

3521 VCF voltage controlled filter

The 2421 is based on the Oberheim SEM filter. A version of this filter was the first filter I ever I ever got working and is a descendant of the EFM VCF1. This version uses discreet OTAs, replacing the CA3080 and LM13600 with all transistor equivalents.

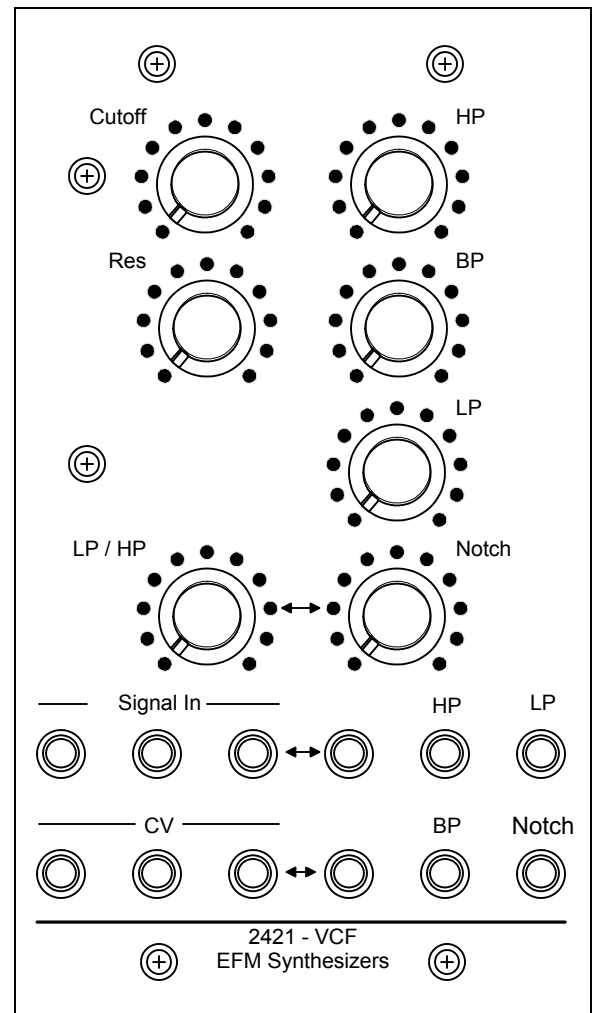
The Discreet OTA

Q3 and Q4 form a single stage differential amplifier. Q1 and Q2 form a current mirror for the diff-pair and gain-control emitter-current is supplied by Q13. This amplifier

to a very high impedance load.

Q5 and Q6 form a Darlington transistor with about a 10K input impedance. The overall current gain is equal to the two transistors multiplied together. A small base current is all that is required to turn this transistor on.

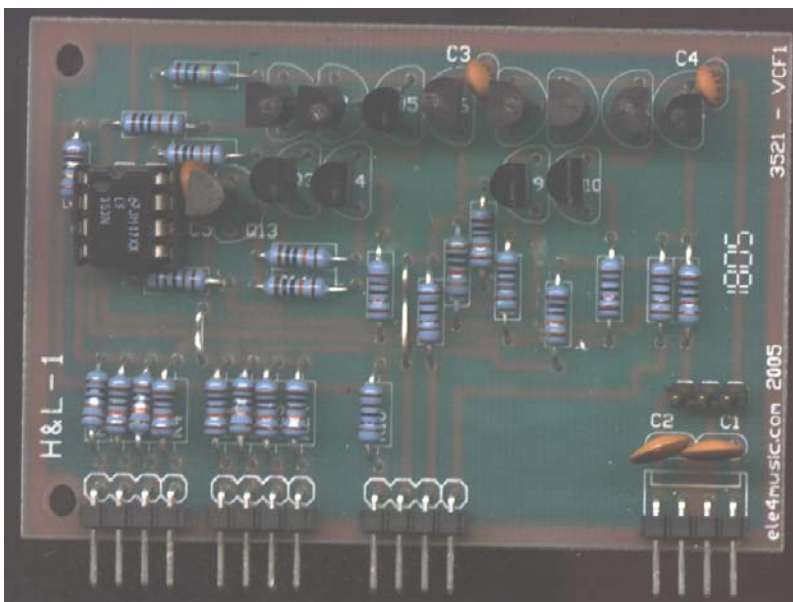
Q1,2,3,4 form the gain cell and Q5,6 form the buffer.

