

## VLF

Recommended build sequence					
Reference(s)	Value	Digikey	Mouser	Mfr Part No	
Assemble the PC Board. The recommended component insertion sequence is suggested as follows:					
R1	560K			RNF18FTD562K	
R2	2.2M			270-2.2M-RC	
R3	20M			270-20M-RC	
R5	47			CF18JT47R0	
R6	300			CF18JT300R	
R7	100			CF18JT100R	
R8	1000	RNF18FTD1K00CT-ND		RNF18FTD1K00CT	
R9	1.47K	RNF18FTD1K47CT-ND		RNF18FTD1K47	
R10	10K	RNF18FTD10K0CT-ND		RNF18FTD10K0	
R11	100			CF18JT100R	
R12	1000	RNF18FTD1K00CT-ND		RNF18FTD1K00CT	
R13	10			CF18JT10R0	
R14	300			CF18JT300R	
R15	487	RNF18FTD487RCT-ND		RNF18FTD487R	
R16	300K			CF18JT300K	
R17	69.8K			RNF18FAD69K8	
R18	100			CF18JT100R	
R19	3.32K			RNF18FTD3K32	
R20	220			CF18JA220RCT-ND	
R21	270			270-270-RC	
R22	1.58M			270-1.58M-RC	
R23	150K			270-150K-RC	
R24	1.58M			270-1.58M-RC	
R25	80.6K			270-80.6K-RC	
R26	20K	NF18FTD20K0CT-ND		RNF18FTD20K0	
R27	3.0K	RNF18FTD3K01CT-ND		RNF18FTD3K01	
R28	20K	NF18FTD20K0CT-ND		RNF18FTD20K0	
R29	487	RNF18FTD487RCT-ND		RNF18FTD487R	
R30	20K	NF18FTD20K0CT-ND		RNF18FTD20K0	
R31	80.6K			270-80.6K-RC	
R32	20K	NF18FTD20K0CT-ND		RNF18FTD20K0	
R33	75K		270-75K-RC	270-75K-RC	
R34	75K		270-75K-RC	270-75K-RC	
R35	15K	RNF18FTD15K0CT-ND		RNF18FTD15K0	
R36	10K	RNF18FTD10K0CT-ND		RNF18FTD10K0	
R37	47			CF18JT47R0	

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Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
D1	1N4001	1N4001GOS-ND	863-1N4001G	1N4001G	
D2	1N4001	1N4001GOS-ND	863-1N4001G	1N4001G	
D3	3.6V	BZX79C3V6-ND	512-BZX79C3V6T50A	BZX79C3V6-T50A	
D4	3.6V	BZX79C3V6-ND	512-BZX79C3V6T50A	BZX79C3V6-T50A	
RV1	10K	1993-1116-ND	531-PT10LV-10K-S	PT10LV10-103A2020-S	
L1	3.9mH	AIAP-01-392K-TCT-ND	815-AIAP01392KT	AIAP-01-392K-T	
TP1-5					
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
C1	24pF	399-14745-ND	80-C317C240J5G	C317C240J5G5TA	
C2	24pF	399-14745-ND	80-C317C240J5G	C317C240J5G5TA	
C3	0.01uF	493-3455-ND	647-QYX1H103JTP3TA	QYX1H103JTP	
C4	0.01uF	493-3455-ND	647-QYX1H103JTP3TA	QYX1H103JTP	
C6	0.1uF	399-4151-ND	80-C315C104M5U	C315C104M5U5TA	
C8	0.01uF	493-3455-ND	647-QYX1H103JTP3TA	QYX1H103JTP	
C9	0.47uF	399-8901-ND	80-R82DC3470AA60J	R82DC3470AA60J	
C10	0.047uF	493-3463-ND	647-QYX1H473JTP	QYX1H473JTP	
C11	10uF	P124234CT-ND	667-EEU-FR1C100B	EEU-FR1H100B	
C14	0.47uF	399-8901-ND	80-R82DC3470AA60J	R82DC3470AA60J	
C15	0.0056uF	493-3452-ND	647-QYX1H562JTP	QYX1H562JTP	
C17	0.1uF	399-4151-ND	80-C315C104M5U	C315C104M5U5TA	
C18	0.0056uF	493-3452-ND	647-QYX1H562JTP	QYX1H562JTP	
C19	0.01uF	493-3455-ND	647-QYX1H103JTP3TA	QYX1H103JTP	
C22	0.1uF	399-4151-ND	80-C315C104M5U	C315C104M5U5TA	
C24	0.47uF	399-8901-ND	80-R82DC3470AA60J	R82DC3470AA60J	
C25	0.1uF	399-4151-ND	80-C315C104M5U	C315C104M5U5TA	
C26	1uF	EF2105-ND	667-ECQ-E2105KF	ECQ-E2105KF	
C27	0.033uF		80-PHE426DJ5330FR17T	PHE426DJ5330FR17T0	
C30	0.033uF		80-PHE426DJ5330FR17T	PHE426DJ5330FR17T0	
C31	1.5uF	495-1122-ND	871-B32529C155J	B32529C0155J000	
C32	0.001uF	1928-1352-ND	505-FKS21000/100/20	FKS2D011001A00MSSD	
C33	0.001uF	1928-1352-ND	505-FKS21000/100/20	FKS2D011001A00MSSD	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
C7	100uF	P15330CT-ND	667-EEU-FR1C101B	EEU-FR1C101B	
C21	100uF	P15330CT-ND	667-EEU-FR1C101B	EEU-FR1C101B	
C23	100uF	P15330CT-ND	667-EEU-FR1C101B	EEU-FR1C101B	
C28	100uF	P15330CT-ND	667-EEU-FR1C101B	EEU-FR1C101B	
C5	330uF	1189-1891-ND	667-EEU-FR1V331UB	35ZLH330MEFC10X12.5	
C12	1000uF	1189-2188-ND	232-16PX1000MEFC10X1	16PX1000MEFC10X12.5	
C20	1000uF	1189-2188-ND	232-16PX1000MEFC10X1	16PX1000MEFC10X12.5	

