

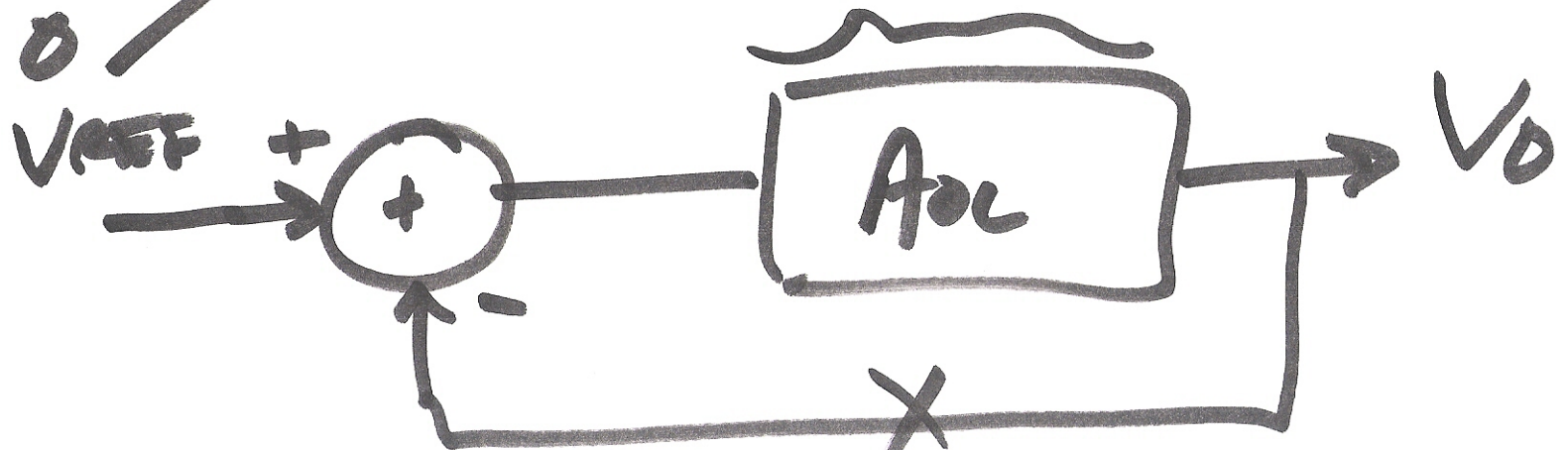
# ECE 5/472 Power Electronics

OCT. 15, 2010

Lecture 22

$$V_p = \frac{2}{3} V_{OD}$$

$$V_{OD} \quad \text{---} \quad d \cdot V_{OD}$$

