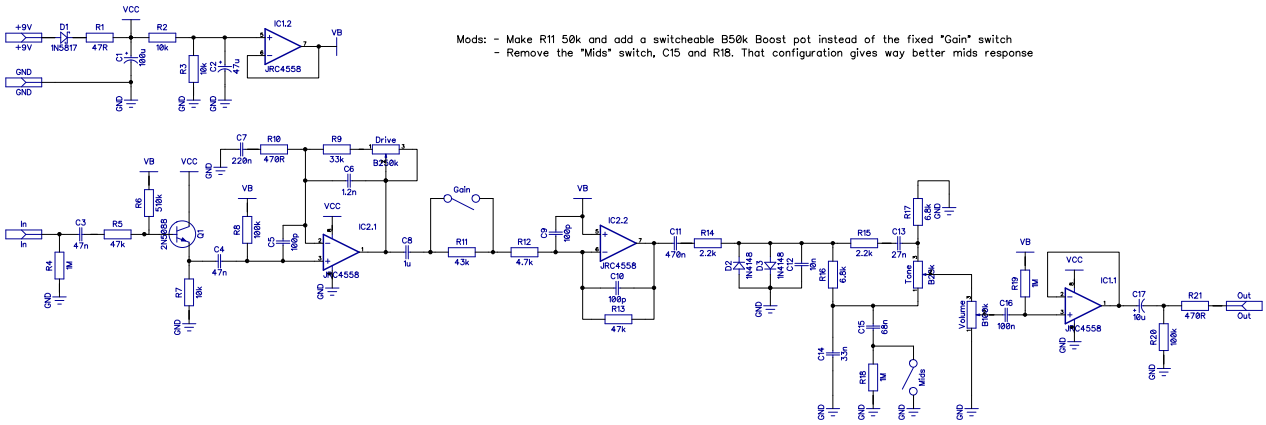
Return Of The Hedgehog

Based on Maxon SD9M
PCB artwork ©2016 drdFX
Release date: 2016.02.28.

The Return Of The Hedgehog is a clone of the Maxon SD9M pedal. The main characteristic of the sound is the relatively high amount of lows and a nice crunchy distortion. The additional Gain and Mids switches make this pedal more versatile than its predecessor the SD9 Sonic Distortion.

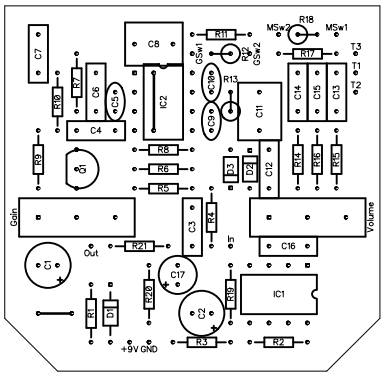
SCHEMATIC

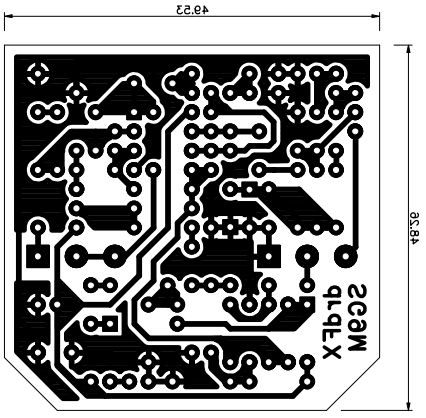


BOM							
Resistors		Capacitors		Semiconductors		Others	
R1	47R	C1	100u	D1	1N5817	Gain	B250k
R2	10k	C2	47u	D2	1N4148	Volume	B100k
R3	10k	C3	47n	D3	1N4148	Tone	B25k
R4	1M	C4	47n	Q1	2N5088	Gain Sw	SPST
R5	47k	C5	100p	IC1	JRC4558	Mids Sw	SPST
R6	510k	C6	1.2n	IC2	JRC4558		
R7	10k	C7	220n				
R8	100k	C8	1u				
R9	33k	C9	100p				
R10	470R	C10	100p				
R11	43k	C11	470n				
R12	4.7k	C12	10n				
R13	47k	C13	27n				
R14	2.2k	C14	33n				
R15	2.2k	C15	68n				
R16	6.8k	C16	100n				
R17	6.8k	C17	10u				
R18	1M						
R19	1M						
R20	100k						

