

Ease of build	Medium
-partscount	Medium
-density	High
Parts sourcing	Easy
Enclosure fitting	Easy
Debugging level	Easy

3-band parametric EQ V1.0

Version with trimpots

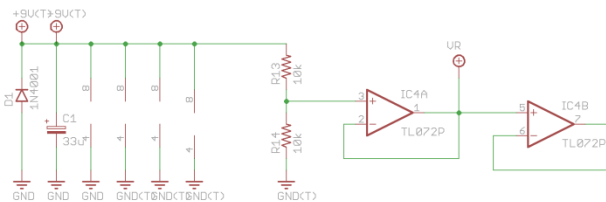
This implementation of the 3-band parametric EQ is of the set-and-forget type. Once you have set the frequency and Q with the trimpots you forget it and only use it as is – the ideal addition to a specific pedal or sound-setup.

General

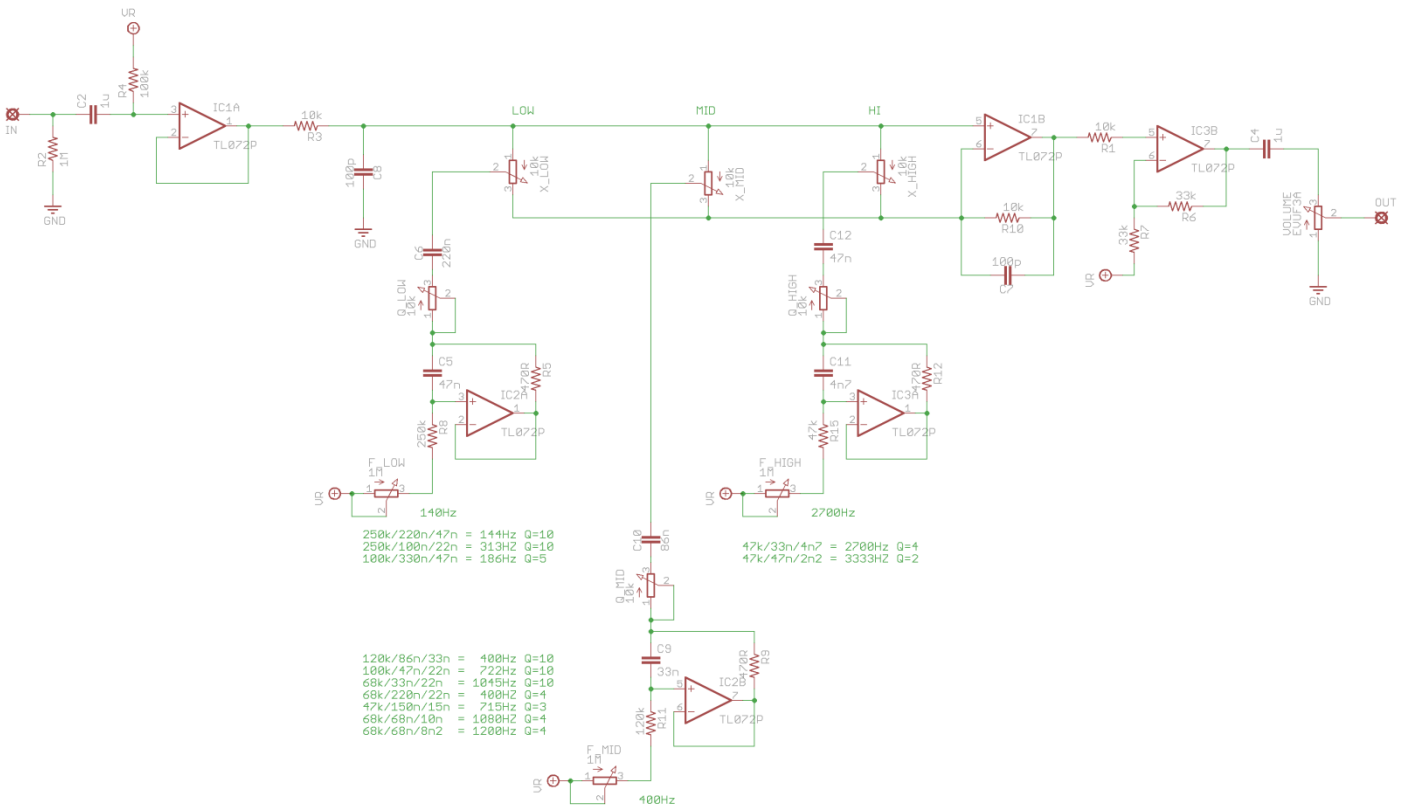
It uses OpAmps as gyrators. There are already several frequencies calculated and they show on the schematic.

Additionally you can use Jack Ormans online calculator to find the correct parts values if you need a special frequency or Q. Please visit <http://www.muzique.com/lab/gyrator.htm> to find out more about it.

