capacitors

C1, C2	100n (decoupling)
C3, C4, C10	10uf (elec)
C5	820pF (silver mica)
C6, C7, C8	10n (poly)
(+6 additional caps for decoupling)	
C9	15pF (silver mica)

resistors

R1, R2	22R
R3, R14	220R
R12	1k
R17	1k PT146 (3500)
(or regular 1K if no compensation needed)	
R13, R24	4.7k
R4, R5, R6, R7	
R10, R15, R19	47k
R23	75k
R8, R9	100k
R16	150k
R18	200k
R11	300k

precision trimmer

T1 (1V/oct)	50k
T2 (freq offset)	50k
T3 (q point)	20k

semi's

U1	SSM2044
U2, U3	TL072

potentiometer

P1 (gain)	50k
P2 (cutoff)	50k
P3 (CV2 att.)	50k
P4 (Q control)	50k
P5 (Q CV att.)	50k

connections

W1	audio in
W2	CV1
W3	CV2
W4	Q CV
W5	audio out
W6	GND

fonitronik SSM2044 VCF Rev3.0

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SSM2044 VCF Rev3.0
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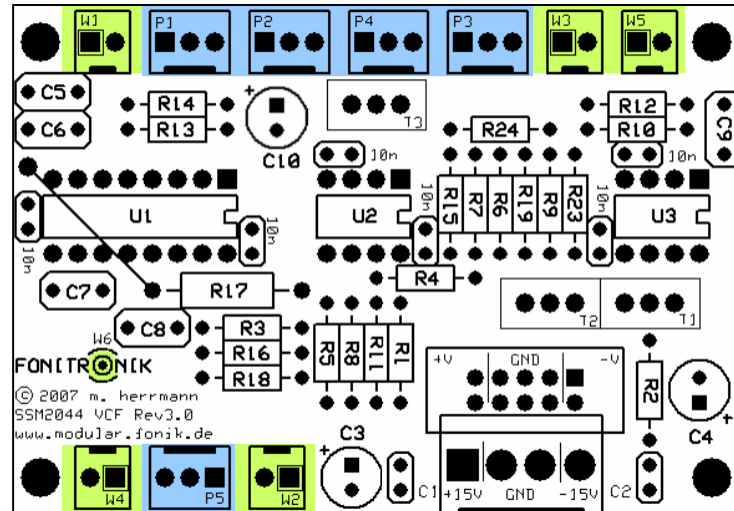
ERRATA: C10 polarization swapped on PCB!
Sketch above shows correct orientation.

There are 6 decoupling capacitors on the layout not mentioned in the schematic. They are labeled 10n.

R17 can be substituted by an regular 1k resistor if you don't care about temp compensation. R17 can be mounted in two ways: use the footprint for R17 or mount it along the thin line that goes across the SSM2044 IC (if you think you want it in physical contact to the IC).

Setting up the filter:
First and the foremost this is an VCF, not an VCO. Therefore expect this filter to stay in tune for not more than about 3 octaves.
Set all controls to zero first, except the cutoff.
Apply an audio signal and adjust the response of the cutoff potentiometer according to your taste using the offset trimmer T2.
Now raise the Q potentiomer until the filter starts to oscillate. Adjust the Q potentiometer using trimmer T3. It lets you set the point of turning where the filter starts to oscillate.
Apply 1V/oct control voltage source to CV 1 and leave the audio input off. Now you can adjust the 1V/oct response using trimmer T1.

P1-5

rear view

W1-5
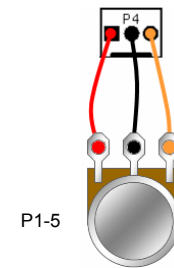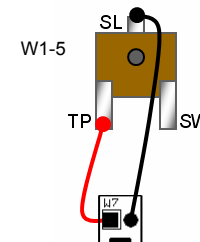
front panel suggestion:

