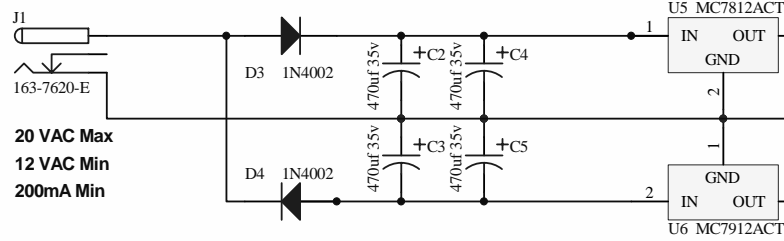
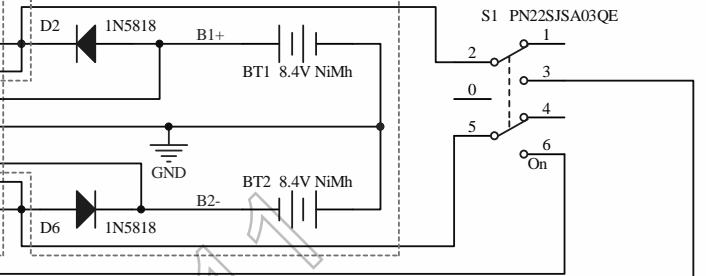


Optional AC Power Supply (omit for battery only operation)

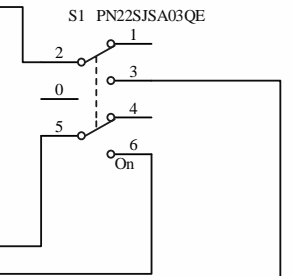


20 VAC Max
12 VAC Min
200mA Min

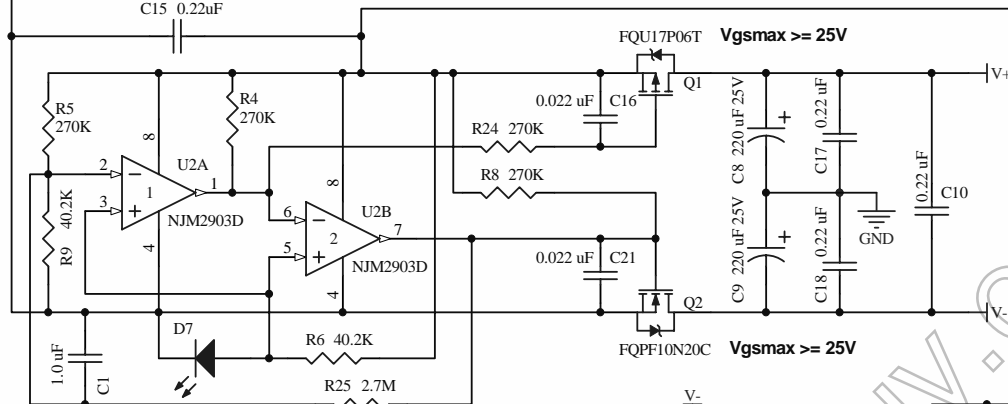
Battery Power (omit for AC only operation)



Power Switch (do not switch AC)



Power Management - Required For AC & Battery Operation - Do Not Omit



O₂ (Objective 2) v1.1 Headphone Amplifier

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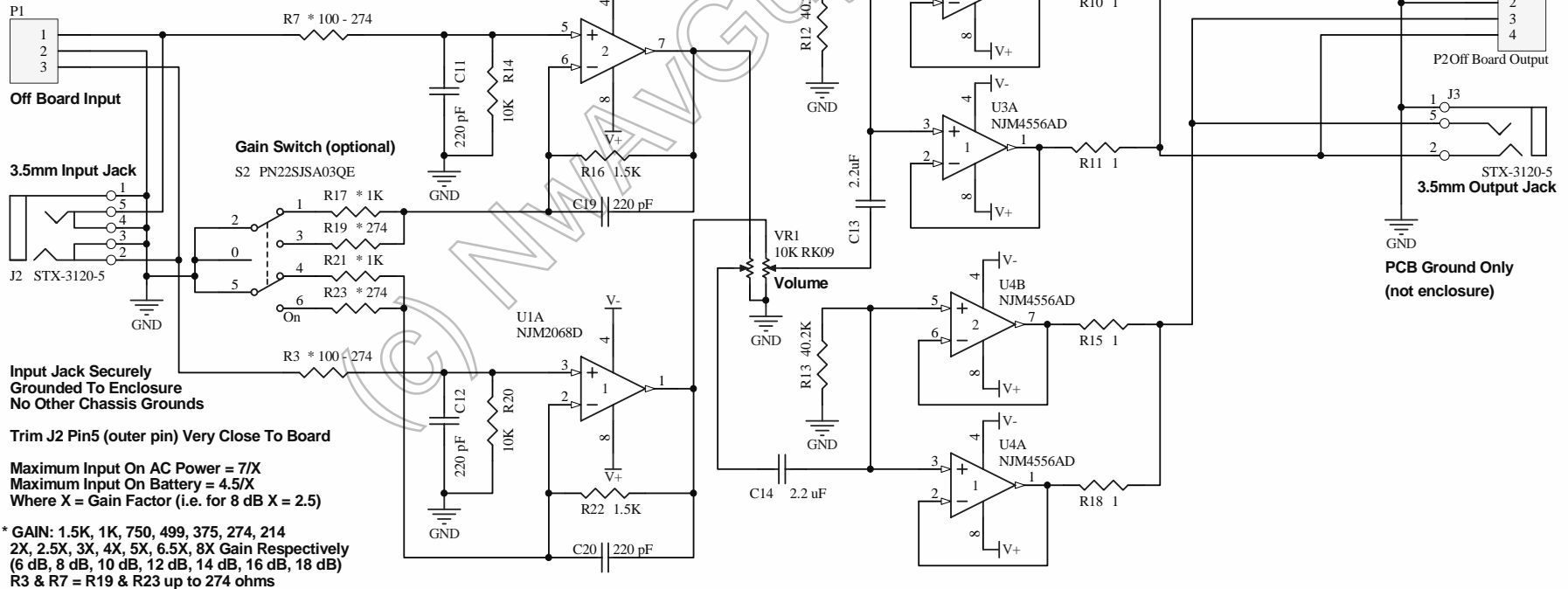
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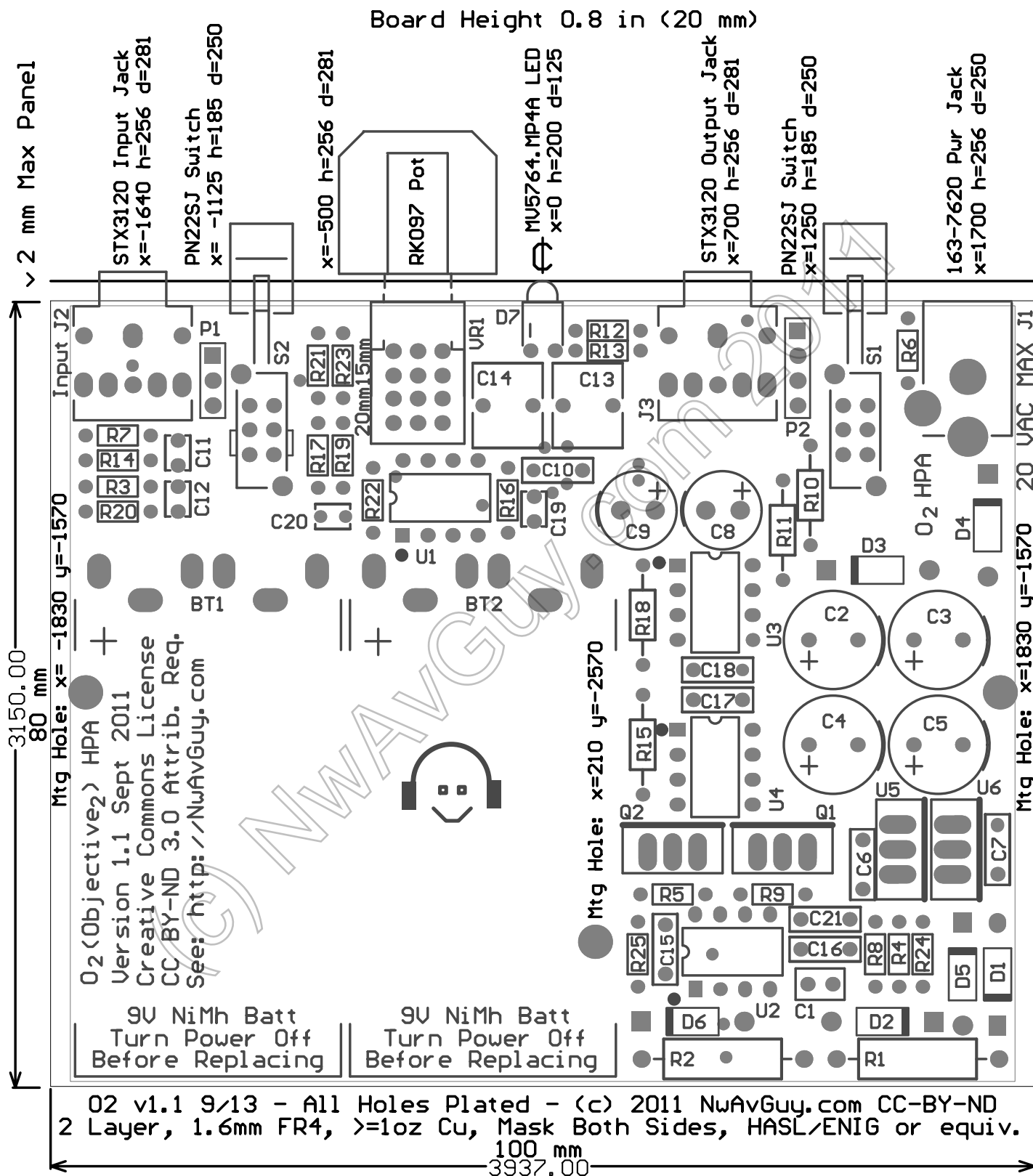
