

# ECE 523/421 – Analog Electronics

## Lecture 18: Frequency Response: High-frequency Response

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# ***Review of Last Lecture***

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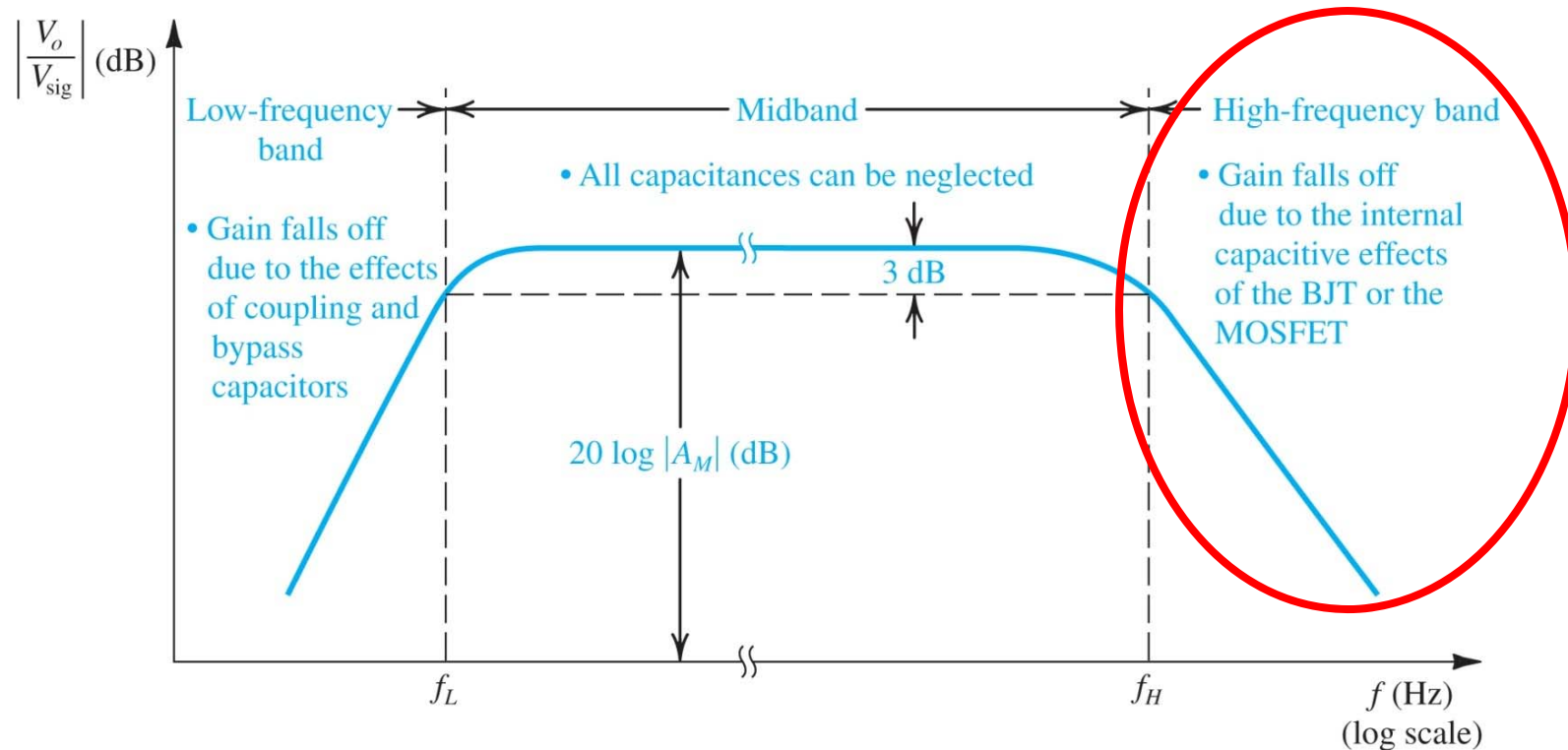
- ☐ MOSFET parasitic capacitance effect
- ☐ BJT parasitic capacitance effect
- ☐ Definition of unity gain frequency  $f_T$

