H.W. #5 EE 442/ECG 642 Fall 2022

Show your work for credit and follow the homework guidelines.

1. Design, and simulate the operation of, a DC-DC converter than can convert 12V to 5V at 100mA. Your design should use components from the LTspice built-in libraries. Your design should not only show the simulation results but also your hand calculations. Using simulations show the efficiency of the design. Use hand calculations, with this efficiency, estimate the current drawn from the 12V input and verify with LTspice. (7 points)

2. Design, and simulate the operation of, a DC-DC converter than can convert 5V into 12V at 100mA. Your design should use components from the LTspice built-in libraries. Your design should not only show the simulation results but also your hand calculations. Using simulations show the efficiency of the design. Use hand calculations, with this simulated efficiency, estimate the current drawn from 5V input and verify with LTspice. (7 points)