

12dB/Oct VCF Calibration

DC offset OTA

Remove DA2 and DA3.

(OTA1) Attach a 10k resistor from pin3 DA3 to ground.

(OTA1) Turn Cut Off potentiometer full on.

(OTA1) Measure the voltage at pin3 DA3. Adjust to zero with R36 (OTA1 TRIM)

(OTA2) Attach a 10k resistor from pin5 DA3 to ground.

(OTA2) Turn Cut Off potentiometer full on.

(OTA2) Measure the voltage at pin5 DA3. Adjust to zero with R50 (OTA2 TRIM)

Remove resistor and put the IC's back in

Offset

Apply a square signal of about 500Hz to the input. Set the filter to low-pass mode.

Set potentiometer R5 (OCTAVES (Cutoff)) to max (CW = +12V). Set trimmer R12 (OFFSET ADJ.) to ground (CCW).

Turn R12 slowly to -12V (CW). You will see and hear that the edges of the square signal starts rounding.

Adjust R12 so that there is no audible damping of the overtones. This adjustment is not critical. No need for excessive precision.

V/Octave

Set the filter to bandpass mode. Set Q fairly high. Connect CV from the keyboard. Set the VCO to about 500Hz when the highest key on the keyboard is pressed.

Adjust R5 (OCTAVES (Cutoff)) for maximum output at bandpass output.

Press keyboard two octaves lower. Adjust R38 (1V/OCT TRIM) for maximum output.

Press keyboard two octave higher. Adjust R5 (OCTAVES (Cutoff)) for maximum output at bandpass output.

Press keyboard two octaves lower. Adjust R38 for maximum output.

Repeat until the output amplitude stays the same when the keys are pressed two octaves apart.

LED level display (Volume LED)

The FORMANT VCFS offer a useful alternative to the almost legendary MOOG cascade, which has recently found many imitators. However, the use of OTAs (Operation Transconductance Amplifiers) also presents some problems. On the one hand, the transconductance (gm) is subject to a relatively large spread (a selection is therefore required for the 24 dB VCF), and on the other hand, the relationship between noise level and distortion factor is very unfavorable.

In order to make optimal use of the FORMANT VCFs, it is almost essential to constantly check the filters for over or under control. This is particularly true for multiple input voltages. Otherwise, the consequences will be a disturbingly high noise level or distortion. The LED display is intended to help you quickly find the right balance

The inputs of the circuit are capacitively decoupled and fed to the input adder. The response threshold of the "linearized" LED level indicator can be set with R35 (VOLUME LVL ADJ.)

The only adjustment is the correct setting of the LED display. To do this, proceed as follows: Switch on 3 VCOs (OUT controller at maximum value) with one waveform each (MINI-FORMANT: 1 VCO with 3 waveforms), set trimmer R35 so that LED VD1 lights up weakly but clearly visible.

Then add a second waveform to each of the 3 VCOs (MINI-FORMANT: 1 VCO with 5 waveforms). The LED must now light up at maximum brightness.

For a VCO with a curve shape, the LED must not light up.