

BSP

MD6 Module catalog..

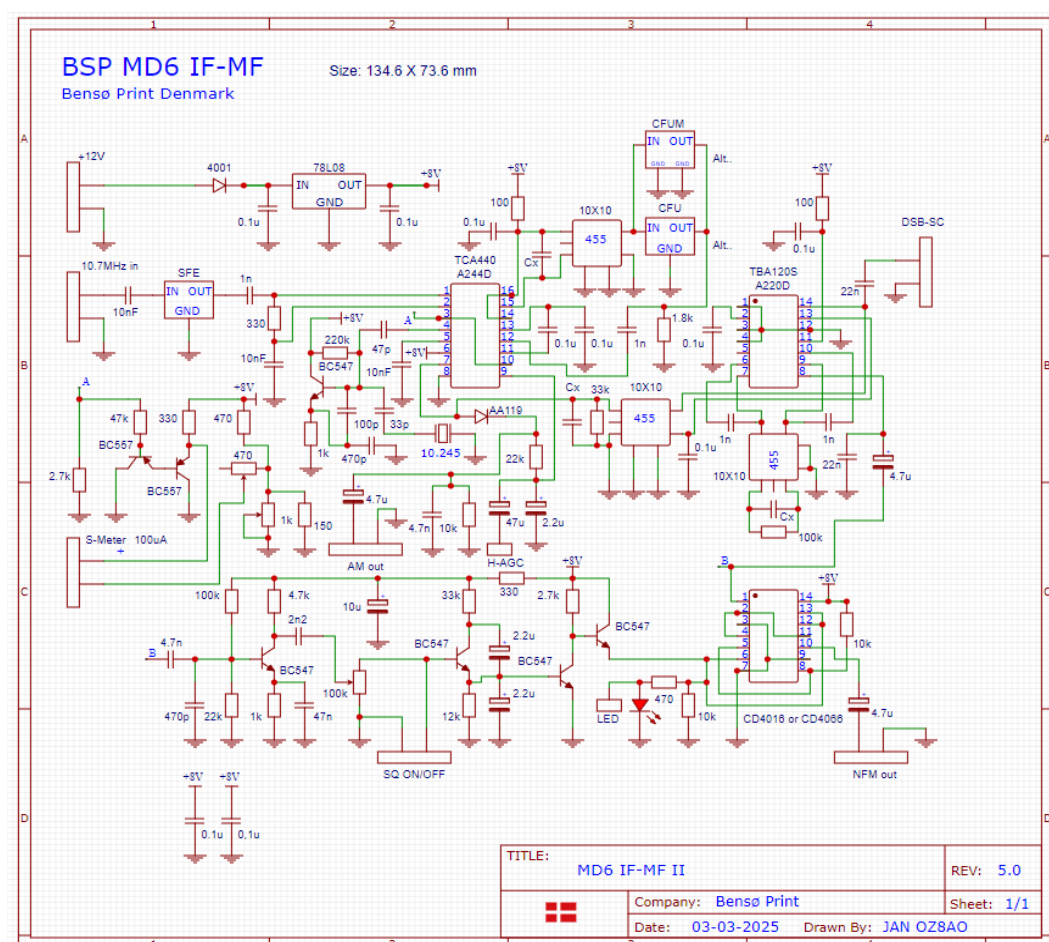
PCB and diagrams..