Schematic



3-Band Parametric _ EQ V1
Full Control
(c) 01/2016 TH custom effects



Bill of materials

	Parts	Qty	Value	Description	
Resistors	R1, R3, R10, R13, R14	5	10k		
	R2	1	1M		
	R4	1	330k		
	R5, R9, R12	3	470R		
	R6	1	68k		
	R7	1	33k		
	R8	1	100k*		
	R11, R15	2	47k*		
	Capacitors	C1	1	47u-100uF	polarized electro 5-8mm \varnothing / 8mm
C2, C4		2	1uF	MLCC	
C5		1	47n*	box film	
C6		1	330n*	box film	
C7, C8		2	100p	ceram	
C9		1	15n*	box film	
C10		1	150n*	box film	
C11		1	4n7*	box film	
C12		1	33n*	box film	
Diodes		D1	1	1N4001	
Pots		Bass, Mid, High	3	10k lin	9mm Alpha
		Volume	1	100k lin	9mm Alpha
	Q	3	5k/10k	Trimpot ACP 6mm / or Piher	
	Freq	3	1M	Trimpot ACP 6mm / or Piher	
ICs	IC1-IC4	2	TL072(IP)	Or better	

Variations

Here you find different values for different frequency spots. Please note that a Q of 10 defines small bandwidth (1/4 octave) and Q of 3 is about one Octave

Bass (R8 / C6 / C5)

$250k/220n/47n = 144Hz$ Q=10
 $250k/100n/22n = 313HZ$ Q=10
 $100k/330n/47n = 186Hz$ Q=5

Highs (R15/ C12/ C11)

