

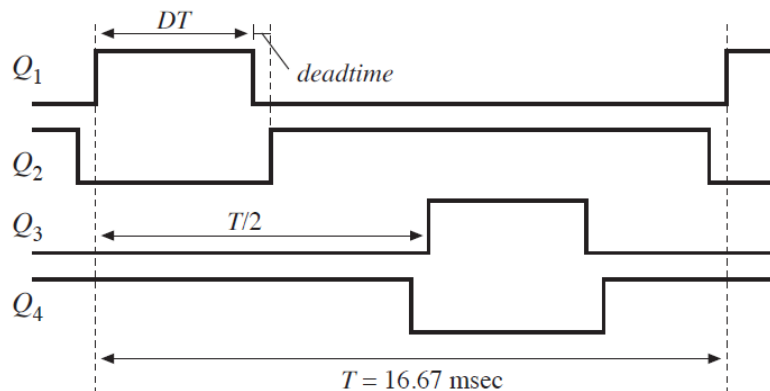
In Experiment 5, you will design, construct, test, and demonstrate the inverter power stage discussed in Lecture 9. The inverter will interface the high-voltage (120 – 200 V) dc bus to a 120 V_{rms} ac load. You should design a modified sine wave inverter for this application, using the parts in your kit, producing the required 60 Hz ac output voltage and capable of driving an 85 W load.

1. Converter Design (25 Points)

Select MOSFETs, diodes, and filter elements from your parts kits, as necessary to realize the modified sine wave inverter.

2. Gate Driver Design (25 Points)

Using the half bridge gate drivers in your parts kit, sketch the complete circuitry required to drive the MOSFETs of your inverter.



3. Microcontroller Code (25 Points)

Write C code as necessary to generate the four MOSFET gate drive signals to realize the modified sine wave inverter. Your code should be capable of producing any desired value of duty cycle as delineated in the figure above.

4. Complete Schematic (25 Points)

Sketch the complete schematic of your inverter circuitry.