

Band Pass Filter with Low Insertion Loss for 2m

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This design is part of my VHF/UHF SDR receivers. The VHF /UHF receivers are assembled as “RF bricks”. The receiver is broad band design and determined with used mixer. Input filter and local oscillator are determining receiving band. In some causes I am using preamplifier to improve receiver sensitivity also. This band pass filter is one of this bricks. It is input filter for 2 m. It is very easily repetitive design but it is now realized with C SMT components. I didn't try classic C size components but from some mine previously designs experience it is possible realization. One way is that capacitors are mounted from the ground (bottom) side. We can drill PCB for capacitors mounting and than capacitors leads solder from the top side. To prevent unwanted contacts with GND first we will drill PCB with borer smaller size for example 0.8 or 1 mm and than with borer 2.5-3 mm on the bottom GND side to remove copper surface only. The double side of PCB can be make as it is proposed with soldering the rest of resistor leads through the holes drilled between top and bottom PCB side. This is easy way how to make home made metallization of vias. I am recommending you that filter are mounting inside the some metal box or box made from soldered FR4 double side peaces.

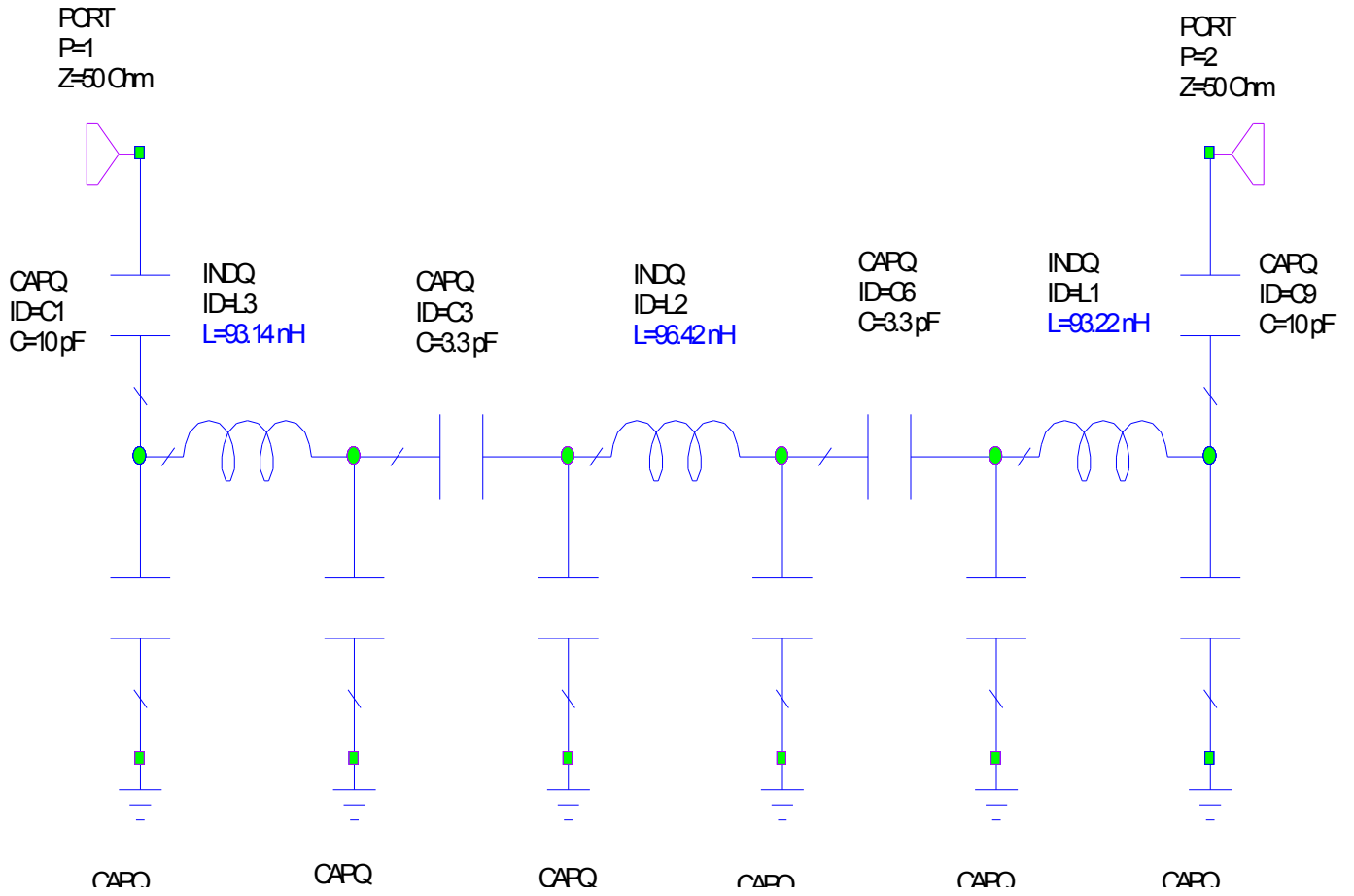
Filter is mounted at the front of the mine 2 m SDR receiver. Double balanced diode mixers are very sensitive to the very big number broad band input signals and harmonic receiving. The input band pass filter is improving IMD specification from receiver. The 2 meter receiver can be easily overload with out-band signals. The realized filter had moderate selectivity; FM and TV band are attenuated min 40 dB.

