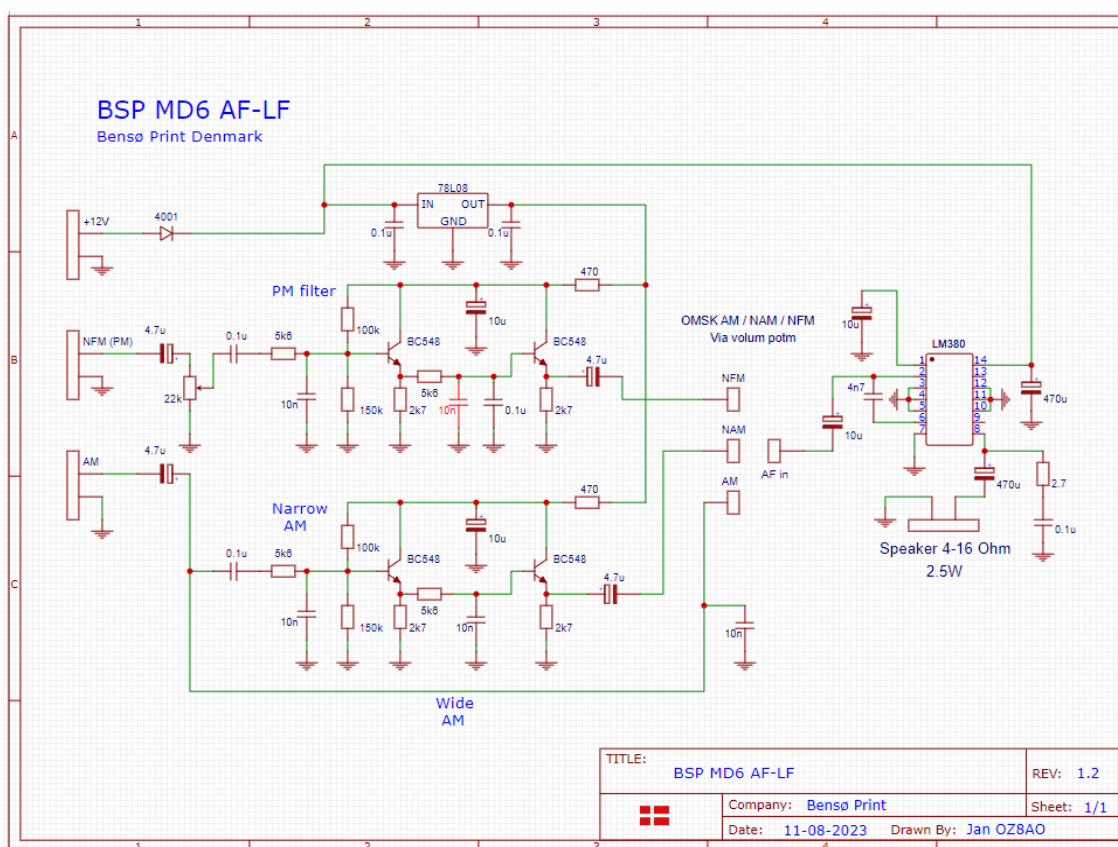
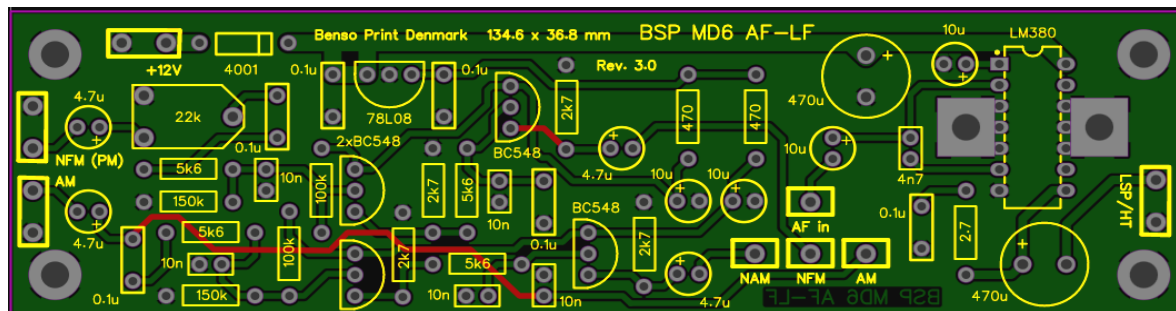


