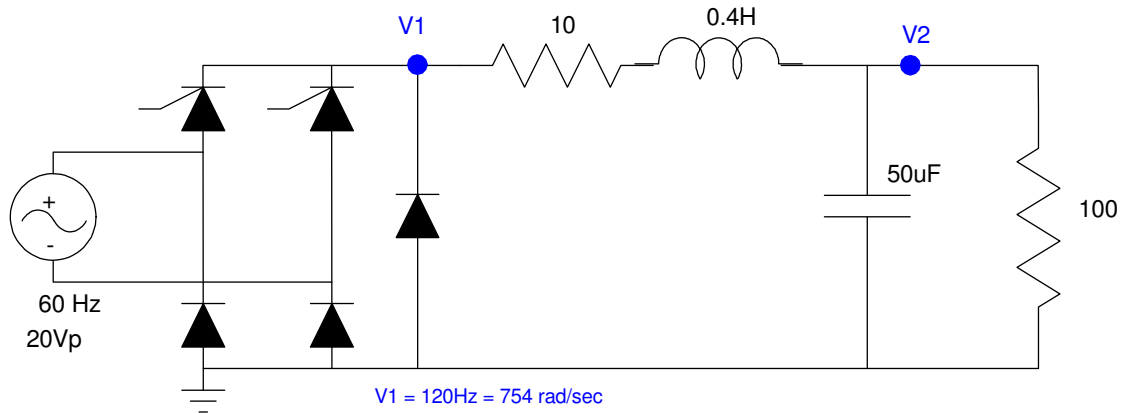


ECE 320 Handout #18

SCR's and AC to DC Converters

Determine the voltage at V1 and V2 (both DC and AC). Assume a firing angle of 25 degrees



Solution:

DC:

$$V_1(DC) = \left(\frac{V_p + 0.7}{\pi} \right) (1 + \cos \theta) - 0.7$$

$$V_1(DC) = \left(\frac{19.3}{\pi} \right) (1 + \cos(25^\circ)) - 0.7$$

$$V_1(DC) = 11.011V$$

$$V_2(DC) = \left(\frac{100}{100+10} \right) V_1(DC) = 10.010V$$

AC

$$V_1(AC) = 18.6V - (-0.7V) = 19.3V_{pp}$$

$$V_2(AC) = \left(\frac{6.573 - j24.782}{(6.573 - j24.782) + (10 + j301.6)} \right) 19.3V_{pp}$$

$$V_2(AC) = 1.784V_{pp}$$

