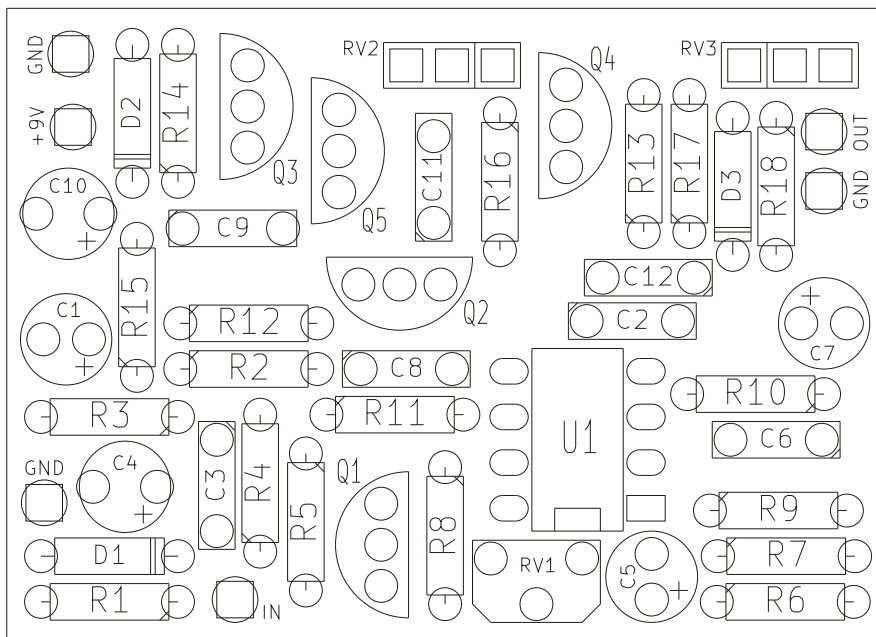
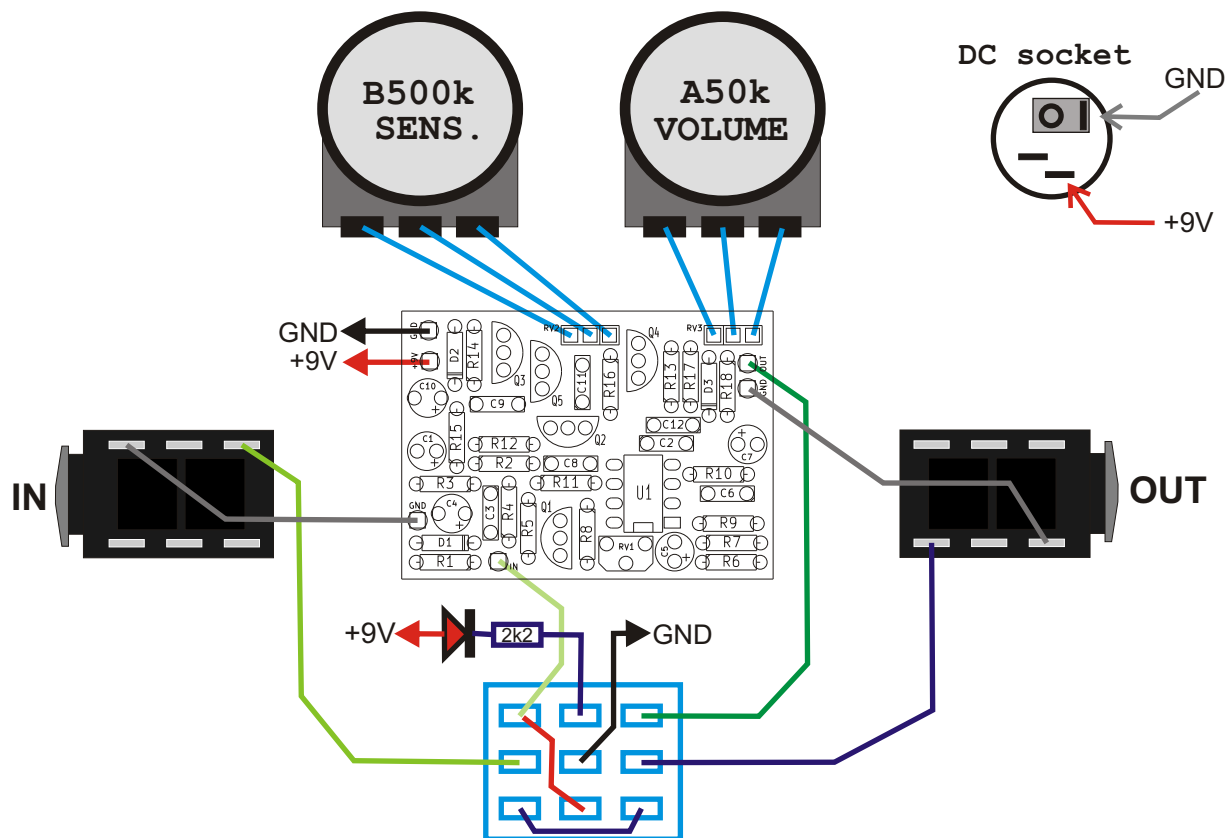


