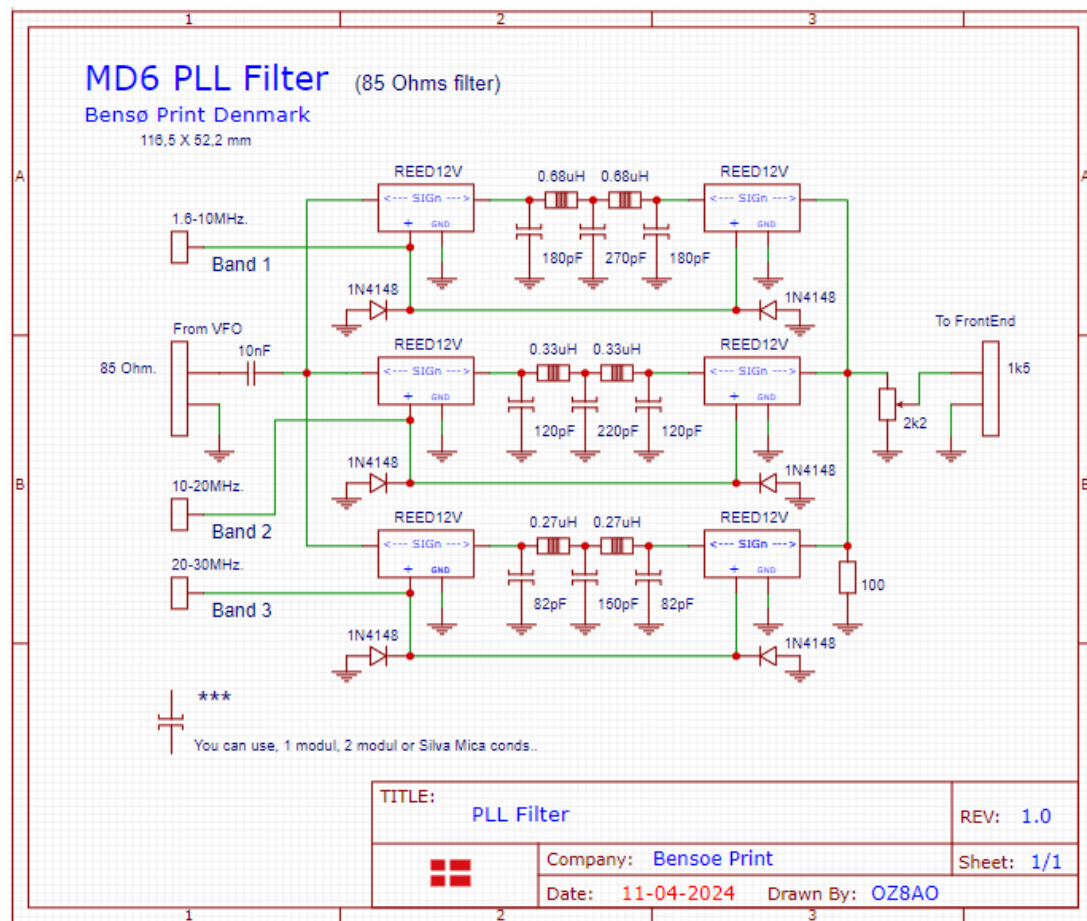
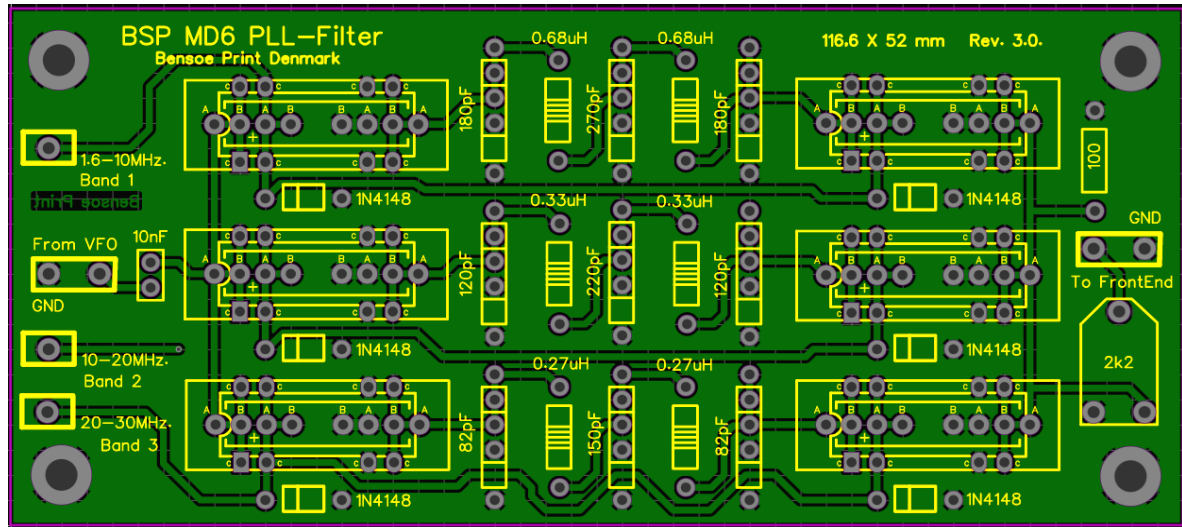
