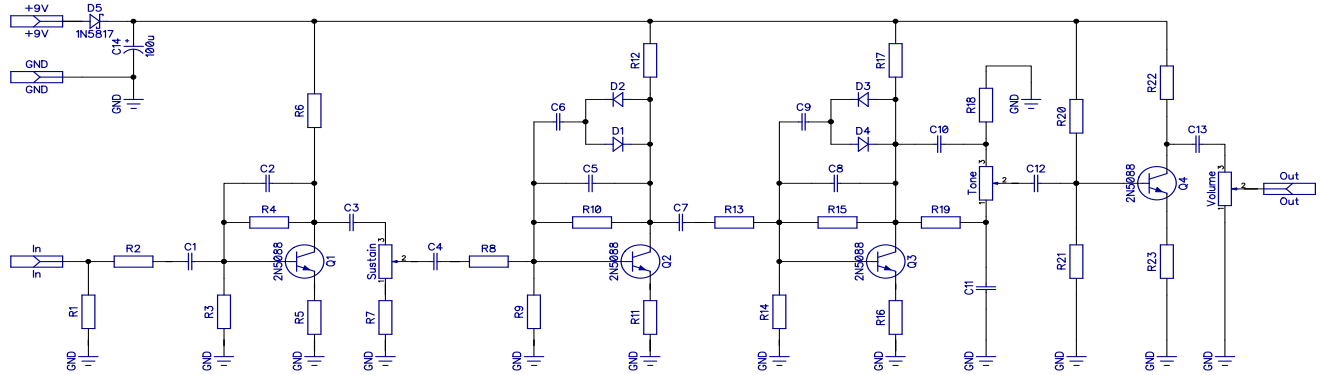
Little Prick

Based on Electro-Harmonix Big Muff Pi
PCB artwork ©2016 drdFX
Release date: 2016. 09. 21.

The Little Prick is a project to create one PCB on which the main Electro-Harmonix Bigg Muff Pi versions can be built, similar to Madbean's Mudbunny project.
For a complete overview and lots of details on this effect see Kit Rae's Big Muff Pi webpage (http://www.bigmuffpage.com/)

SCHEMATIC



For values of each version see the BOM

BOMs

Triangle version							
Resistors		Capacitors		Semiconductors		Others	
R1	1M	C1	100n	D1	1N4148	Sustain	B100k
R2	33k	C2	500p	D2	1N4148	Tone	B100k
R3	100k	C3	100n	D3	1N4148	Volume	B100k
R4	470k	C4	100n	D4	1N4148		
R5	100R	C5	500p	D5	1N5817		
R6	10k/15k	C6	100n	Q1	2N5088		
R7	820R	C7	100n	Q2	2N5088		
R8	8.2k	C8	500p	Q3	2N5088		
R9	100k	C9	100n	Q4	2N5088		
R10	470k	C10	4n				
R11	100R	C11	10n				
R12	10k	C12	100n				
R13	8.2k	C13	100n				
R14	100k	C14	100u				
R15	470k						
R16	100R						
R17	12k/15k						
R18	33k						
R19	33k						
R20	390k						
R21	100k						
R22	12k						
R23	2.7k						

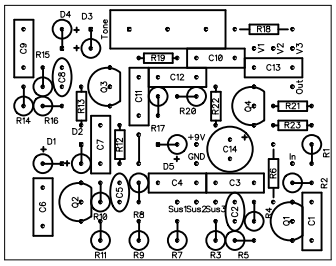
‘73 Ram’s Head							
Resistors		Capacitors		Semiconductors		Others	
R1	1M	C1	100n	D1	1N4148	Sustain	B100k
R2	33k	C2	470p	D2	1N4148	Tone	B100k
R3	100k	C3	100n	D3	1N4148	Volume	B100k
R4	470k	C4	150n	D4	1N4148		
R5	100R	C5	470p	D5	1N5817		
R6	12k	C6	100n	Q1	2N5088		
R7	820R	C7	100n	Q2	2N5088		
R8	7.5k	C8	470p	Q3	2N5088		
R9	100k	C9	100n	Q4	2N5088		
R10	470k	C10	4n				
R11	100R	C11	10n				
R12	12k	C12	100n				
R13	7.5k	C13	100n				
R14	100k	C14	100u				
R15	470k						
R16	100R						
R17	12k						
R18	33k						
R19	33k						
R20	390k						
R21	100k						
R22	12k						
R23	3.3k						