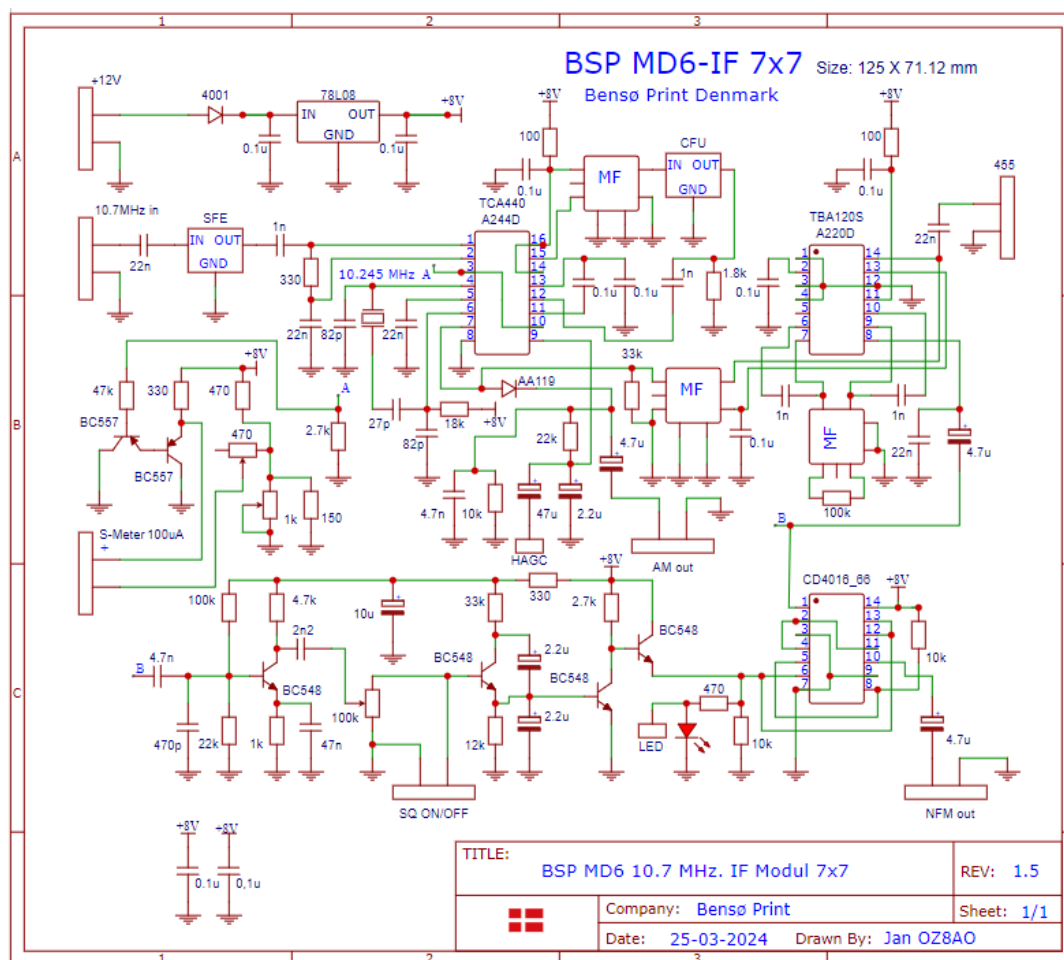
Rev. 28-06-2025

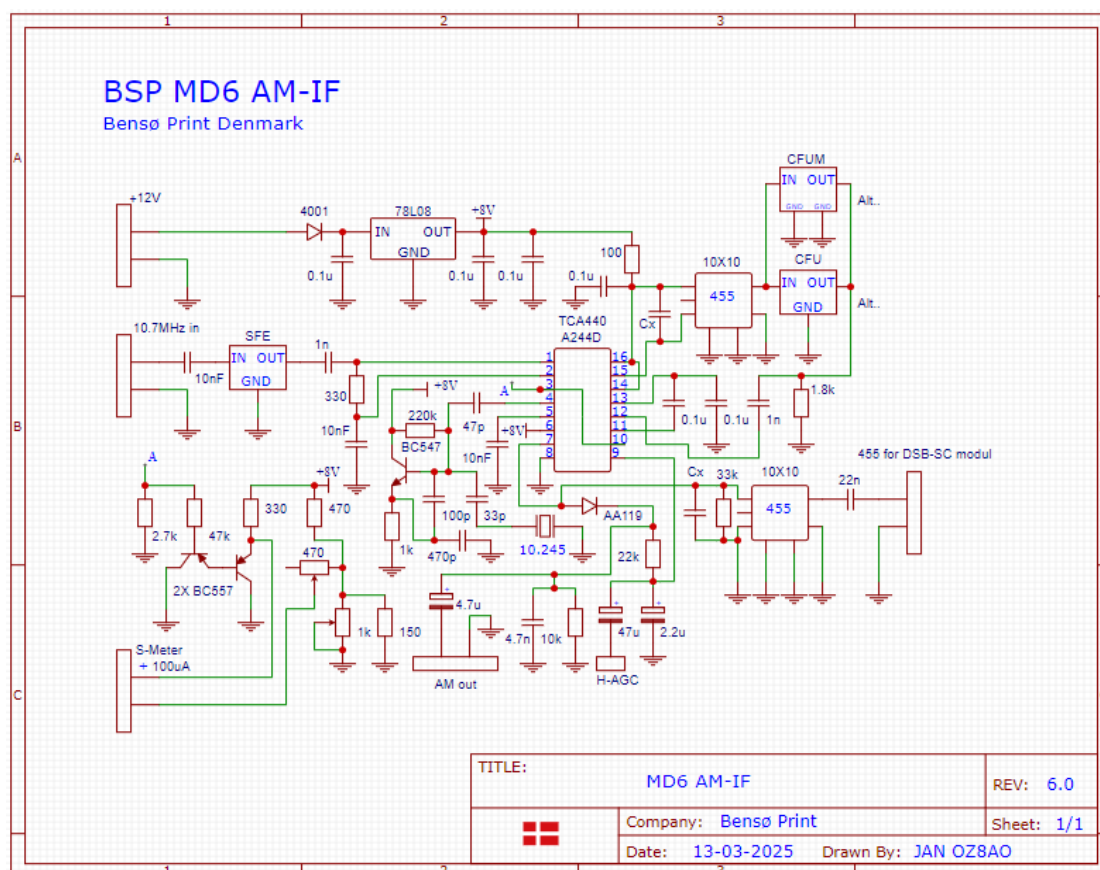
Bensøe Print
Engparken 35
3400 Hillerød
Denmark.

https://bensoe.dk/ENG_Projekt2024.html

PS: Remember you can zoom in with '+' / '-' in the PDF file's images.

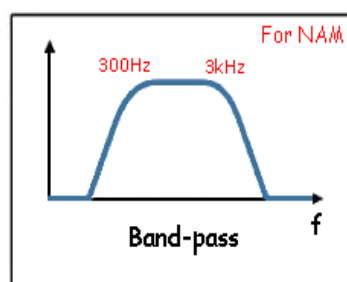
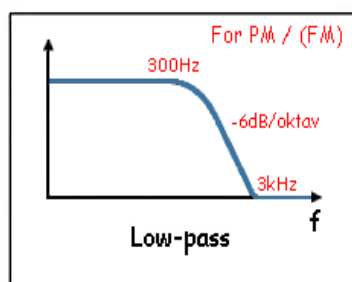
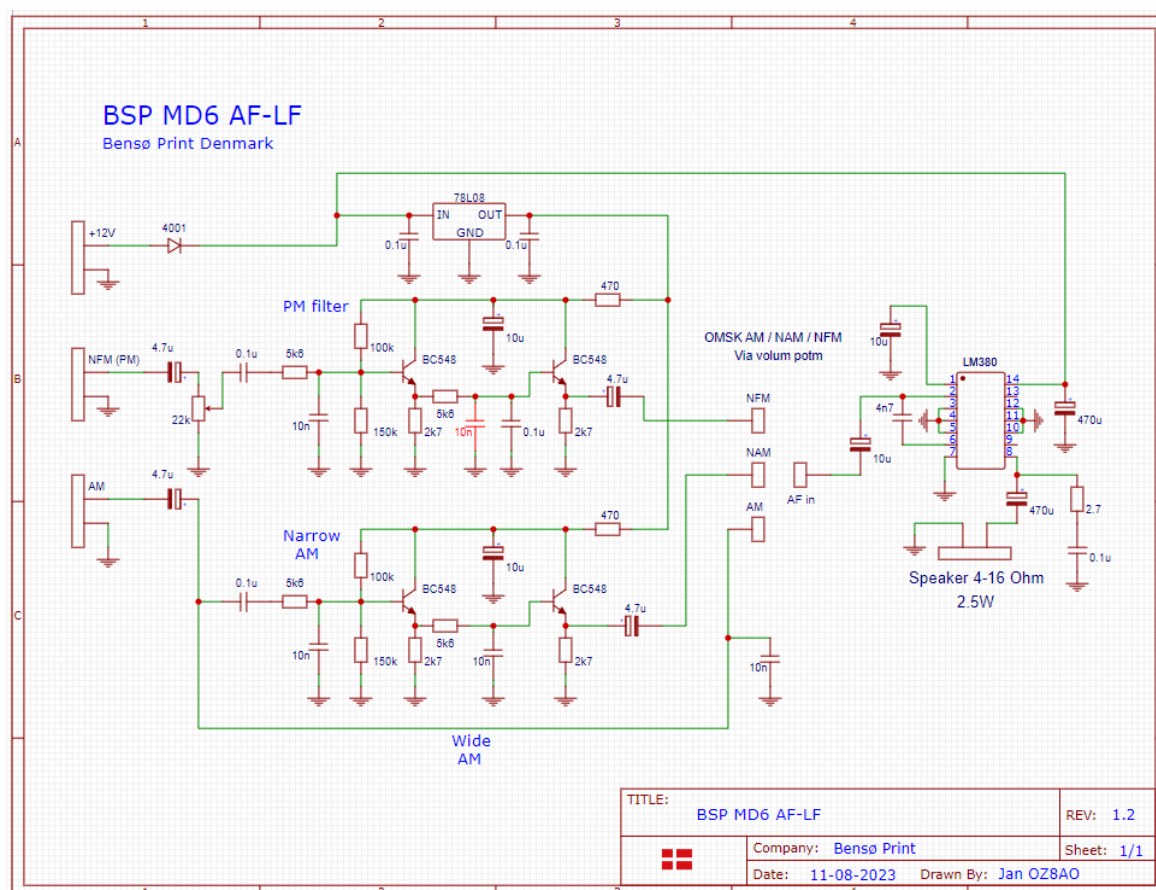
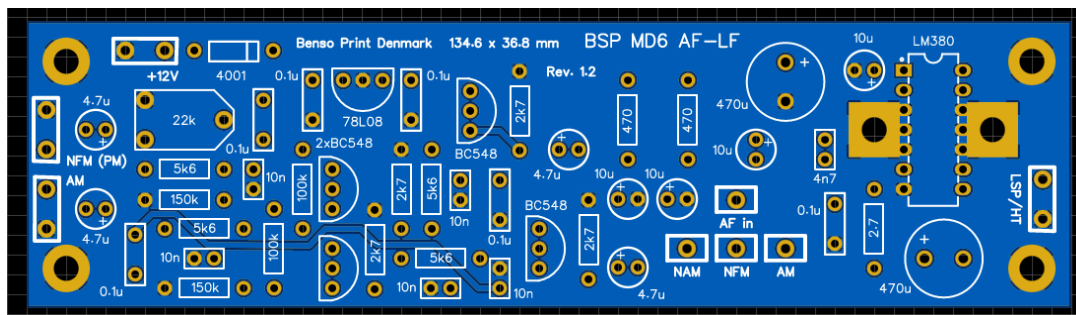




[illegible]

MD6 AF-LF

2.5W AF module with 2 types of speech filters (270 Hz – 3 kHz.). Retresponse (NAM) and -6dB/octave for 'PM' (NFM), in addition the module can also be used for AM broadcast (without filters), selected via a switch:



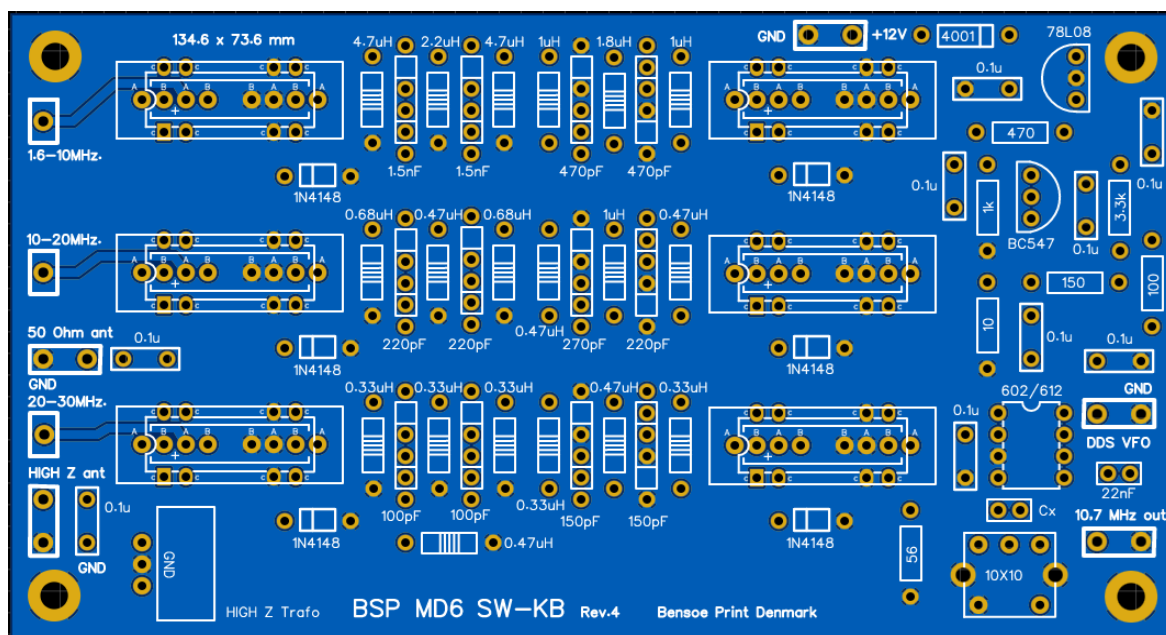
That's why we call the module 'DSB-SC'.



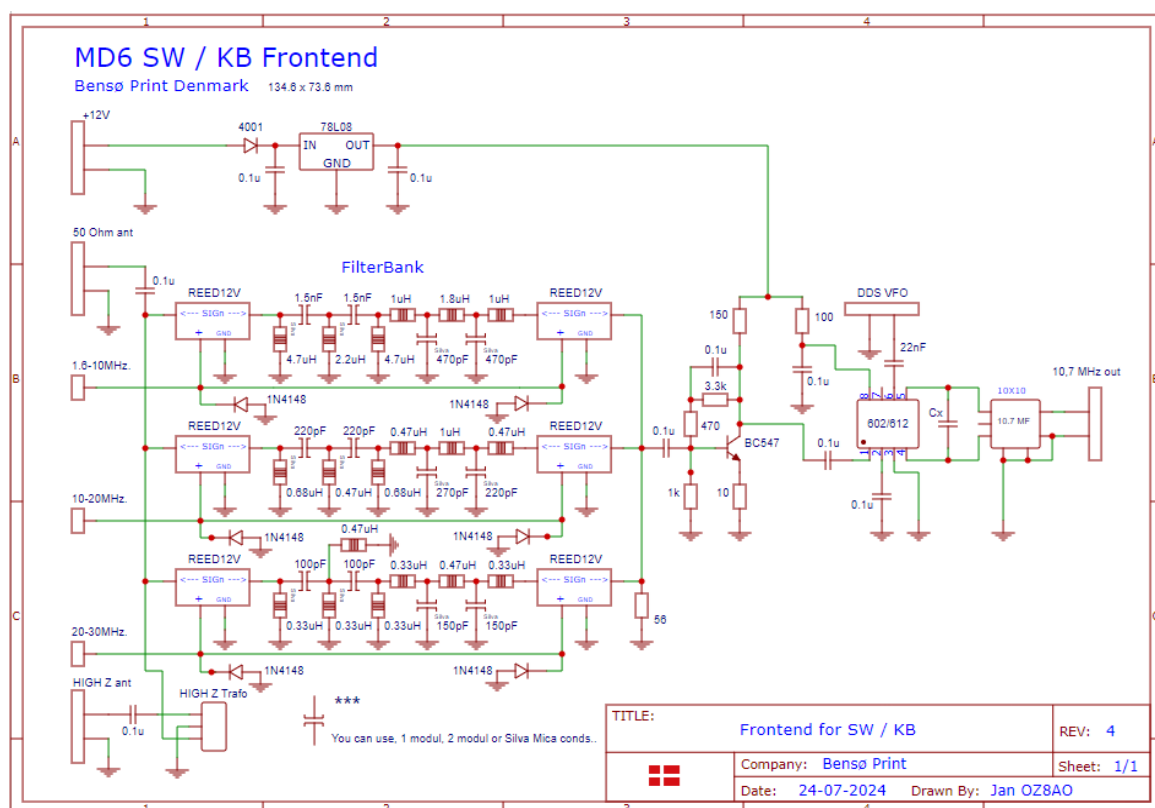
MD6 SW-KB

Frontend module with filters and a RF stage, with 10.7 MHz. output.

With 3 pcs. HP/LP filters: 1.6 – 10 MHz. / 10 – 20 MHz. and 20 – 30 MHz.:

