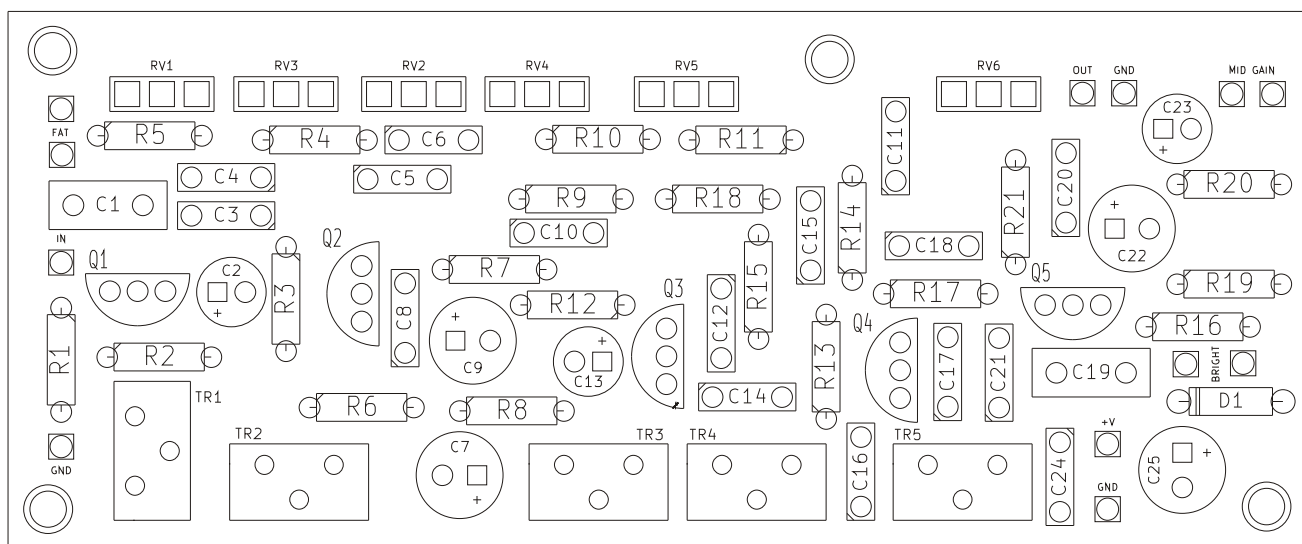
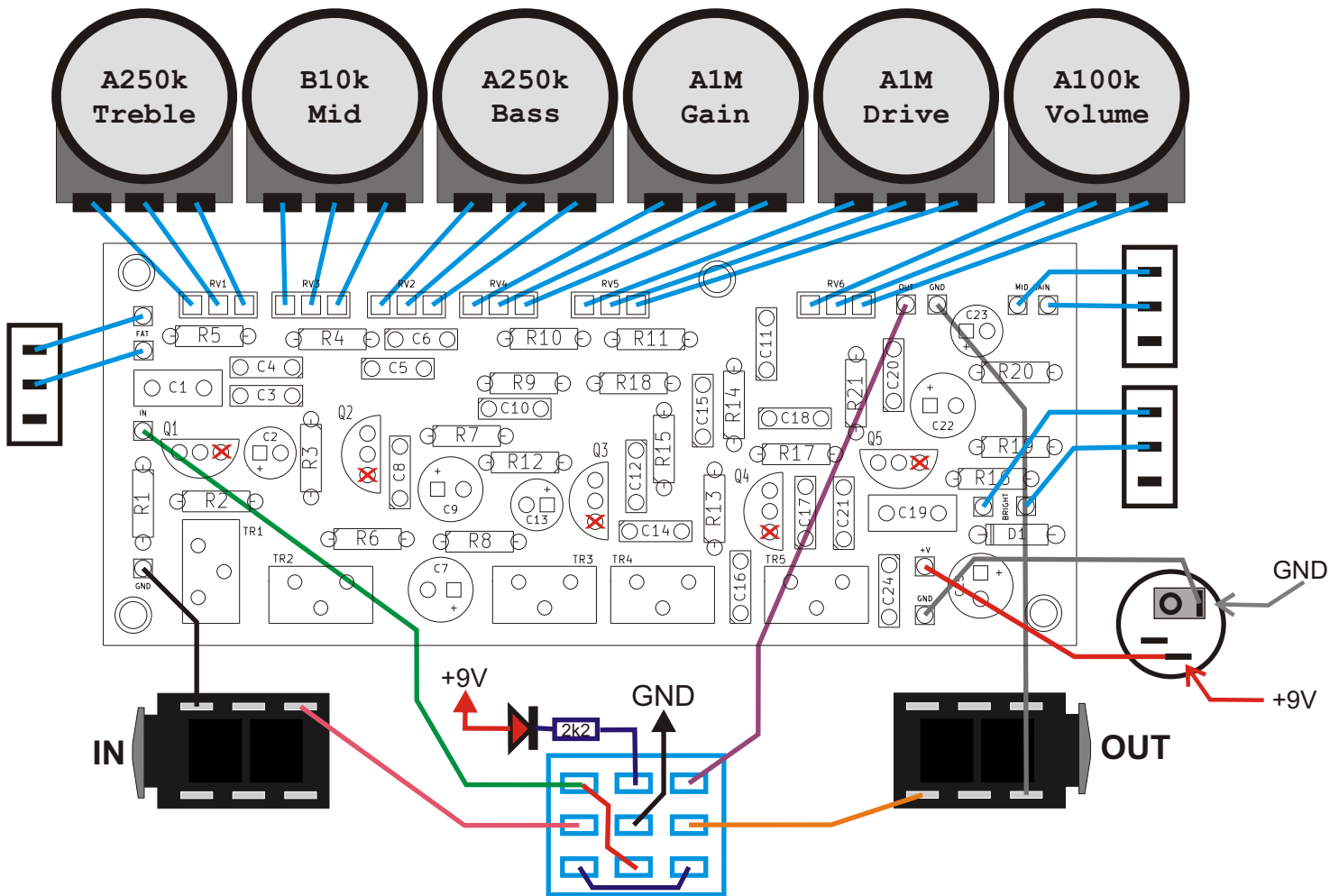


