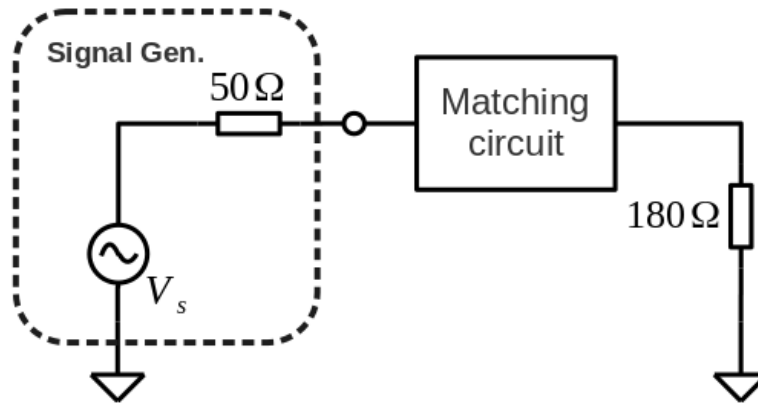


EEE 202 CIRCUIT THEORY

LAB 3

Design at least two different passive linear circuits to transfer maximum power to 180Ω load from a voltage source with output impedance 50Ω at a frequency between 5 and 10Mhz.



Software lab

- Calculate the maximum power that can be transferred by signal generator for the chosen sinusoidal signal.
- Compare it to the power delivered to 180Ω resistor, without and with the matching circuit.
- Verify by simulation results that max power transferred using the matching circuit.

Hardware lab

- Build your circuit by using linear, passive components.
- First, connect a 47Ω resistor to the signal generator and calculate the power transferred to it.
- Connect the circuit that you designed to the signal generator and calculate the power dissipated by the 180Ω resistor.

Checks

1. SW: Explain both of your methods. Verify max. power transfer mathematically.
2. HW: Explain both of your methods and show your measurements on oscilloscope screen. Verify max. power transfer mathematically.

Available materials in the lab

T25-10, T37-7, T38-8, T50-7 toroidal cores from Micrometals, capacitors and resistors.