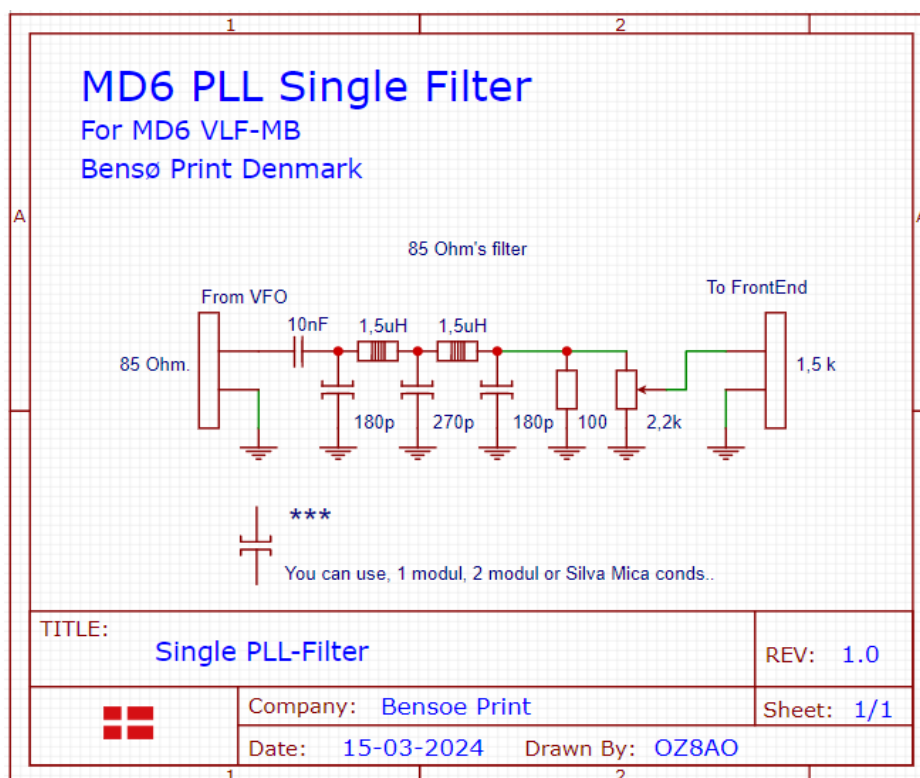
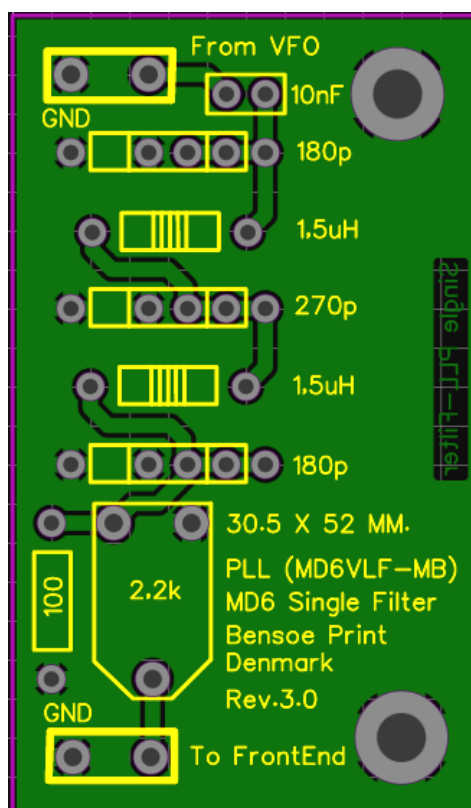


