

ECE 523/421 – Analog Electronics

Lecture 19: Frequency Response: Useful Tools for HF Analysis

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Review of Last Lecture

- ☐ Estimation of higher 3dB frequency in CS amplifier
- ☐ Estimation of higher 3dB frequency in CE amplifier

Today's Lecture

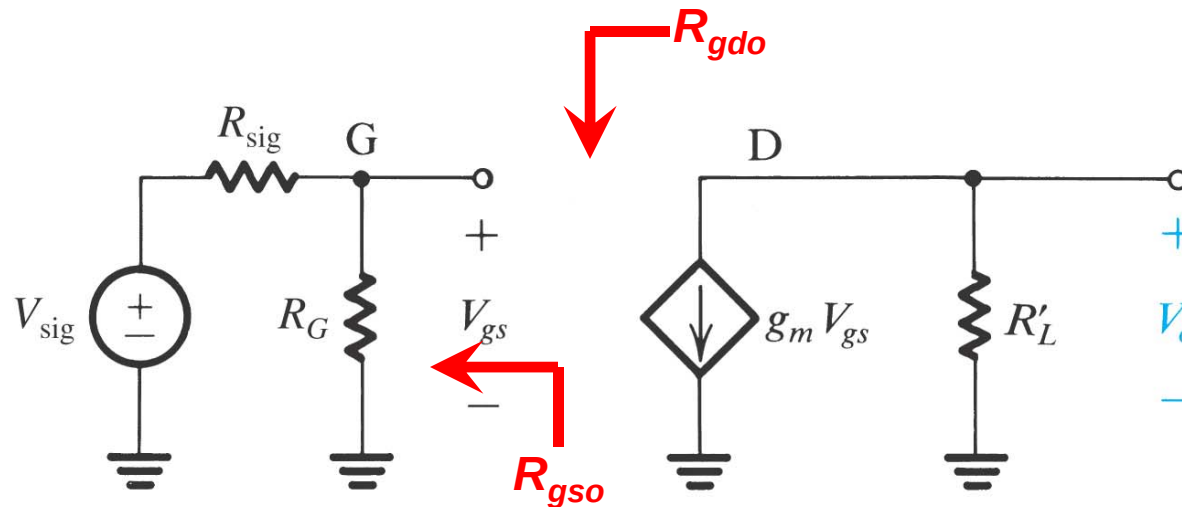
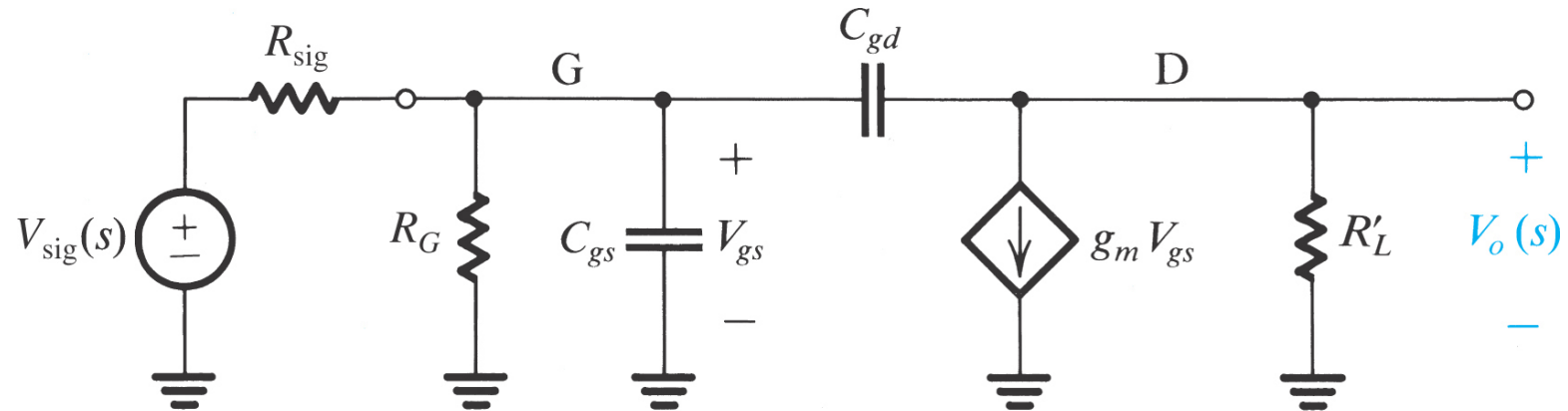
- ❑ Open-circuit time constants to approximate f_H
- ❑ Miller Theorem

Open-Circuit Time Constants Technique

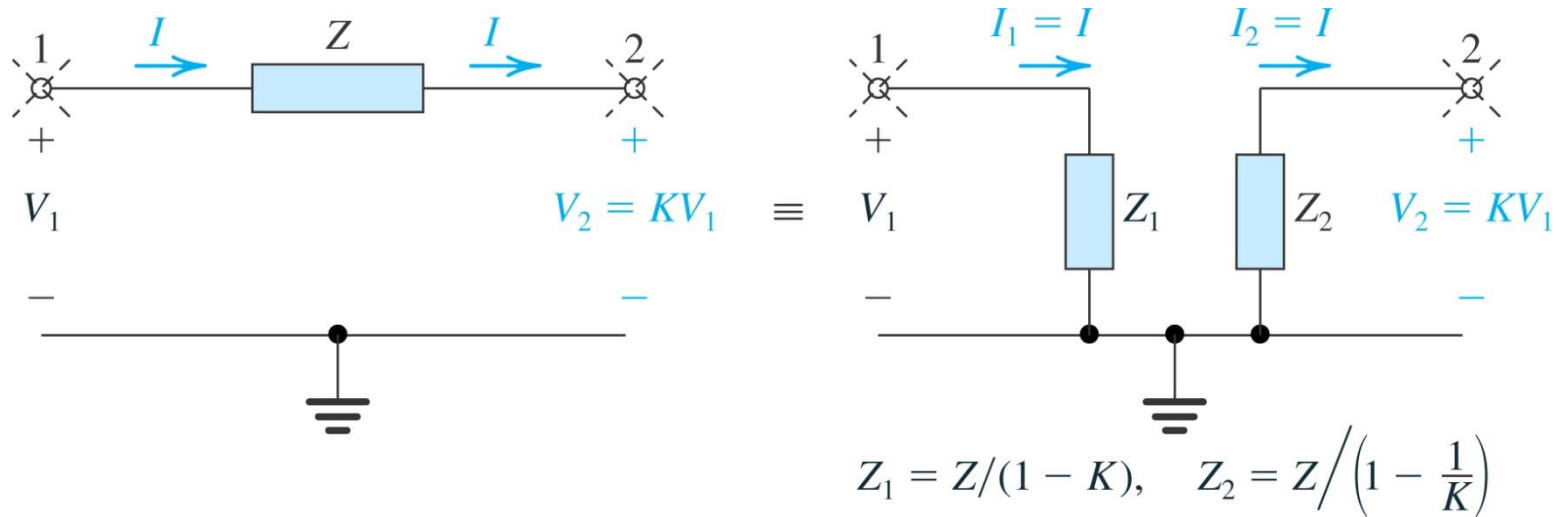
- ❑ Find the open-circuit time constant of each capacitor
- ❑ Use the following equation to estimate the higher 3db frequency

$$f_H \approx \frac{1}{2\pi} \frac{1}{\sum_i R_{io} C_i}$$

Example: Open-Circuit Time Constants



Miller Theorem



Example2: Repeat Example 1

