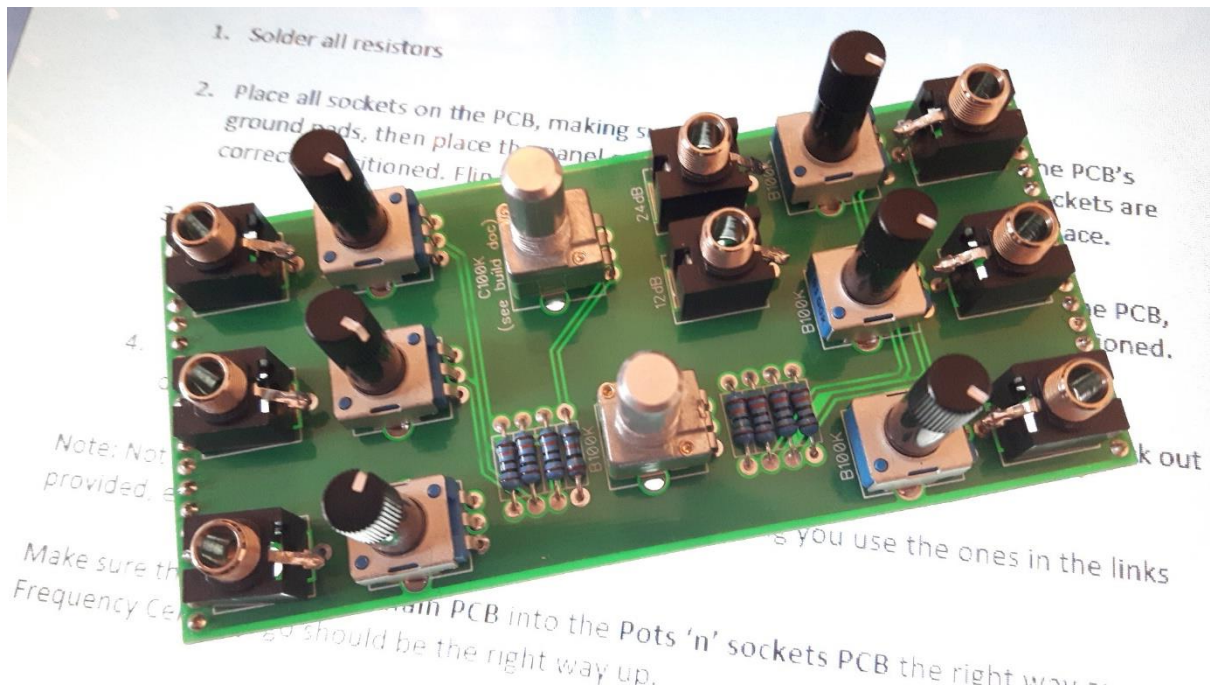
Main PCB grounding issue: Early versions of this PCB have an easily fixed ground issue. See photo →

This has been corrected in later runs, which have the **OK!!** Graphic just below the Frequency Central logo.



Pots 'n' sockets PCB

1. Solder all resistors
2. Place all sockets on the PCB, making sure the ground tabs line up with the PCB's ground pads, then place the panel over them. This will assure that the sockets are correctly positioned. Flip the whole lot over and solder the sockets into place.
3. Place all pots on the PCB, and fold over their mounting tabs at the rear of the PCB, then place the panel over them. This will assure that they are correctly positioned. Flip the whole lot over and solder the pots into place.
4. Cut female headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.



Note: Not all pots and sockets are equal in height. Providing you use the ones in the links provided, everything will line up perfectly.

Make sure that you plug the **Main PCB** into the **Pots 'n' sockets PCB** the right way around – Frequency Central logo should be the right way up.

Calibration

1. **V/Oct trimmer:** turn Resonance all the way to self oscillation. Patch a 1V/oct source into CV input 1, with the attenuator fully clockwise. Play octaves and adjust the V/Oct trimmer until they are spot on.
2. **Offset trimmer:** you want to tweak this so that the filter is fully open when the Cutoff pot is fully clockwise.

