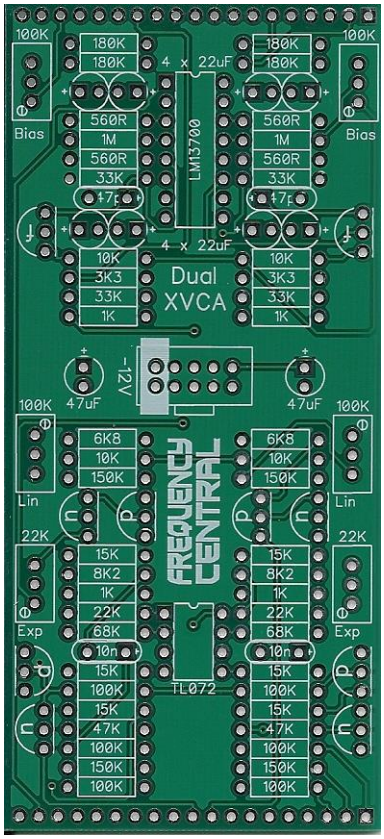
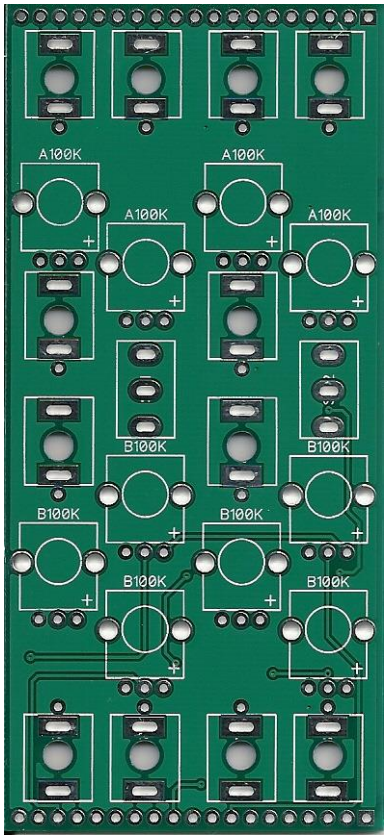
FREQUENCY CENTRAL

Build documentation for:

DUAL XVCA

Based on the Roland System 100M VCA.





Key to PCB screen print:

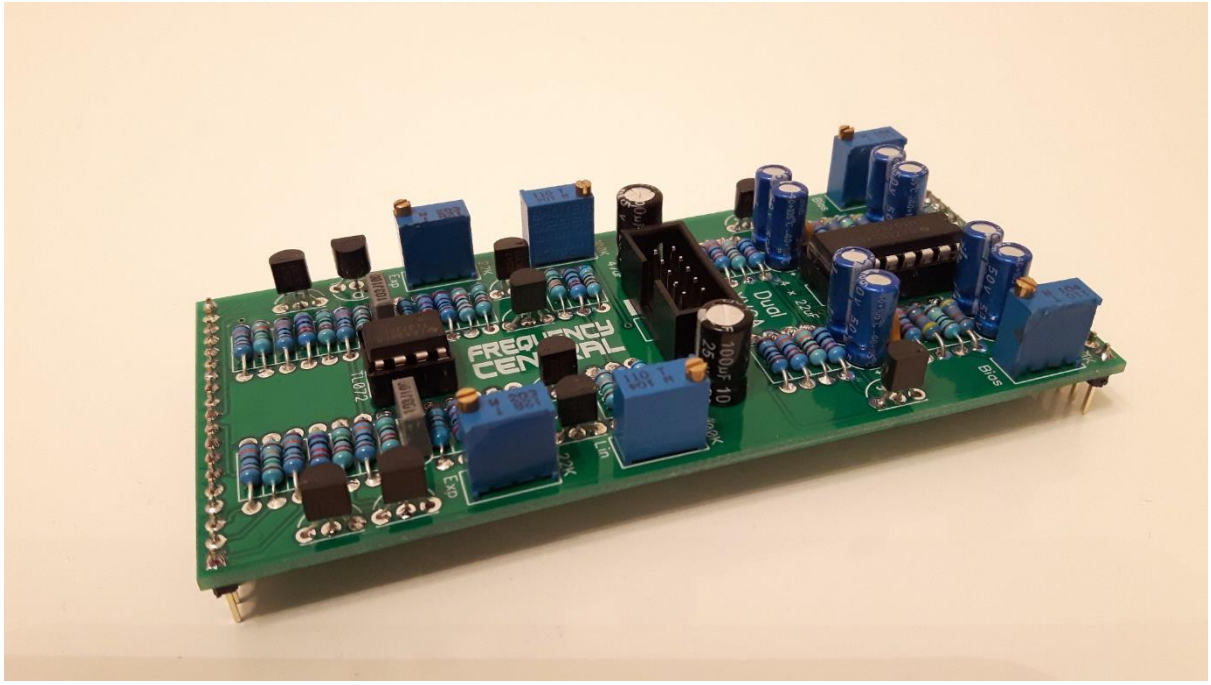
n: This signifies NPN BC547 transistors. Note the correct pinout as shown by the half circles.
p: This signifies PNP BC557 transistors. Note the correct pinout as shown by the half circles.
f: This signifies 2N5485 FETs. Note the correct pinout as shown by the half circles.