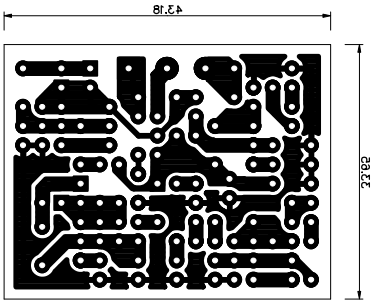
Violet Ram's Head							
Resistors		Capacitors		Semiconductors		Others	
R1	1M	C1	100n	D1	1N4148	Sustain	B100k
R2	33k	C2	470p	D2	1N4148	Tone	B100k
R3	100k	C3	100n	D3	1N4148	Volume	B100k
R4	470k	C4	100n	D4	1N4148		
R5	100R	C5	470p	D5	1N5817		
R6	12k	C6	100n	Q1	2N5088		
R7	560R	C7	100n	Q2	2N5088		
R8	8.2k	C8	470p	Q3	2N5088		
R9	100k	C9	100n	Q4	2N5088		
R10	470k	C10	4n				
R11	100R	C11	10n				
R12	12k	C12	100n				
R13	8.2k	C13	100n				
R14	100k	C14	100u				
R15	470k						
R16	100R						
R17	12k						
R18	33k						
R19	33k						
R20	470k						
R21	100k						
R22	12k						
R23	2.7k						

Green Russian / Civil War							
Resistors		Capacitors		Semiconductors		Others	
R1	1M	C1	100n	D1	1N4148	Sustain	B100k
R2	39k	C2	500p	D2	1N4148	Tone	B100k
R3	100k	C3	100n	D3	1N4148	Volume	B100k
R4	470k	C4	100n	D4	1N4148		
R5	390R	C5	500p	D5	1N5817		
R6	12k	C6	47n	Q1	2N5088		
R7	1k	C7	100n	Q2	2N5088		
R8	10k	C8	500p	Q3	2N5088		
R9	100k	C9	47n	Q4	2N5088		
R10	470k	C10	3.9n				
R11	390R	C11	10n				
R12	12k	C12	100n				
R13	10k	C13	100n				
R14	100k	C14	100u				
R15	470k						
R16	390R						
R17	12k						
R18	22k						
R19	20k						
R20	470k						
R21	100k						
R22	10k						
R23	2.7k						

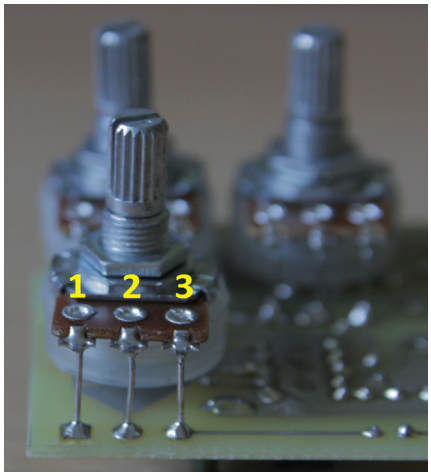
LAYOUT

Print out the PCB design without any resizing options and make sure you switch off the “fit to page” option. The design is free for personal/home use and you also may build one or two for your friends, but the PCB layout is my artwork, therefore protected by copyright and is not permitted to be used for commercial purposes. I’ve only created one layout, but with careful measurement and low profile parts it might fit into a 1590A box as well. Fitting it into a standard 1590B or 125B box should be easy-peasy.





