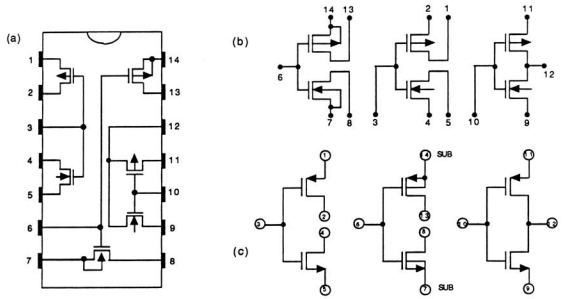
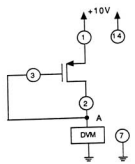


Figure 8.1 The CD4007 MOS Array

E1.1 Measuring Device Thresholds



- connecting pins 2 and 14 momentarily.
- Measure the voltage from node A to ground (that is, read the DVM!). Estimate V_{tp}.

Figure 8.2 Measurement of V_t for a p-Channel Device

* • Repeat the first of these measurements with drain and source interchanged (ie pin 2 as source and pin 1 as drain).

- Now, shunt the DVM with resistors of 10kΩ or less until the DVM reading lowers by a reasonable amount, say 1 V. Note that a convenient way to do this is to use a (10kΩ) potentiometer, whose setting is measured subsequently with an ohmmeter. Alternatively, a decade resistor box provides a self-calibrated alternative. Use Eq. 5.13 of the Text to find K_n.

** E1.4 N-Channel Device Parameters

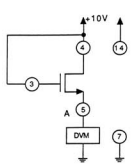


Figure 8.4 Measuring V_{tn} with a Non-Zero Source-to-Substrate Voltage

- First, measure V_{tn0} (almost) directly.
- Then, shunting the DVM by some appropriate resistor, say 1kΩ, find the device voltages, current, and then K.
- First, from DVM measurements made with pins 4 and 5 first shorted, then open, find V_{tn}.
- * Then, shunt the DVM with a suitable resistor (perhaps 1kΩ) and use the DVM reading to find device voltages, current and equivalent K_n.