







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
High Efficiency Red Right Angle LED Indicator	MV5764.MP4B	Everlight	D7	0.31	0.31	638-MV5764.MP4B	1 MV5364MP4A (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	FQU11P06TU	Fairchild	Q1	0.61	0.61	512-FQU11P06TU	1 Fairchild FQU17P06TU, FQPF11P06, FQPF15P12 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 FQPF65N06, IRFI4228PBF, 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 (quieter), 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 8 Pin DIP IC Socket	4808-3004-CP	3M	N/A	0.13	0.52	517-4808-3004-CP	4 Tyco 1825373-2 (gold upgrade)
2 Male Battery Terminal	12BC210-GR	Eagle	BT1, BT2	0.22	0.44	12BC210-GR	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	12BC220-GR	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. S2	1.27	2.54	611-PN22SJNA03QE	2 PN22SJSA03QE
2 Button for above	G003A	C&K	N/A	0.55	1.10	611-G003A	2 G003G (Gray) G003R (Red)
6 0.22 uF MKT/MKS Film Cap >=50V 2.5x7.2mm 5mm LS	B32529C224K	Epcos	C6, C7, C10, C15, C17, C18	0.14	0.84	871-B32529C224K	6 Kemet R82DC3220AA60K, Wima MKS2C032201B00JSSD
2 0.022 uF Ceramic >= 50V <= 2.5mx7.2mm 5mm LS	SR211E223MAA	ÁVX	C16, C21	0.20	0.40	581-SR211E223MAA	2 TDK FK28X7R1H223K, Kemet C322C223M5R5CA (non critical part)
4 220 pF Stacked C0G Cap <= 20% >= 50 V 2.5mm LS	K221J15C0GH5TL2	Vishav	C11, C12, C19, C20	0.11	0.44	594-K221J15C0GH5TL2	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	Wima MKS2B042201F00KSSD, MMK5225K63J06L4 (105K50 - 605K50 or 105K63 - 225K63)
1 1.0 uF >= 25V MLC Capacitor 5mm x 3.2 mm 2.5mm LS	K105Z20Y5VF5TL2	Vishay	C1	0.13	0.13	594-K105Z20Y5VF5TL2	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	REA471M1VBK-1016P	Lelon	C2, C3, C4, C5	0.28	1.12	140-REA471M1VBK1016P	4 Nichicon UVR1V471MPD1, Epcos B41827A7477M000, Panasonic, EÉU-FR1V471B, ECA-1VM471B
2 220 uF 25v Low ESR 8mm dia x 15 mm high 3.5 mm LS	UPW1E221MPD	Nichicon	C8. C9	0.30	0.60	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	MF1/4DC1R00F	KOA	R10, R11, R15, R18	0.06	0.24	660-MF1/4DC1R00F	4 KOA MF1/4DCT52R1R00F, Vishay CPF11R000FKE14
2 10K Ohm >= 1/8 Watt 1% Metal Film Low Noise < 3.9mm	CCF5010K0FKE36	Vishav	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		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%)
3 40.2K Ohm >= 1/8 Watt 1% Metal Film < 3.9mm	SFR16S0004022FR500	Vishay	R6, R12, R13	0.06		594-SFR16S0004022FR5	3 Xicon 270-40.2K-RC
1 !33K Ohm >= 1/8 Watt 1% Metal Film < 3.9mm	270-33.2K-RC	Xicon	R9	0.11	0.11	270-33.2K-RC	1 Xicon 270-33.6K-RC, 299-33K-RC
1 ~1.5 Meg 1/8 Watt <= 5% Film 1.9mm < 3.9mm	270-1.5M-RC	Xicon	R25	0.11	0.11	270-1.5M-RC	1 Xicon 299-1.5M-RC, 299-1.2M-RC, 270-1.2M-RC
1 10K 9mm Dual Audio Potentiometer 20 x 6mm or 15 x 6mm shaft	RK09712200MC	Alps	VR1	1.80	1.80	688-RK09712200MC	1 Alps RK09712200MY, RK097122008T, RK09712200HA, Bourns PTD902-2020F-A103 see docs
Volume Knob 6mm "D" Shaft 12mm depth (green line)	450-BA461	Eagle	N/A		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			IVA		\$30.86		
70 000 TOTAL MINIOUT NO ADAL TEN, DAN TENEO, ON ENGLOCOME	•			71	400.00		
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 Upgrade: WAU16-400, WAU16-1000 See Docs: 412-218054, WAU20-200, EPA160025-P5-SZ
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. see docs
 Extruded Aluminum Enclosure 100x80x30mm (SI=silver, BK=black) 	B2-080SI	BoxEnclosures	N/A	10.59	10.59	Allied Electronics	1 BK black, GD gold, GR greed, RD red 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)			((<))	-	\$74.63	·	
Estimated Shipping Costs (USA)					\$25.00		\$9 Mouser, \$9 Allied, \$7 Front Panel Express
TOTAL OF ALL COSTS				-	\$99.63		
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	CCF50200RFKR36	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	CCF50499RFKR36	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						
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
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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
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 (SI=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
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ODDS AND ENDS							
1 Soft End Caps for B2-080 Enclosure	EC2-BK	BoxEnclosures	For Larger Desktop Version	6.82	6.82	Allied Electronics	 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	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	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)