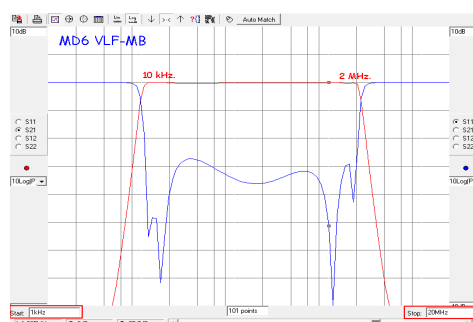
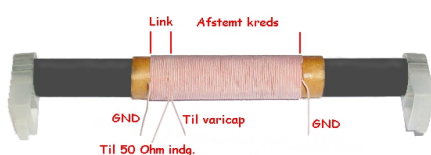
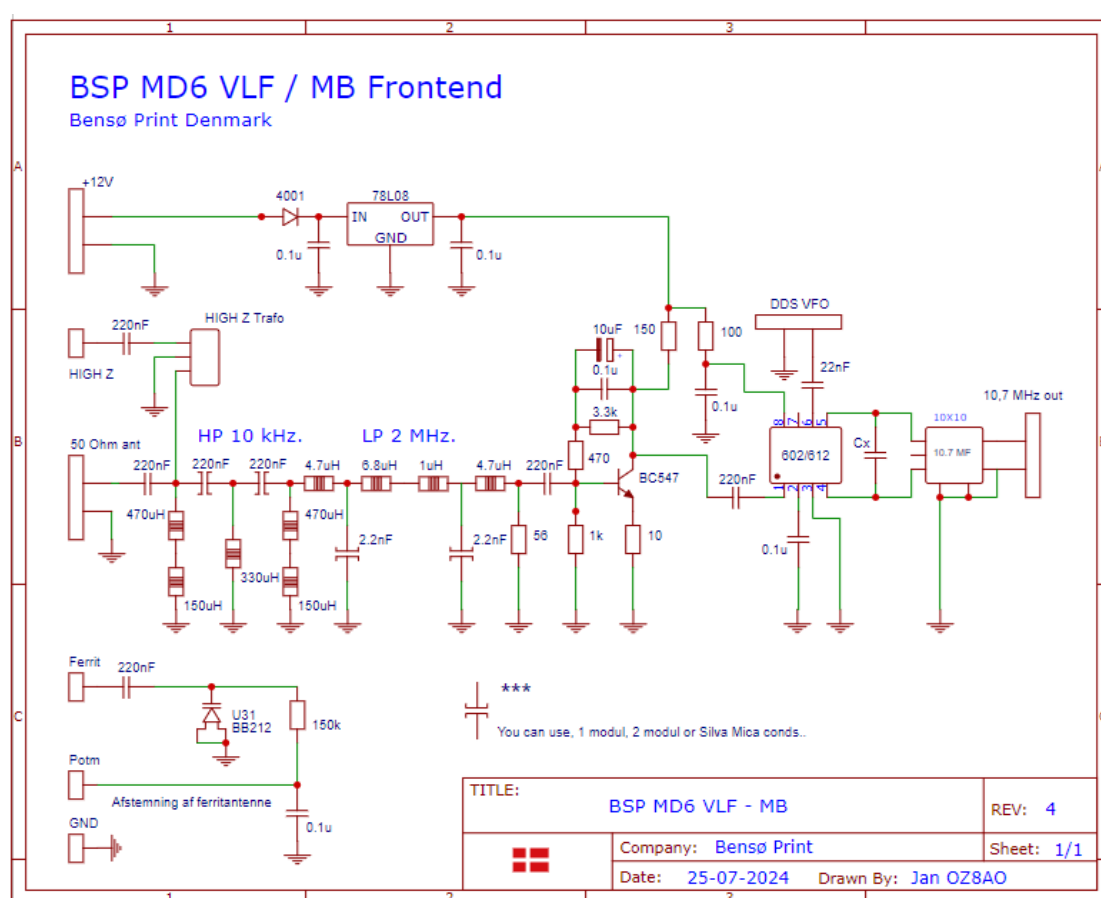
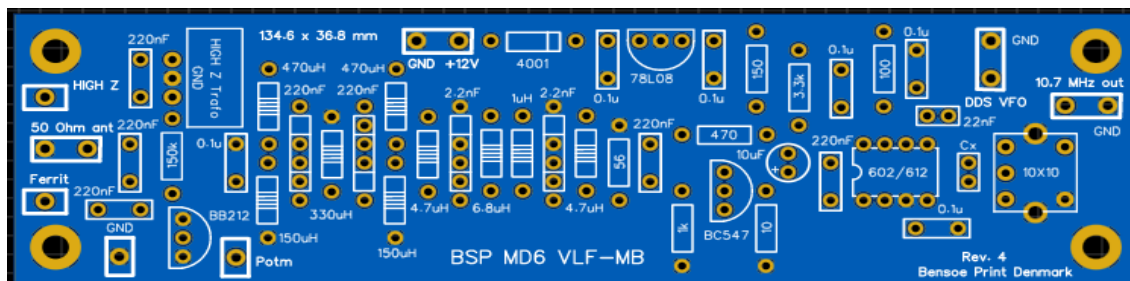


As can be seen on the PCB, 3 types of reed relays can be freely selected.



MD6 VLF-MB

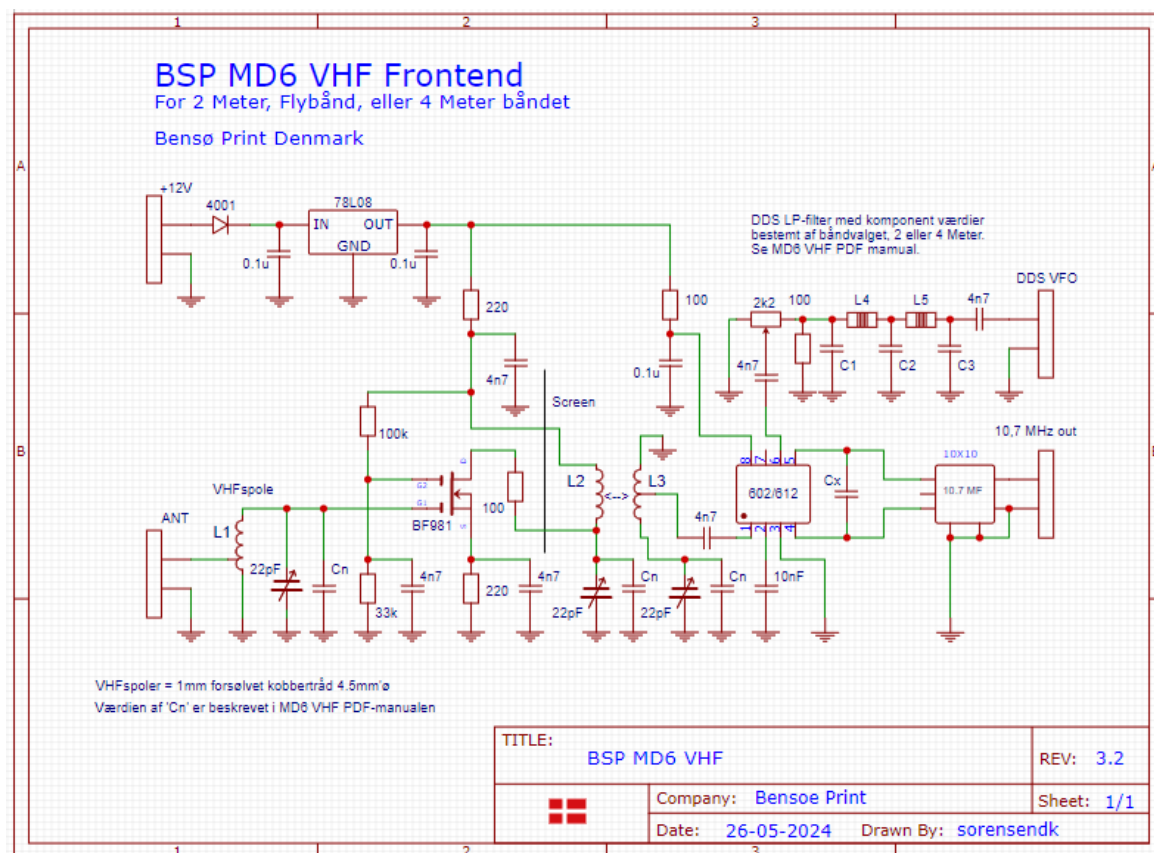
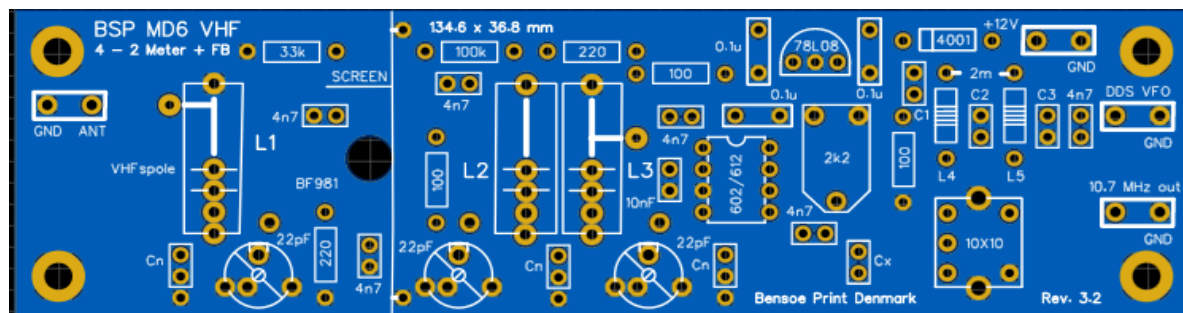
Frontend Module with filter for 10 kHz to 2 MHz. and a RF stage, with 10.7 MHz. output.
Can also be used for listening to a single 'SW band' using coil data from the 'SW-KB module'.