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.

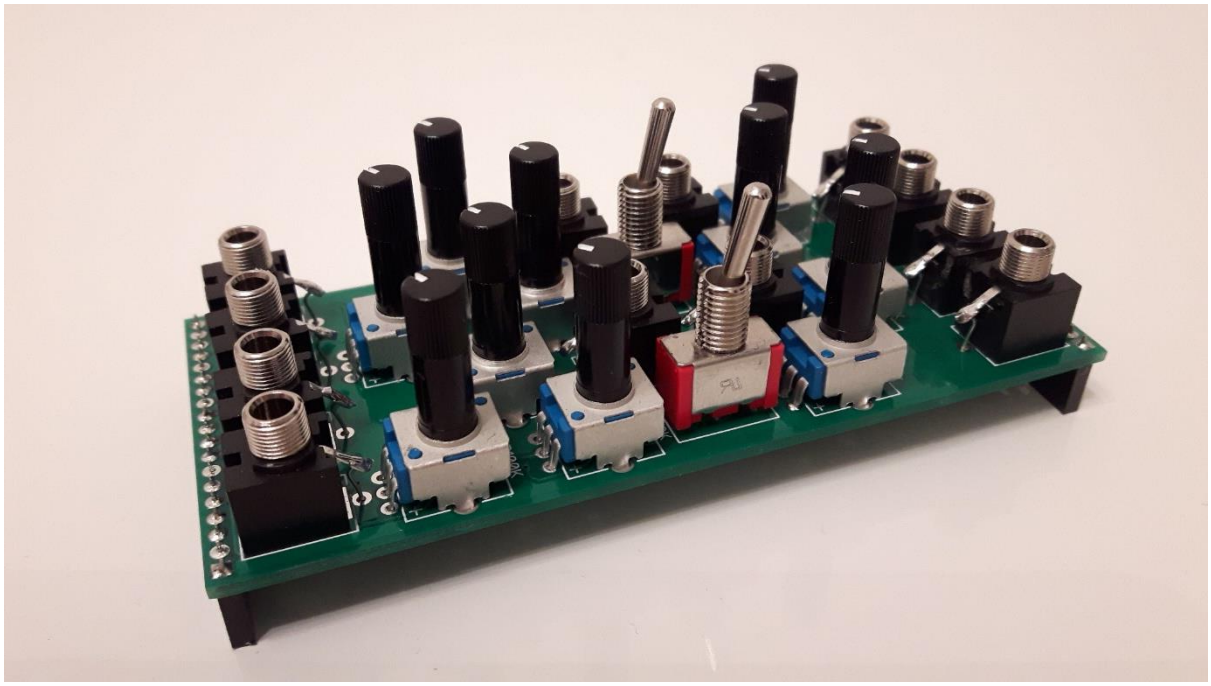
Bill of Materials

560R x 4 1K x 4 3K3 x 2 6K8 x 2 8K2 x 2 10K x 4 15K x 6 22K x 2 33K x 4 47K x 2 68K x 2 100K x 6 150K x 4 180K x 4 1M x 2 All resistors ¼ watt metal film.	47pF x 2 10nF x 2 22uF x 8 47uF x 4	LM13700 x 1 TL072 x 1 BC547 x 4 BC557 x 4 2N5485 x 2 16 pin IC socket 8 pin IC socket x 1	Pots: you can either uses Alpha or Song Huei. I prefer Song Huei, because the shaft is longer, and it has a white pointer, though sadly not available from Tayda. Alpha: A100K x 4 B100K x 6 Song Huei: A100K x 4 B100K x 6 20K trimmer x 2 100K trimmer x 4 SPDT toggle x 2 Box header x 1 Male header x 1 Female header x 1 3.5mm socket x 12



Main PCB assembly

1. Solder all resistors
2. Solder both IC sockets
3. Solder all non electrolytic capacitors
4. Solder all transistors – watch the polarity!
5. Solder the box power header. Make sure the notch lines up with the screenprint legend. If in doubt, have a look at a power cable, and make sure when inserted into the header the red stripe lines up with the -12V screenprint.
6. Solder all electrolytic capacitors
7. Solder all trimmers
8. Cut male headers to size and solder them into place. Make sure that they stick out of the bottom of the PCB.



Pots 'n' sockets PCB

1. 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.
2. Use cut off resistor legs to connect the sockets' ground tabs line up with the PCB's ground pads.
3. Solder in all pots, making sure to seat them correctly. Don't forget to also solder the mounting tabs.
4. Solder both switches.
5. 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 sockets and switches are equal in height. Providing you use the ones in the links provided, everything will line up perfectly.

Calibration

- **Bias:** Adjust Bias trimmer to sweet spot, ie a nice clean undistorted VCA output with no thunk when a snappy ADSR is applied to a CV input. I do this without any audio at the inputs. The chances are that that the sweet spot is around the mid position.
- **Lin and Exp:** you can set these up to output matching voltages, however, in reality it's better to set them up to perceived volume.

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