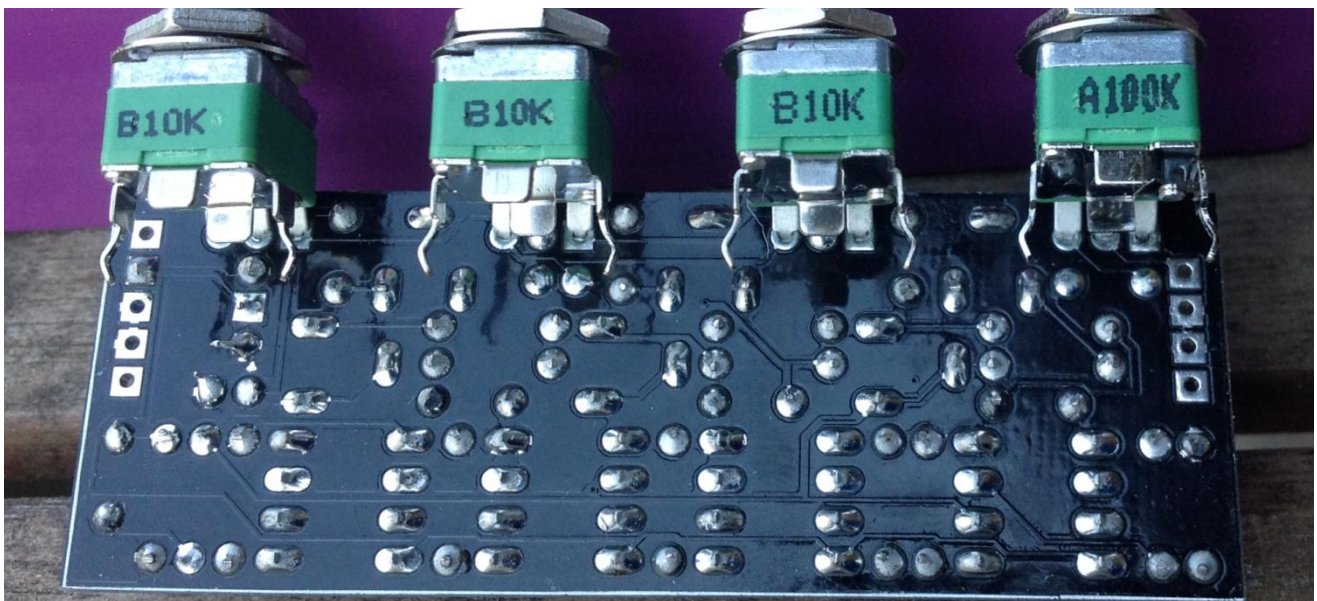
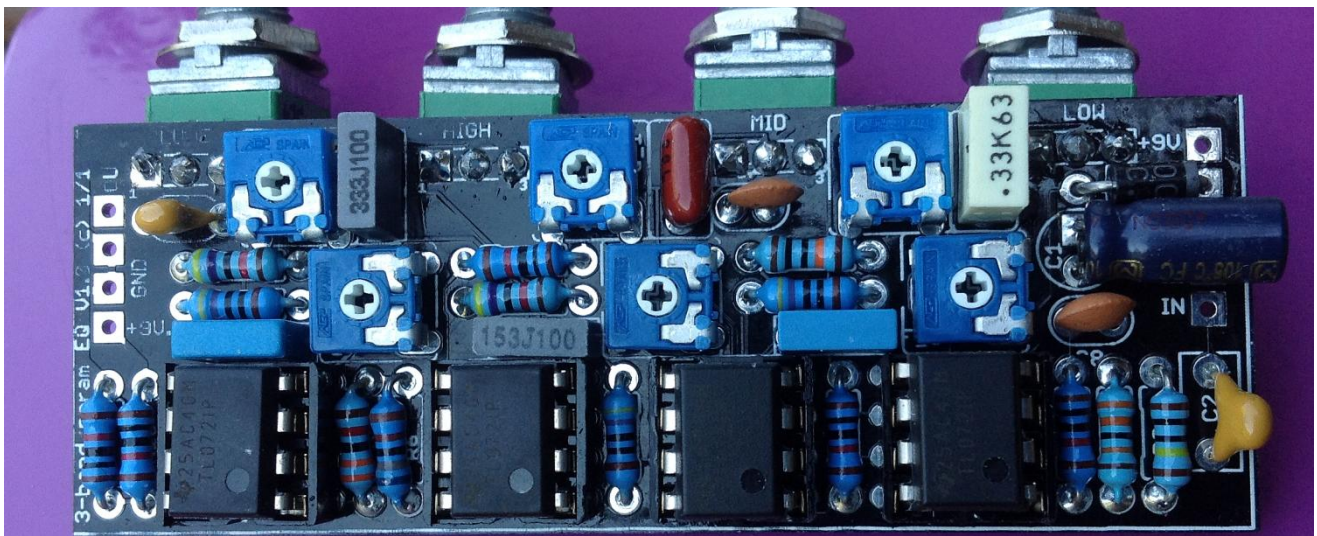
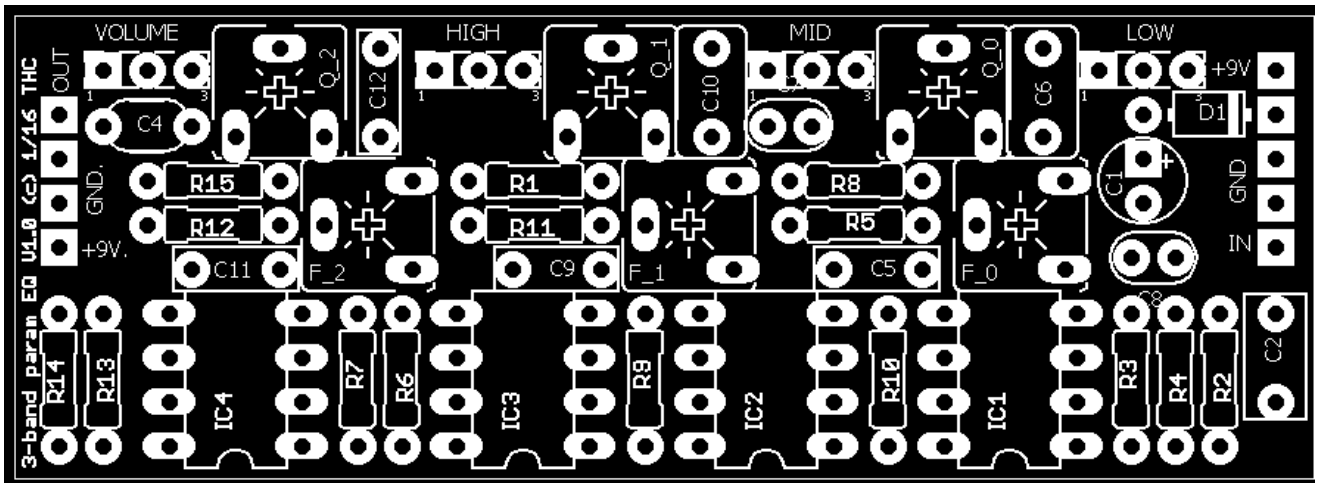
$47k/33n/4n7 = 2700Hz$ Q=4
 $47k/47n/2n2 = 3333HZ$ Q=2

Mids (R11/ C10/ C9)

$120k/86n/33n = 400Hz$ Q=10
 $100k/47n/22n = 722Hz$ Q=10
 $68k/33n/22n = 1045Hz$ Q=10
 $68k/220n/22n = 400HZ$ Q=4
 $47k/150n/15n = 715Hz$ Q=3
 $68k/68n/10n = 1080HZ$ Q=4
 $68k/68n/8n2 = 1200Hz$ Q=4

Building

Start populating the diode and all resistors first. Put in sockets for the ICs and the trimpots next. Then MLCC and ceramic caps, then box film caps and electros at the last.



Enclosure

This PCB does not fit a 1590B enclosure upright!. You may use it upright in a 125B or a 1590BB.

If you bend the pots in a special way or you stick them trough the side you can use it laying down in a 1590B. (pictures to follow)

Finally

The 3-band parametric EQ is a great tool for any purpose that needs manipulation of a specific frequency range in your signal. Be it a bass boost or taming high frequencies.

Disclaimer & License

PCBs purchased from TH custom effects are intended for DIY / non-commercial use only. It is not allowed to redistribute the PCBs and artwork from this document. However, you can use these instructions and PCBs to build and sell your own product based on PCBs ordered from TH custom effects.