# ***Today's Lecture***

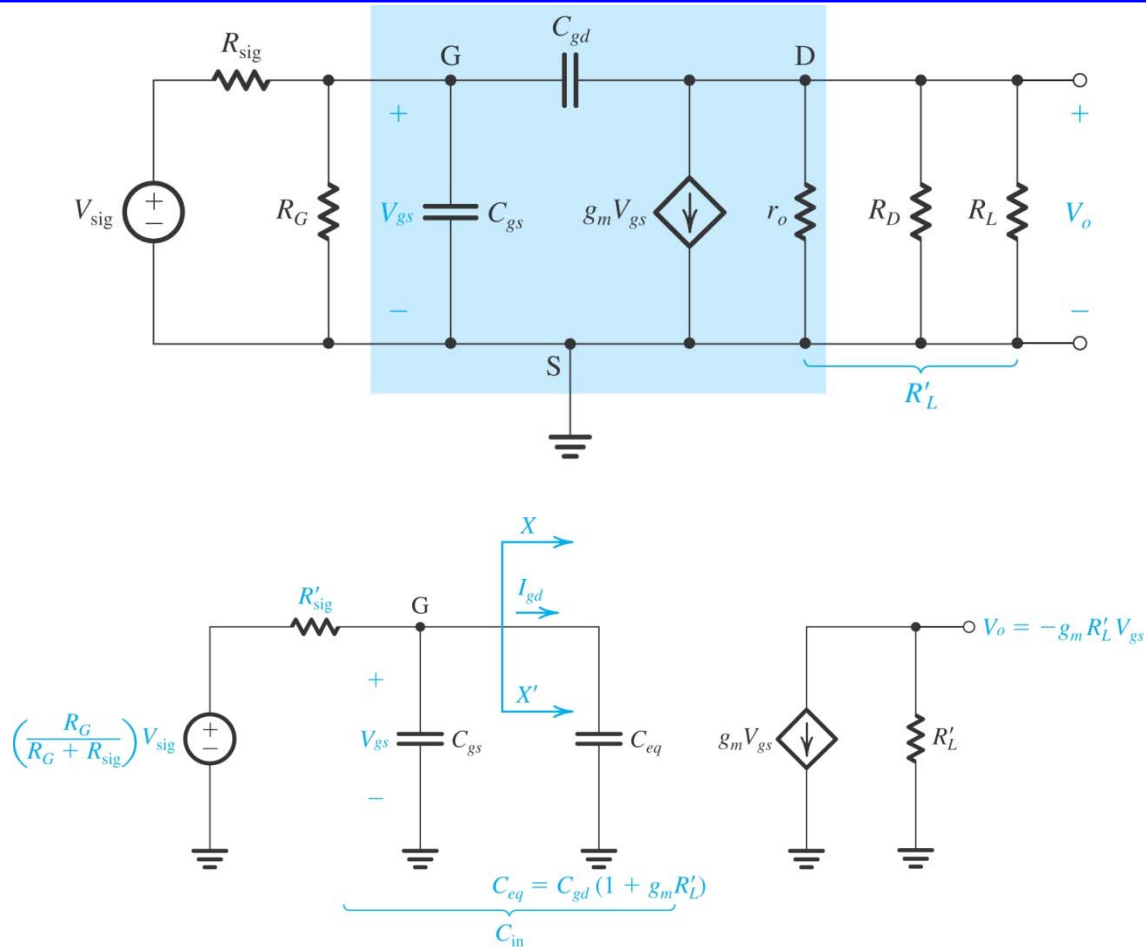
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- ☐ Estimation of higher 3dB frequency in CS amplifier
- ☐ Estimation of higher 3dB frequency in CE amplifier

# Frequency Response of a typical Amplifier

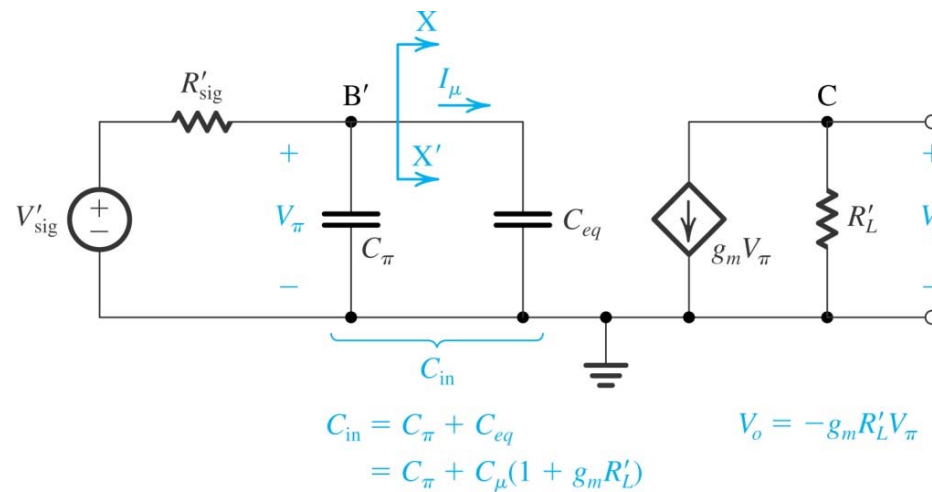
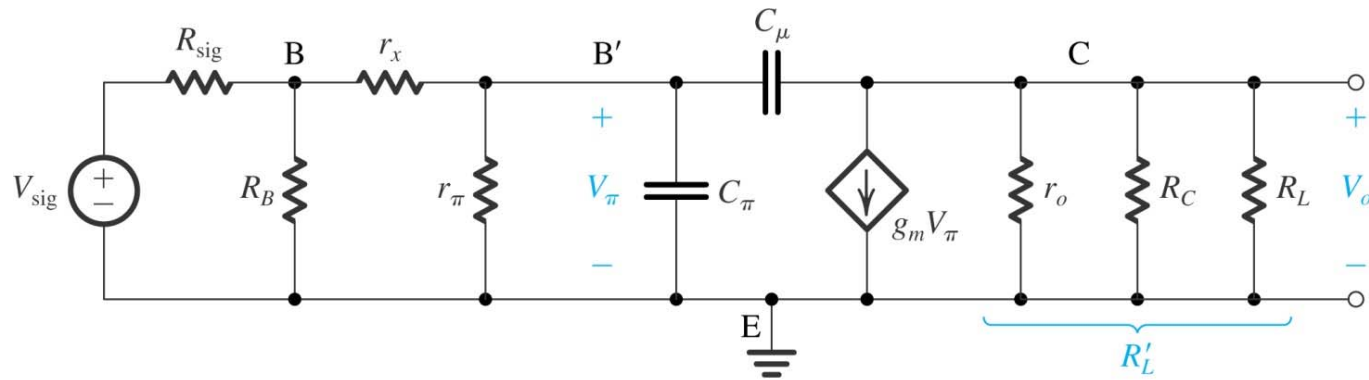


# High Frequency Circuit Model for CS



$$f_H \approx \frac{1}{2\pi R_{eq} C_{eq}} = \frac{1}{2\pi R'_{sig} C_{in}}$$

# High Frequency Circuit Model for CE



$$f_H \approx \frac{1}{2\pi R_{eq} C_{eq}} = \frac{1}{2\pi R'_{sig} C_{in}}$$

# CS and CE High Frequency Response