Instructions for mounting of the BSP module MD6 AF-LF

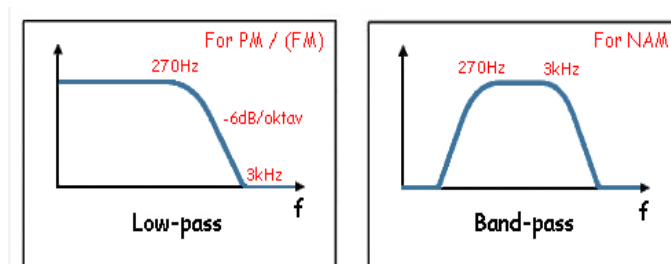
Bensoe Print Denmark.



Description:

The BSP MD6 AF-LF is our AF amplifier. It has 2 inputs, one for AM and one for FM. The AM input is 'split' into 2 signal paths. One is passed through a 'retresponse speech filter' (270 Hz. - 3 kHz. / NAM = Narrow AM) and is used for voice communication, whereas the 'second path' is fed directly to the AF output amplifier and is primarily for 'broadcast' use.

The NFM/PM input (Narrow FM) in most cases receives an 'FM signal', which is in reality a phase-modulated PM signal, used by most communication transmitters on VHF use. PM has the property, as opposed to FM, that the sound/speech is 'treble-raised by +6dB / octave'. Therefore, the signal is sent into an LP speech filter, which correspondingly 'lowers the speech by -6dB / octave'.



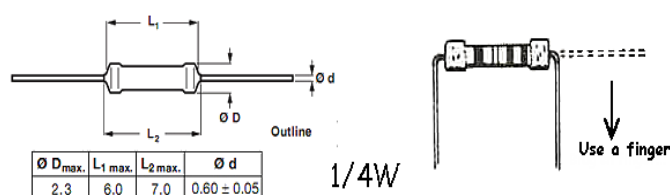
This lowering of the sound signal (called post-emphasis), is a function which, on top of that, gives the receiver an improved sensitivity, as higher-lying noise in the signal is attenuated. The 'FM detector' has a higher sound level than the AM signal, hence a trim potentiometer is inserted in the FM input, so that the sound levels, when the 'mode switch' is operated, can be adjusted to the same volume.

The amplifier is completed with an LM 380, which delivers 2.5 W to a 4 – 8 Ohm speaker.

Mounting 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.

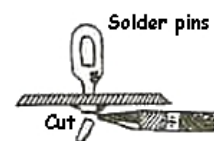
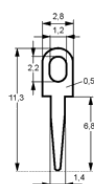
Should you happen to misplace a component in the plated solder pad, then use a 'solder wick' or a desoldering pump, first from the top (if possible) and then from the bottom.



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. NB: Can also be used for additional cooling of the LM 380



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).



Then install:

All solder pins. Then mount the 'lowest components' first, resistors, one-module capacitors, two-module capacitors (100 nF.), electrolytic capacitors, transistors and finally the LM 380.

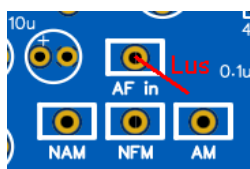
The LM 380 must not be mounted in an 'IC socket' and must therefore be soldered directly into the printed circuit board. This is due to cooling considerations and therefore the 2 x 3 IC center legs must be soldered on both the top and bottom of the uncovered plane. If it turns out that the LM 380 gets 'too hot' during operation, you can use the two 3 mm holes at the IC for additional cooling. This is done by fitting 2 screws in the holes and screwing them to the bottom of the cabinet, such that the entire bottom of the cabinet also serves as a heat sink.

