

# Power Amplifier Design Report Format

## 1. Title Page

- **Title:** Design and Simulation of a Power Amplifier at 10 GHz
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  - **Roll Number:** EE22B056
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## 2. Objective

A short statement describing the objective:

*"To design a power amplifier operating at 10 GHz using given specifications and validate it using ADS simulation tools."*

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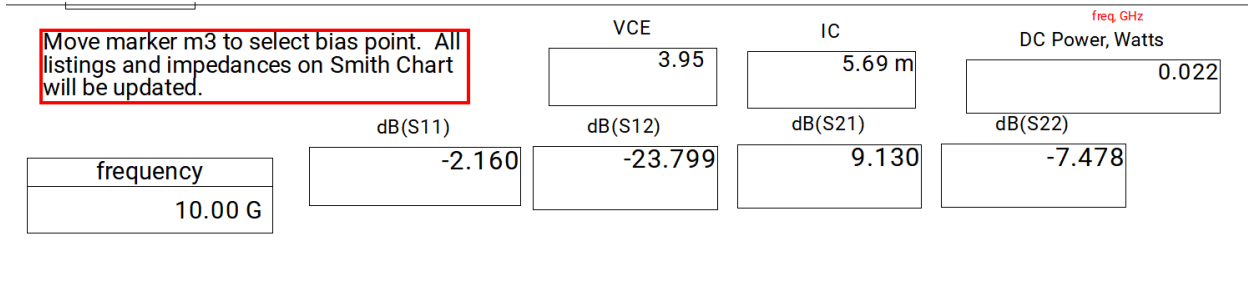
## 3. Specifications

Clearly mention:

- Frequency of operation: **10 GHz**
  - For UG students:
    - $Q_n \leq 5$
    - $G_{Tumax} \geq 5$  dB
    - $|S_{11}| < 1$
    - $|S_{22}| < 1$
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## 4. S-Matrix (Scattering Parameters)

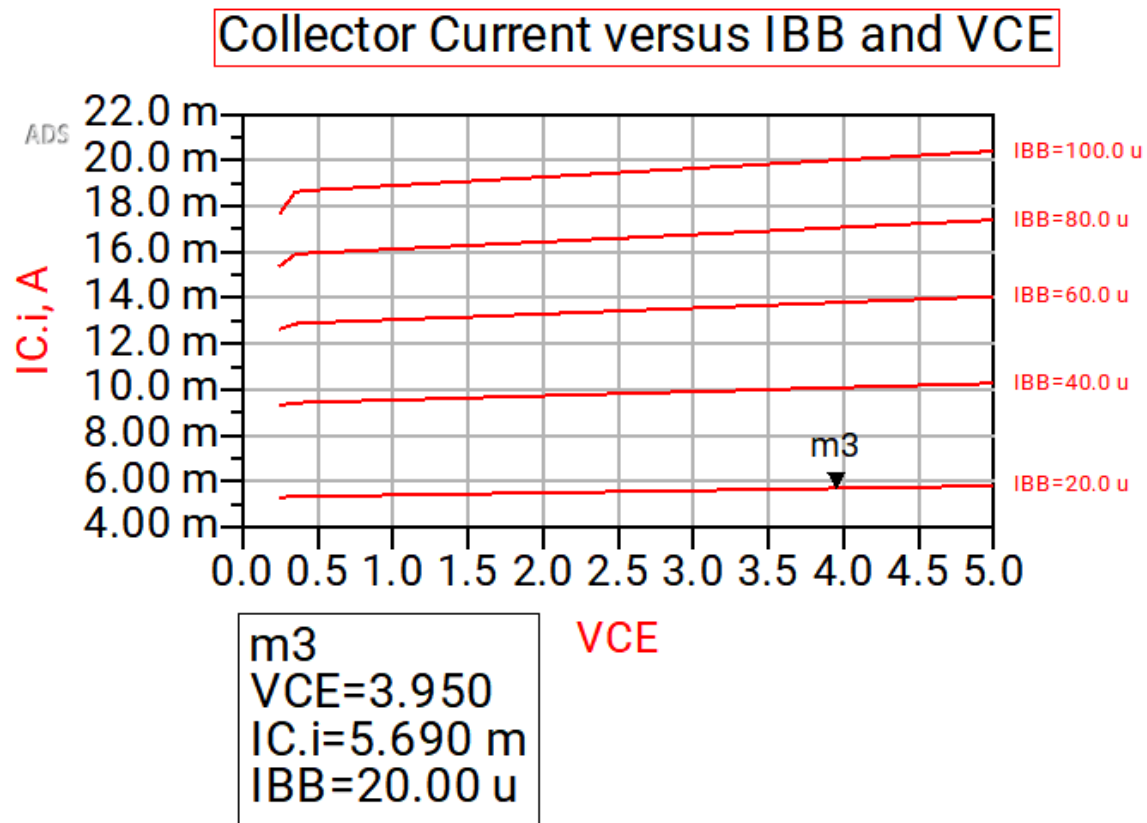
State the S-parameters for the transistor you're using.