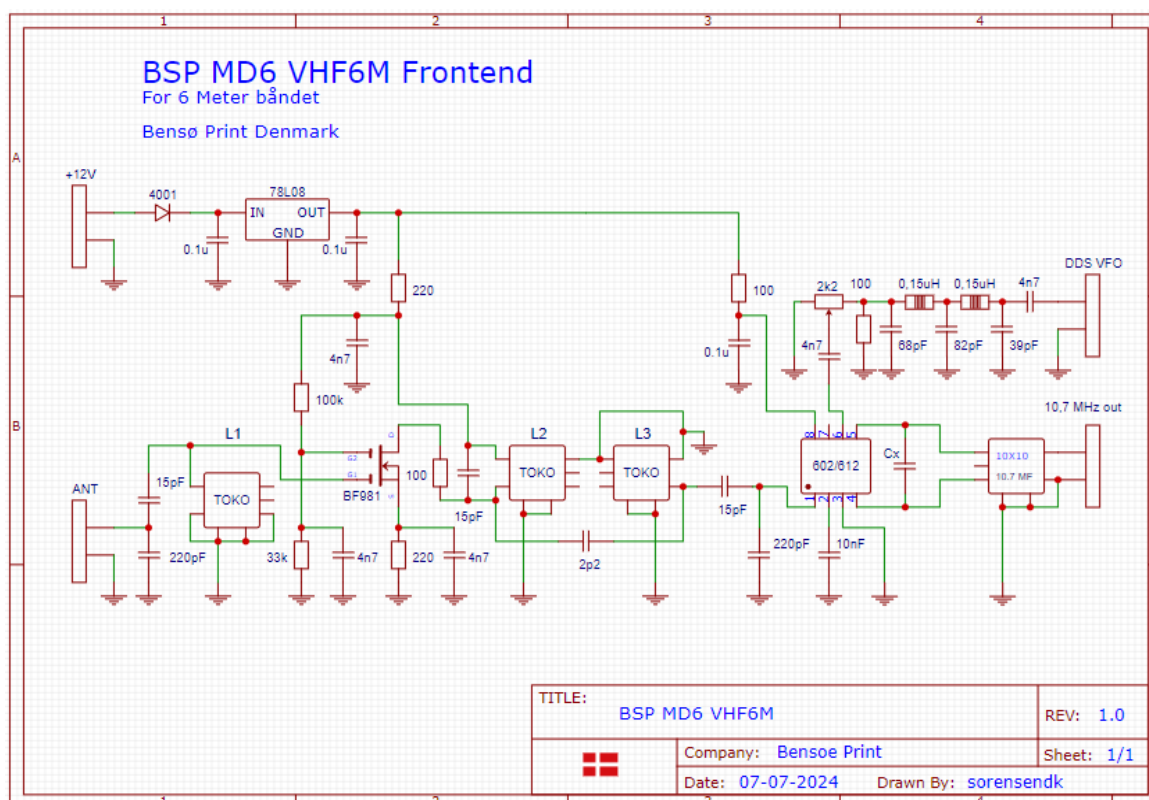


MD6 VHF

Frontend module with Dual GATE MOS HF stage and 10.7 MHz. output.

Depending on the selected coil data and DDS filter, the module can cover: 4 meters, the air band and the 2 meter band and has built-in PLL filter:

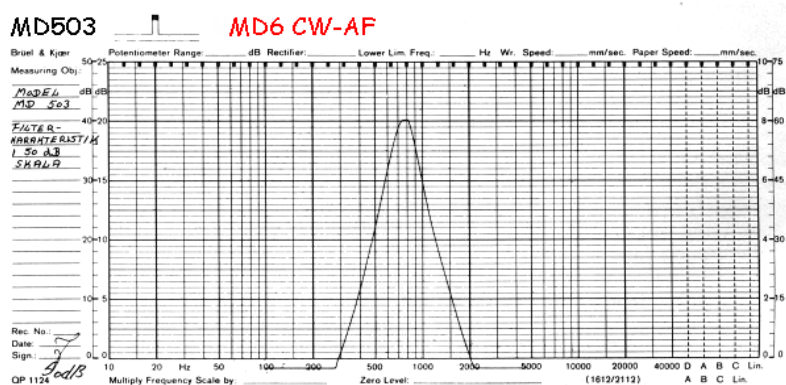
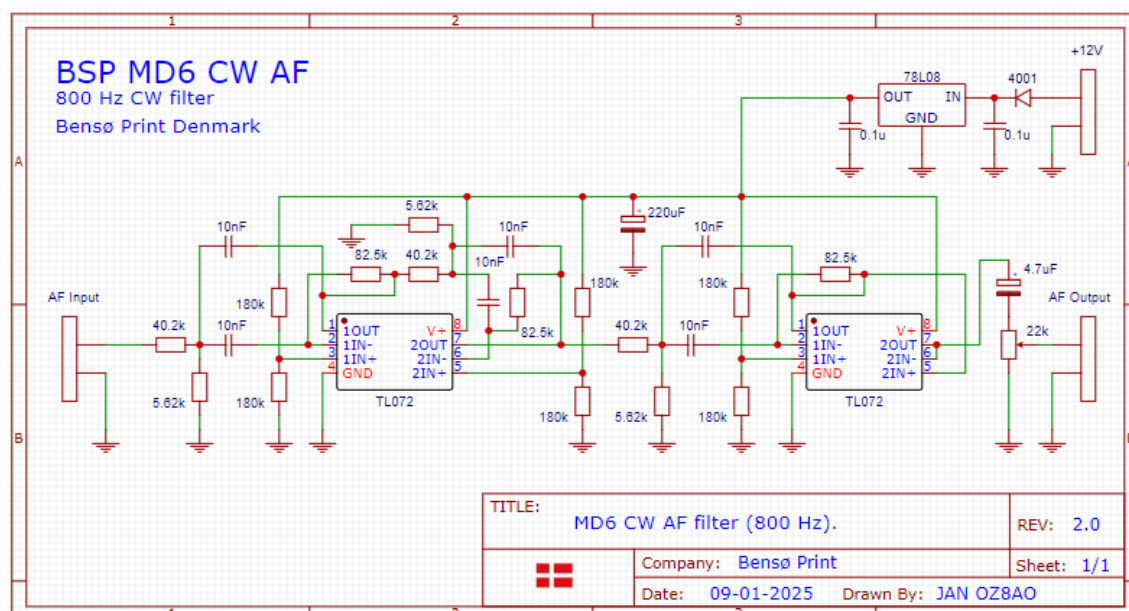
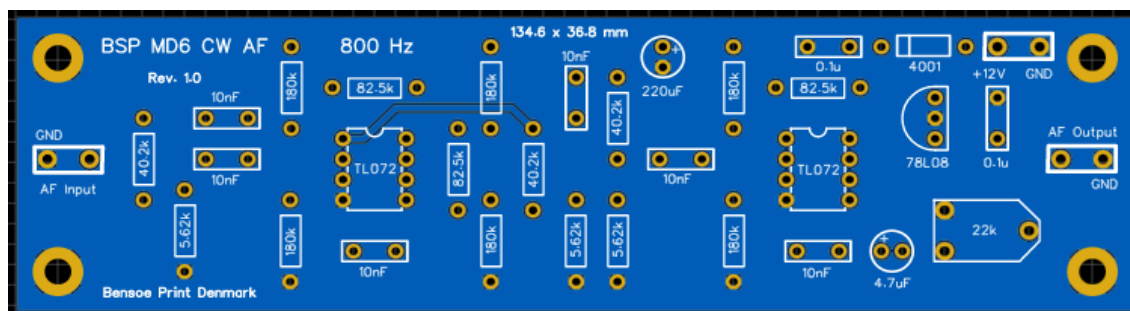


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MD6 CW-AF

Is an AF based CW filter at 800 Hz.

