1. General

The filter is symmetrical, i.e. input and output are exchangeable with each other. But the external coupling coil has to be connected to pin 3 in any case.

The filter can be driven balanced only.

To get a balanced signal for test measurements with the Network Analyzer we use two wideband 1:1 transformers at each port:
SMT 4, vendor NEOSID, PN 88 8529 10

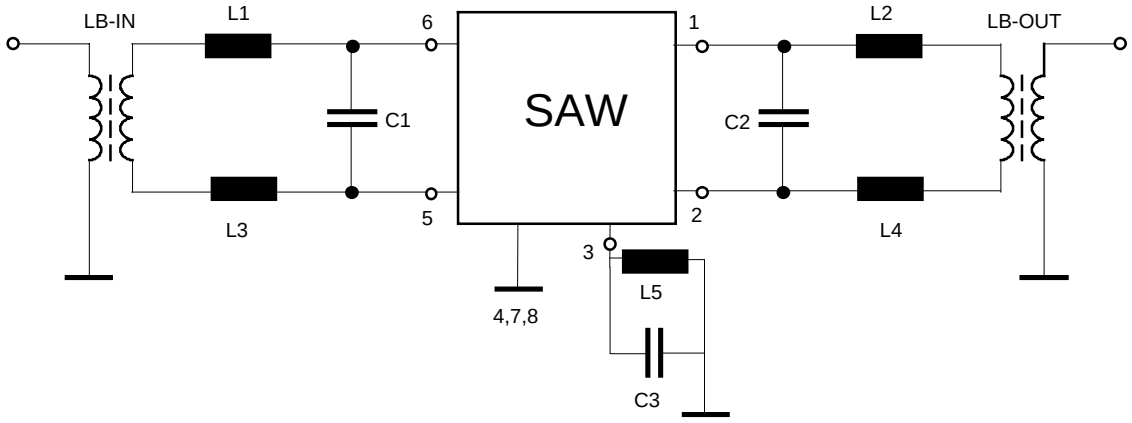
The termination impedances are : **600 Ω || -1.45 pF**

This impedance is equal for the input and the output. It has to be realized at the point were the filter is mounted. To match this impedance to the impedance of the system a matching circuit is required.

2. Theoretical Matching

For the matching to 50 Ohm there can be used two different matching circuits:

50 Ohm Test circuit 1



The theoretical values of the stated elements are:

L1 = L2 =L3 = L4 = 53 nH
C1 = C2 = 2.1 pF
C3 = 0 pF
L5 = 108 nH

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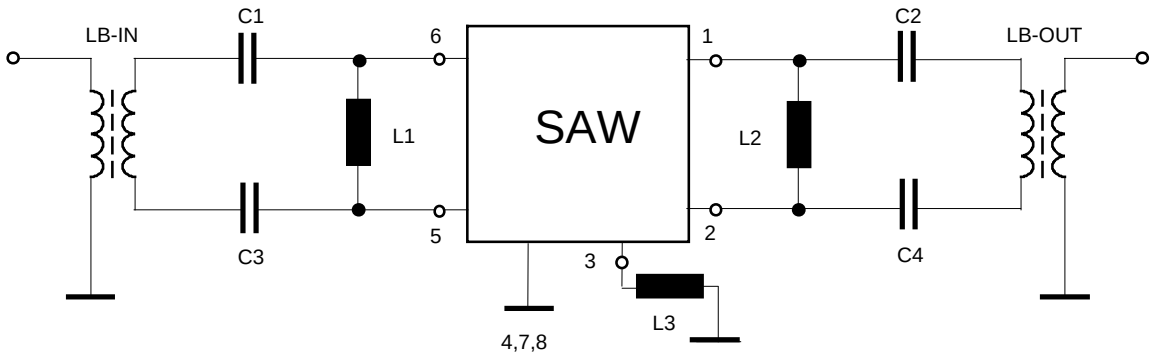
50 Ohm Test circuit 2



The theoretical values of the stated elements are:

C1 = C2 = C3 = C4 = 7.8 pF, L1 = L2 = 83.3 nH, L5 = 108 nH

The calculation was made without consideration of parasitics. The elements which have to be used on the PCB are slightly different from the stated due to these parasitics.

3. Matching on PCB

For example: PCB with 50 Ω test circuit 1

L1 = L2 = L4 = 68 nH
L3 = 56 nH
C1 = C2 = C3 = 0.5 pF
L5 = 100 nH

The calibration is made at the 50 Ohm ports. Thus, the measured characteristics will include the losses of the two transformers (about 0.7 dB each).

In case of questions please contact us to

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