PCB parts placement diagram.



R1 1M	RV1 A250k	C10 22p	D1 400X
R2 1k5	RV2 A250k	C11 47p	Q1 j201
R3 22k	RV3 B10k	C12 120p	Q2 j201
R4 100k	RV4 A1M	C13 2u2	Q3 j201
R5 10M	RV5 A1M	C14 22n	Q4 j201
R6 1k5	RV6 A100k	C15 1n	Q5 j201
R7 100k	TR1 100k	C16 500p	
R8 100R	TR2 100k	C17 47n	
R9 3M3	TR3 100k	C18 240p	
R10 680k	TR4 100k	C19 220n	
R11 470k	TR5 100k	C20 500p	
R12 1k5	C1 470n	C21 47n	
R13 270k	C2 2u2	C22 15u	
R14 68k	C3 680p	C23 2u2	
R15 3k3	C4 220p	C24 100n	
R16 22k	C5 100n	C25 100u	
R17 22k	C6 47n		
R18 100k	C7 100uf		
R19 1k5	C8 47n		
R20 22k	C9 15uf		
R21 47k			

### 3. Wiring (bottom view).



Set voltage between 4-5V at pins marked "X".

#### Bill of materials:

##### Resistors:

1pcs. 2k2 "LED"  
 1pcs. 100R "R8"  
 4pcs. 1k5 "R2 R6 R12 R19"  
 1pcs. 3k3 "R15"  
 4pcs. 22k "R3 R16 R17 R20"  
 1pcs. 47k "R21"  
 1pcs. 68k "R14"  
 3pcs. 100k "R4 R7 R18"  
 1pcs. 270k "R13"  
 1pcs. 470k "R11"  
 1pcs. 680k "R10"  
 1pcs. 1M "R1"  
 1pcs. 3M3 "R9"  
 1pcs. 10M "R5"  
 5pcs. Trimpot "100k "TR1 TR2 TR3 TR4 TR5"

##### Potentiometers:

1pcs. B10k "RV3"  
 1pcs. A100k "RV6"  
 2pcs. A250k "RV1 RV2"  
 2pcs. A1M "RV4 RV5"

##### Semiconductors:

1pcs. LED  
 1pcs. 400X "D1"  
 5pcs. j201 "Q1 Q2 Q3 Q4 Q5"

##### Capacitors:

1pcs. 22p "C10"  
 1pcs. 47p "C11"  
 1pcs. 120p "C12"  
 1pcs. 220p "C4"  
 1pcs. 240p "C18"  
 2pcs. 500p "C16 C20"  
 1pcs. 680p "C3"  
 1pcs. 1n "C15"  
 1pcs. 22n "C14"  
 4pcs. 47n "C6 C8 C17 C21"  
 2pcs. 100n "C5 C24"  
 1pcs. 220n "C19"  
 1pcs. 470n "C1"

##### Electrolytic capacitors:

3pcs. 2u2 "C2 C13 C23"  
 2pcs. 15u "C9 C22"  
 2pcs. 100u "C7 C25"

##### Other parts:

6pcs. Knob  
 1pcs. Footswitch 3PDT  
 2pcs. Jack socket  
 1pcs. 5.5/2.1 DC socket  
 3pcs. MTS102 switch.

## Resistor color code:



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

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

## Capacitors markings:

$$471 = 47 \times 10^1 \text{ pF} = 470 \text{ pF}$$

$$472 = 47 \times 10^2 \text{ pF} = 4700 \text{ pF} = 4,7 \text{ nF}$$

$$473 = 47 \times 10^3 \text{ pF} = 47000 \text{ pF} = 47 \text{ nF}$$

$$474 = 47 \times 10^4 \text{ pF} = 470000 \text{ pF} = 470 \text{ nF}$$

$$100 \text{ pF} = 100 \text{ p} = 100 = 101$$

$$220 \text{ pF} = 220 \text{ p} = 220 = 221$$

$$4,7 \text{ nF} = 4 \text{ n}7 = 0.0047 = 472$$

$$10 \text{ nF} = 10 \text{ n} = 0.01 = 103$$

$$100 \text{ nF} = 100 \text{ n} = 0.1 = 104$$

$$220 \text{ nF} = 220 \text{ n} = 0.22 = 224$$

$$470 \text{ nF} = 470 \text{ n} = 0.47 = 474$$

$$1000 \text{ nF} = 1 \mu\text{F} = 1 \mu = 105$$