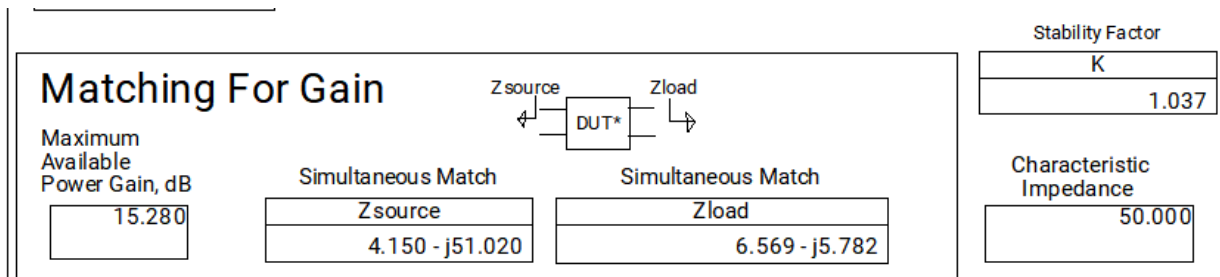
### 5. Design Methodology

Explain briefly:

- Choice of transistor :BFP720 Infineon ,
- Biasing circuit

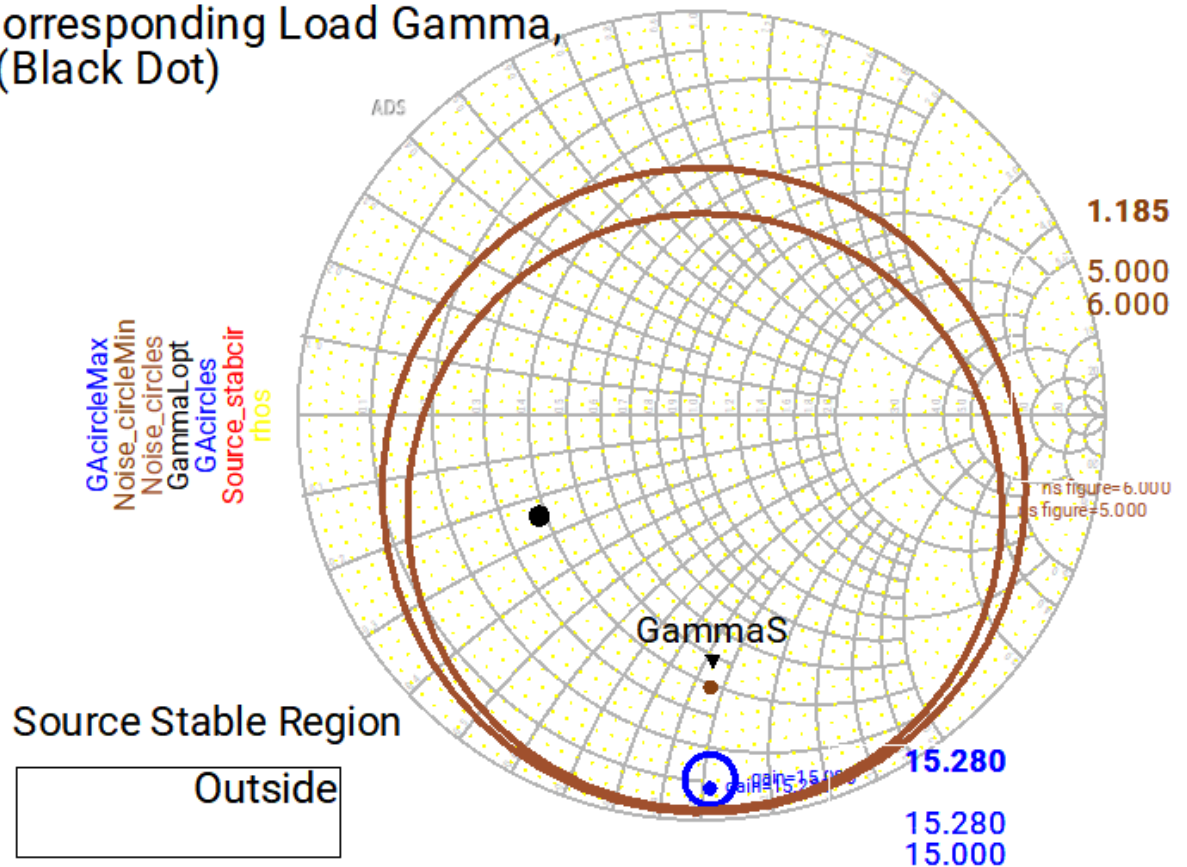


- Stability considerations : High Max Gain and  $K > 1$