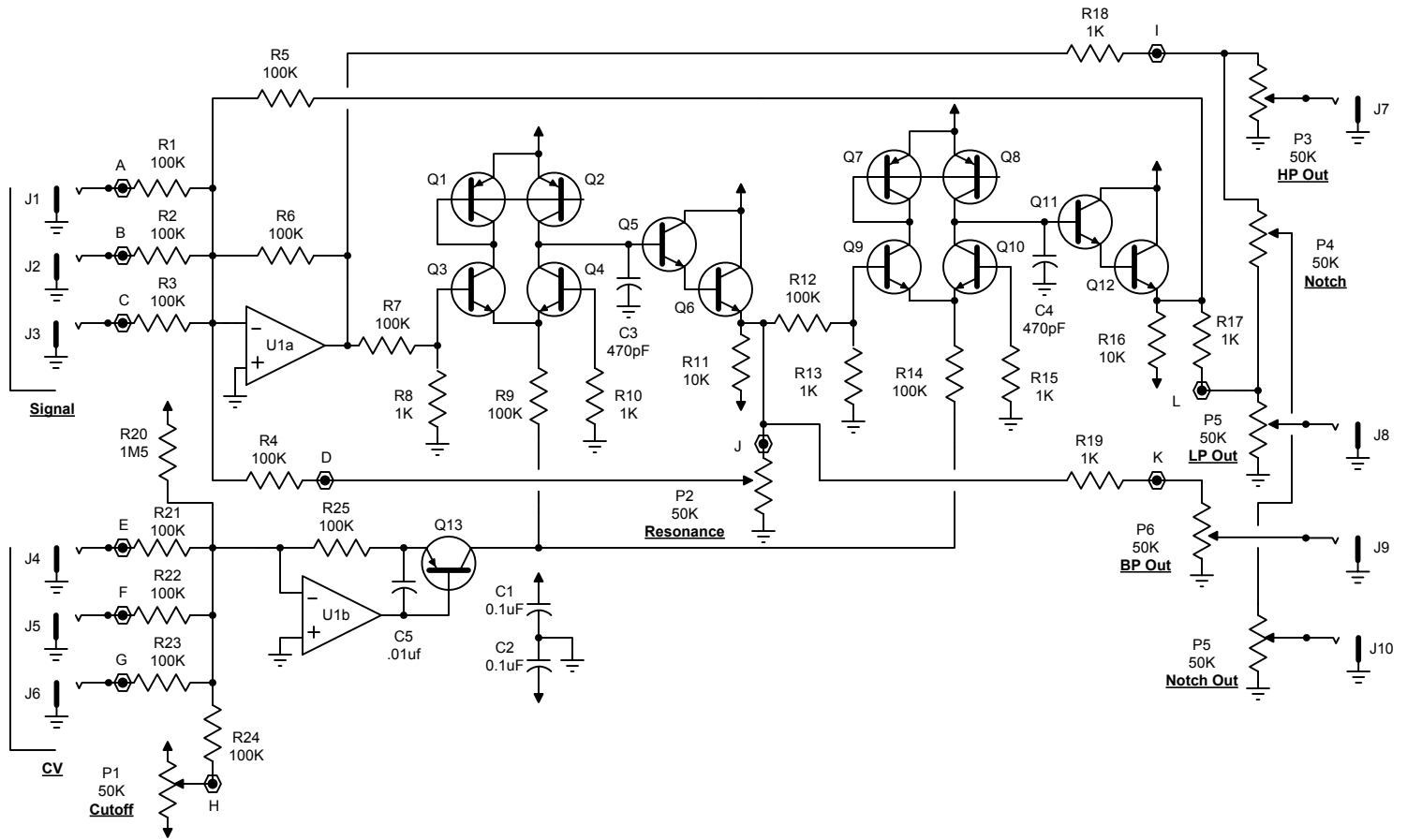


VCF

U1a is a inverting summer input to Cell1 and Cell2 series connected identical integrators. The gain of these amplifiers determine the center frequency of the filter. The gain is set by bias current supplied by constant current source Q13. Current supplied by Q13 is reasonably constant and repeatable.

High, band and low-pass outputs are all available at the same time. Notch out is available by panning between the high and low-pass outputs.





Small Kit

PCB	PC Board	1
C1,2	0.1uF Ceramic	2
C3,4	470pF Ceramic	2
R1,2,3,4,5,6,7,9,12,14,21,22,23,24,25	100K	15
R8,10,13,15,17,18,19	1K	7
R11,6	10K	2
R20	1.5M	1
Q1,2,7,8,13	2N3906	5
Q3,4,5,6,9,10,11,12	2N3904	8
U1	LM353/TLO72	2

Full Kit

P1,2,3,4,5	50K Pot	7
Knob		7
Jack	1/8"	12
L Bracket		2
Header		1
Panel		1
Overlay		1