Do Not Substitute LED - See Docs

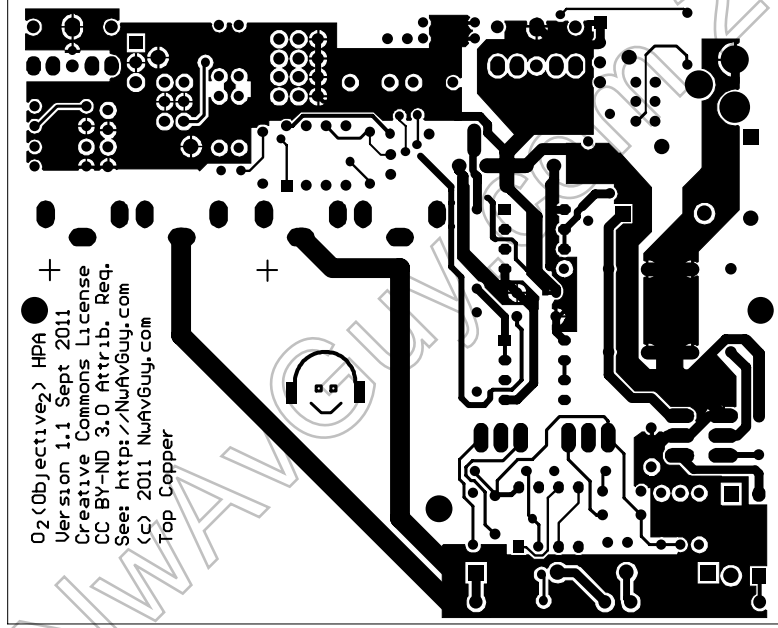


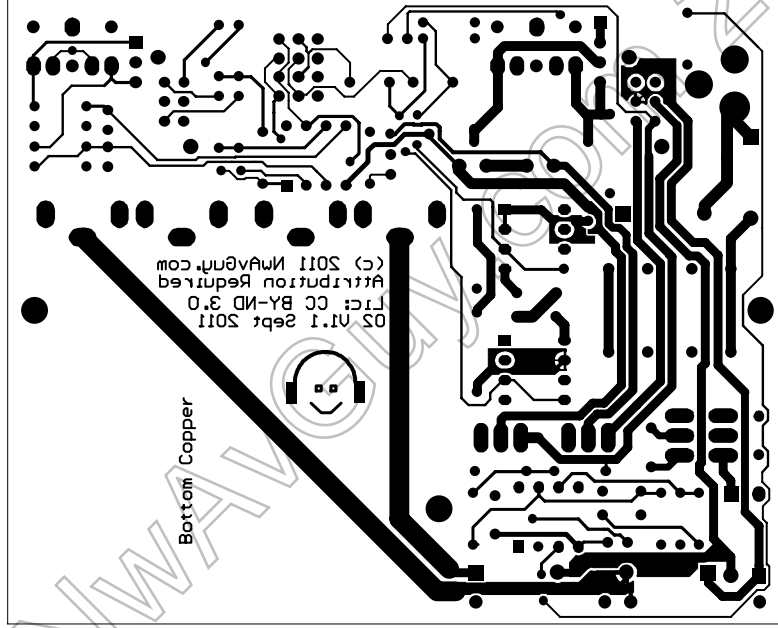
* GAIN: 1.5K, 1K, 750, 499, 375, 274, 214
2X, 2.5X, 3X, 4X, 5X, 6.5X, 8X Gain Respectively
(6 dB, 8 dB, 10 dB, 12 dB, 14 dB, 16 dB, 18 dB)
R3 & R7 = R19 & R23 up to 274 ohms

Output 16 - 600 Ohms
~7 V RMS ~200 mA Max

PCB Ground Only
(not enclosure)







Qty	Description	Mfg Part Number	Mfg	Reference	Unit	Ext	Mouser Part Number	Qty	Notes
2	Rectifier Diode DO-41/DO-204 >= 100V >= 1 Amp	1N4002-E3/73	Vishay	D3, D4	0.04	0.08	625-1N4002-E3/73	2	Any 1N4002 in DO-41 or DO-204AL package
4	Schottky Diode DO-41/DO-204 >= 30V >= 1 Amp	1N5818	ST Micro	D1, D2, D5, D6	0.12	0.48	511-1N5818	4	Any 1N5818 in DO-41 or DO-204AL package
1	High Efficiency Red Right Angle LED Indicator	MV5764.MP4B	Everlight	D7	0.31	0.31	638-MV5764.MP4B	1	MV5364MP4 (yellow), Avago HLMP-1301 see docs before using a different LED
1	P Ch MOSFET Vgs > 24V Vds > 25V Rds < 0.5 ohms IPAK GDS	FQF11P06TU	Fairchild	Q1	0.71	0.71	512-FQF11P06TU	1	Fairchild FQF11P06TU, FQFP11P06, FQFP15P12 IPAK or TO220F see docs
1	N Ch MOSFET Vgs > 24V Vds > 25V Rds < 0.5 ohms IPAK GDS	FQPF10N20C	Fairchild	Q2	0.78	0.78	512-FQPF10N20C	1	Fairchild FQPF68N06, IRF14228PBF, STP14NK50ZFP TO220F see docs
