

## Hands-On Lab - Module 4

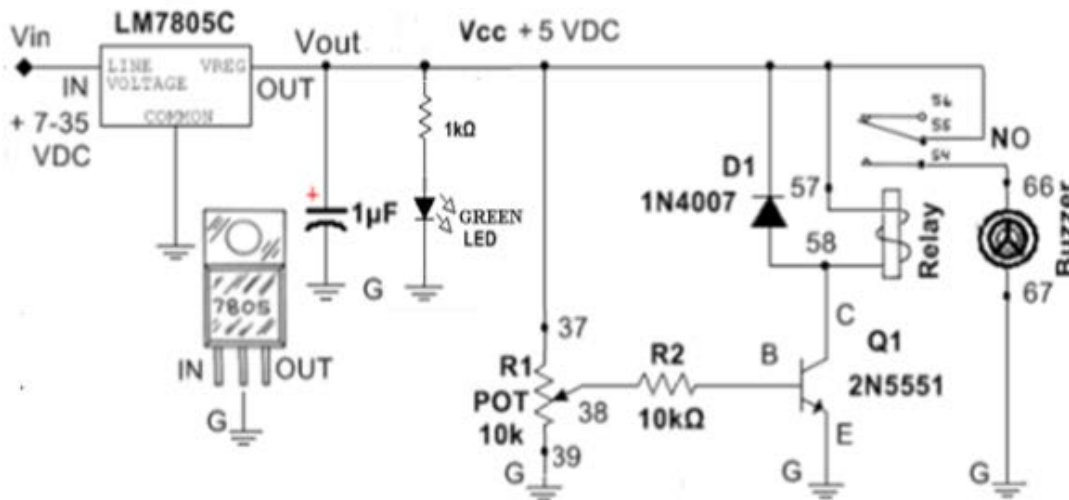
Your Name: \_\_\_\_\_ Seat \_\_\_\_\_ Date \_\_\_\_\_

### Voltage Regulators and Transistors as Switches

#### ALWAYS LEAVE CIRCUITS SET UP UNTIL YOU HAVE COMPLETED FINAL CHECK-OUT –THIS APPLIES TO ALL MODULES

Note : All work is to be done individually, and submitted when you finish this module.

#### A. MEASURING UNREGULATED AND REGULATED POWER SUPPLY



4.1a) The **unregulated**, unloaded supply voltage (13 - 17 volts DC) \_\_\_\_\_ V.

4.1b) The **regulated** supply voltage (expect 4.5 to 5.5 volts; i.e., approximately 5 volts) \_\_\_\_\_ V.

4.2a) Measure the coil resistance (**Spring #57 to Spring #58**) – not wired into circuit:  
The Relay Coil resistance in ohms is \_\_\_\_\_

**This is Instructor check point 4A** — Show your results for 4.1a and 4.1b

#### B. TRANSISTOR SWITCHES: CLOSING THE RELAY SWITCH

4.3a)  $V_{\text{relayON}}$  = \_\_\_\_\_ volts to close the relay and operate the buzzer

4.3b)  $V_{\text{potON}}$  = \_\_\_\_\_ volts (between **Spring #38** and **Spring #39**) to close relay

#### TRANSISTOR SWITCHES: OPENING THE RELAY SWITCH

4.4a)  $V_{\text{relayOFF}}$  = \_\_\_\_\_ volts to open the relay and turn buzzer off (*dropout relay v*)

4.4b)  $V_{\text{potOFF}}$  = \_\_\_\_\_ volts to open relay switch (*dropout pot v*)

**This is instructor check point 4B**

**BEFORE** you break the circuit apart, please have your instructor review your setup and the last data set of measurements.