

1. General

The filter is driven single ended. It is matched to 50 Ω .

The matching element values given below are valid on the test PCB. If the parasitics on the customer PCB and on this PCB are different, the matching elements have to be optimised regarding the circuit and PCB design.

The matching elements have been chosen from the E12- series (European standard series with fixed tolerances) to get the best agreement between the PCB measurement and the measurement in a reference test fixture.

2. Theoretical matching

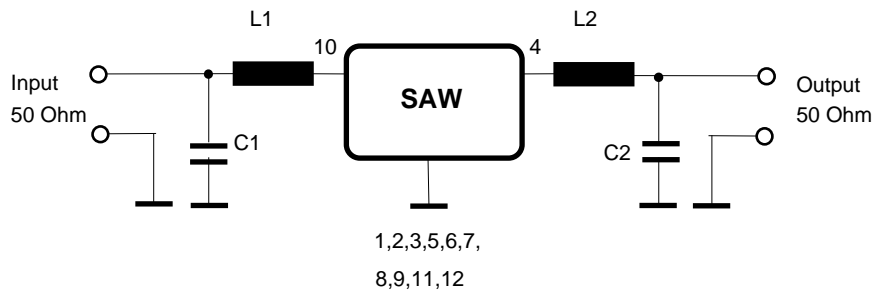
The balanced driven source and load impedances of the filter are:

Source impedance: $630\Omega \parallel -9.2\text{ pF}$

Load impedance: $915\Omega \parallel -5.7\text{ pF}$

The values of the matching elements which are given below are calculated from the source and load impedance. If the values of the matching elements are not equal to standard values the best standard values are given in brackets.

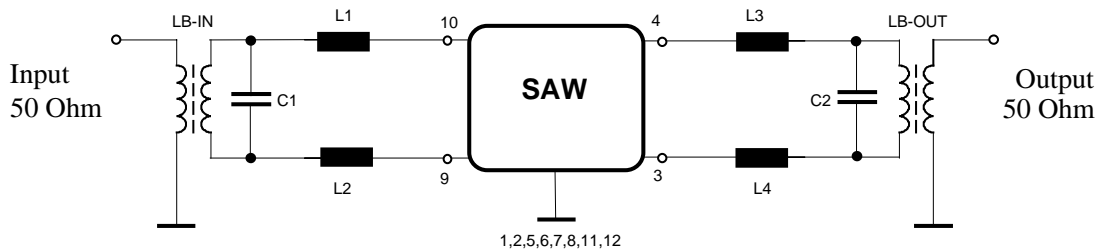
2.1. Single ended matching



L1 = 77 nH (82nH)
C1 = 29 pF (27pF)

L2 = 117 nH (120nH)
C2 = 19 pF (18pF)

2.2. Ballanced matching

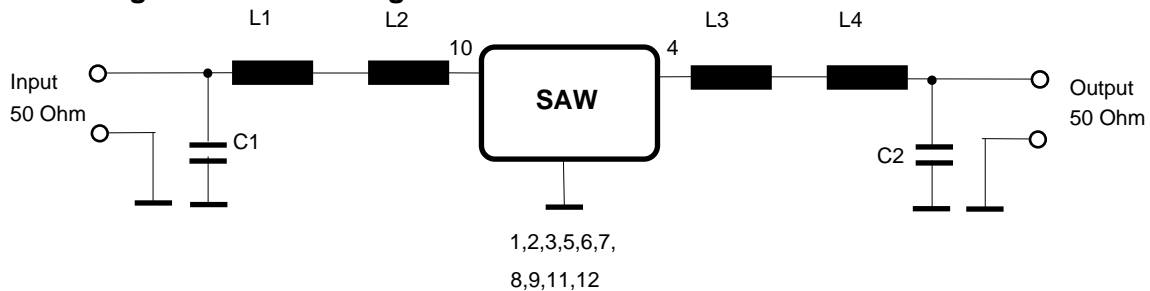


L1=38 nH (39 nH)
L2=38 nH (39 nH)
C1=27 pF

L3=58 nH (56 nH)
L4=58 nH (56 nH)
C2=18 pF

3. Matching on the PCB

3.1. Single ended matching



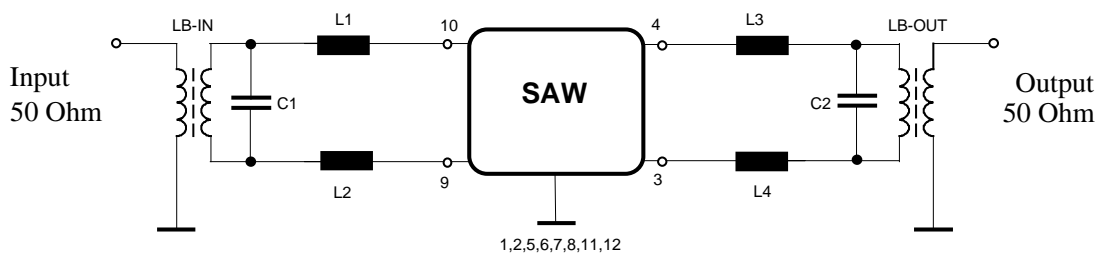
$$\begin{aligned} L1 &= 8,2 \text{ nH} \\ L2 &= 47 \text{ nH} \\ C1 &= 33 \text{ pF} \end{aligned}$$

$$\begin{aligned} L3 &= 68 \text{ nH} \\ L4 &= 12 \text{ nH} \\ C2 &= 27 \text{ pF} \end{aligned}$$

The matching on the PCB does slightly differ from the theoretical matching. The reason for that are parasitics of the PCB.

If the parasitics on the customer board (mentioned parasitics, additional parasitics of active parts) are different to this PCB the matching elements have to be slightly adjusted.

3.2. Balanced ended matching



$$\begin{aligned} L1 &= 39 \text{ nH} \\ L2 &= 22 \text{ nH} \\ C1 &= 33 \text{ pF} \end{aligned}$$

$$\begin{aligned} L3 &= 27 \text{ nH} \\ L4 &= 68 \text{ nH} \\ C2 &= 27 \text{ pF} \end{aligned}$$

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