Testing:

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

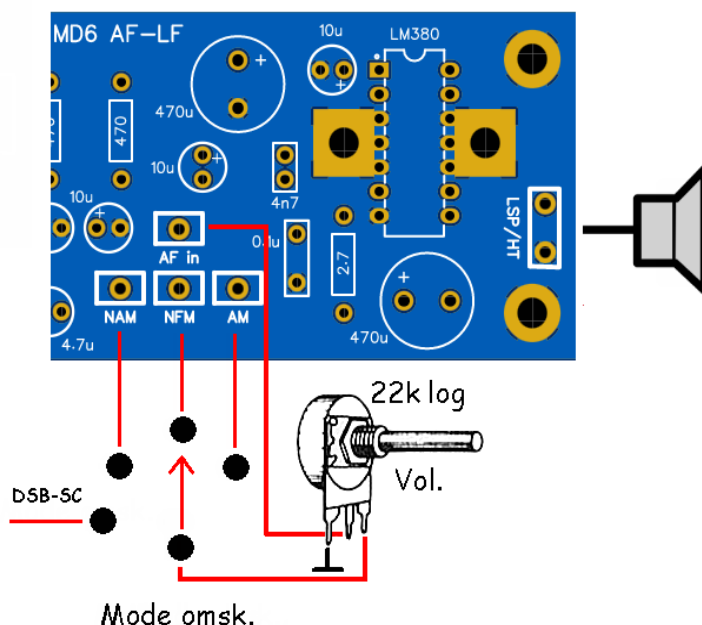
Is the line clear? ***

When the module is fully assembled, connect a speaker to the output, a '**removable lug/lus**' on the 'mode terminals' and supply 12V. Then turn the trim potentiometer at the FM input all the way up.



Do a simple '50 Hz. hum finger test' on the two inputs and test all 3 'mode terminals' by moving the lug/lus around.

The final assembly in the cabinet:



Connect the FM and AM outputs of the IF module to the corresponding inputs of the LF module and connect a 'volume pot' plus a 3 or 4 position switch' as shown in the picture. As long as the distances are not too long, you can use an 'unshielded wire' to these connections.

Parts list:

Resistors (1/4 W 7 mm):

2,7 1 pcs. 470 2 pcs. 2,7k 4 pcs. 5,6k 4 pcs. 100k 2 pcs. 150k 2 pcs.

Trim potm.:

22k hoz. 1 pcs.

Capacitors (keram. 1 modul):

4,7nF 1 pcs. 10nF 5 pcs.

MKT 2 module:

100nF 6 pcs.

Electrolyte 1 modul vertical 16V >:

4,7 uF 4 pcs. 10uF 4 pcs. 470uF 2 pcs.

Diode:

1N4001 1 pcs.

Transistor:

BC547 / 548 4 pcs.

ICs:

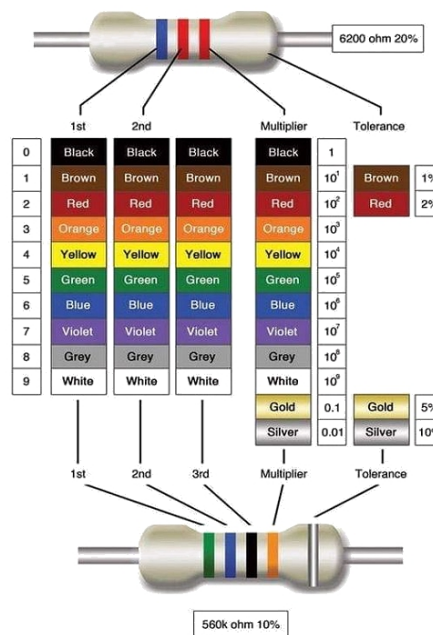
78L08 1 pcs. LM 380 1 pcs.

Solder pins

1,2mm hul 12 pcs.

PCB:

BSP MD6 AF-LF.



Component purchase:

Bensø Print:

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and

Local dealers in your country....

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