

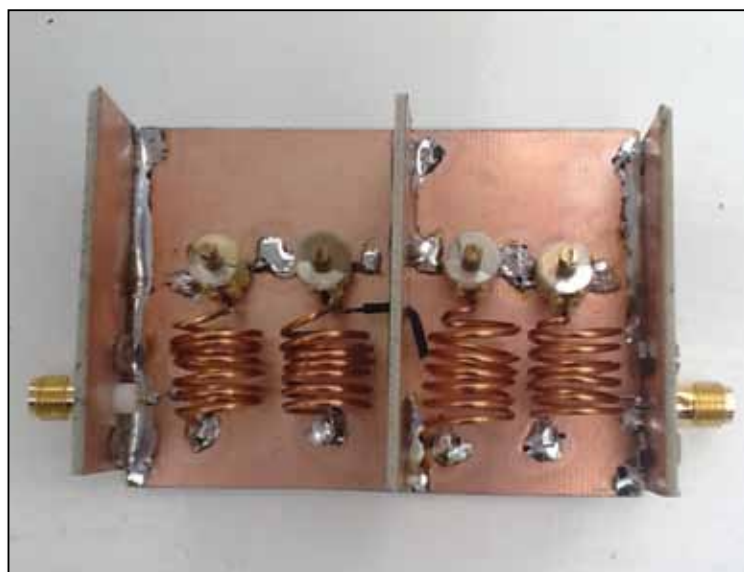
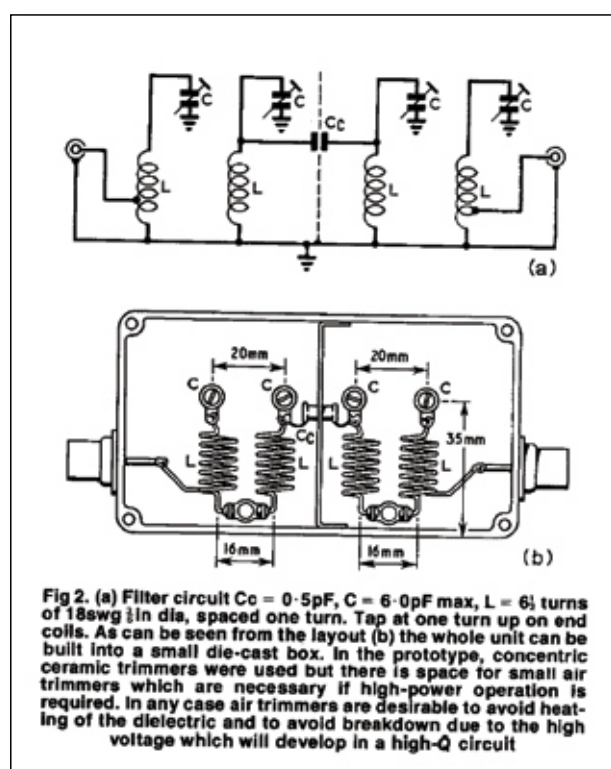


A bandpass filter for 146.5 MHz

Shaun O'Sullivan - G8VPG

Having built a Digithin for use on 146.5MHz, I searched around for a bandpass filter to use with it. This is necessary to reduce the level of harmonics and any other mixer products on the output.

I have a large collection of amateur radio books and found the following design in the RSGB "VHF-UHF Manual" Fourth Edition 1985. The filter is suitable for low power throughput and I have connected it directly to the output of the Digithin.



I drilled a 6mm diameter hole in the screen between the two sections. Finding a 0.5pF capacitor for the coupler between the two sections was not easy, so I used a small piece of insulated solid core wire, soldered to one side. This was passed through the hole and run alongside the second section to provide the correct amount of coupling, which may be adjusted by moving the wire.

The filter can be peaked up for maximum power throughput, but if you have access to a spectrum analyser with tracking generator, it is possible to optimise it and get the passband fairly symmetrical. The insertion loss is 2dB, the -3dB bandwidth 4.5MHz and the bandwidth at -40dB is 40MHz.

I built the filter on some small pieces of single sided copper clad glass fibre board. It is important to solder the whole length of each board junction or else you may get some spurious responses (thanks to Kevin G3AAF who sorted this out for me at CAT15!). The trimmers were bought at a rally and measure 1.7-14pF. The filter peaks up with them partly meshed, so they seem to be about the right size.

