4S-Low Pass Filter
Designed by David Cripe, NMØS

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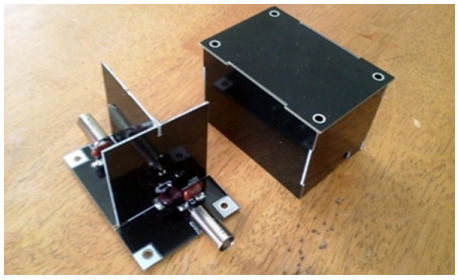
Four State QRP Group



Introduction

Thank you for purchasing the 4SLPF kit. These instructions are for both the 80M and 40M kits. The FCC requires all spurious emissions below 30Mc to be attenuated by 43 dB or more below the carrier, this includes QRP transmitters. 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

	Harmonic Attenuation dBc	
	2nd	3rd
80M Midpoint	-57	-59
40M Midpoint	-56	-59

Maximum Power Capability: Designed and tested for 100 wartts..
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. Note: Snip the corner of the L2/C2 board so it won't interfere with the enclosure. See picture on the photo page for the size and location of the trim.

Assembly Continued

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. (Reflow 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. NOTE: C1 on the L1 board should have been marked C2.

a) C4 and C2 (labeled C1 on some boards) 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 to the right.*

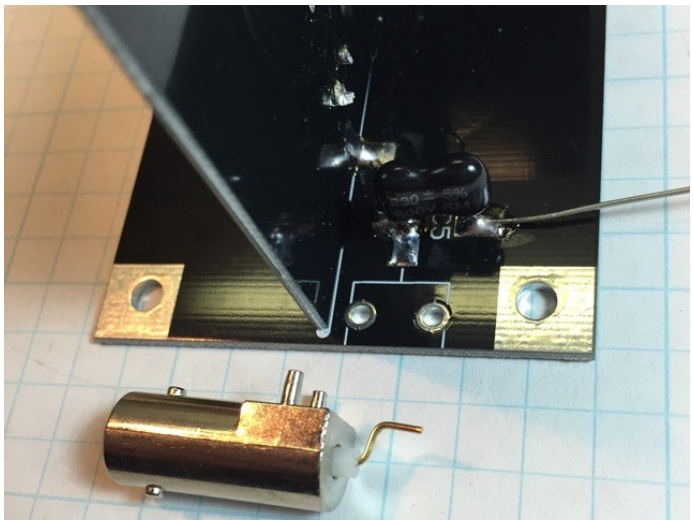
Bend capacitor leads thusly for easy soldering and trimming. This is the "Pittsburg Bend" for Silver Mica caps.

c) 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.

That's it! Check off each part as it's installed, and refer to the pictures below and on the photp 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



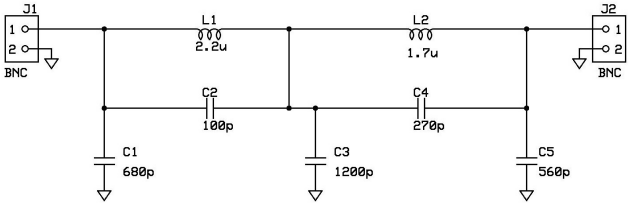
BNC Bent for soldering

Ready for the enclosure.

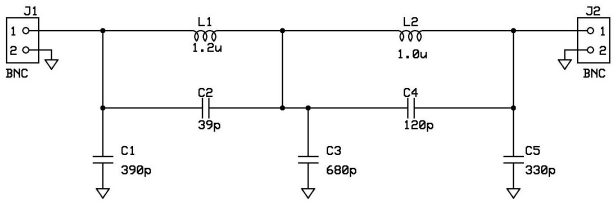
See the Photo Page for more assembly pictures.

Click the link .

Schematics and Bill of Materials



80 Meter Schematic



40 Meter Schematic

Qty	Component	80M	40M	Note
1	C1	680p	390p	Silver Mica
1	C2	100p	39p	Silver Mica
1	C3	1200p	680p	Silver Mica
1	C4	270p	120p	Silver Mica
1	C5	560p	330p	Silver Mica
1	L1	2.2u	1.2u	Spiral PCB Inductor
1	L2	1.7	1.0u	Spiral PCB Inductor
2	J1, J2	BNC	BNC	Coax Connectors
2	PCB Inductors	80M Ver.	40M Ver.	Verify your kit

For these components both kits are the same

1	Enclosure - top, sides, and Pittsburg PCB
4	3" 6-32 Standoffs
8	6-32 screws