

ECE 4043

Homework Assignment No. 5

Spring 2020 Homework Problem Set No. 5 for Experiment No. 5

Due Week of February 15

1. Using the data obtained from the transistor curve tracer calculate the parameters β , V_{TO} , and λ for the N Channel JFET.

2. Design the Common Source Amplifier circuit shown below so that $I_D = I_{DSS}/2$. Use $C_1 = 10 \mu\text{F}$, $C_2 = 22 \mu\text{F}$, and $C_S = 100 \mu\text{F}$. The dc power supply is $V^+ = 15 \text{ V}$. The load resistor $R_L = 20 \text{ k}\Omega$, the output impedance is $5.1 \text{ k}\Omega$ and the small signal midband input impedance is $80 \text{ k}\Omega$.

3. Perform a SPICE simulation of the Common Source Amplifier to obtain the dc operating point, the frequency response (AC analysis), the Clipping behavior, Fourier, and noise..

