UMBLE V1.4

Runoffgroove's overdrive modeled after a Dumble amp

OVERVIEW

All credit for the circuit goes to http://runoffgroove.com. You will also find a lot of sound samples and documentation on their website.

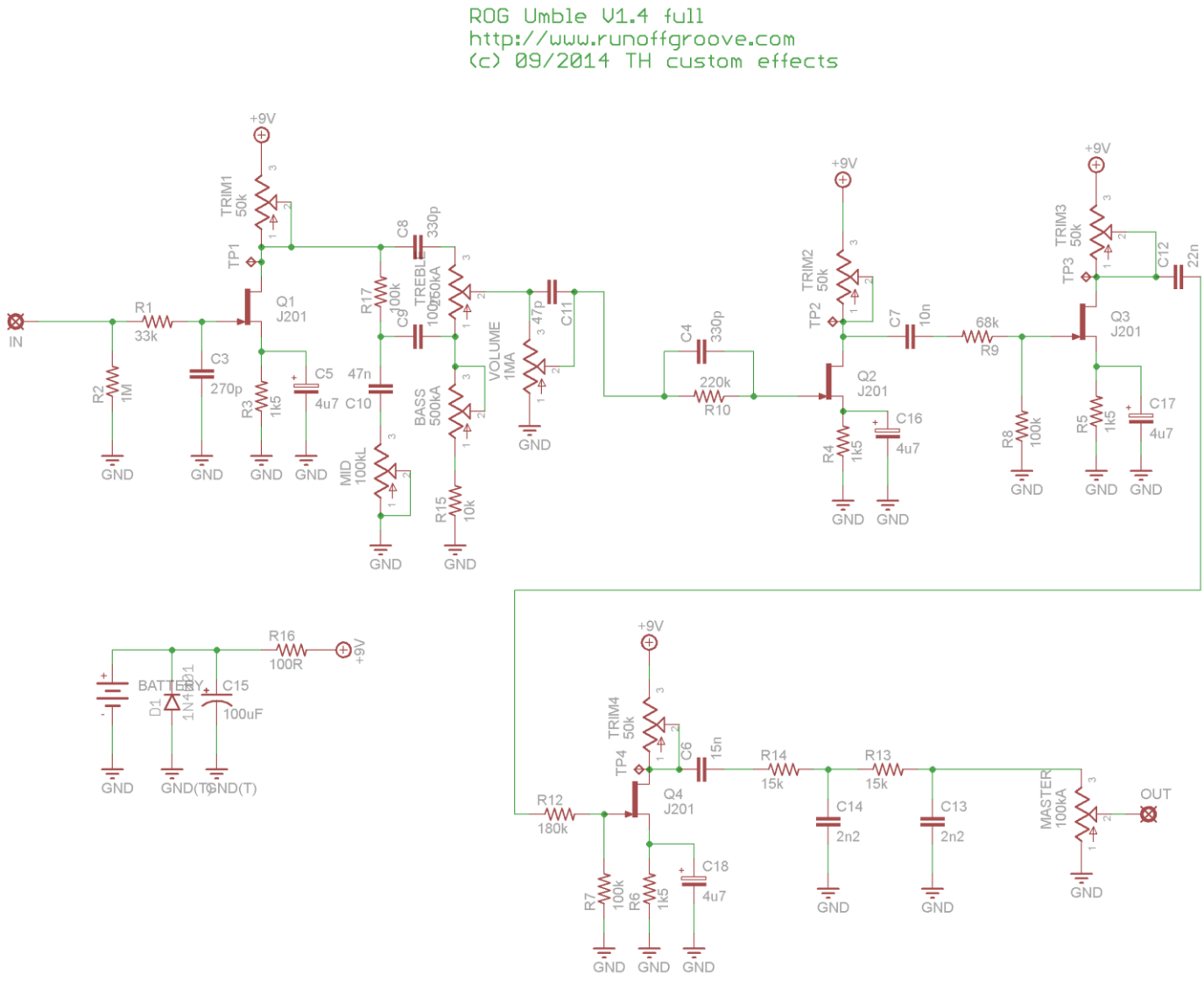
GENERAL

This is my attempt on an easy-to-use PCB for this great circuit. According to runoffgroove this is their approach to a Dumble-like overdrive. This has a very specific tonestack. It needed a little fiddling with the potentiometer tapers as it did sound weird in the beginning. But with the values listed in the BOM it has a very wide range of sound available.

