

**Millett "Starving Student" Hybrid Headphone Amplifier - Bill of Materials**

Item	Qty	Ref Des	Value	Description	Vendor	Vendor PN	Cost Ea.	Cost Ext.	Notes
1	4	C1,C3,C5,C6	150uF 63V	150uF 63V low-ESR electrolytic capacitor	Mouser	647-UHE1J221MPD	\$0.40	\$1.60	Any value >= 150uF, voltage >= 63V
2	2	C2,C4	0.1uF 63V	0.1uF 63V film capacitor	Mouser	539-150104K100AA	\$0.39	\$0.78	0.1uf - 0.22uF, 63V or higher
3	1	J1	PWRJACK	Power jack 2.5mm pin	Mouser	163-1100-EX	\$0.88	\$0.88	
4	1	J2	RCA red	RCA jack red insulator	Mouser	161-1002	\$0.69	\$0.69	You can use a single 1/8" stereo jack instead of the two
5	1	J3	RCA blk	RCA jack black insulator	Mouser	161-1004	\$0.69	\$0.69	RCA jacks if you want (for iPod input)
6	1	J4	PHONEJACK	1/4" stereo heqadphone jack	Mouser	568-NYS230	\$1.09	\$1.09	Could use 1/8" jack if you want
7	2	Q2,Q1	IRF510	Power MOSFET IRF510	Mouser	844-IRF510PBF	\$0.53	\$1.06	Can use others, TO-220 package, 100V
8	1	RV1	50k pot	Dual 50k audio taper pot	Mouser	313-1240F-50K	\$3.16	\$3.16	Can use others, stereo, 50k - 100k
9	2	R1,R7	33k	33k 5% 1/4W carbon film resistor	Mouser	660-CFS1/4CT52R333J	\$0.03	\$0.06	Metal film or carbon comp OK too
10	4	R2,R4,R8,R10	240k	220k 5% 1/4W carbon film resistor	Mouser	660-CFS1/4CT52R224J	\$0.03	\$0.12	200k - 300k, Metal film or carbon comp OK too
11	7	R3,R5,R6,R9,R11,R12,R13	2k	2k 5% 1/4W carbon film resistor	Mouser	660-CFS1/4CT52R202J	\$0.03	\$0.21	Metal film or carbon comp OK too
12	1	SW1	SW DPST	Rocker power switch	Mouser	540-RR22H3FBRNN	\$0.96	\$0.96	Other types are fine, only need SPST
13	2	V1,V2	19J6	Tube, 19J6	Radiodaze/Ebay	19J6	\$2.25	\$4.50	www.radiodaze.com, tube dealers, or ebay
14	2	@V1, @V2	--	7-pin miniature tube socket, top chassis mount	Radiodaze/Ebay	SKT7-M1	\$1.00	\$2.00	www.radiodaze.com, tube dealers, or ebay
15	2	@Q1, @Q2	--	Heatsink	Mouser	567-657-15ABP	\$1.40	\$2.80	Extruded, 2" tall x 1.65" x 1", for TO-220
16	1	@RV1	--	Transistor mounting hardware	Mouser	532-4880	\$0.77	\$1.54	Includes insulator, washer, screw, nut
17	1	--	--	knob	Mouser	550-67003	\$0.49	\$0.49	Other colors/styles available
18	1	--	--	48V 18W AC/DC adapter	Ebay	Cisco PSA-18U	\$6.95	\$6.95	Look for Cisco PSA-18 on Ebay
19	2	--	--	Bare PCB material	Mouser	590-506	\$4.06	\$4.06	Optional - you can wire the ground instead
19	2	--	--	Terminal strip (solder tag strips) 4 pos.	Mouser	534-812	\$0.55	\$1.10	Keystone #812 or equivalent, or improvise (4 terminals w/ 1 GND)
19	1	--	--	Terminal strip (solder tag strips) 2 pos.	Mouser	534-803	\$0.46	\$0.46	Keystone #803 or equivalent, or improvise (2 terminals w/ 1 GND)
20	4	--	--	4-40 x 1/4" screws	hardware store		\$0.05	\$0.20	For mounting tube sockets
21	4	--	--	4-40 nuts	hardware store		\$0.05	\$0.20	For mounting tube sockets
22	2	--	--	Rubber grommet for 3/8" hole	hardware store		\$0.10	\$0.20	Optional - for wires going to FETs
23	1	--	--	Chassis	Recycled		\$0.00	\$0.00	Be creative! I used a box that a wallet came in...

Total:

\$35.80