

Jaeger 3rd ed

CG amplifier

16.63

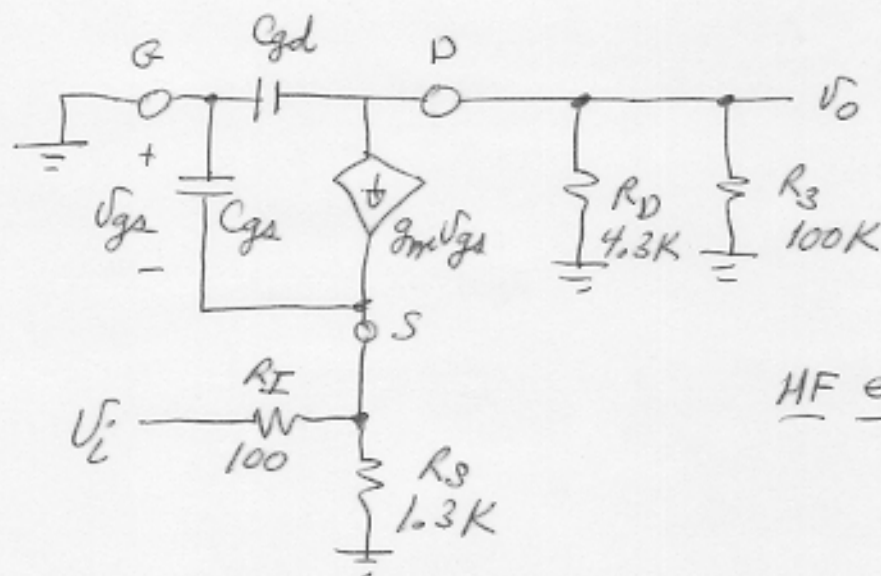
$$f_T = 500 \text{ MHz}$$

$$C_{gs} = 3 \text{ pF}$$

$$C_{gd} = 0.6 \text{ pF}$$

$$g_m = 5 \text{ mS}$$

$$r_o = \infty$$



HF eg ckt

Two Poles - at input circuit

$$\tau_{in} = (R_I \parallel R_S \parallel \frac{1}{g_m}) C_{gs} = 190 \text{ ps}$$

- at output circuit

$$\tau_{out} = (R_D \parallel R_L) C_{gd} = 2474 \text{ ps (very dominant)}$$

$$f_H \approx \frac{1}{2\pi} \frac{1}{\tau_{in} + \tau_{out}} = 60 \text{ MHz}$$

$$A_m = \frac{R_S \parallel \frac{1}{g_m}}{R_I + (R_S \parallel \frac{1}{g_m})} g_m (R_D \parallel R_L) = +13$$

$$\text{GBW} = 784 \text{ MHz}$$

(CG or CB gives high GBW!)