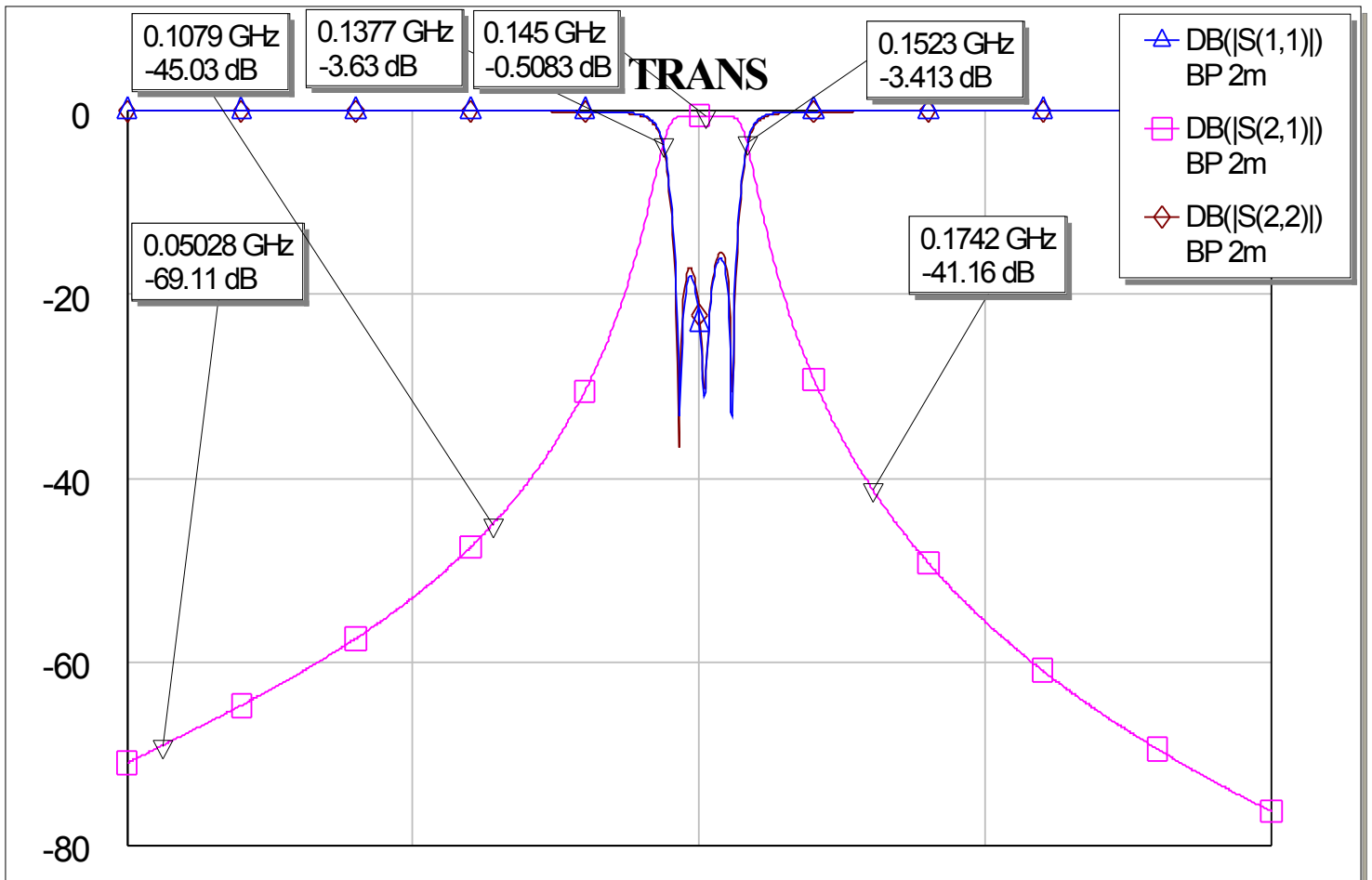
I wish you successfully 2 m band pass filter realization.