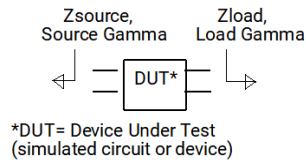
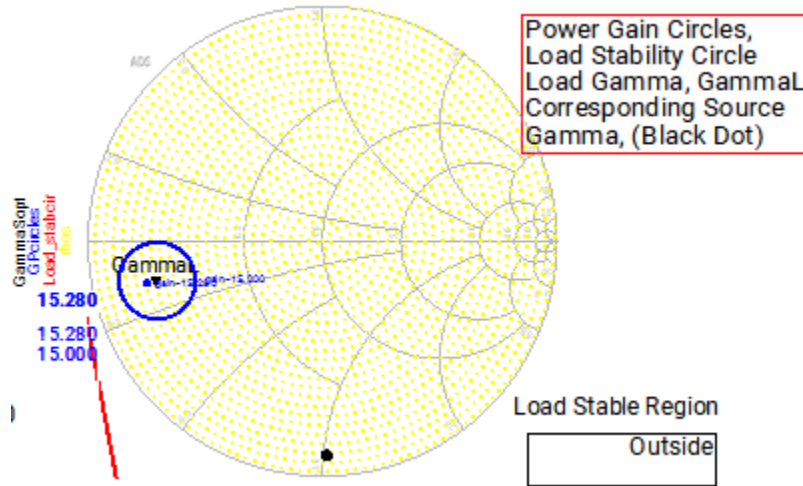


- Source Stability

Available Gain & Noise Circles,  
Source Stability Circle  
Source Gamma.  
Corresponding Load Gamma,  
(Black Dot)