The module is connected between 'MD6 DSB-SC's' output and via a switch to the 'MD6 AF-LF' input, so only sound around 800 Hz escapes. CW through.



The MD6 CW-AF is a 'modernized version' of the well-known BSP MD503 CW filter

MD6 VFO (1)

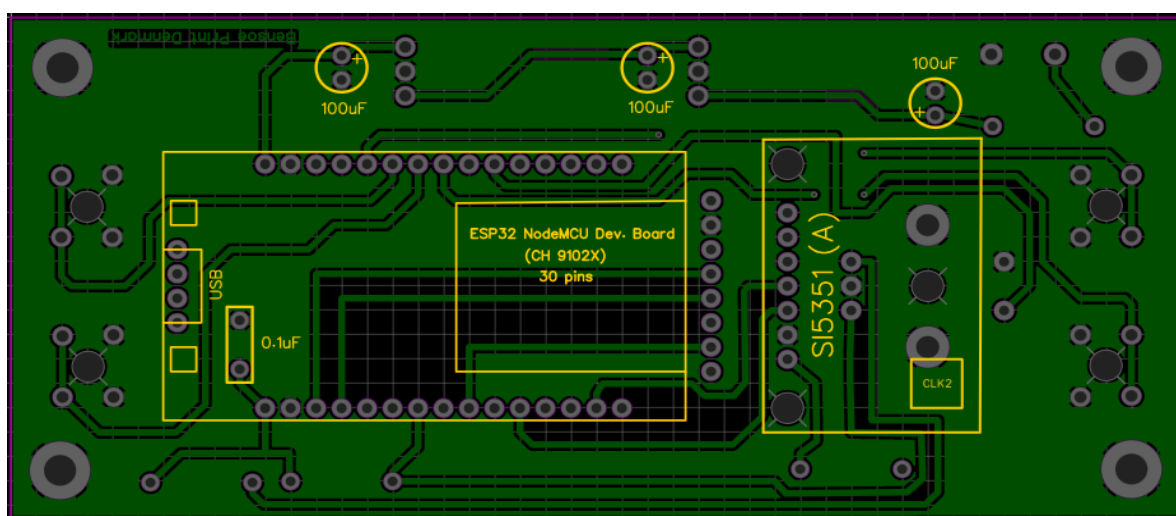
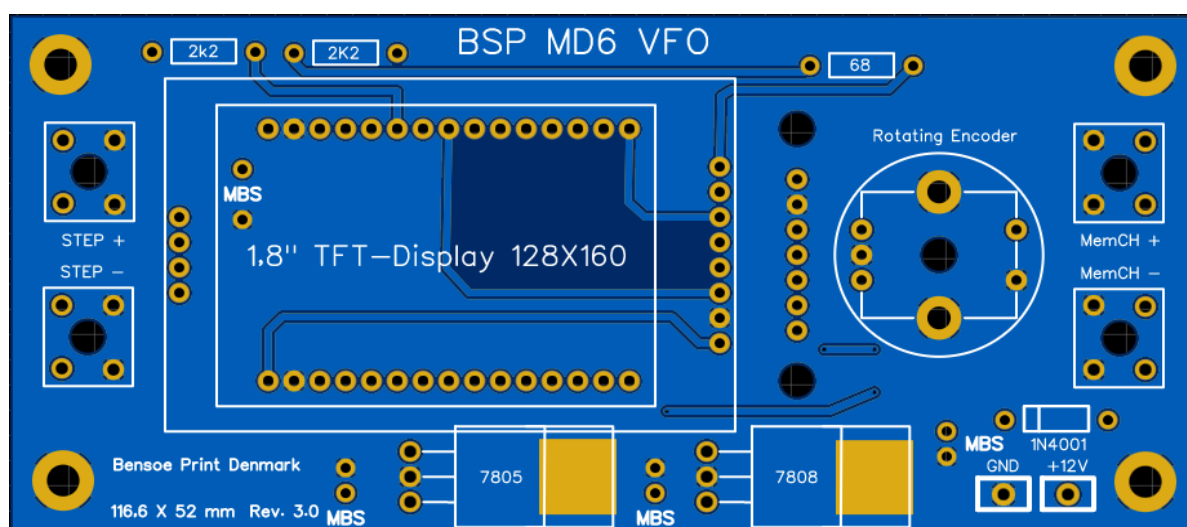
Our DDS-VFO covers listening together with our Frontend modules from 10 kHz. to 146 MHz.

The VFO consists of 3 'basic units'. A TFT-Display 128X160, a CPU module ESP 32 and a PLL module SI 5351, which can emit a frequency of up to 160 MHz.

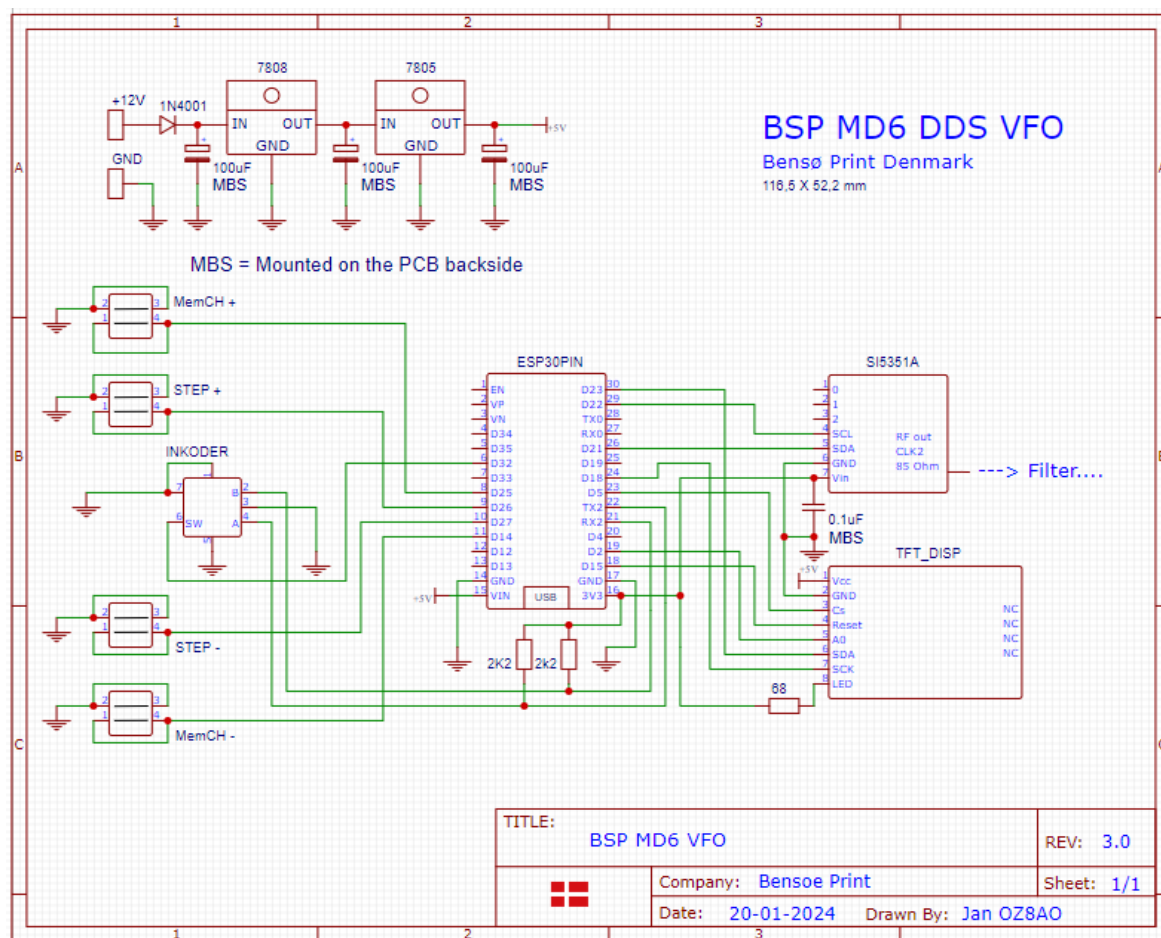
The ESP 32 CPU module comes standard with an intermediate frequency of 10.7 MHz.

