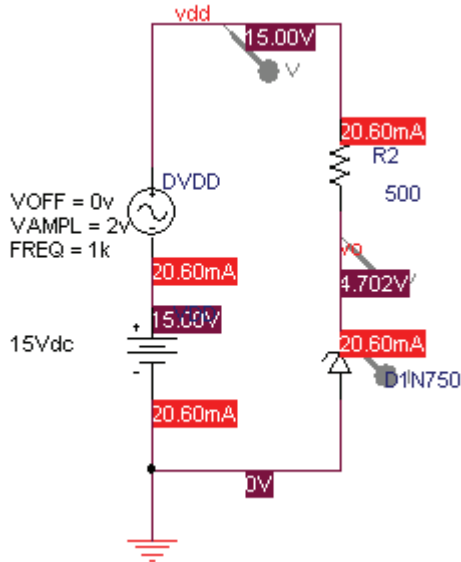


## PSpice Verification of the Voltage Regulator

### a. DC voltage and currents at VD=D15V

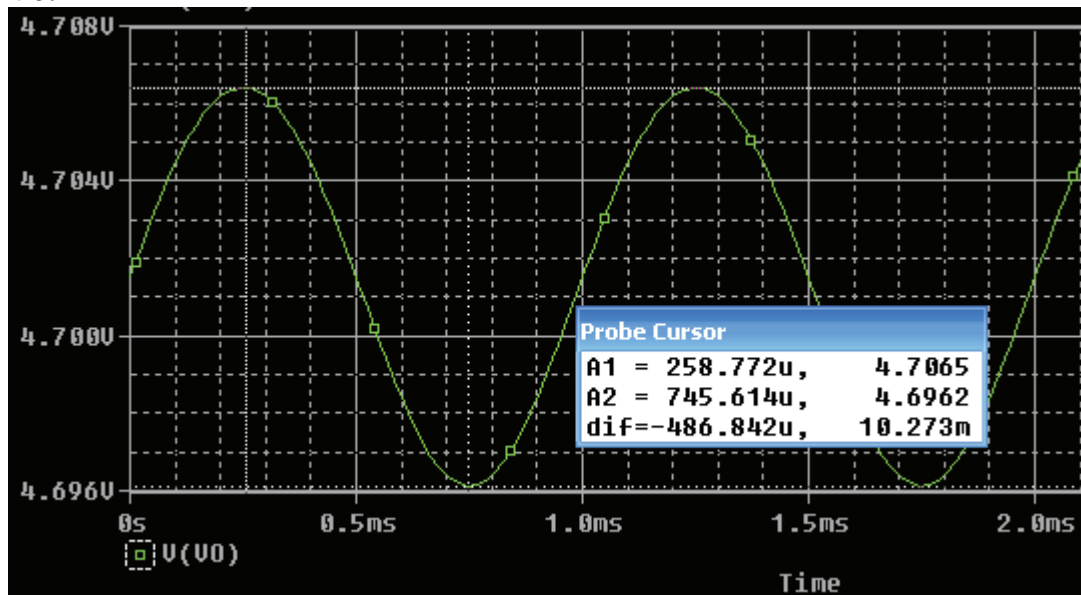


### b. Line Regulation: $\Delta V_o / \Delta V_{DD}$ :

Do a transient simulation with  $\Delta V_{DD} = 2V$ : See Figure below

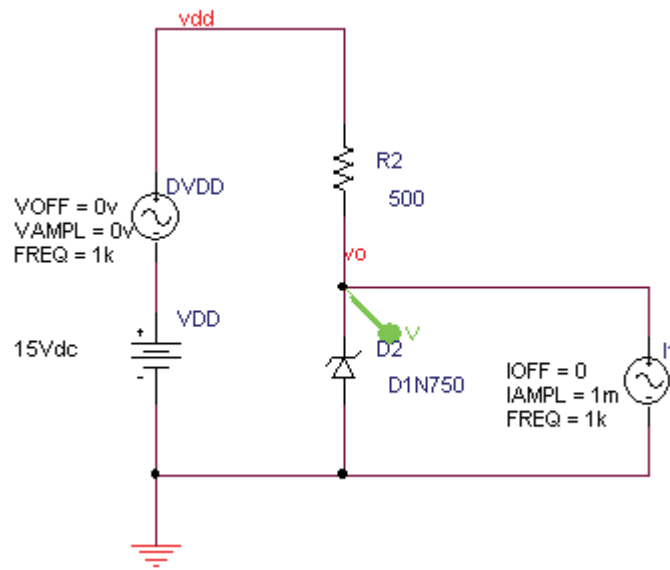
Notice that  $\Delta V_o / \Delta V_{DD} = 10.27 / 2mV/V = 5.13mV/V$  (or 0.5% variation per volt). This corresponds to the hand calculations of 5mV/V.

**Vo:**

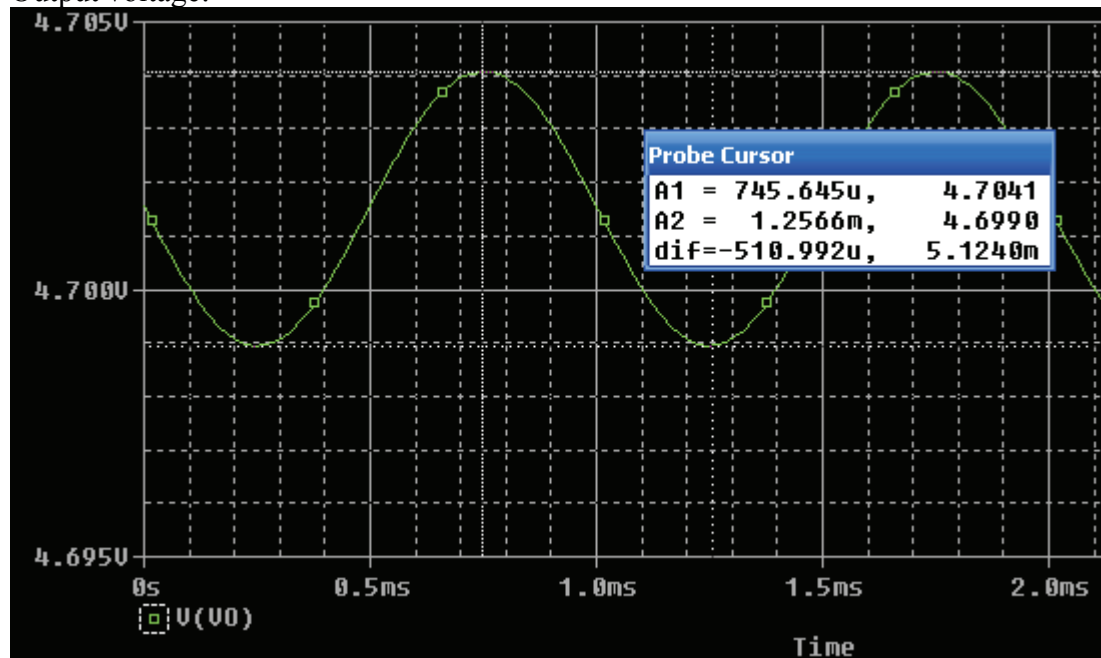


c. Effect of Load current:  $\Delta V_o/\Delta I_L$ .

Add a current source to the output of value 1mA



Output voltage:



The is  $\Delta V_o/\Delta I_L = -5.1/2 = 2.55\text{mV/mA}$  close to the calculations of 2.48mV/mA.