Rev. 1.3 optimizes the position of the connection pads between the pots to allow easier wiring. Also the layout has testpoints for easier biasing of the JFETs.

Rev 1.4 allows to build the 100% original by runoffgroove. Leave off C16-C18 for the low-gain variant.

SCHEMATIC



BILL OF MATERIALS

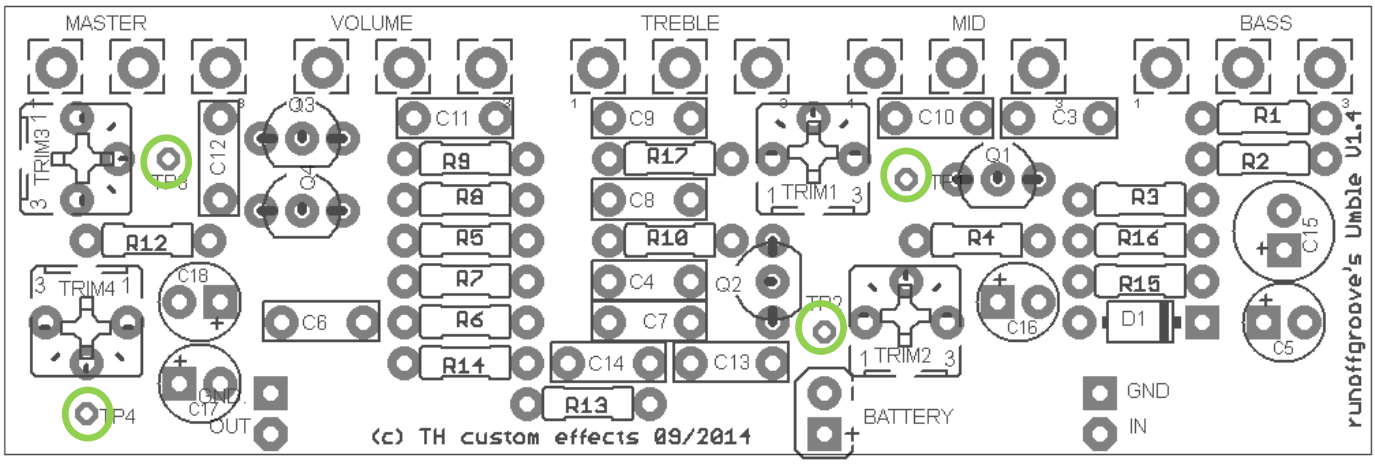
	Device#	*Qty*	*Value*	*Comment*
Resistors	R1	1	33k	
	R2	1	1M	
	R3,R4,R5,R6	4	1k5	
	R7,R8,R17	3	100k	
	R9	1	68k	
	R10	1	220k	
	R12	1	180k	
	R13,R14	2	15k	
	R15	1	10k	
	R16	1	100R	
Capacitors				
	C3	1	270p	ceram
	C4,C8	2	330p	ceram
	C5, C16*,C17*,C18*	4	4u7	polarized electro
	C6	1	15n	box film
	C7	1	10n	box film
	C9	1	100n	box film
	C10	1	47n	box film
	C11	1	47p	ceram
	C12	1	22n	box film
	C13,C14	2	2n2	box film
	C15	1	100u	polarized elektro
Diodes	D1	1	1N4001	
Transistors	Q1-Q4	4	J201	
Trimmer	TRIM1-4	4	50k	6mm
Pots	VOLUME(GAIN)	1	1M-log	16mm right-angle print
	MID	1	100k-lin	16mm right-angle print
	TREBLE	1	250k-log	16mm right-angle print
	BASS	1	500k-log	16mm right-angle print
	MASTER	1	100k-log	16mm right-angle print

There is no R11 and C1,C2.