SSM2044

In

1v/oct   freq

fm

rez cv

out   rez

fonitronic
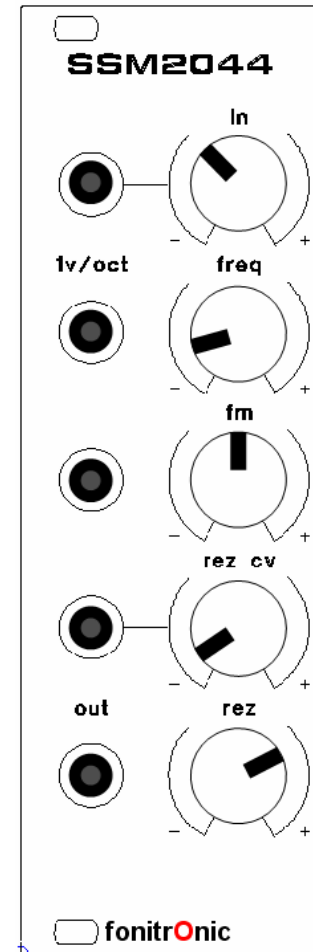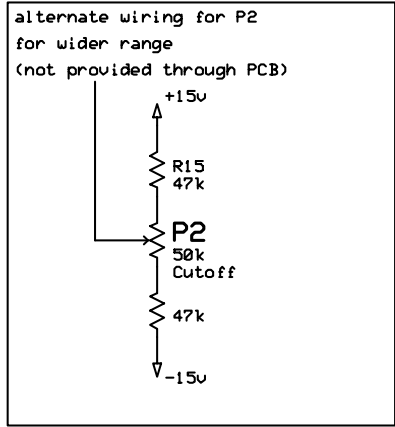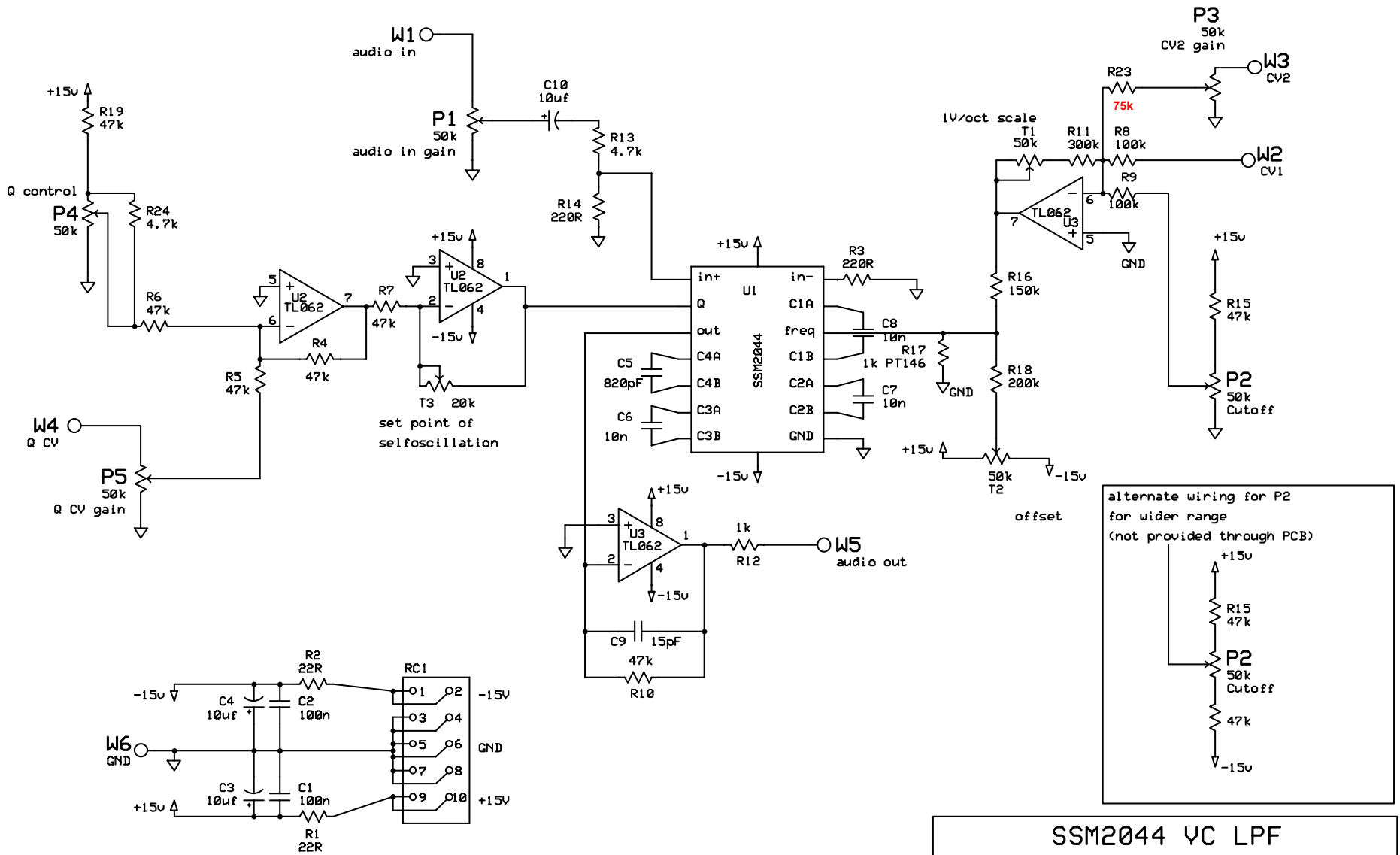
SSM2044 VC LPF

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Rev 3.01 EM

4 MAY 2007