

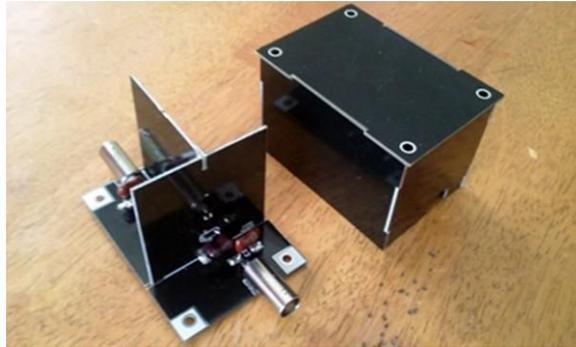
4S-High Pass Filter

Designed by David Cripe, NMØS

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David Cripe NMØS

Four State QRP Group



Introduction

Thank you for purchasing the 4SHPF kit. Those QRPers who use direct-conversion receivers are often bothered by interference from AM broadcast stations. This kit is placed in-line with the antenna to knock down all signals below 3.5 MHz by at least 60 dB. A Pittsburg style PC Board, spiral pcb inductors, and a pcb case have been provided an easy building experience. Note that the kit doesn't include a balun for balanced line antennas. They are very easy to construct and your favorite search engine will find many examples.

Specifications

Maximum Power Capability: Designed and tested for 100 watts..

Impedance: 50 ohms in 50 ohms out.

Extremely low insertion loss, nearly zero.

Assembly:

1. Inventory the parts.
2. Break the 2 PC boards into 8 pieces. Sand any rough edges lightly.
3. Identify the 2 coil boards and place them into their notches on the main board. Hold them vertically and solder them to the PCB. Solder the connection near L2, C3, and the top of the coil boards, 5 connections total. DO NOT solder the connection near L1 at this time.

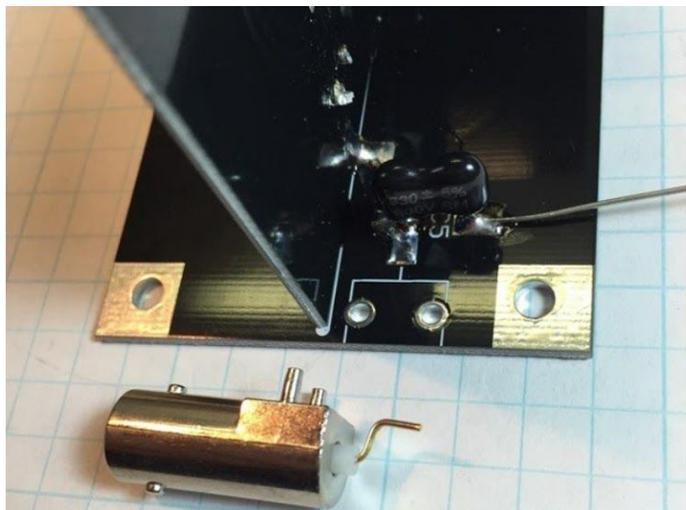
4. Assemble the cover base and the board with the 4SQRP Label. Use the L1/C1 side of the board assembled above to make sure you solder these 2 boards at a 90 degree right angle.
5. Now dry fit the remaining 3 boards to the cover base assembly. Make sure the notches are pointing away from the cover board. Place a couple of rubber bands around the loose assembly and make sure everything is square before soldering. (Re-flow the joint created in step 4 if needed.)
6. Now solder all connections on the cover assembly
7. Solder the remaining connection near L1/C1 at this time.
8. Solder in the capacitors, checking their values against the parts list, and matching them to the correct position on the pc board.
 - a) C4 and C2 are standard thru-hole parts mounted on the vertical coil boards
 - b) C1, C3, and C5 are mounted Pittsburg style on the main board. You will need to bend the leads before soldering these capacitors. *Bend them in a "W" shape to facilitate installation, see picture.*
- b) The center lead on J1 & J2 will also need to be formed before mounting. See picture on photopage.
9. Screw the stand-offs to the main PCB using 4 of the screws. Screw the cover to the main PCB using the remaining 4 screws.



Bend capacitor leads thusly for easy soldering and trimming. This is the "Pittsburg Bend" for Silver Mica caps.

That's it! Check off each part as it's installed, and refer to the pictures below and on the photo page. for more detail as you build. This is an easy build, the coil boards can be positioned by hand if desired, and the enclosure sides can be held together with rubber bands or tape for soldering, nothing is tricky or critical.

Assembly Continued



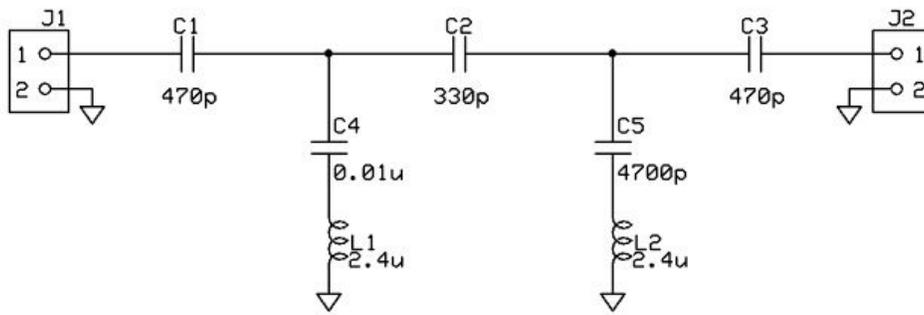
Ready for the enclosure.

BNC Bent for soldering

Parts List

<u>C1</u>	<u>470p</u>	<u>Mica</u>
<u>C2</u>	<u>330p</u>	<u>mica</u>
<u>C3</u>	<u>470p</u>	<u>mica</u>
<u>C4</u>	<u>0.01u</u>	<u>ceramic</u>
<u>C5</u>	<u>4700p</u>	<u>ceramic</u>
<u>L1</u>	<u>2.4u</u>	<u>PCB</u>
<u>L2</u>	<u>2.4u</u>	<u>PCB</u>
<u>J1</u>	<u>BNC</u>	
<u>J2</u>	<u>BNC</u>	
<u>6-32x2"</u> <u>standoff</u>		<u>qty 4</u>
<u>6-32x3/8"</u> <u>screw</u>		<u>qty 8</u>

Schematic



Frequency Response

