Switched-Capacitor Circuits

Fedubal Cascade Laminating

Project: Multi-enhanced Operational Amplifier

Examples:
- Low Power Resolver
- Audio Bridge

Switched-Capacitor Circuits

Functional Block Diagram

Core Rectification ADC 6.5

Independent Supply, Input, and Output

Diagrams and Equations for Circuit Analysis

Project Overview

Equations:
- \( V_i = V_o + \frac{V_{in}}{R} \)

Capacitors and Resistors

Suitable for Course

140 1659 W 1/13 2
Gain accuracy: 

\[
\frac{\Delta f}{f} = 2
\]

Use pole for feedback loop. 

\[
f = \frac{C_f}{C}\]

\[
c = \frac{C_f + C}{C}\]

Find feedback perspective. 

Gain must be stable. 

\[
\phi = \frac{1}{\phi_f}
\]

Need positive gain. 

\[
\phi = \frac{V_o}{V_i} = \frac{V_f}{V_i} > 0
\]

\[
\frac{dV}{dt} = \frac{1}{C_f} \frac{V}{V} = \frac{1}{C_f} \frac{V}{V} > 0
\]

\[
2f = -V
\]

At rest: 

\[
V = V_i = 0
\]

Change on C must move to G. 

After things settle: 

\[
V = V_i = 0
\]