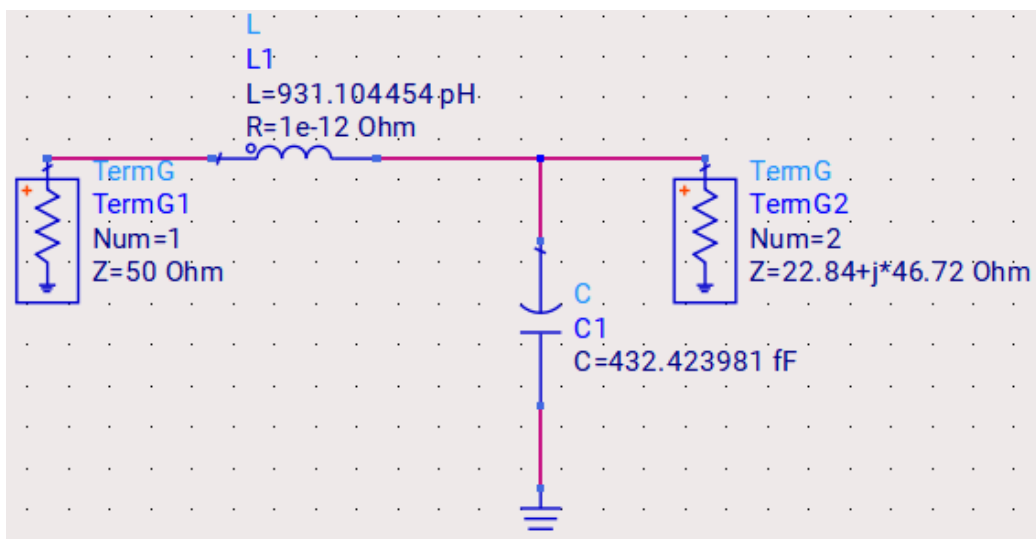
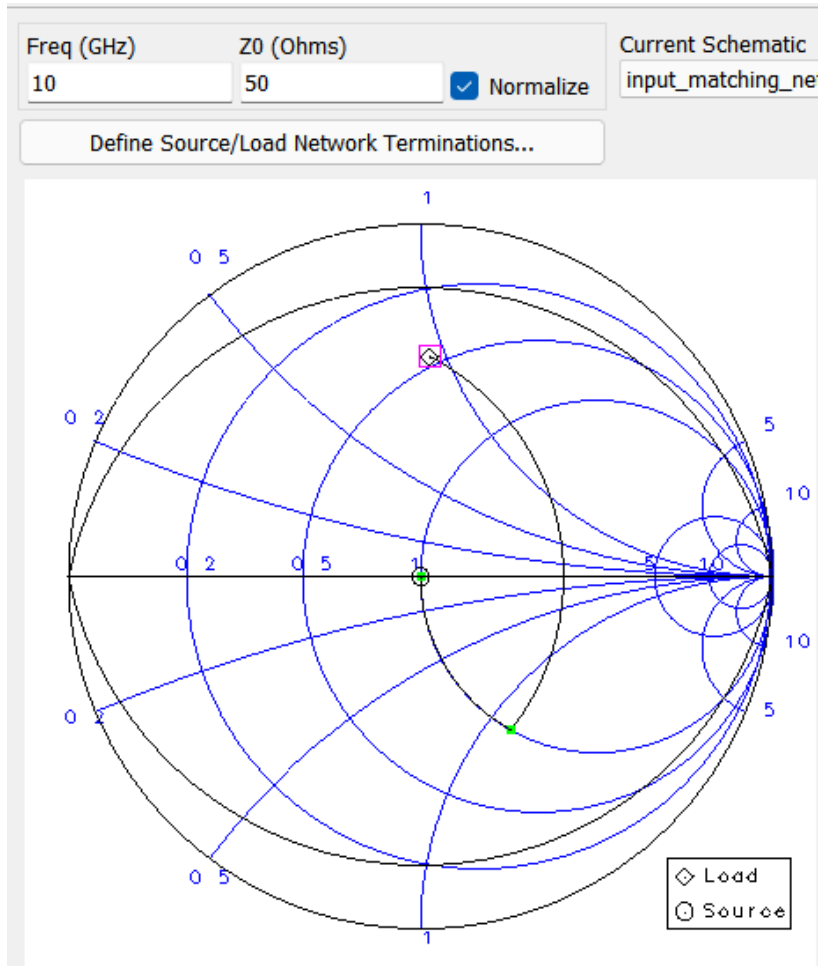
- Load Stability