Instructions for mounting of the BSP module MD6 PLL-Filter

Bensøe Print Denmark.



Can be mounted directly on the back of the VFO1 and 2 modules.



Can be mounted directly on the back (right side) of the VFO1 and 2 modules.

Description:

PLL filters are a necessity when, as in our case, you use the 'PLL unit SI5351A' as the VFO signal generator, since the signal consists of 'the pure apparent squares', known for their high harmonic content, which are particularly strong on the odd harmonic.

The problem is that these unwanted harmonics also appear as 'VFO signals', and therefore give the receiver the opportunity to simultaneously listen to signals from other frequencies than the frequency you want to listen to.

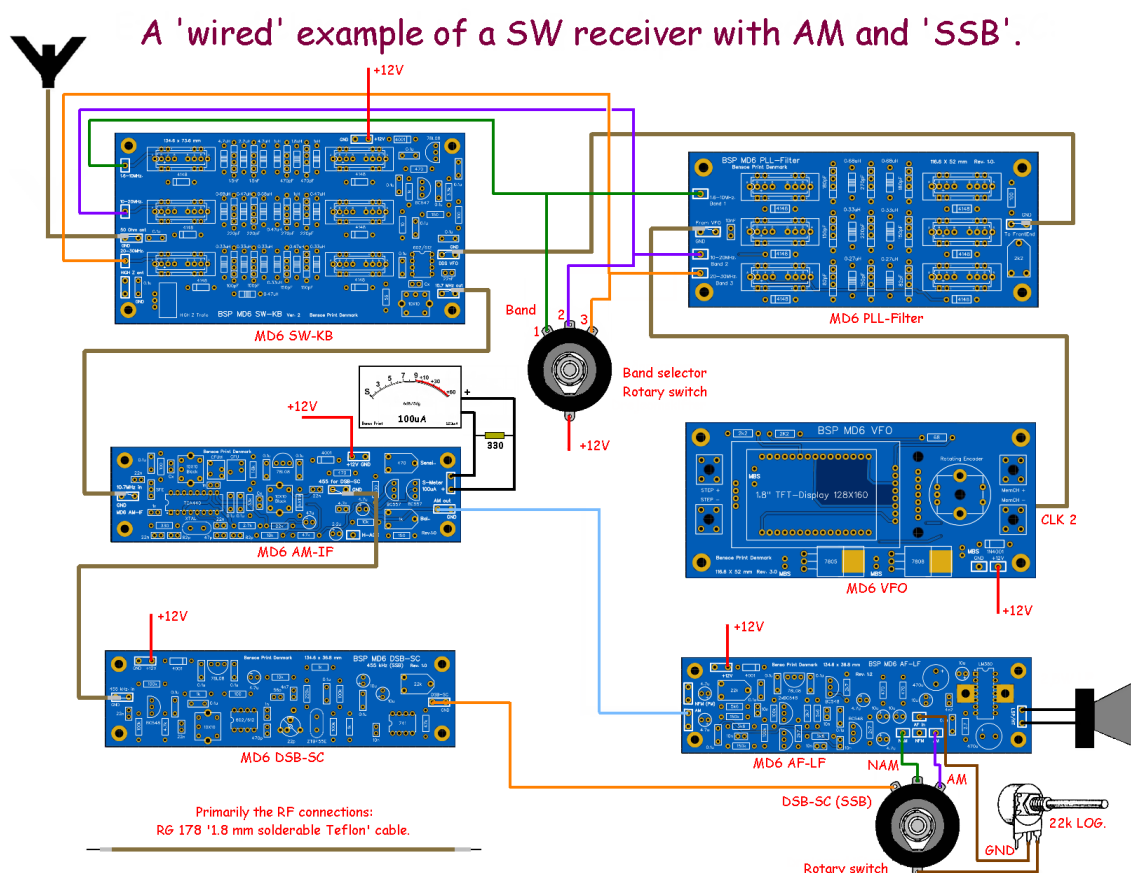
In most cases, the receiver's input filter will be able to dampen this unwanted listening, but in unfortunate cases (especially in the lower frequency bands), they may not be enough.