1	Dual Channel Comparator DIP8	NJM2903D	JRC	U2	0.39	0.39	513-NJM2903D	1	LM2903N, (National, Fairchild, etc.)
1	Dual Low Noise Audio Op Amp DIP8	NJM2068D	JRC	U1	0.39	0.39	513-NJM2068D	1	NJM2068DD (qulefer), NE5532AP (noisier), OPA2277PA (low power see docs)
2	Dual High Current Audio Op Amp DIP8	NJM4556AD	JRC	U3,U4	0.57	1.14	513-NJM4556AD	2	NJM4556ADD (TLE2062CP low power substitute see docs)
1	12 Volt Positive Fixed Regulator TO-220	MC7812ACTG	On Semi	U5	0.47	0.47	863-MC7812ACTG	1	MC7812ACTG (higher tolerance \$0.47) LM7812ACT (MC7809 optional for AC only)
1	12 Volt Negative Fixed Regulator TO-220	MC7912ACTG	On Semi	U6	0.47	0.47	863-MC7912ACTG	1	MC7912ACTG (slightly lower noise \$0.47) (MC7909 optional for AC only see docs)
4	9 Pin DIP IC Socket	4808-3004-CP	3M	N/A	0.13	0.52	517-4808-3004-CP	4	Tyco 1825379-2 (gold upgrade)
2	Male Battery Terminal	12BC210-GR	Eagle	BT1, BT2	0.22	0.44	534-593	2	Keystone 593 should work or Keystone 237 593/594 must be used in pairs (see docs)
2	Female Battery Terminal	12BC220-GR	Eagle	BT1, BT2	0.22	0.44	534-594	2	Keystone 594 should work or Keystone 237 593/594 must be used in pairs (see docs)
2	3.5mm Stereo Phone Jack 5 pin w/ Switch (light BLUE!)	STX-3120-5B-284C	Kycon	J2, J3	0.69	1.38	806-STX-31205B284C	2	STX-3120-5B (black), STX-3120-5B-577C (green PC output color)
1	5.5 x 2.1mm DC Power Jack (note 2)	163-7620-E	Kobiconn	J1	0.63	0.63	163-7620-E	1	CUI PJ-002A, (for 2.5mm wall adapter plug use Kobiconn 163-7625-E)
2	DPDT Pushbutton Switch	PN22SJNA03QE	C&K	S1	0.95	1.90	611-PN22SJNA03QE	2	PN22SJNA03QE
2	Button for above	G003A	C&K	N/A	0.29	0.58	611-G003A	2	G009G (Gray) G003R (Red)
6	0.22 uF MKT/MKS Film Cap >=50V 2.5x7.2mm 5mm LS	B32529C224K	Epos	C6, C7, C10, C15, C17, C18	0.14	0.84	871-B32529C224K	6	Kemet R82DC3220AA60K, Wima MKS2C03221B00JSSD
2	0.022 uF Ceramic >= 50V <= 2.5mx7.2mm 5mm LS	SR211E223MAA	AVX	C16, C21	0.20	0.40	581-SR211E223MAA	2	TDK FK28X7R1H223K, Kemet C322C223M5R5CA (non critical part)
4	220 pF Stacked COG Cap <= 20% >= 50 V 2.5mm LS	K221J15C0GHS12L	Vishay	C11, C12, C19, C20	0.06	0.24	594-K221J15C0GHS12L	4	AVX SR151A221JAR, Xicon 21RD622-RC
2	>=2.2uF >=50 V Stacked Film Cap <= 7.2 x 7.2 x 13mm h 5mm LS	MMK5225K63J06L4BULK	Kemet	C13, C14	0.78	1.56	80-MMK5225K63J06L4	2	Wima MKS2B042201F00KSSD, MMK5225K63J06L4 (105K50 - 605K50 or 105K63 - 225K63)
1	1.0 uF >= 25V MLC Capacitor 5mm x 3.2 mm 2.5mm LS	K105Z20V5VF5TL2	Vishay	C1	0.13	0.13	594-K105Z20V5VF5TL2	1	TDK FK14Y5V1H105Z (non critical part as long as it will fit in the space)
4	470 uF 35v 10mm dia 16mm high 5mm LS	UVR1V471MPD1	Nichicon	C2, C3, C4, C5	0.08	0.32	647-UVR1V471MPD1TD	4	Epos B41827A4777M000, Pana ECA-1VM471B
