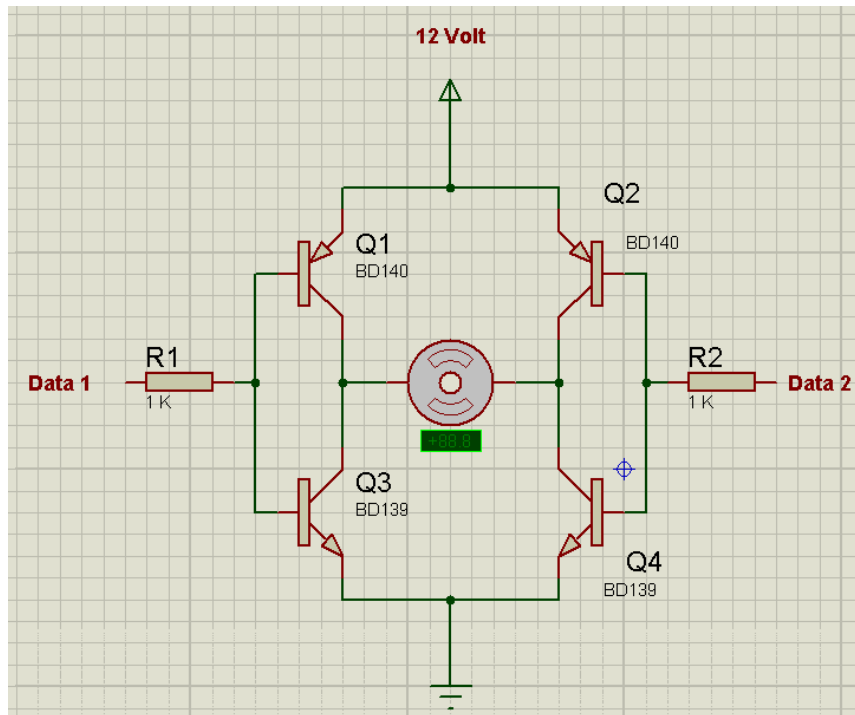


Motor Control by H-bridge with Transistors

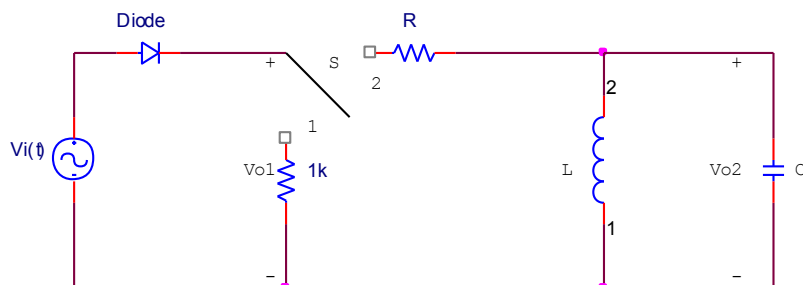
Band-Pass Filter with Diode

Q1) Construct the circuit below. This circuit is an H-Bridge with transistors to control a 5 Volt motor.



- Give data1 0 volt and Data2 0 Volt and observe the motor movement.
- Give data1 5 volt and Data2 0 Volt and observe the motor movement.
- Give data1 0 volt and Data2 5 Volt and observe the motor movement.
- Give data1 5 volt and Data2 5 Volt and observe the motor movement

Q2) For the circuit below:

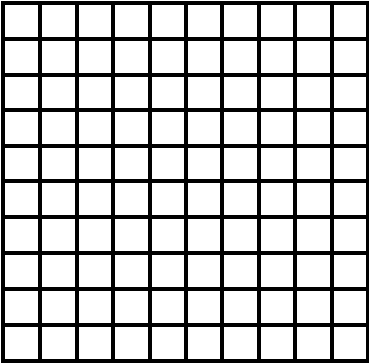


$R = 10 \text{ k}\Omega$, $C = 100 \text{ nanoFarad}$, $L = 0.1 \text{ Henry}$

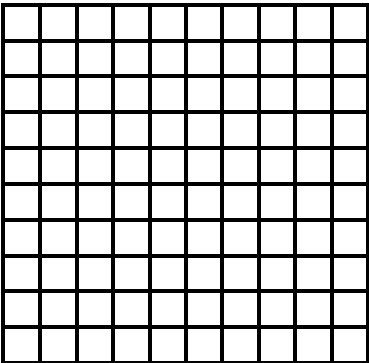
The resonant angular frequency of this circuit is $\omega_r = 10000 \text{ rad/sec}$ ($f_r = 1592 \text{ Hertz}$).

Adjust the source $V_i(t) = 4\sin(2\pi f_r t)$ where f_r is the resonant frequency. Connect CH1 to the source and CH2 to a suitable node on the circuit to measure $V_{o1}(t)$ or $V_{o2}(t)$. Adjust the volt/div and second/div values of the oscilloscope to obtain ore accurate plots.

a) Switch S is in position 1 . Draw $V_{o1}(t)$



b) Switch S is in position 2 . Draw $V_{o1}(t)$



c) Switch S is in position 2 . Draw $V_{o2}(t)$