Therefore, it is important to have as clean a VFO signal as possible.

The 3-band PLL filter: **(fits directly for mounting on the back of the VFO1 and 2).**

As can be seen from the diagram, the filter is structured as a 'filter bank' consisting of '3 bands', referred to as 'bands 1, 2 and 3'. Band selection takes place via a '3-position 12V switch' and can be directly connected/co-operated with the band selection on the front end module 'MD6 SW-KB'.

Band 1 is used when 'MD6 SW-KB' listens in the '1.6 to 10 MHz' range, Band 2 for the '10 to 20 MHz' range and Band 3, '20 to 30 MHz'. All 3 bands in the PLL filter are 'moved 10.7 MHz up' to match the frequency of the intermediate frequency module.

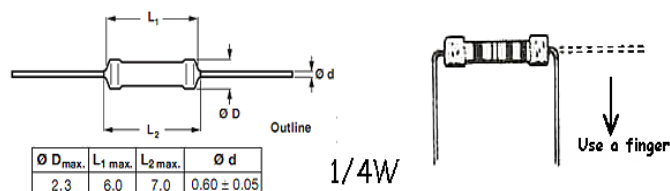


Remember you can 'zoom in the image with the +/- keys' in the PDF file...

Assembling the PCB:

It is recommended that a soldering tip with the same width as the diameter of the small pads (2mm) is used, with 'reasonably thin' solder lead.

Should you happen to misplace a component in the plated solder pad, then use a 'solder wick' or a desoldering pump, first from the top (if possible) and then from the bottom.



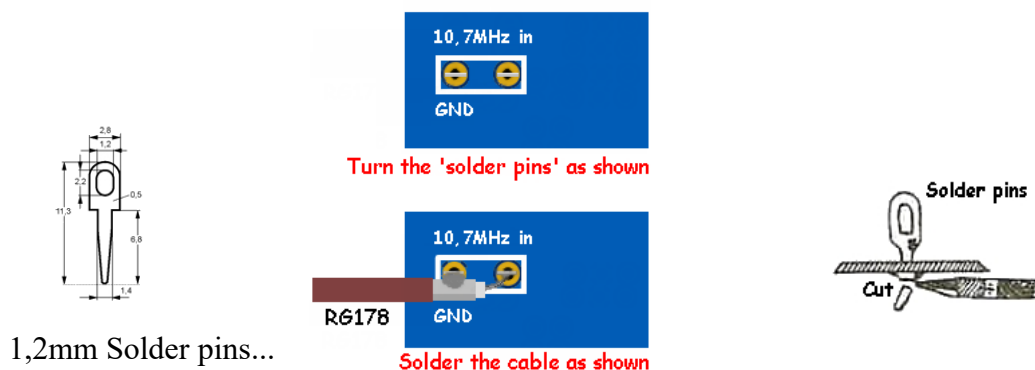
To create some distance between the print itself and the bottom of the 'soon-to-be cabinet', start by mounting 3 mm. threaded rods or 'solderable brass tubes' in the four mounting holes.



If you use brass tubes without threads, you can initially mount them into the 'four mont holes' with a 3 mm screw and nut, solder the tube onto the print and remove the bolt and nut again.

Be careful... A soldered brass tube stays hot for quite a while (ouch).

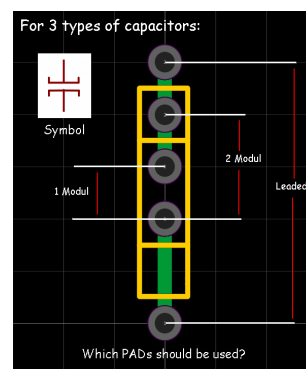
Installation of RG 178:



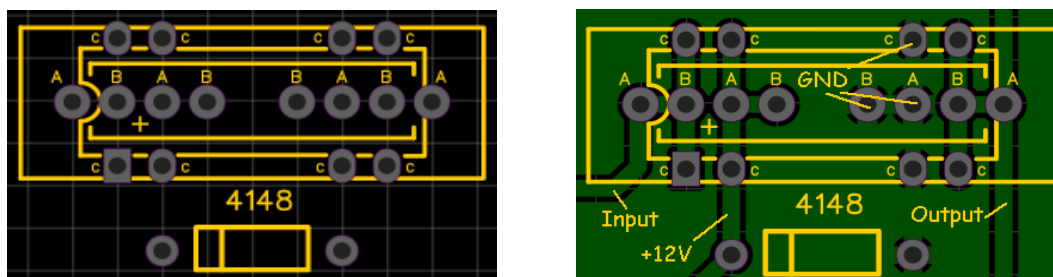
Then install:

All soldering pins. Then mount the 'lowest components' first, resistors, coils, capacitors and relays.

The slightly special 'capacitor footprint figure' used in the filter section is intended for 3 sizes capacitors can be used, 1 module, 2 modules or e.g. a leaded capacitor (Styroflex or Silver mica), or whatever the 'drawer' can offer.



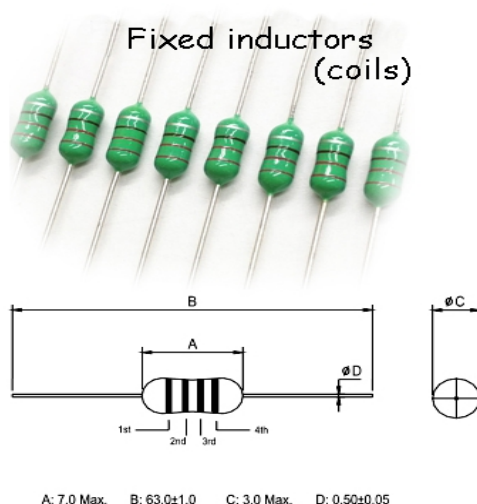
Installation of relays:



The PLL board is 'laid out' so that 3 types of '12V reed relays' (single closing contact) can be used, use the corresponding 'lettered holes A – B and C'. The grid shown in the picture is 'a module Dual In-line'.

Remember you can 'zoom in the image with the +/- keys' in the PDF file...

Be particularly careful with the color codes when fitting the 'fixed inductors' and that the right ones go in the right holes.



Testing:

If the assembly is done correctly and no components are defective, then the module should work immediately when the power is connected for the first time.

Is the line clear?

When the module is fully assembled, it is mounted as mentioned on the 'back' of the VFO module with the components facing outwards and with the input facing to the left.

The connection between the VFO's output (CLK 2) and the PLL filter's input is connected with a 'short' piece of RG178 cable, possibly using an SMA connector. The filter's output is also connected via a piece of RG178 cable to the 'front end module', the length here is determined by your construction and the locations of your modules (not critical).

Diodes:

1N4148 6 pcs.

Relays: (see text)

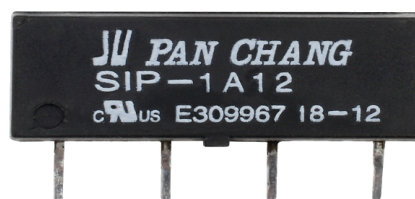
12V en slutte 6 pcs.

Solder pins:

For 1,2mm 7 pcs.

PCB:

BSP MD6 PLL-filter.



Several types can be used, see text..

MD6 Single filter:**Resistors** (1/4 W 7 mm):

100 1 pcs.

Trim potm. 10mm Horizontal:

2k2 1 pcs.

Capacitors (keramiske 1 modul):

10nF 1 pcs.

Filter capacitors (More types possible, see text):

180pF 2 pcs.

270pF 1 pcs.

Fixed Inductions

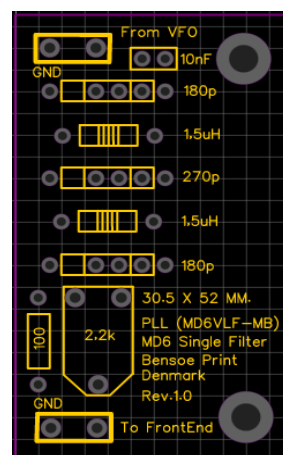
1,50uH 2 pcs.

Solder pins:

1,2mm hul 4 pcs.

PCB:

BSP MD6 Single filter.

**Component purchase:****Bensøe Print:**

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