2	220 uF 25v Low ESR 8mm dia x 15 mm high 3.5 mm LS	UPW1E221MPD	Nichicon	C8, C9	0.29	0.58	647-UPW1E221MPD	2	UPJ1E221MPH, United Chem EKY-250ELL221MHB5D, Panasonic EEU-FM1E221
2	220 - 270 Ohms >=1 Watt <= 10% Metal Oxide < 13mm	MOS1CT52R221J	KOA	R1, R2	0.09	0.18	660-MOS1CT52R221J	2	Xicon 281-220-RC, 281-240-RC, 281-270-RC (see docs)
4	1 Ohm >= 1/4 Watt 1% Metal Film < 7.3mm	MF1ADC1R00F	KOA	R10, R11, R15, R18	0.06	0.24	660-MF1ADC1R00F	4	KOA MF1/4DCT52R1R00F, Vishay CPF11R000FKE14
2	10K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	CCF5010K0FKE36	Vishay	R14, R20	0.09	0.18	71-CCF5010K0FKE36	2	Vishay RN50C1002FRE6 (mil spec upgrade non RoHS), Xicon 270-10K-RC
2	1.5K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0001501FR500	KOA	R16, R22	0.06	0.12	594-SFR16S0001501FR5	2	KOA MFS1/4DCT52R1501F, Vishay RN50C1501FB14 (upgrade) (add 2 more for 2X gain)
2	1K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	MRS16000C1001FRP00	Vishay	R17, R21	0.12	0.24	594-MRS16000C1001FRP	2	Vishay RN50C1001FRE6 (upgrade) KOA MFS1/4DCT52R1001F (1K = 2.5X gain)
4	274 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0002740FR500	Vishay	R3, R7, R19, R23	0.06	0.24	594-SFR16S0002740FR5	4	Vishay RN50C2740FRE6 (mil spec upgrade non RoHS), Xicon 270-274-RC (6.5X high gain)
4	270K Ohm >= 1/8 Watt 1% Metal Film < 3.9mm	270-270K-RC	Xicon	R4, R5, R8, R24	0.15	0.60	270-270K-RC	4	Xicon 270-267K-RC, 290-270K (5%)
4	40.2K Ohm >= 1/8 Watt 1% Metal Film < 3.9mm	SFR16S0004022FR500	Vishay	R6, R9, R12, R13	0.06	0.24	594-SFR16S0004022FR5	4	Xicon 270-40.2K-RC
1	2.74 Meg 1/8 Watt <= 5% Film 1.9mm < 3.9mm	270-2.74M-RC	Xicon	R25	0.11	0.41	270-2.74M-RC	1	Xicon 299-2.7M-RC, Stackpole CF18J1T2M70
1	10K 9mm Dual Audio Potentiometer 20 x 6mm or 15 x 6mm shaft	RK091712200MC	Alps	VR1	1.80	1.80	688-RK091712200MC	1	Alps RK091712200T, RK091712200HA, RK091712200MY, Bourns PTD902-2020F-A103 see docs
1	Volume Knob 6mm "D" Shaft 12mm depth (green line)	450-BA461	Eagle	N/A	0.60	0.60	450-BA461	1	450-BA261 (yellow line), BA761 (white) BA161 (red), Metal Kilo OEJL-63-3-7 (DigiKey)
1	O2 Custom PC Board 100mm x 80mm	TBD	TBD	N/A	9.00	9.00	Not Mouser	1	Estimate Price With Shipping (USA)
79 SUB TOTAL WITHOUT AC ADAPTER, BATTERIES, OR ENCLOSURE:						\$28.75			
1	14-20 VAC >= 200 mA Wall Transformer 2.1 x 5.5 mm 13.5 VAC min	WAU12-200	Triad	N/A	5.55	5.55	553-WAU12-200	1	412-218054, WAU20-200, WAU16-400, WAU16-1000 CUI EPA160025-P5-SZ see docs!
2	8.4V NiMH >= 170 mAh "9 volt" Rechargeable Battery	200 or 250 MAH	Tenergy	BT1, BT2	5.49	10.98	eBay (all-battery)	2	incl. shipping, Gold Peak GP17R8H \$9 ea Mouser, other options on eBay, etc.