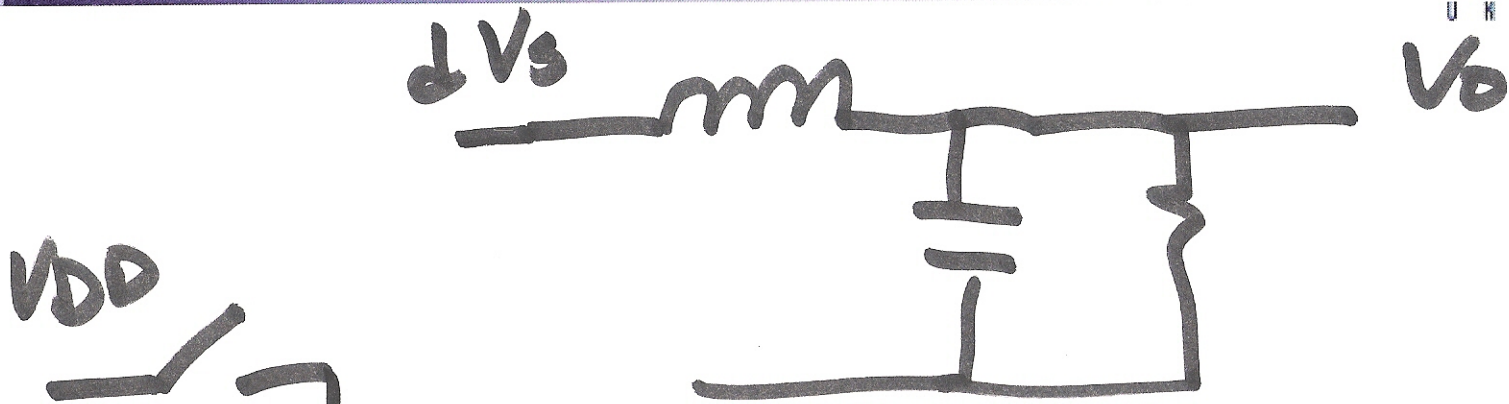


$$\beta = 1$$

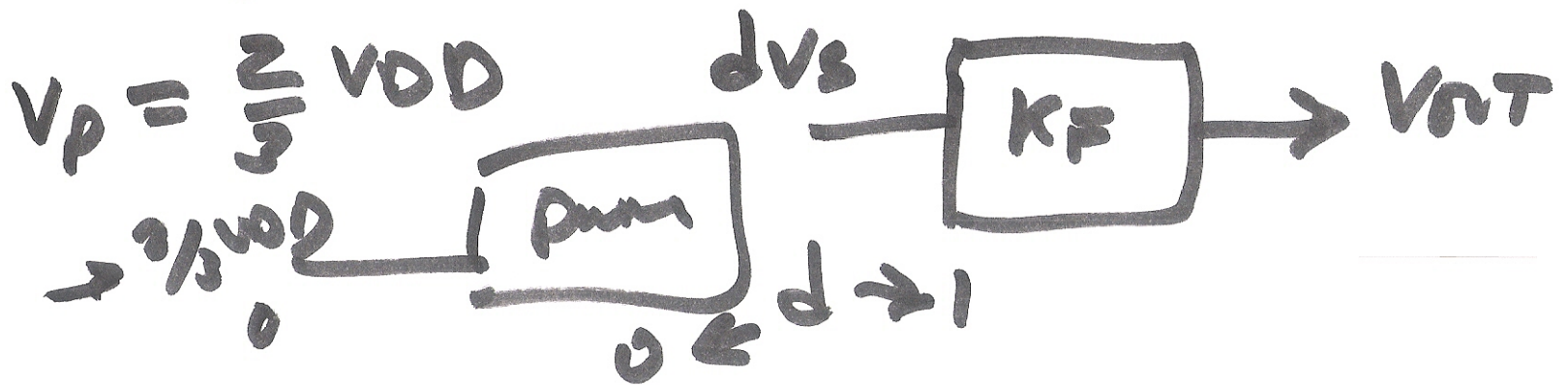
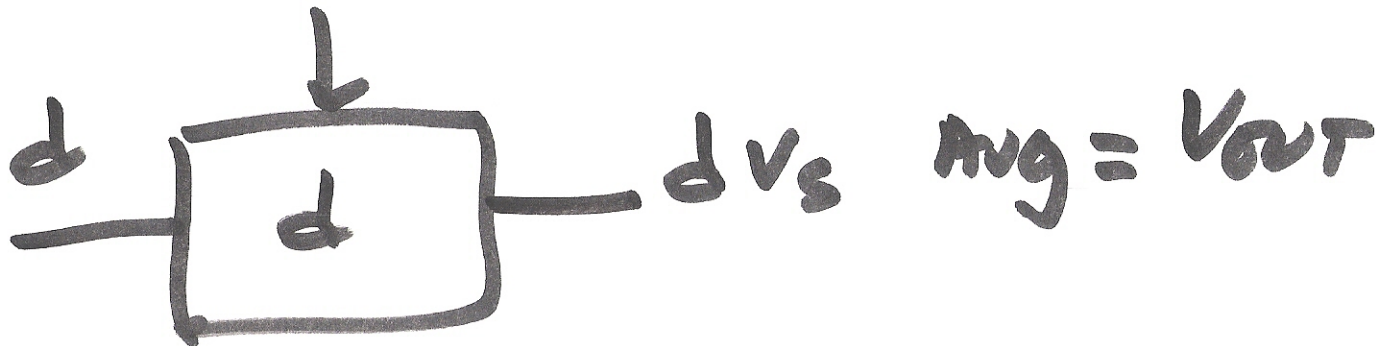
$$|A_{OL}| = 1$$

$$\angle A_{OL} = 180^\circ$$

1)