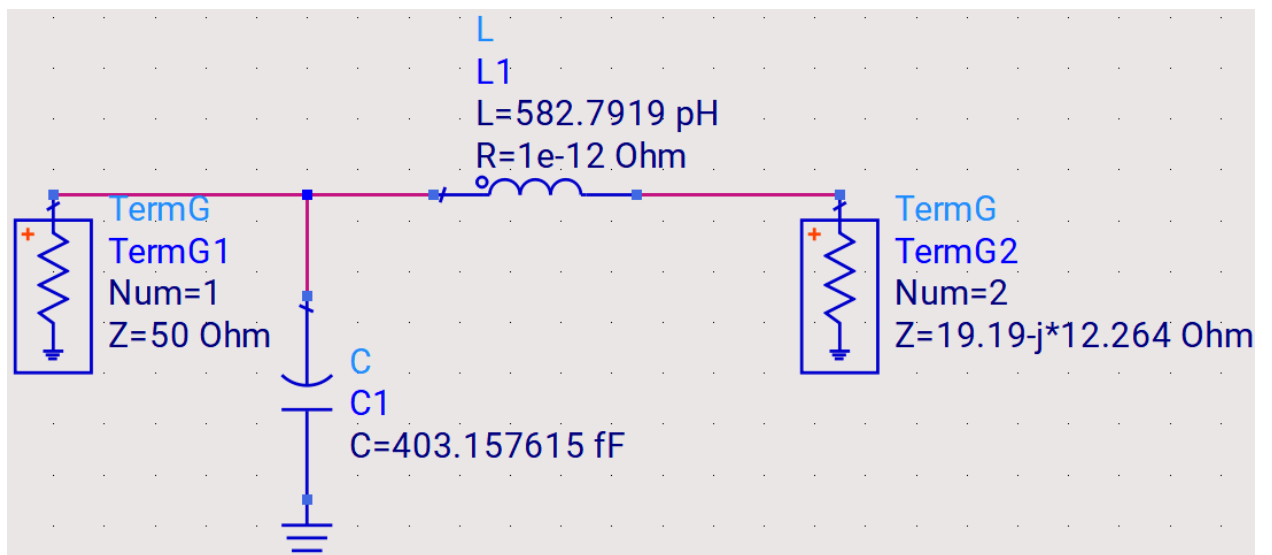
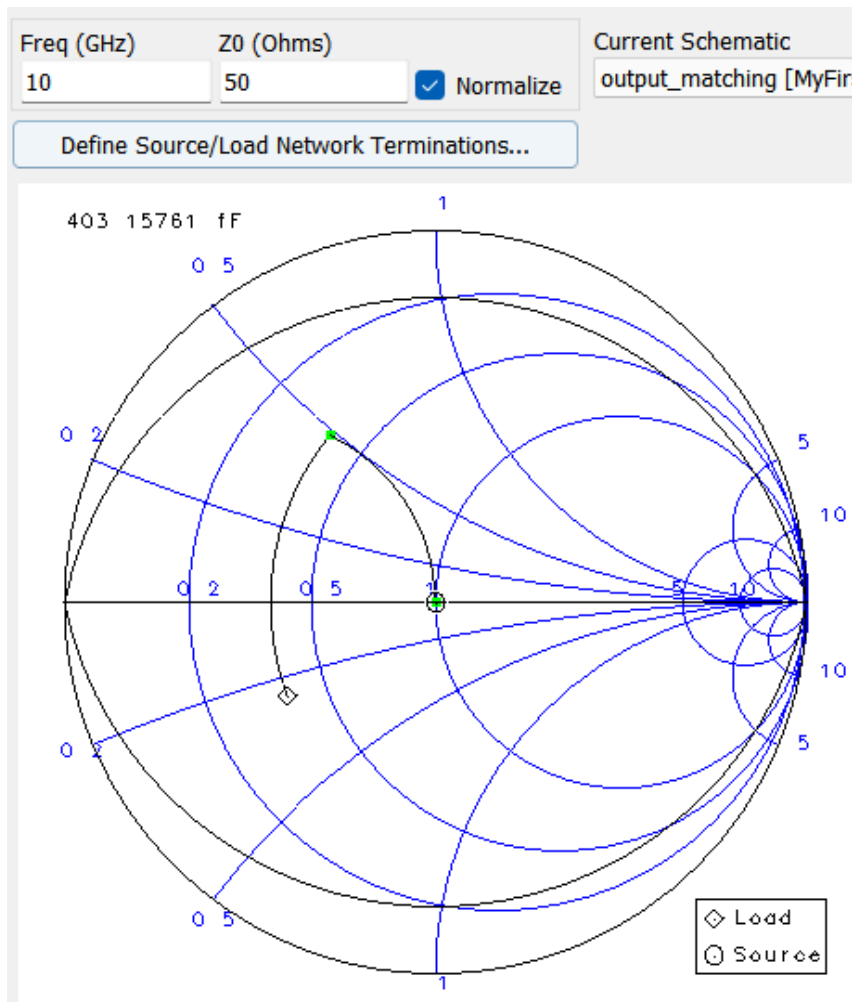
Noise Figure (dB) with Source Impedance at marker GammaS	Source Impedance at marker GammaS	Optimal load impedance for power transfer when source impedance at marker GammaS is presented to input	Transducer Power Gain, dB when these source and load impedances are used
1.197	22.839 - j46.720	19.190 - j12.264	13.794