1	Extruded Aluminum Enclosure 100x80x30mm (Sil=Silver, BK=black)	B2-080SI	BoxEnclosures	N/A	10.59	10.59	Allied Electronics	1	BK black, GD gold, GR greed, RD reds Boxenclosures.com (B3-080 for desktop)
1	Machined Front Panel	N/A	FP Express	N/A	16.65	16.65	Front Panel Express	1	Lettering costs more, customize with FPE software, B3-080 needs larger panel
TOTAL COMPLETE AMP (less shipping)						\$72.50			
Estimated Shipping Costs (USA)						\$26.00			\$9 Mouser, \$10 Allied, \$7 Front Panel Express
TOTAL OF ALL COSTS						\$98.50			
GAIN RESISTORS									
1	>= 8 pin SIP Socket to accept 0.015 in diameter leads	10-0518-10	Aries	N/A	1.41	1.41	535-10-0518-10	1	10 pin SIP cuttable pin socket (8 pins needed) to socket gain resistors (solderless gain change)
2	133 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	270-133-RC	Xicon	R19, R23	0.15	0.30	270-133-RC	2	Vishay Mil Spec Lower Noise Upgrade RN50C1330FB14 \$1.19 each (~12X gain)
2	165 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	270-165-RC	Xicon	R19, R23	0.15	0.30	270-165-RC	2	Vishay Mil Spec Lower Noise Upgrade RN50C1620FB14 \$1.19 each (10X gain)
2	200 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	CCF50200RFRK36	Vishay	R19, R23	0.09	0.18	71-CCF50-200	2	Xicon 270-200-RC (for 8.5X gain)
2	243 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	270-243-RC	Vishay	R19, R23	0.10	0.20	270-243-RC	2	Vishay Mil Spec Upgrade RN50C2430FRE6, KOA MFS1/4DLT52R2490F (for ~7X gain)
2	301 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0003010FR500	Vishay	R19, R23	0.06	0.12	594-SFR16S0003010FR5	2	Xicon 270-300-RC (for 6X gain)
2	365 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0003650FR500	Vishay	R19, R23	0.06	0.12	594-SFR16S0003650FR5	2	Xicon 270-374-RC (for ~5X gain)
2	499 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	CCF50499RFRK36	Vishay	R17,R21	0.09	0.18	71-CCF50-499	2	Xicon 270-499-RC (for 4X gain)
2	715 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0007150FR500	Vishay	R17, R21	0.06	0.12	594-SFR16S0007150FR5	2	Xicon 270-715-RC, Vishay RN50C7500FB14 (upgrade) (for ~3X gain)
2	1.5K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0001501FR500	KOA	R17, R21	0.06	0.12	594-SFR16S0001501FR5	2	KOA MFS1/4DCT52R1501F, Vishay RN50C1501FB14 (\$1.19 ea upgrade) (for 2X gain)
						3.05			
LOW POWER OP AMPS									
1	Dual Low Noise Audio Op Amp DIP8	OPA2277PA	Ti/Burr Brown	U1	4.65	4.65	595-OPA2277PA	1	Longer battery life, slightly more noise & distortion, see documentation
2	Dual High Current Audio Op Amp DIP8	TLE2062CP	Ti	U3,U4	3.00	6.00	595-TLE2062CP	2	Longer battery life, more distortion, less output current, see documentation
FOR LARGER DESKTOP VERSION									
1	Vertical Panel Mount 1/4" 3 Conductor Phone Jack	NJ3FD-V	Neutrik	For Larger Desktop Version	0.82	0.82	568-NJ3FD-V	1	Optional 1/4 headphone jack with B3-080 or larger enclosure
1	Female Panel Mount RCA Jack Gold Red Insulator	NYS367-2	Neutrik/Rean	For Larger Desktop Version	2.07	2.07	568-NYS367-2	1	Optional for RCA inputs with B3-080 or larger enclosure
1	Female Panel Mount RCA Jack Gold White Insulator	NYS367-9	Neutrik/Rean	For Larger Desktop Version	2.07	2.07	568-NYS367-9	1	Optional for RCA inputs with B3-080 or larger enclosure
1	Extruded Aluminum Enclosure 100x80x45mm (Sil=Silver)	B3-080SI	BoxEnclosures	For Larger Desktop Version	11.53	11.53	Allied Electronics	1	Allied Electronics B3-080BK black, GD gold, GR green, RD red
ODDS AND ENDS									
1	Soft End Caps for B2-080 Enclosure	EC2-BK	BoxEnclosures	For Larger Desktop Version	6.82	6.82	Allied Electronics	1	Optional soft caps for default (portable) enclosure, other colors available