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C13	10uF	P124234CT-ND	667-EEU-FR1C100B	EEU-FR1H100B	
C16	opt	P124234CT-ND	667-EEU-FR1C100B	EEU-FR1H100B	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
J4	Data/Headphone	~	161-3508-E	161-3508E	
J5	Data/Headphone	~	161-3508-E	161-3508E	
J7	RA Mono Jack	CP-3502N-ND	490-MJ-3502N	MJ-3502N	
J6	Aux input	900-0022232021-ND	538-22-23-2021	22232021	
J8	22232031	WM4201-ND	22-23-2031	22232031	
L2	100mH	RLB0913-104K-ND	652-RLB0913-104K	RLB0913-104K	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
J1	BNC, RA	WM23540-ND	538-73137-5013	731375013	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
SW1	SW_Push_DPDT	EG5924-ND	612-PBH2UEENAG1RWHT	PBH2UEENAG1RWHT	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
SW2	SW_Push_DPDT	EG5924-ND	612-PBH2UEENAG1RWHT	PBH2UEENAG1RWHT	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
RV_SW1	10K LIN	PTR901-2015K-B103	652-PTR901-2015K-B103	PTR901-2015K-B103	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
RV_SW2	10K LOG	PTR901-2015K-A103	652-PTR901-2015K-A103	PTR901-2015K-A103	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
D5	LD271	1125-1075-ND	~	MTE6066N5-UR	
D6	LD271	1125-1075-ND	~	MTE6066N5-UR	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
Q1	J211-D74Z	J211-D74ZCT-ND	512-J211_D74Z	J211-D74Z	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
Q2	2N5089	1514-2N5089PBFREE-ND	610-2N5089	2N5089 PBFREE	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
U1	LM386	LM386N-4/NOPB	926-LM386N-4/NOPB	LM386N-4/NOPB	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
U2	MC33204	MC33204	~	MC33204	
Solder the components you have installed, then clip the leads. Ensure that the components are flat against the board.					
BT1	BC9VPC	BC9VPC-ND	12BH611-GR -?	BC9VPC	
Use a Dremel tool to cut a clearance notch for the PCB mounting hole. Place the the battery holder connection tabs through the PCB.					
and then secure the battery holde using a #2-56 screw and nut in each of the mounting holes. Solder the two connection tabs.					
The pwb has been completed. Clean flux from the solder side of the board with alcohol and a stiff flux brush.					
IMPORTANT: DO NOT use a wire bristle brush for this. It will damage the solder mask.					
Wire the connectors as indicated below and on the schematic					
J2	Pnl Mt Coax	486-3382-ND	693-4840.221	4840.221	
J3	Ext batt conn	900-0022013037-ND	538-22-01-3037	22013037	

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J9	Aux connector	900-0022013027-ND	22-01-3027	22013027	
J10	Mic/Aux Input	839-1411-ND	860-540-0097	54-00081	
P1	Pwr_plug	486-3574-ND	693-4840.121	4840.121	
If you are going to use an external battery, prepare a cable and wire it to the external power plug.					
N3	Enclosure	SRA27x-ND	A-27-BLACK	A27,xx	
Install the PC Board in the case with four #4-40 machine screws. Leave the screws loose enough to be able to lift the end of					
PC Board so that the end panel can be installed.					
Drill the holes in the enclosure end panels and fit them to the PCB and case.					
N1	Knob	1722-1315-ND	5164-1106-A	1106-A	
N2	Knob	1722-1315-ND	5164-1106-A	1106-A	
Fit the knobs to the data level and headphone volume controls.					
Install a battery or connect an external power source. Verify operation of all stages.					
Connect a signal generator to the input of the receiver and a scope input to TP4. Increase the amplitude until clipping					
Is observed on positive or negative peaks. Decrease the amplitude slightly to eliminate clipping. Move the scope input					
to TP5 and adjust the null potentiometer for minimum amplitude. The peak is quite sharp, so you may have to move					
the adjustment back and forth slowly to find the minimum point.					