

NONLINEARCIRCUITS

Serious Filter

This VCF is based on the ARP 4023 VCF; it is one of the two most common VCF designs around (the other being the ladder filter). It has a great sound, very wide ranging and is happy to self-oscillate when the Q pot is cranked. Pics of completed module here - <http://nonlinearcircuits.blogspot.com.au/2015/08/serious-filter.html>

BOM – brackets indicate labelling on PCB, ie – ‘c’ = 100k

component	quantity	notes	component	quantity	notes
10R	2	thru-hole	100pF (101)	2	0805
100R	4	0805	100nF (104)	4	0805
470R	1	0805	220nF (224)	1	0805
1k (1)	2	0805	1nF (102)	2	thru-hole, 4.5mm lead spacing
2k2	2	0805	10uF	2	thru-hole, 4.5mm lead spacing
2k7	1	0805			
8k2	1	0805	1N4148 diode	5	thru-hole
12k	1	0805	BC857 (3,6)	2	PNP SOT-23
15k	1	0805	BC847 (4,5,7,8)	4	NPN SOT-23
27k	1	0805	J310 or similar (gsd)	2	JFET SOT-23
33k	2	0805			
56k	2	0805	TL072	2	SOIC 0.050 pitch
62k	2	0805	LM13700	1	DIP
100k (c)	10	0805			
150k	2	0805	10 pin Eurorack power connector	1	
200k	1	0805	100k pot	4	
470k	1	0805	100k trimpot	1	
			50k trimpot	1	
			kobiconn style socket	6	

Setup

The 100k trimpot sets the operating range of the FREQ pot. No real rules here just set it so the FREQ pot is active for its full range from 0-10. You should find the range goes from sub-audio to some frequency only dogs can hear.

The 50k trimpot is to balance the CV across the two OTAs, best is to monitor the two outputs with an oscilloscope and set the trimpot so the BP and LP outputs are about the same amplitude.

Turning up the RES/Q pot will get the module to self-oscillate, if you turn the pot too high the signal clips. Turn to around 8-9 to get a nice sinewave.