1	Soft End Caps for B3-080 Enclosure	EC3-BK	BoxEnclosures	For Larger Desktop Version	7.57	7.57	Allied Electronics	1	Optional soft caps for larger desktop enclosure, other colors available
1	60/40 Rosin Activated (RA) 0.032 (22 AWG) Solder	4890-18G	MG Chemicals		3.30	3.30	590-4890-18G	1	Optional recommended solder
1	De-Soldering Wick Braid 0.075 in wide (#3) with flux	1810-5F	Techspray		2.96	3.30	577-1810-5F	1	Optional recommended de-solder wicking braid
1	Xcelite 175M semi-flush cutters (to trim leads)	175M	Xcelite/Apex		7.37	7.37	578-175M	1	Optional tool
1	Eagle Volume Knob for Bourns "K" series pots	450-BA760	Eagle		0.60	0.60	450-BA760	1	Knob for T18 "star" shaft Bourns volume pots
1	230 Volt Wall Transformer, Must Measure 13.5 - 20 VAC no load	N57AT	Maplin		NA	NA	N57AT	1	Maplin N58AT, Jaycar MP3059 MP3021 (Australia)

Qty	Description	Mfg Part Number	Mfg	Farnell Worldwide Options
2	Rectifier Diode DO-41/DO-204 >= 100V >= 1 Amp	1N4002-E3/73	Vishay	Same as Mfg Part Number
4	Schottky Diode DO-41/DO-204 >= 30V >= 1 Amp	1N5818	ST Micro	Same as Mfg Part Number
1	High Efficiency Red Right Angle LED Indicator	MV5764.MP4B	Everlight	Avago HJMP-1301 bend to fit
1	P Ch MOSFET Vgs > 24V Vds > 25V Rds < 0.5 ohms IPAK GDS	FQU17P06TU	Fairchild	FQU17P06
1	N Ch MOSFET Vgs > 24V Vds > 25V Rds < 0.5 ohms IPAK GDS	FQPF10N20C	Fairchild	FQPF65N06, STP14NK50ZFP
1	Dual Channel Comparator DIP8	NJM2903D	JRC	LM2903N
1	Dual Low Noise Audio Op Amp DIP8	NJM2068D	JRC	NE5532AP, NE5532NG
2	Dual High Current Audio Op Amp DIP8	NJM4556AD	JRC	TBD?, eBay, or TLE2062CP for low power
1	12 Volt Positive Fixed Regulator TO-220	MC7812ACTG	On Semi	Same as Mfg Part Number
1	12 Volt Negative Fixed Regulator TO-220	MC7912ACTG	On Semi	Same as Mfg Part Number
4	8 Pin DIP IC Socket	4808-3004-CP	3M	Same as Mfg Part Number
2	Male Battery Terminal	12BC210-GR	Eagle	Keystone 237 (1 per battery)
2	Female Battery Terminal	12BC220-GR	Eagle	Keystone 237 (1 per battery)
2	3.5mm Stereo Phone Jack 5 pin w/ Switch (light BLUE!)	STX-3120-SB-284C	Kycon	SPC21352 (SPC41287) Should fit board, but not front panel, and not isolated
1	5.5 x 2.1mm DC Power Jack (note 2)	163-7620-E	Kobiconn	Multicomp MJ-179PH (2.1mm) or MJ-180PH (2.5mm for alternate wall adapter)
2	DPDT Pushbutton Switch	PN225JNA03QE	C&K	TTI has stock, Farnell SPUJ190900 will fit but different height/button depth
2	Button for above	G003A	C&K	See above, use TTI or find the button for the Alps part at Farnell
6	0.22 uF MKT/MKS Film Cap >=50V 2.5x7.2mm 5mm LS	B32529C224K	Epcos	R82DC3220DQ60J
2	0.022 uF Ceramic >= 50V <= 2.5mx7.2mm 5mm LS	SR211E223MAA	AVX	R82DC3220DQ60J
4	220 pF Stacked COG Cap <= 20% >= 50 V 2.5mm LS	K221J15C0GH5TL2	Vishay	Same as Mfg Part Number
2	>=2.2uF >=50 V Stacked Film Cap <= 7.2 x 7.2 x 13mm h 5mm LS	MMK5225K63J06L4BULK	Kemet	Use TTI or Farnell R82DC4150Z360J (1.5uF), Wima MKS2C041001F00KSSD (1 uF)
1	1.0 uF >= 25V MLC Capacitor 5mm x 3.2 mm 2.5mm LS	K105Z20Y5V5TL2	Vishay	Same as Mfg Part Number
4	470 uF 35v 10mm dia 16mm high 5mm LS	UVR1V471MPD1	Nichicon	Same as Mfg Part Number
2	220 uF 25v Low ESR 8mm dia x 15 mm high 3.5 mm LS	UPW1E221MPD	Nichicon	Same as Mfg Part Number
2	220 - 270 Ohms >=1 Watt <= 10% Metal Oxide < 13mm	MOS1CT52R221J	KOA	Multicomp MCF 1W 220R
1	1 Ohm >= 1/4 Watt 1% Metal Film < 7.3mm	MF1/4DC1R00F	KOA	Multicomp MF25-1R or MF12 1R (lower minimum order)
2	10K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	CCF5010K0FKE36	Vishay	Welwyn MFR3 10K FC, Multicomp MF12 10K
2	1.5K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0001501FR500	KOA	Welwyn MFR3 1K5 FC, Multicomp MF12 1K5
