

# Bill of Materials

## mbrennwa Jan-2017

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These part values are based on the [build guide for version V2.0](#), the version V2.4 schematic, and a few small modifications as described in the comments.

Part	Value / Description	Comments
<b><u>Transistors</u></b>		
Q1, Q2	SS9014	
Q3, Q4, Q7, Q8	KSC1845	
Q5, Q6, Q9	KSA992	
Q10	MJE350	
Q11, Q12, Q13	MJE340	
Q14	MJE15032	
Q15	MJE15033	
Q16, Q17, Q18	MJL4281	Higher SOA than standard choice in build guide
Q19, Q20, Q21	MJL4302	Higher SOA than standard choice in build guide
<b><u>Diodes</u></b>		
D1, D2	1N914	
D3 (Cascode voltage reference)	1N4744A	Omit R18 and replace it with Zener diode (D3), use jumper "C-Z" (cascode / current mirror)
D4, D5, D8, D9	1N5408	
D6	LED red 3mm	
D7	LED blue 3mm	
BAKER CLAMP "D-BC" DIODE	BAV21	
<b><u>Resistors</u></b>		
R1, R52	100 k $\Omega$ / 0.25 W	
R2, R5, R22, R24	820 $\Omega$ / 0.25 W	
R3, R6	22 k $\Omega$ / 0.25 W	22 k $\Omega$ for lower overall gain (more feedback): gain = $1+(R6/R5) = 27.8$ *** measured (150 Hz sine): V-in = 0.342 VAC, V-out = 9.1 VAC ==> gain = $9.1/0.342 = 26.6$
R4	4.7 $\Omega$ / 0.25 W	
R7	200 $\Omega$ multi turn trimmer	

R8, R9, R15, R16, R26	100 $\Omega$ / 0.25 W	
R10	22 $\Omega$ / 0.25 W	
R11	10 k $\Omega$ / 0.25 W	
R12	10 k $\Omega$ / 0.25 W	
R13	15 k $\Omega$ / 0.25 W	
R14, R28	2.2 k $\Omega$ / 0.25 W	
R17	1 k $\Omega$ multi turn trimmer	
R51	22 k $\Omega$ / 0.25 W	
R19	68 k $\Omega$ / 0.25 W	
R20, R21, R25	220 $\Omega$ / 0.25 W	
R23	47 $\Omega$ / 0.25 W	
R24	1.5 k $\Omega$ / 0.25 W	
R26	10 $\Omega$ / 0.25 W	
R27	51 $\Omega$ / 0.25 W	For approx. 10 mA current in "big" CCS
R29	680 $\Omega$ / 0.25 W	
R30	500 $\Omega$ multi turn trimmer	
R31	15 $\Omega$ / 0.25 W	
R32, R33, R34, R35	22 $\Omega$ / 0.5 W	
R53, R54	22 $\Omega$ / 0.5 W	
R36	150 $\Omega$ / 1 W	
R37, R38, R39, R40, R41, R42	2.2 $\Omega$ / 0.5 or 1 W	
R43, R44, R45, R46, R47, R48	0.22 $\Omega$ / 3 or 5 W	KOA Speer seem to be the same thing as KIWAME
R49, R50	10 $\Omega$ / 3 W	

### Capacitors

C1	MKP, 4.7 $\mu$ F / 35- 50V	Audio input capacitor
C2	Silver Mica, 270pf / 50V - 100V	
C3, C10, C12, C14, C16, C21	MKP, 100nf / 63V - 100V (C21: 250V)	C3: bypass for C4
C4	Non-Polar Electrolytic , 220uf / 50V - 100V	Feedback loop

C5	Electrolytic, 100 $\mu$ F / 63V - 100V	
C6	Film, 220nf / 35V - 50V	
C7	Silver Mica, 100pf / 300V - 500V	
C8	Silver Mica, 470pf / 300V - 500V	
C9	Electrolytic, 22uf / 35V - 50V	
C11, C15	Electrolytic, 220uf / 63V - 100V	
C13, C17	Electrolytic, 470uf - 1000uf / 63V - 100V	
C18, C19	Silver Mica, 47pf / 300V - 500V	
C20	Film, 680nf - 2.2uf / 100V	
LC Cap	Silver Mica, 5pf / 300V - 500V	Don't install the LC cap, the amp sounds better without it