VY 73/72 and GL in SDR homebrew Tasa YU1LM/QRP

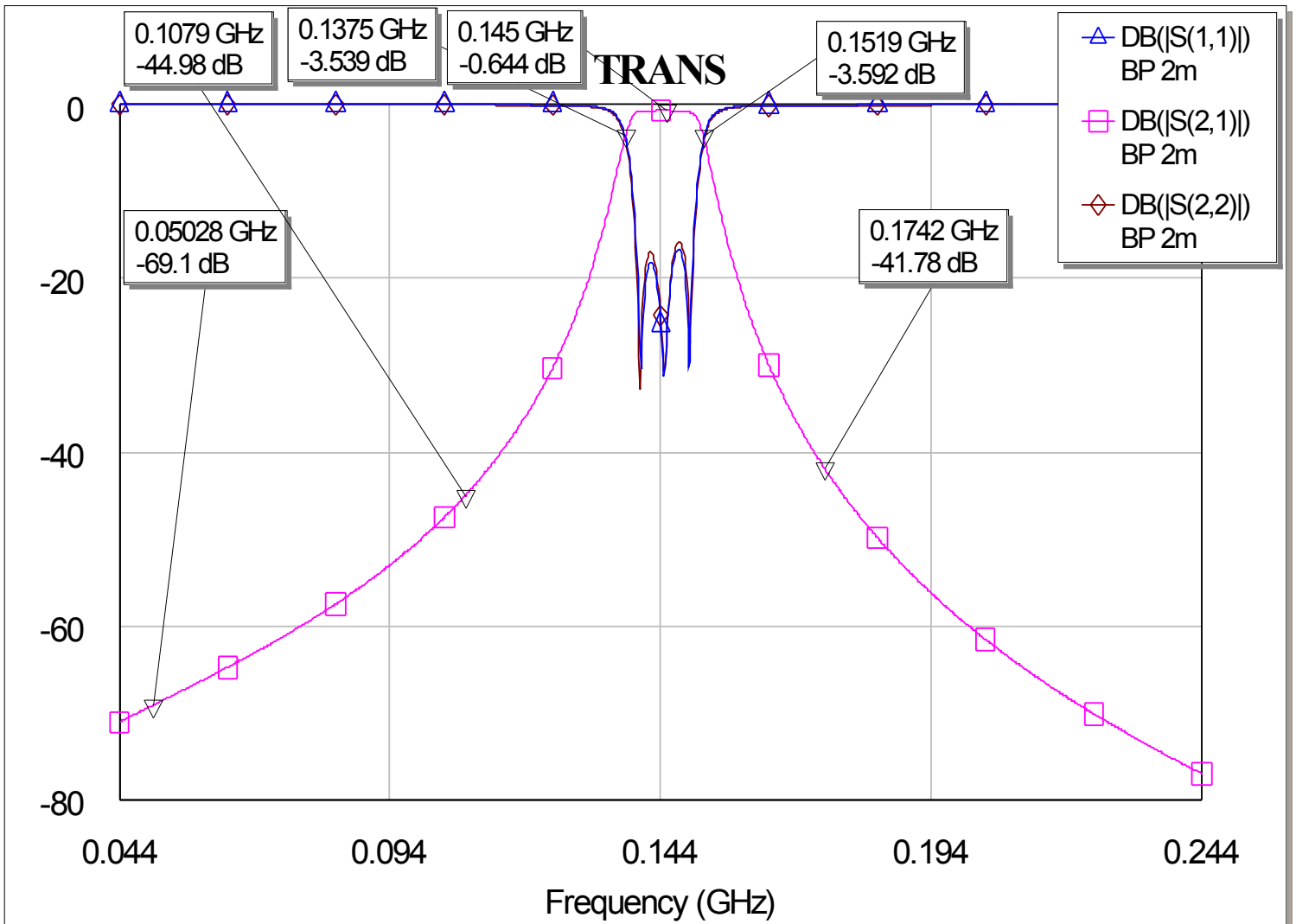
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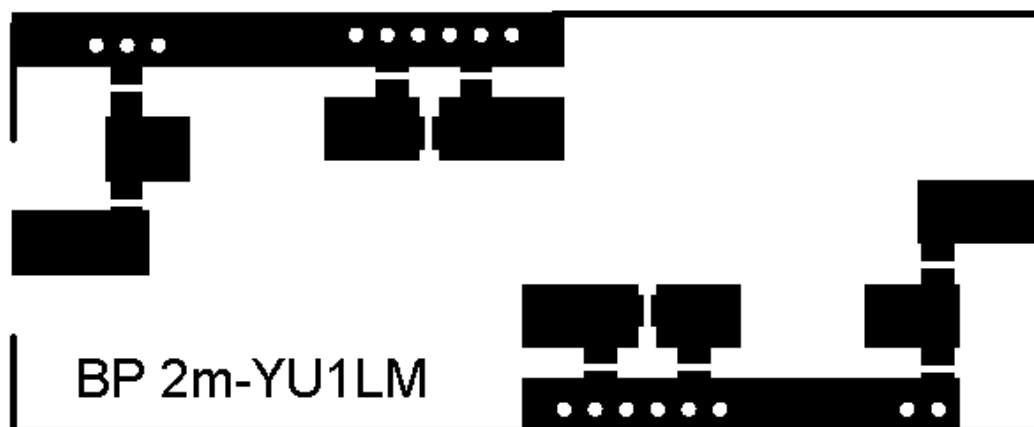
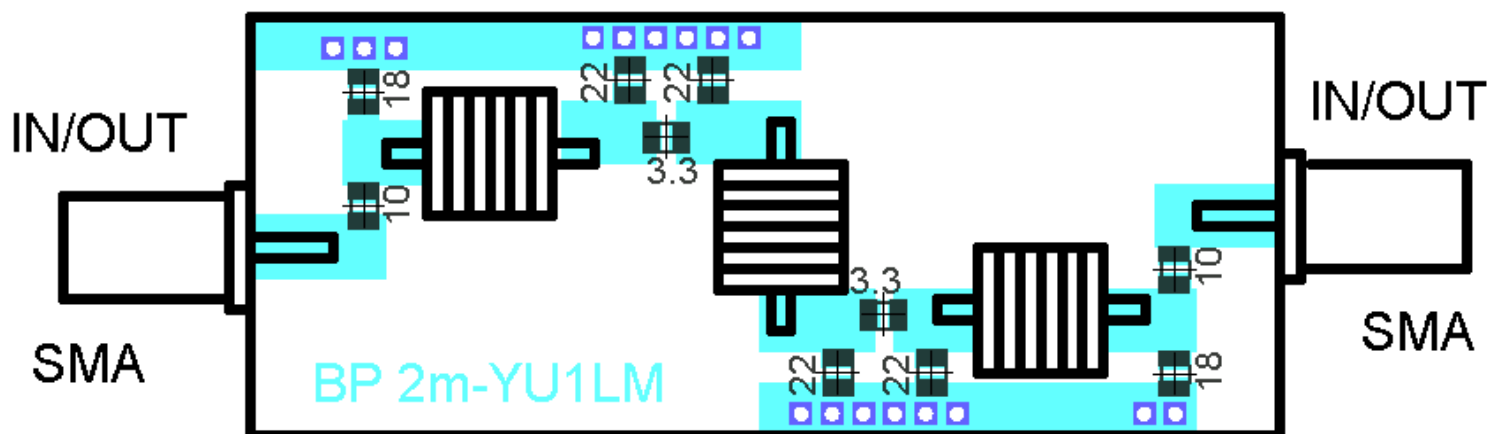


Amplitude frequency response for ideal C capacitors and real Q inductors



Amplitude frequency response for real C capacitors from Murata and real Q inductors

L= self support isolated copper wire diameter 1mm (AVG18) wound at 5 mm 6 turn close wound length 6mm $Q_0=350$ and $F_{rez}=901$ MHz.



Double side PCB (bottom side is completely copper side) dimension 50 x 20 mm