The VFO has 20 fixed frequencies built in, plus a 'user selected' which is always started with when the VFO is switched on.

Pads marked 'MBS' are for components that must be mounted on the back of the VFO PCB board.



'MBS components' and their mounting on the back. See more in the VFO manual.



2 part 'Vintage scale'.

The frequency is set with a 'digital encoder' and step can be selected from 10 Hz. to 10 MHz.

Fixed preselected frequencies:

| Ham band: | | Frontend module: |
|---------------------------------------|----------------|--------------------------|
| 137,0 kHz. | LW-band | 'MD6 VLF-MB' |
| 1,840 MHz. | 160 Meter band | 'MD6 VLF-MB'/'MD6 SW-KB' |
| 3,600 MHz. | 80 Meter band | 'MD6 SW-KB' |
| 5,300 MHz. | 60 Meter band | 'MD6 SW-KB' |
| 7,040 MHz. | 40 Meter band | 'MD6 SW-KB' |
| 10,130 MHz. | 30 Meter band | 'MD6 SW-KB' |
| 14,100 MHz. | 20 Meter band | 'MD6 SW-KB' |
| 18,120 MHz. | 17 Meter band | 'MD6 SW-KB' |
| 21,100 MHz. | 15 Meter band | 'MD6 SW-KB' |
| 24,940 MHz. | 12 Meter band | 'MD6 SW-KB' |
| 28,500 MHz. | 10 Meter band | 'MD6 SW-KB' |
| 50,100 MHz. | 6 Meter band | 'MD6 VHF6M' |
| 70,100 MHz. | 4 Meter band | 'MD6 VHF' |
| 144,000 MHz. | 2 Meter band | 'MD6 VHF' |
| Broadcast band: | | |
| 17,20 kHz. | Grimeton | 'MD6 VLF-MB' |
| 198,0 kHz. | BBC Radio 4 | 'MD6 VLF-MB' |
| 648,0 kHz. | Radio Caroline | 'MD6 VLF-MB' |
| 1,440 MHz. | Radio 208 | 'MD6 VLF-MB' |
| 6,055 MHz. | Radio OZ-Viola | 'MD6 SW-KB' |
| 27,025 MHz. | CB-band | 'MD6 SW-KB' |
| Plus a user-selected start frequency. | | |

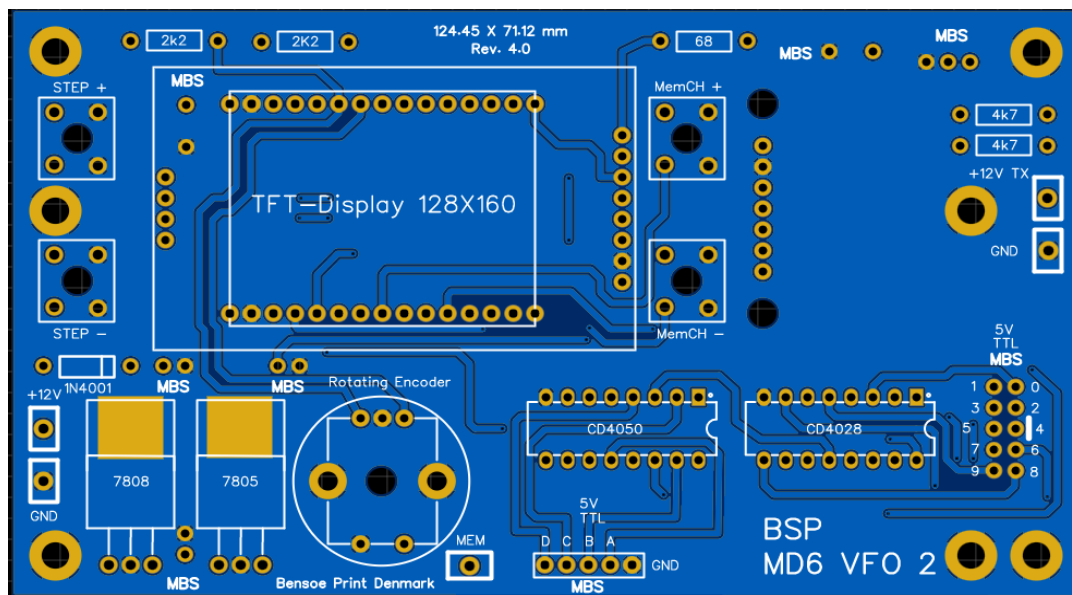
Bensoe Print can deliver fully programmed 'ESP 32 CPUs' in various versions, in addition to our 10.7 MHz. IF also for other intermediate frequencies, such as to 21.4 MHz. 9 MHz. and 455 kHz. plus as direct 'Frequency generator' (measuring transmitter) without 'shifted intermediate frequency', can be supplied.

In addition to this, our VFOs can be delivered completely assembled and tested, as well as in a version for external clock, 10 or 25 MHz (for our Mercury module).
(Specify when ordering).



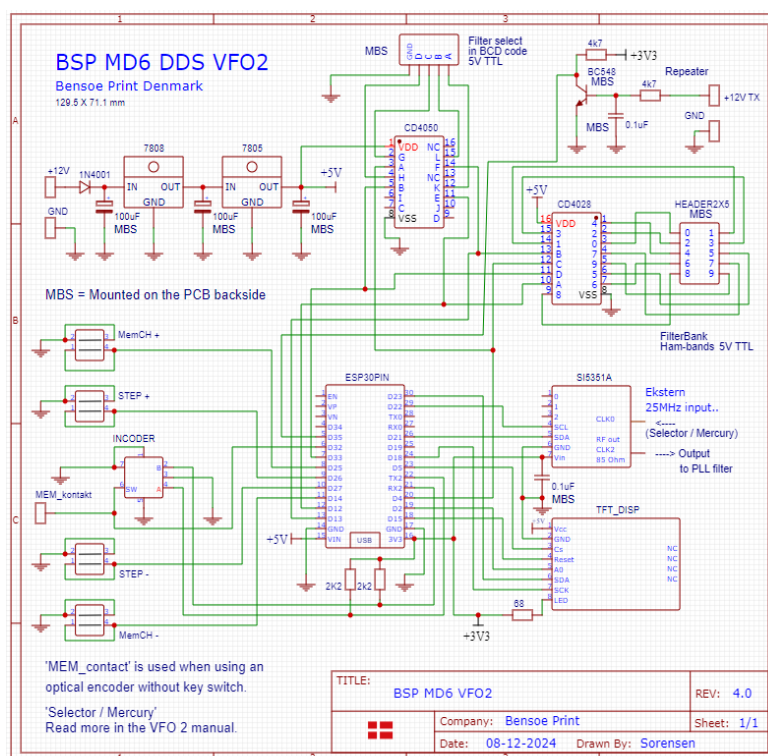
MD6 VFO (1)

MD6 VFO 2



MD6 VFO 2 has basically the same technical specifications as VFO (1), but differs by having more functions and the operation has been changed to the so-called 'Collins design' with the tuning button sitting below the display.

