Name: Key

Quiz 1-2

ID #

2. The voltage gain between the gate and the drain of a MOSFET amplifier is -27 V/V, the NMOS transistor capacitors C_{gs}=0.3pF and C_{gd}=0.1pF. For what range of signal-resistance can you expect the 3-dB frequency to exceed 10 MHz, neglect the effect of R_G.

$$f_H = \frac{1}{2\pi[C_{gs} + C_{gd}(1+27)]XR_{sig}} > 10M$$

$$= \frac{1}{2\pi[3.1p \times R_{sig}]} > 10M$$

$$R_{sig} < \frac{1}{2\pi \times 3.1p \times 10M}$$

$$R_{sig} < 5.13 K\Omega$$