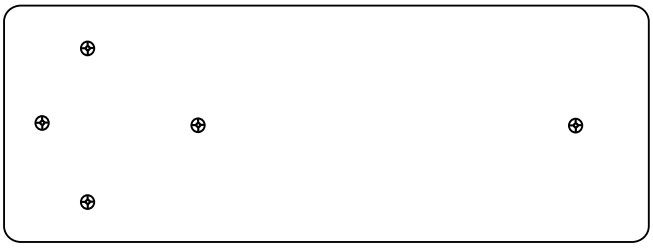
NOTES



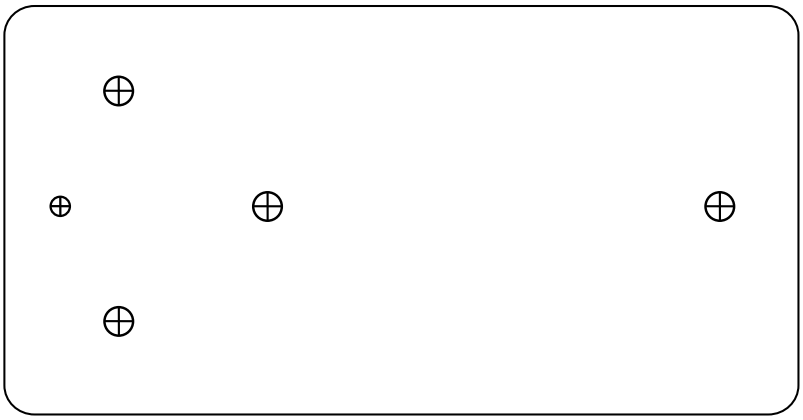
The Tone pot is mounted to the bottom of the board. The square pad marks the lug 1, for the numbering of the lugs see the picture. The Volume and Sustain pots are mounted off-board with wires.
With careful measurement, 9mm pots and low profile parts (especially the elecrtrolytic caps and the jacks) it should be possible to squeeze the effect into a 1590A box, but I have not tried it yet. In that case however all pots should be wired
off-board. The numbering is the same as on the picture.
As usual I always encourage people to try as many clipping diode configurations as possible where these are used. I have tried quite a few Big Muff relatives, some used LEDs and some even FETs as clipping diodes. The change is not huge, though in general the Ge and Schottky diodes tend to result too much compression for my taste.
LEDs give you a more open sound.
Changing the transistors gives you a bigger change in tone in my opinion. For me the winner is the good ole’ 2N5088 or if I want a more saturated and compressed sound, then the MPSA18. For the Russian versions I prefer the lower hFE transistors, think 2N2222A or similar.

DRILLING TEMPLATES

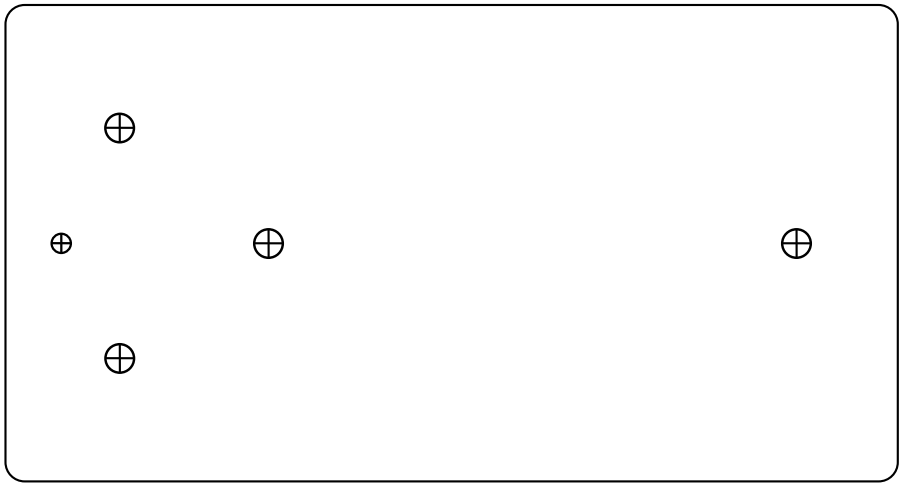
Here are three templates for the top of the box for the various box sizes. The design fits in both 1590B and 125B, however if you are less experienced you may find the 125B enclosure easier to work with. With careful measurement and low profile parts it might fit into the small 1590A enclosure as well.



1590A



1590B



125B