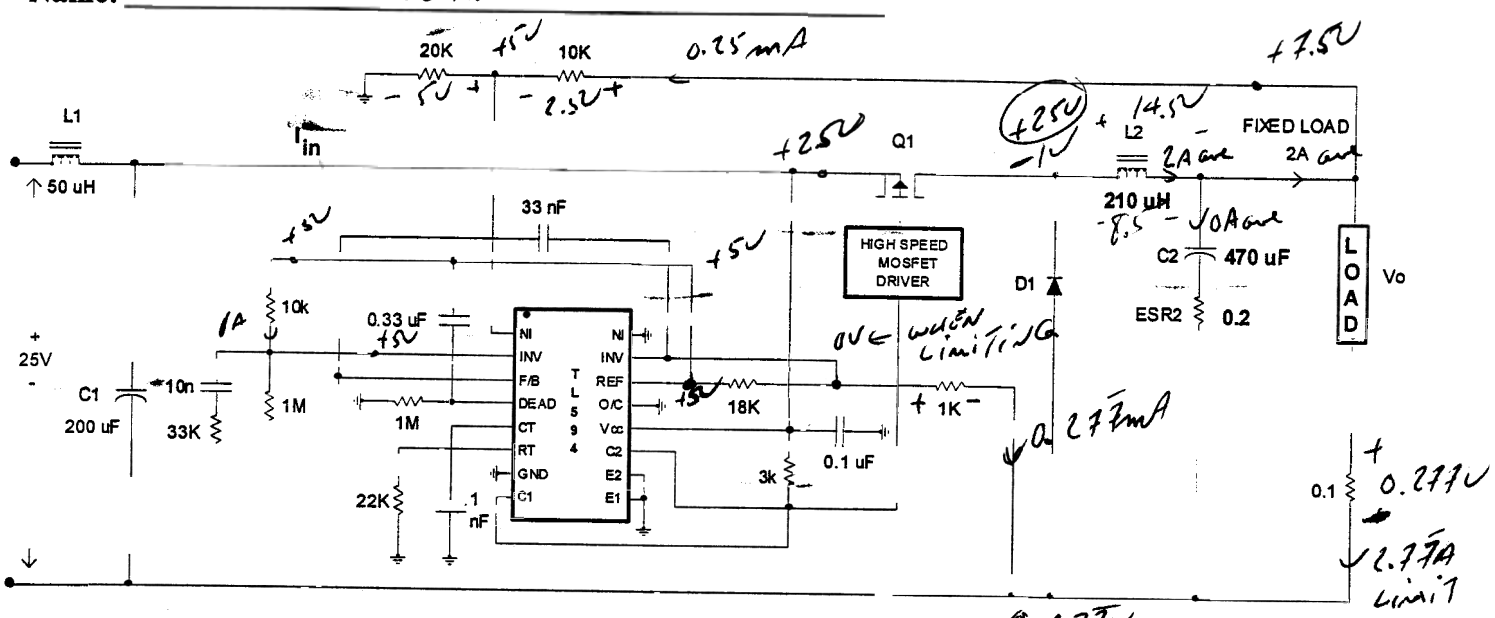
Linear quiz **Switching Regulator** **2002F**

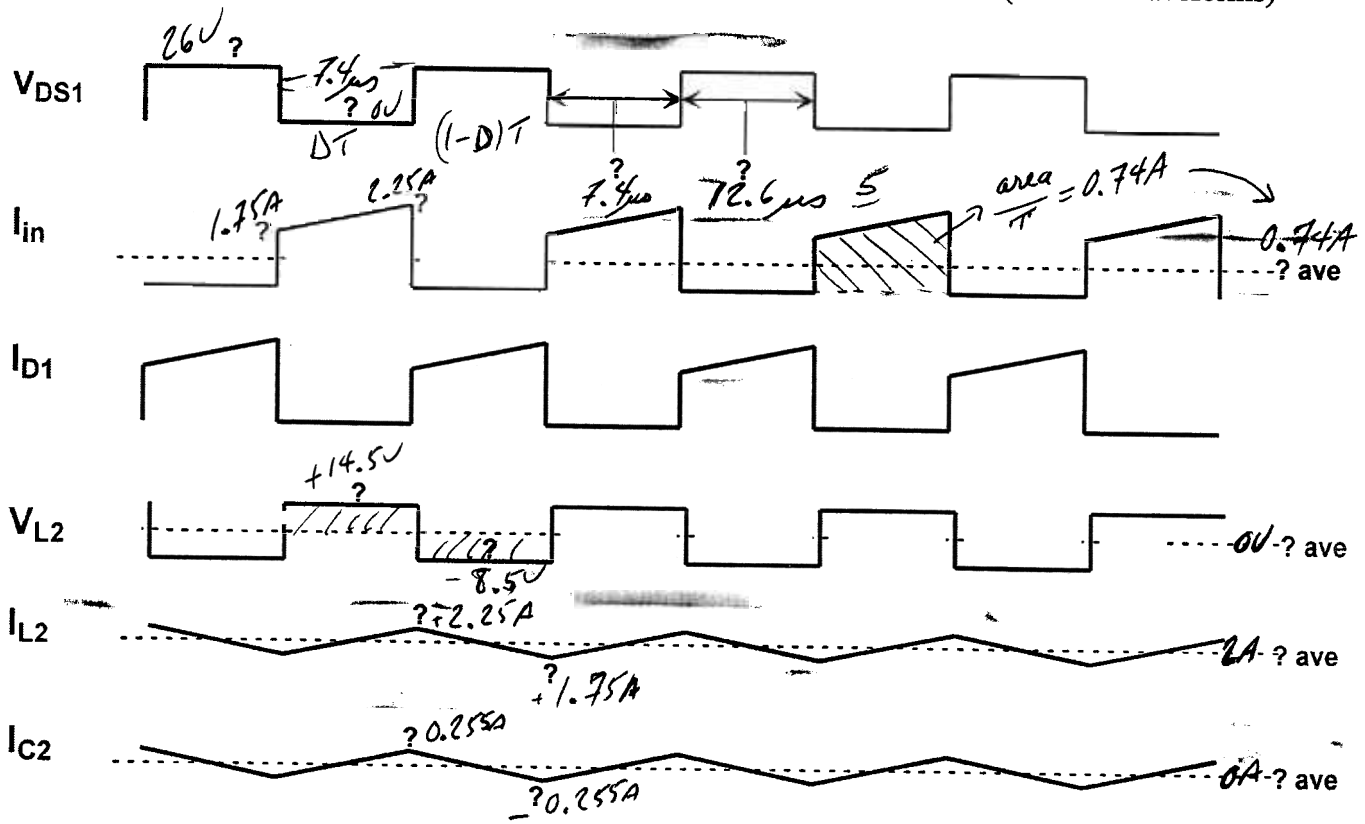
Name: SOLUTIONS



(10) A) Calculate V_o and the current limit in the load.

$$\text{ave } f(t) = \frac{1}{T}\int_0^T f(t)\,dt$$

(20) B) Determine all of the numerical values of the waveforms shown below (see ? on waveforms)



$$F_{SW} = \frac{1.1}{R_T C_T} = 50\text{kHz}$$

$T = 20\mu s$

$14.5\,DT = 8.5(1-D)T$

$14.5D + 8.5D = 8.5$

$D = \frac{8.5}{14.5+8.5} = 0.37$

$\Delta I_{L2} = \frac{V_L}{L_2} \times \Delta t = \frac{14.5}{210\mu} \times 7.4\mu$

$\Delta I_{L2} = 0.511A$