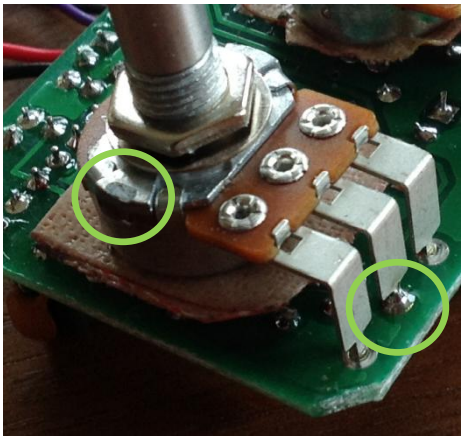
*Leave off the 4.7uF caps C16-C18 for the low gain variant.

BUILDING

Start populating the diode and resistors first. You want to socket the transistors. Put the sockets in next. Then go the trimmpots. Last are the ceramic and film box capacitors, then the electrolytic.



Make sure you wire the board before you mount the pots in as due to the small size of the board the wire holes will be hidden underneath the pots!



The board mounted pots need to go onto the other side of the board. Use some (double-sided) tape to make sure the pot cases do not shorten any pins that come through the board. As you solder them it is good practice to apply some solder to the middle pin first, then pull it back approx. 1mm and let it harden. Then solder the other pins. This will align the pot horizontally in a better way and avoid shortcuts of the wide pot pins and the board.

Don’t forget to clip of the small bracket before you mount the circuit.

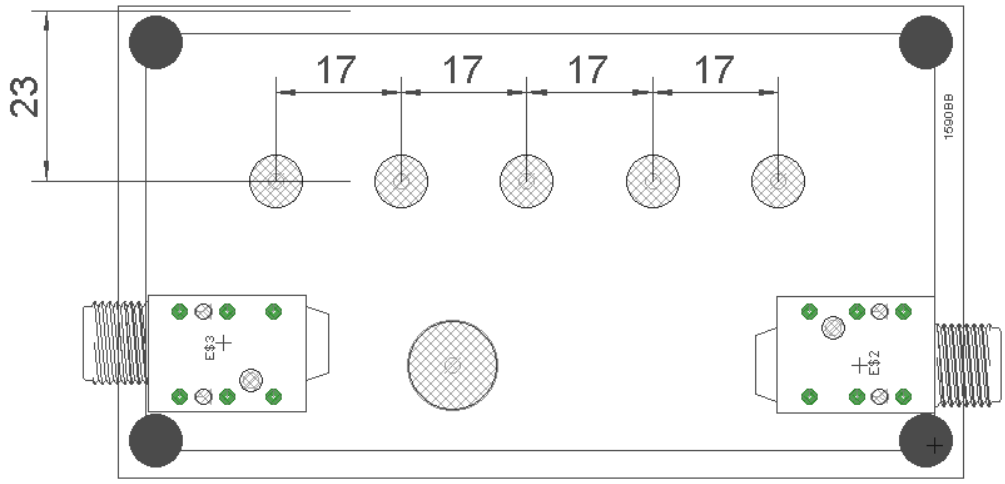
BIASING:

As there are four transistors you will have difficulty adjusting this by ear. Please use a multimeter and check that the transistor drain voltage is close to 5V for the J201s (Q1-Q4).
To do this connect your multimeter to ground and tip the testpoints TP1-TP4 to measure the voltage. Use The Trimmers TRIM1-4 to adjust it.

ENCLOSURE

Drilling a 1590B enclosure (measurements in mm)

Check your printout for correct measurements before drilling!



FINALLY

Once you managed biasing this circuit you a very unique amp with a wide range of tonal possibilities. Have fun!

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