

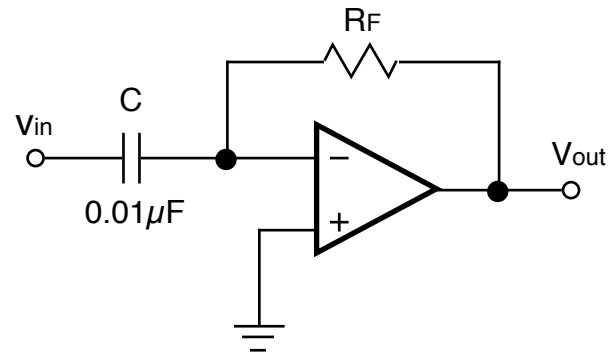
ECE3204 Lecture 23

Wien Bridge Oscillator  
with AGC

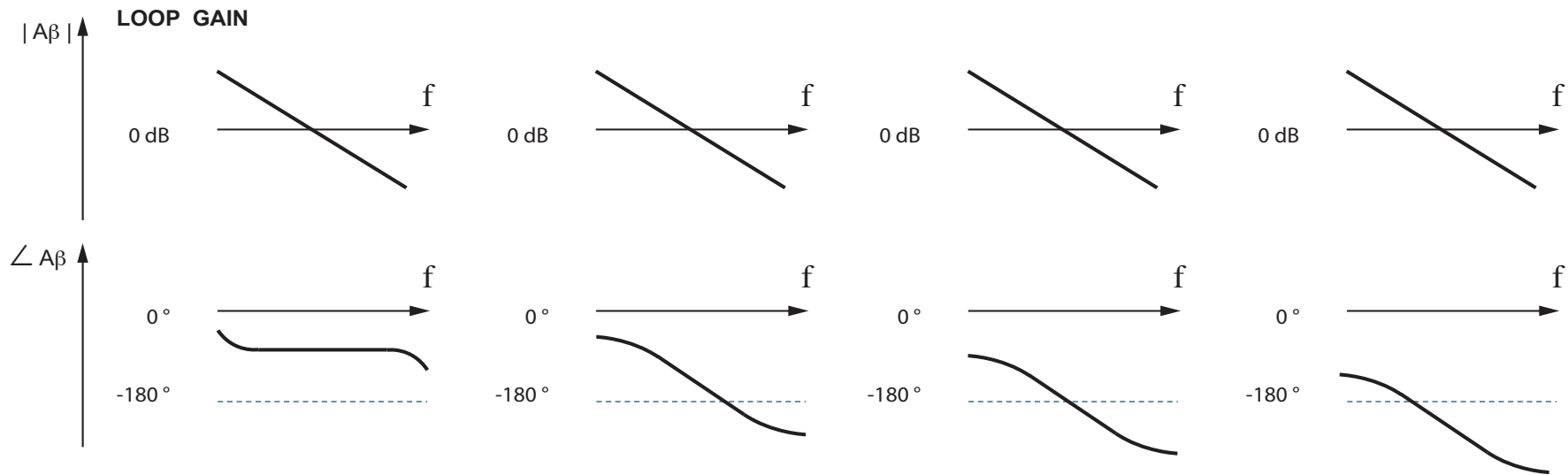
Op-Amp Dominant Pole  
Compensation

Review Stability Analysis

Instability from feedback: Differentiator



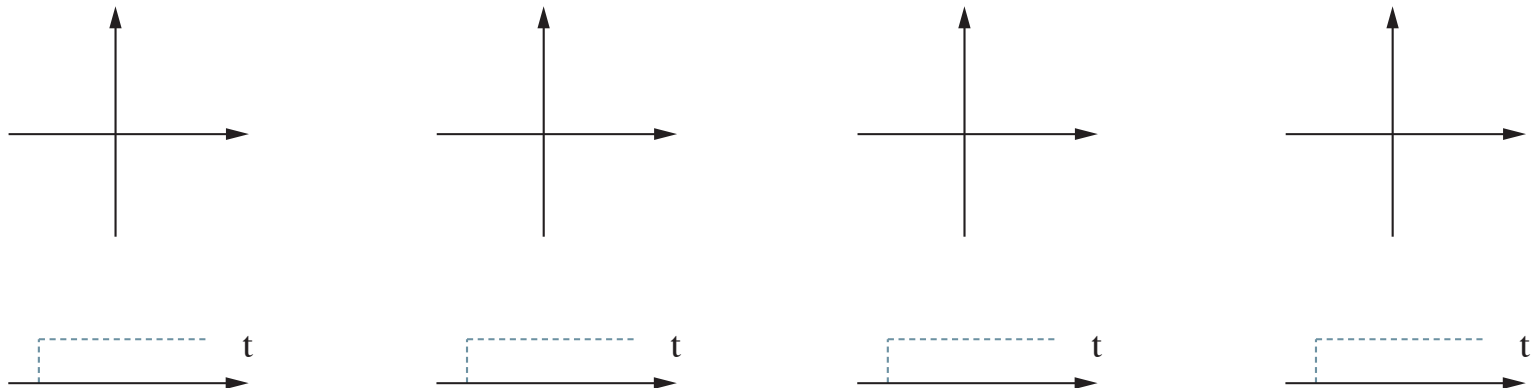
# Phase Margin Examples



**CLOSED LOOP  
TRANSFER  
FUNCTION**

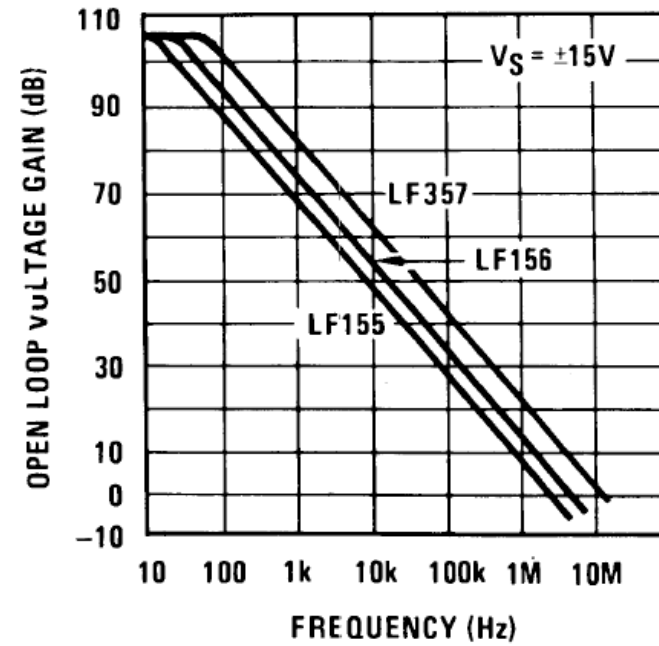
s- PLANE

STEP  
RESPONSE



Why does op-amp Open Loop Gain look like this?

Open Loop Frequency Response



# Dominant Pole Op-Amp Compensation