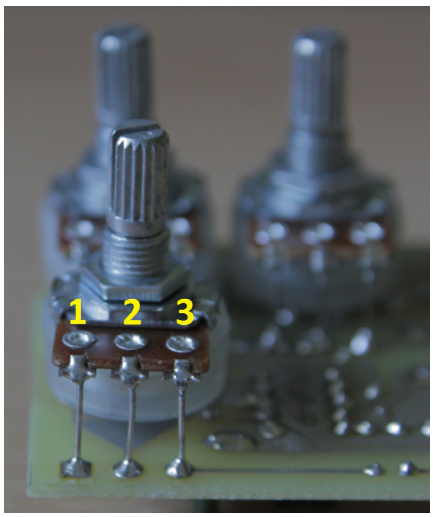
LAYOUT

Print out the PCB design without any resizing options and make sure you switch off the “fitto 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.





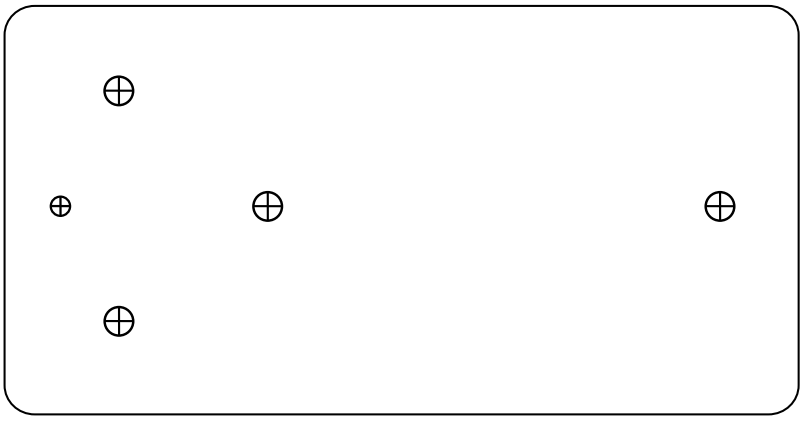
NOTES



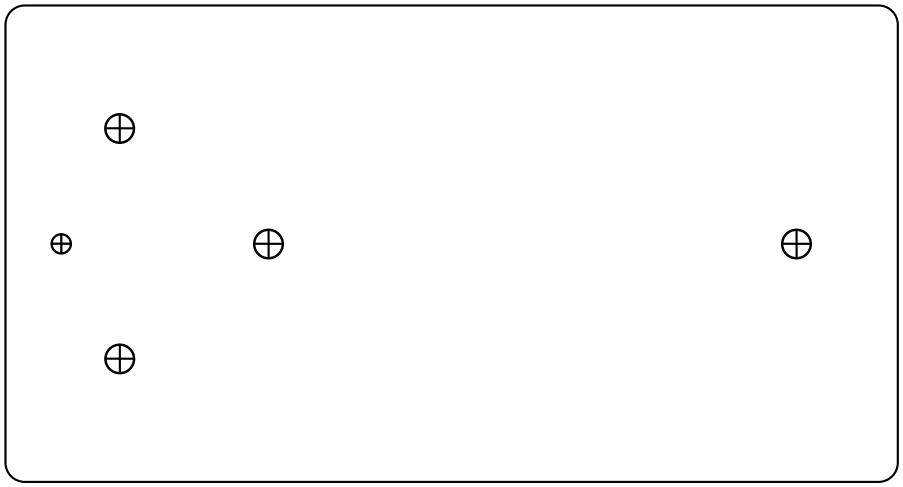
The Drive and Volume pots are board mounted to the bottom of the board. The square pads mark the lug 1, for the numbering of the lugs see the picture.
The Tone pot has simple pads for connecting with wires. The numbering is the same as on the picture. The switches are also connected with wires and you should leave enough space between the top pf the box and the PCB for the switches. The clipping diodes D2 and D3 are 1N4148/1N914 in the original in a symmetrical arrangement.
I have found an asymmetrical arrangement with one Si diode (e.g. 1N4148) and one 3mm red LED better. A slightly fuzzier sound can be achieved by using one Si diode and one Ge diode. Alternatively you can try a Schottky diode instead the Ge diode. Feel free to experiment.
The original used the common JRC4558 dual opamp chip, feel free to experiment with other types as well. Also the input buffer's transistor can be changed to almost any NPN type transistor, try whatever you have at hand, just take care of the pinout.

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. I have not marked the positions of the switches, put them wherever you feel them to be right.



1590B



125B