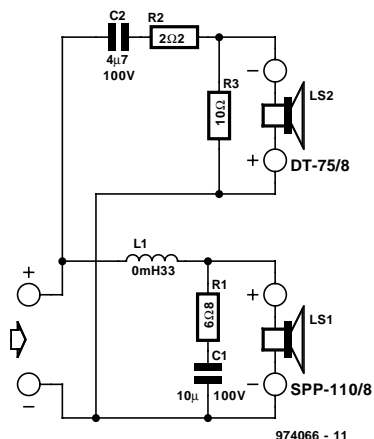


# simple two-way loudspeaker

1



2



In this design of a simple loudspeaker enclosure an attempt has been made to achieve a reasonably good quality with a minimum of material. In spite of inexpensive drivers, this aim was met.

The cross-over filter has a 6-dB roll-off, which means only one component per driver:  $L_1$  for the woofer and  $C_2$  for the tweeter. There is also an impedance-correction network,  $R_1$ - $C_1$ , for the woofer, which 'flattens' the rising impedance of this driver.

There is an attenuation network,  $R_2$ - $R_3$ , to match the volume level of the tweeter to that of the woofer.

Note that owing to the position of the drivers, the polarization of the tweeter must be the opposite of that of the woofer.

The unit may be used as a rear speaker in a surround-sound system or with a multimedia computer. In the latter case, it must be placed well away from the monitor since the

magnets of most inexpensive drivers are not screened.

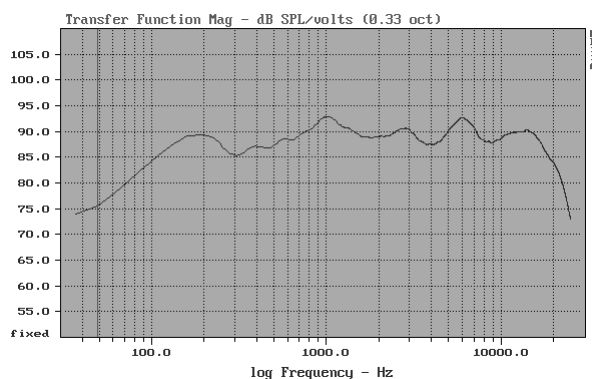
The bass-reflex enclosure (**Figure 2**) has a volume of 4.5 litres. The bass-reflex port is a standard

40 mm dia. PVC pipe, 175 mm long (if its walls are 2 mm thick; if they are 3 mm thick, the length must be 150 mm). The material used for the enclosure is 8 mm thick chip-board or similar.

The nominal impedance of the system is 6  $\Omega$ . Maximum power input is 30 W. The cross-over frequency is 4 kHz. The frequency characteristic of the loudspeaker is shown in **Figure 3**.

If the coil is not obtainable ready-made, it may be wound on a non-metallic former, 28 mm dia and 28 mm long. The winding consists of seven layers of 1.5 mm dia. enamelled copper wire.

3



[Giesberts - 974066]