PCB parts placement diagram:



R1	2M2	RV1	2k.trim	D1	1N914
R2	56k	RV2	B500k	D2	1N914
R3	27k	RV3	A50k	D3	1N914
R4	10k			Q1	2N3904
R5	1M	C1	10u	Q2	2N3904
R6	10k	C2	10n	Q3	2N3904
R7	1M	C3	10n	Q4	2N3904
R8	470k	C4	1u	Q5	2N3904
R9	1M	C5	1u	U1	CA3080
R10	15k	C6	10n		
R11	150k	C7	1u		
R12	10k	C8	1n		
R13	10k	C9	10n		
R14	1M	C10	10u		
R15	150k	C11	10n		
R16	27k	C12	47n		
R17	1M				
R18	10k				

Wiring (bottom view):



Use metal enclosure connected to ground.

Power supply: 9V DC

Bill of materials:

Resistors:

2k2 1pcs. "LED"
 10k 5pcs. "R4 R6 R12 R13 R18"
 15k 1pcs. "R10"
 27k 2pcs. "R3 R16"
 56k 1pcs. "R2"
 150k 2pcs. "R11 R15"
 470k 1pcs. "R8"
 1M 5pcs. "R5 R7 R9 R14 R17"
 2M2 1pcs. "R1"

Potentiometers:

B500k 1pcs. "RV2"
 A50k 1pcs. "RV3"
 2k5 Trim 1pcs. "RV1"

Other:

Knobs 2pcs.
 Footswitch 3PDT 1pcs.
 DC socket 5.5/2.1 1pcs.
 JACK socket 2pcs.

Capacitors:

10n 5pcs. "C2 C3 C6 C9 C11"
 1n 1pcs. "C8"
 47n 1pcs. "C12"

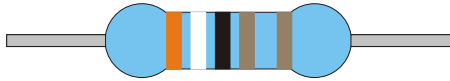
Electrolytic capacitors:

1u 3pcs. "C4 C5 C7"
 10u 2pcs. "C1 C10"

Semiconductors:

CA3080 1pcs. "U1"
 1N914 3pcs. "D1 D2 D3"
 2N3904 5pcs. "Q1 Q2 Q3 Q4 Q5"
 LED 1pcs.

Resistor color code:



$$390 \times 10\Omega = 3,9k\Omega$$

Color	Band 1	Band 2	Band 3	Multiplier	Tolerance
Black	0	0	0	1 Ω	
Brown	1	1	1	10 Ω	1%
Red	2	2	2	100 Ω	2%
Orange	3	3	3	1k Ω	
Yellow	4	4	4	10 k Ω	
Green	5	5	5	100 k Ω	0,5%
Blue	6	6	6	1 M Ω	0,25%
Purple	7	7	7	10 M Ω	0,1%
Gray	8	8	8	100 M Ω	0,05%
White	9	9	9	1 G Ω	
Gold				0,1 Ω	5%
Silver				0,01 Ω	10%

Capacitors markings:

$$\begin{aligned}
 471 &= 47 \times 10^1 \text{ pF} = 470 \text{ pF} \\
 472 &= 47 \times 10^2 \text{ pF} = 4700 \text{ pF} = 4,7 \text{ nF} \\
 473 &= 47 \times 10^3 \text{ pF} = 47000 \text{ pF} = 47 \text{ nF} \\
 474 &= 47 \times 10^4 \text{ pF} = 470000 \text{ pF} = 470 \text{ nF}
 \end{aligned}$$

$$\begin{aligned}
 100 \text{ pF} &= 100 \text{ p} = 100 = 101 \\
 220 \text{ pF} &= 220 \text{ p} = 220 = 221 \\
 4,7 \text{ nF} &= 4 \text{ n}7 = 0.0047 = 472 \\
 10 \text{ nF} &= 10 \text{ n} = 0.01 = 103 \\
 100 \text{ nF} &= 100 \text{ n} = 0.1 = 104 \\
 220 \text{ nF} &= 220 \text{ n} = 0.22 = 224 \\
 470 \text{ nF} &= 470 \text{ n} = 0.47 = 474 \\
 1000 \text{ nF} &= 1 \mu \text{F} = 1 \mu = 105
 \end{aligned}$$