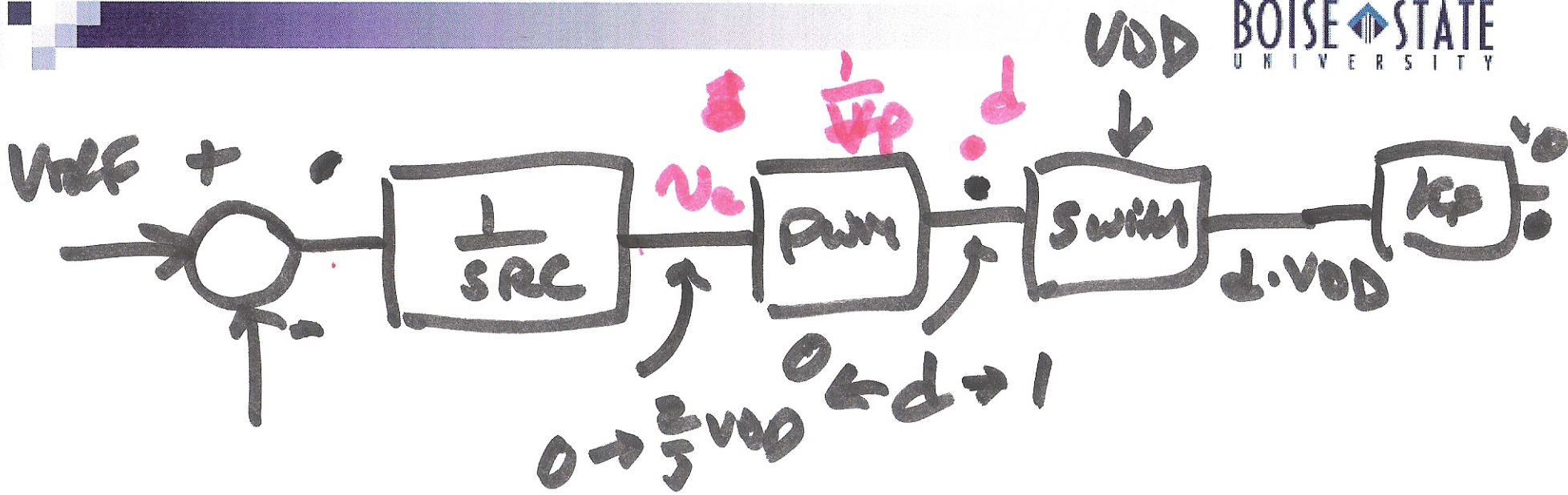


$V_s = V_{DD}$        $K_F = \frac{V_o}{dV_s} = \frac{\frac{1}{LC}}{s^2 + s \cdot \frac{L}{RC} + \frac{1}{LC}}$



2)

Er20r



Eq. 7-64

$$\frac{V_o}{d} = \frac{V_{DD}}{LC \left( s^2 \cdot \frac{1}{RC} + \frac{1}{LC} \right)}$$

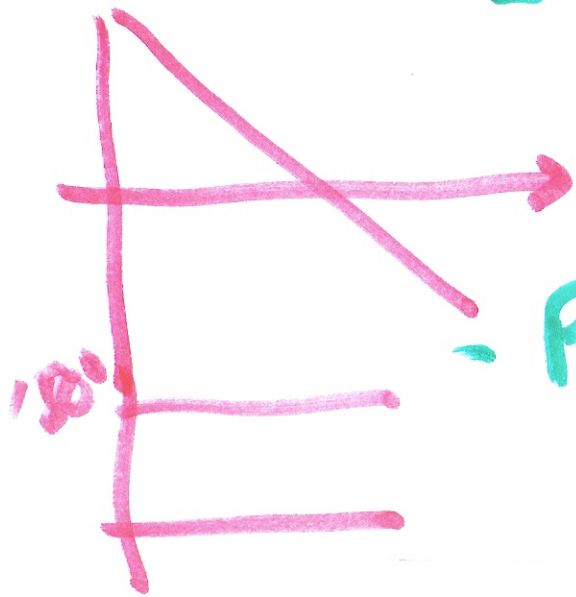
$$\frac{V_o}{V_c} = \frac{V_{DD}}{\frac{2}{3} V_{DD} \cdot LC \left( \dots \right)}$$

3)

Type I error Amp is An integ.

$$A_{nL} = \frac{V_o}{V_{in}} = \frac{1}{sRC} \cdot \frac{1}{\frac{2}{3}LC \cdot (s^2 + \frac{1}{RC} + \frac{1}{LC})}$$

$$= \frac{1}{RLC^2 \cdot \frac{2}{3}} \cdot \frac{1}{s} \cdot \frac{1}{(s+p_1)(s+p_2)}$$



$$-p_{1,2} = \frac{-\frac{1}{RC} \pm \sqrt{\left(\frac{1}{RC}\right)^2 - \frac{4}{LC}}}{2}$$

$L = 100\mu$   
 $C = 75\mu$   
 $R_L = 2$

$L \rightarrow \text{Big}$   
 $s_1 = 0$   
 $s_2 = \frac{1}{RC}$

a)