## Use of Smith Chart or impedance matching techniques

- Input Matching network design

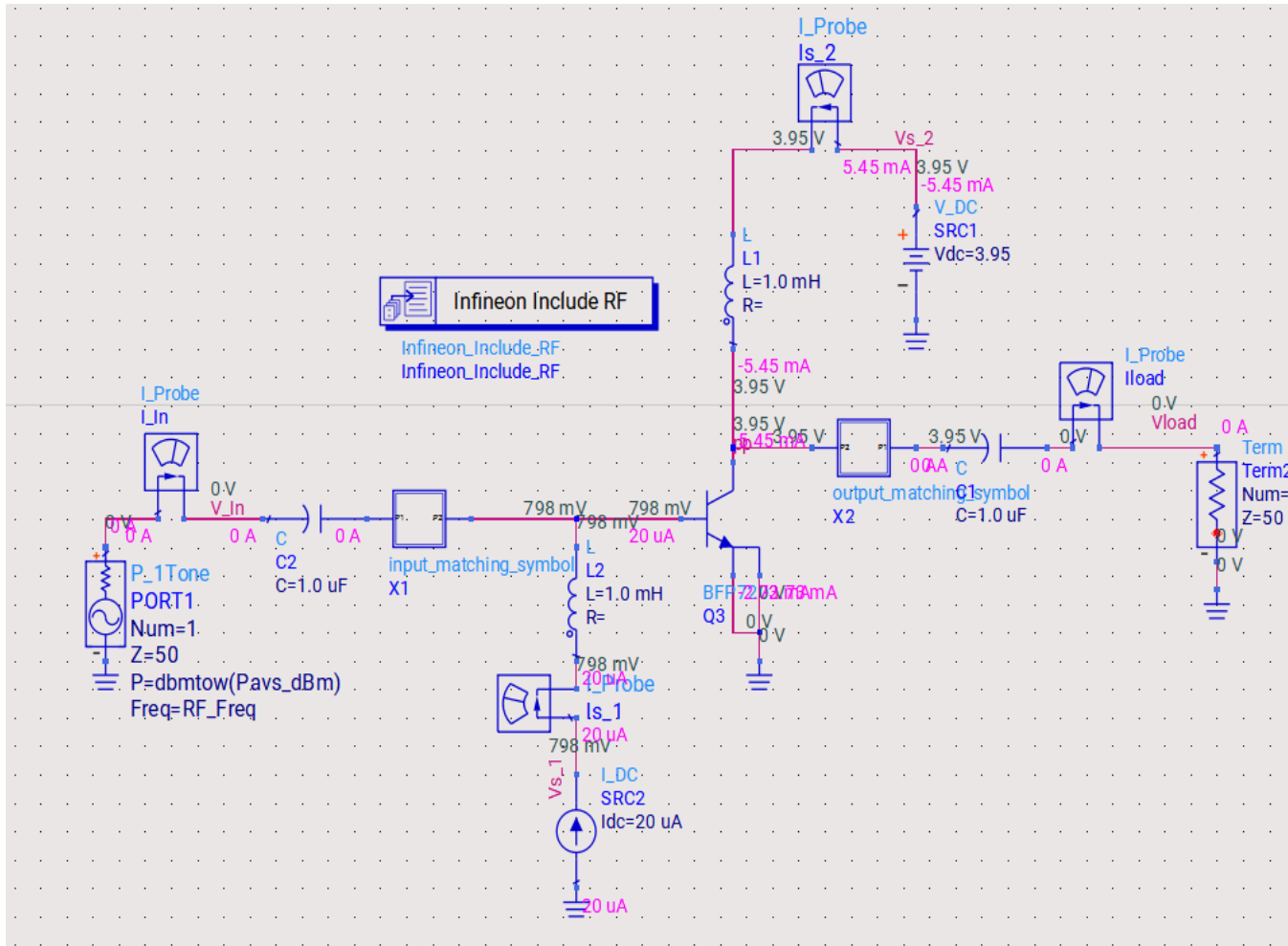


- OutputMatching network design



## 6. Simulation Setup in ADS

- Circuit schematic



## Power Delivered vs Power Supplied by Source

