

# Compact Broadband Matching Circuit Implementation

## Background

Every component, device or subcircuit has its own characteristic in- and output impedance. Combining them to build an overall efficient system requires specific impedance transformation which is in general called matching.

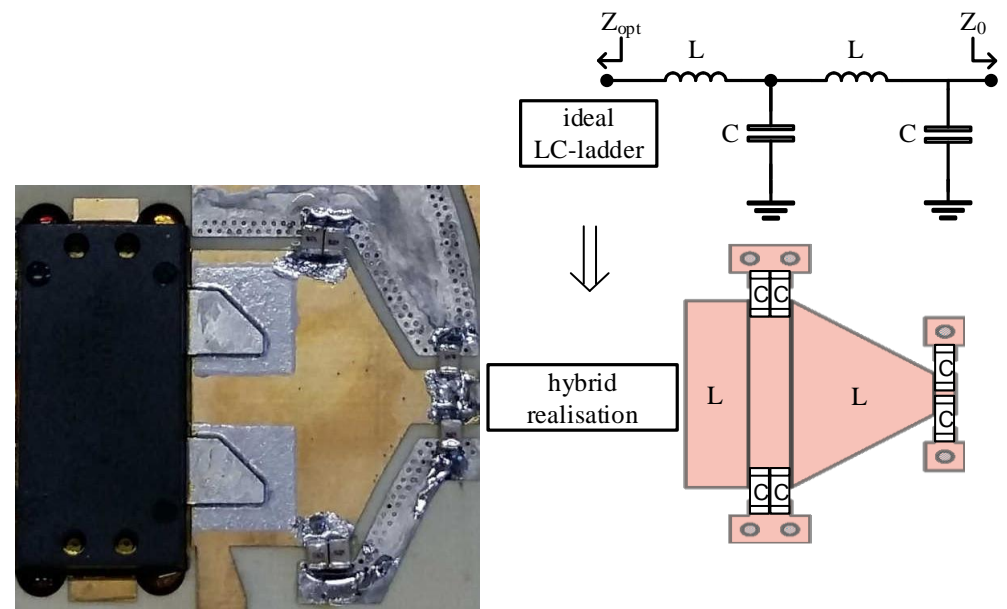
The increasing demand of higher data rates for modern services and applications utilise more and more bandwidth. As a consequence also the matching need to be broadband. In the UHF band, hybrid designs require lumped LC-components to realise compact matching circuits.

Broadband matching algorithms consider the matching elements as ideal and lossless components what introduces a mismatch between the targeted and realisable impedance transformation.

## Tasks

Your task will be to investigate the introduced uncertainties and develop a universal design procedure for a fast and accurate implementation of compact broadband matching circuits:

- circuit simulations and layout with ADS
- fabricate your own PCBs
- assemble and characterise your developed circuits
- analyse your measurements and verify your simulation results



transistor matching from  $Z_{opt}$  to  $Z_0=50\Omega$  system impedance in microstrip technology with lumped components

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