2	1K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	MRS16000C1001FRP00	Vishay	Multicomp MF12 750R
4	274 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0002740FR500	Vishay	Multicomp MF12 240R
4	270K Ohm >= 1/8 Watt 1% Metal Film < 3.9mm	270-270K-RC	Xicon	Multicomp MF12 270K
4	40.2K Ohm >= 1/8 Watt 1% Metal Film < 3.9mm	SFR16S0004022FR500	Vishay	Multicomp MF12 39K
1	2.74 Meg 1/8 Watt <= 5% Film 1.9mm < 3.9mm	270-2.74M-RC	Xicon	Multicomp MCRE000078
1	10K 9mm Dual Audio Potentiometer 20 x 6mm or 15 x 6mm shaft	RK09712200MC	Alps	Bourns PTD902-2015F-A103, PTD902-2015K-A103, PTD902-2020K-A103 see docs
1	Volume Knob 6mm "D" Shaft 12mm depth (green line)	450-BA461	Eagle	Multicomp CR-BA-1C6-180D (red line) 7C6 (white line)
1	02 Custom PC Board 100mm x 80mm	TBD	TBD	TBD
79	SUB TOTAL WITHOUT AC ADAPTER, BATTERIES, OR ENCLOSURE:			
1	14-20 VAC >= 200 mA Wall Transformer 2.1 x 5.5 mm 13.5 VAC min	WAU12-200	Triad	Stontronics AC-1550EU AC-1550BS Must measure > 13.5 VAC and < 22 VAC no load!
2	8.4V NiMH >= 170 mAh "9 volt" Rechargeable Battery	200 or 250 mAh	Tenergy	same
1	Extruded Aluminum Enclosure 100x80x30mm (SI=silver, BK=black)	B2-080SI	BoxEnclosures	Farnell has most colors in stock
1	Machined Front Panel	N/A	FP Express	www.schaeffer-ag.de in Europe
TOTAL COMPLETE AMP (less shipping)				
Estimated Shipping Costs (USA)				
TOTAL OF ALL COSTS				
GAIN RESISTORS				
1	>= 8 pin SIP Socket to accept 0.015 in diameter leads	10-0518-10	Aries	
2	133 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	270-133-RC	Xicon	Multicomp MF12-133R
2	165 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	270-165-RC	Xicon	Multicomp MF12-165R
2	200 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	CCF50200RFRK36	Vishay	Multicomp MF12-200R
2	243 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	270-243-RC	Vishay	Multicomp MF12 240R
2	301 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0003010FR500	Vishay	Multicomp MF12-300R
2	365 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0003650FR500	Vishay	Multicomp MF12-374R
2	499 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	CCF50499RFRK36	Vishay	Multicomp MF12-500R
2	715 Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0007150FR500	Vishay	Multicomp MF12 750R
2	1.5K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	SFR16S0001501FR500	KOA	Welwyn MFR3 1K5 FC, Multicomp MF12 1K5
LOW POWER OP AMPS				
1	Dual Low Noise Audio Op Amp DIP8	OPA2277PA	TI/Burr Brown	Same as Mfg Part Number
2	Dual High Current Audio Op Amp DIP8	TLE2062CP	TI	Same as Mfg Part Number
FOR LARGER DESKTOP VERSION				
1	Vertical Panel Mount 1/4" 3 Conductor Phone Jack	NJ3FD-V	Neutrik	Same as Mfg Part Number
1	Female Panel Mount RCA Jack Gold Red Insulator	NYS367-2	Neutrik/Rean	Same as Mfg Part Number
1	Female Panel Mount RCA Jack Gold White Insulator	NYS367-9	Neutrik/Rean	Same as Mfg Part Number
1	Extruded Aluminum Enclosure 100x80x45mm (SI=silver)	B3-080SI	BoxEnclosures	Same as Mfg Part Number
ODDS AND ENDS				
1	Soft End Caps for B2-080 Enclosure	EC2-BK	BoxEnclosures	Same as Mfg Part Number
1	Soft End Caps for B3-080 Enclosure	EC3-BK	BoxEnclosures	Same as Mfg Part Number
1	60/40 Rosin Activated (RA) 0.032 (22 AWG) Solder	4890-18G	MG Chemicals	
1	De-Soldering Wick Braid 0.075 in wide (#3) with flux	1810-5F	Techspray	
1	Xcelite 175M semi-flush cutters (to trim leads)	175M	Xcelite/Apex	
1	Eagle Volume Knob for Bourns "K" series pots	450-BA760	Eagle	
1	230 Volt Wall Transformer, Must Measure 13.5 - 20 VAC no load	N57AT	Maplin	Stontronics AC-1550EU, 1550BS 1850EU, 1850BS > 13.5 and < 20 VAC no load