One of these functions is the ability to automatically control a 'TX filter bank' with up to 10 of the known 'amateur radio bands'. The control can be 'decimal' (0 to 9) or BCD coded if the filter bank requires this form of control. The control takes place at TTL level with active high. Using the VFO 2 to 2 Meter band, its output frequency can be switched to 600 kHz 'repeater operation' controlled by the station's +12V TX in the 145 to 146 MHz range. The board's 'extra mounting holes' fit the MD6 PLL filter as a 'sandwich board'.



MD6 PLL VFO filtre:

A DDS VFO requires special filters.

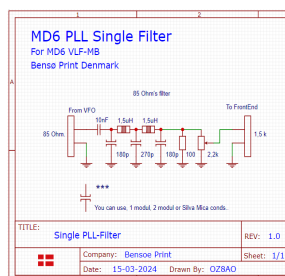
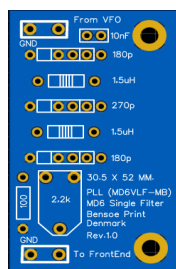
The filters are inserted between the VFO's output and the Frontend's VFO input.

The VFO output can be adjusted in the filters output.

(described in the associated manuals).

MD6 Single Filter:

This filter is especially intended when our 'Frontend MD6 VLF-MB' is used. The filter can also be used for other purposes and frequencies with a changed 'component composition'. The filter's mechanical dimensions are adapted so that it can be easily mounted on the 'back' of the DDS VFOs.

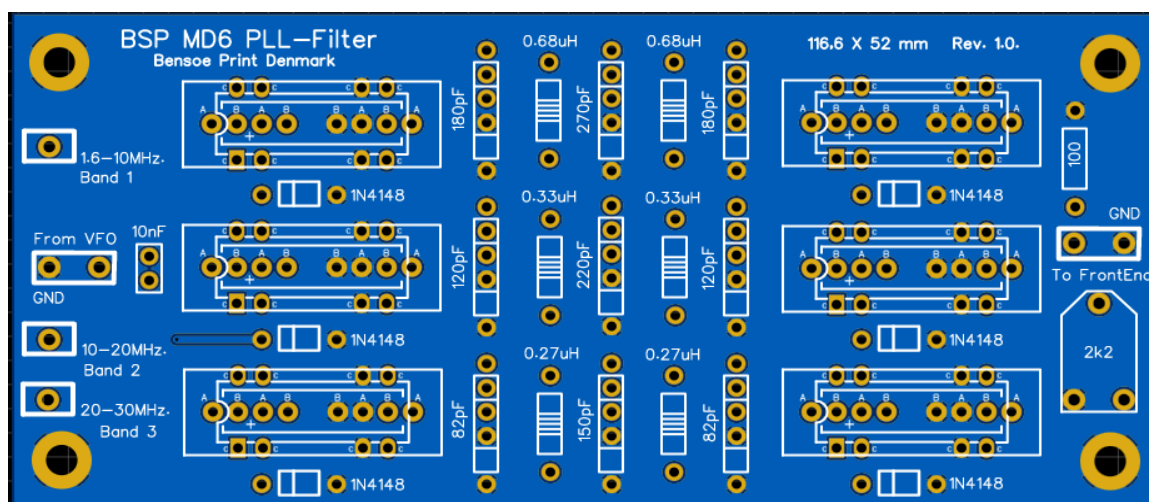


MD6 PLL Filter:

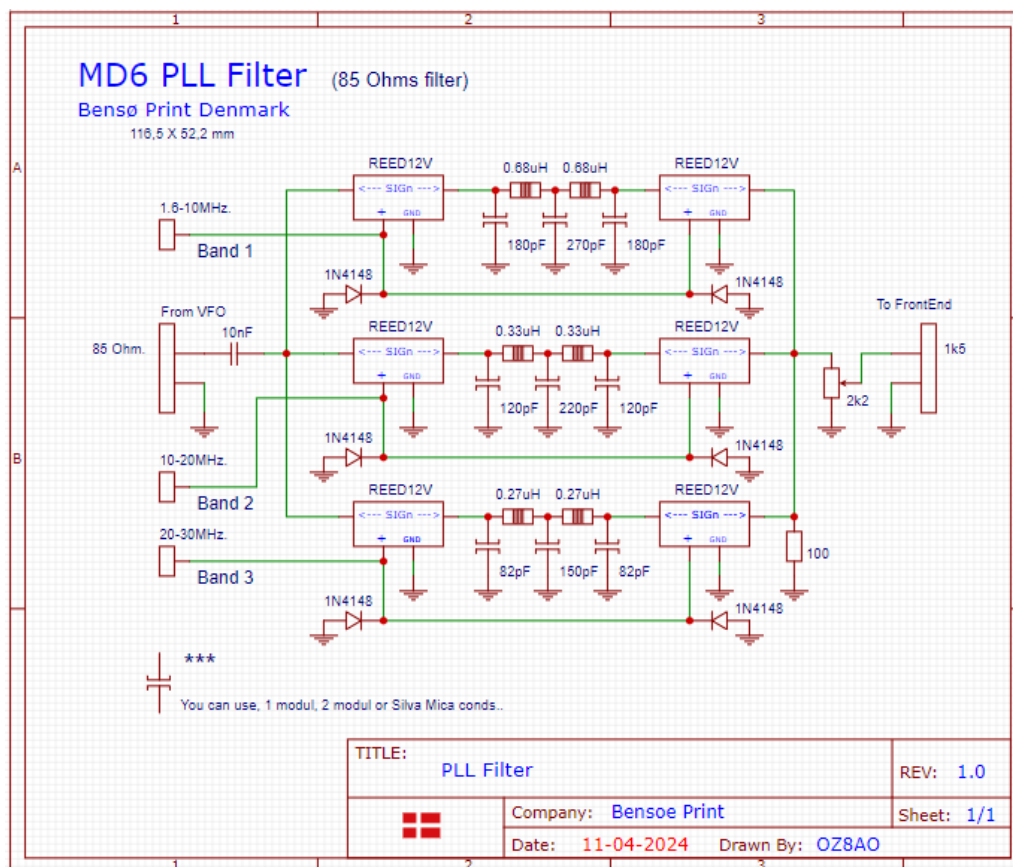
This filter is specially intended for our 'Frontend MD6 SW-KB' is used.

The filter bank sections are switched with 12V 'reed relays' and can be directly connected to 'SW-KB's' filter bank switch.

The filter's mechanical dimensions are adapted so that it can be easily mounted on the 'back' of the DDS VFOs.

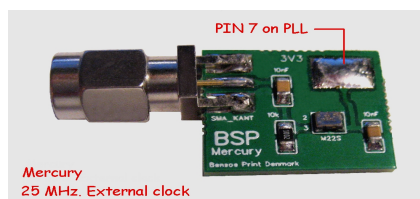


As can be seen on the PCB, 3 types of reed relays can be freely selected.



MD6 Mercury

When this small module is used, your VFO gets extra frequency accuracy and stability. The module is a so-called external 'clock generator' and delivers a precise 25 MHz signal to the PLL unit SI5351. **The module can only be purchased fully assembled and tested from us.**



The SI5351 normally has its own control via a built-in X-tal, but it often turns out that the tolerances on it can cause deviations of up to +/- a few kHz at frequencies above 100 MHz.

To use the mentioned module, the VFO must be 'prepared' for external clock control, this must be stated when ordering a fully assembled VFO. The VFO can also be supplied for use with a 10 MHz precision OCXO clock, if 'Hz accuracy' throughout the coverage area is required.



Precisions 10 MHz OCXO

Sale of PCB boards, VFO units and selected components

Plus download of project manuals

Project 2024

Price List

Bensoe Print
Engparken 35
3400 Hillerød.
Denmark

Mail contact:

jansteendk 'a' hotmail.com
