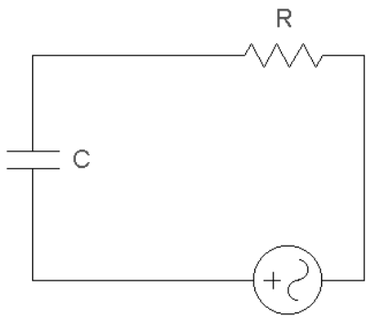
BAGIAN 4
PRINSIP DASAR FILTER AKTIF MENGGUNAKAN OP-AMP

Karakteristik Kapasitor



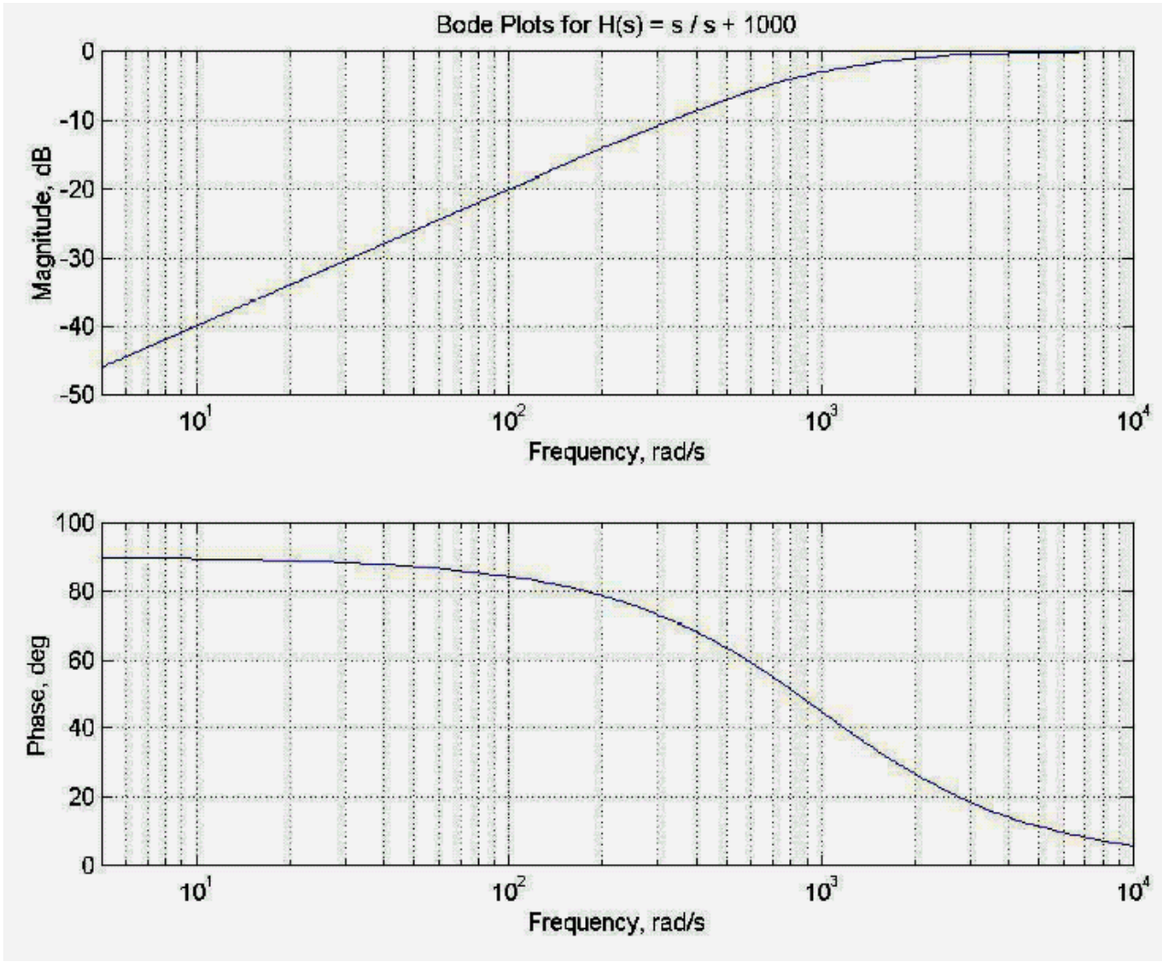
Reaktansi Kapasitif : $\mathbf{X_C} = 1/2\pi fC = 1/\omega C$

Impedansi : $Z = \sqrt{R^2 + X_C^2}$

Phase : $\theta = \cos^{-1}(R/Z)$

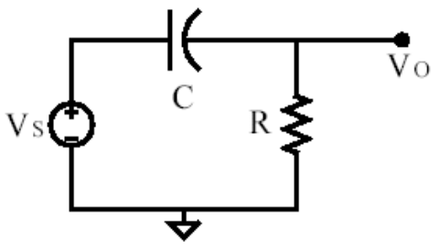
Representasi Spektrum Frekuensi

Representasi Spektrum Frekuensi (Diagram Bode)

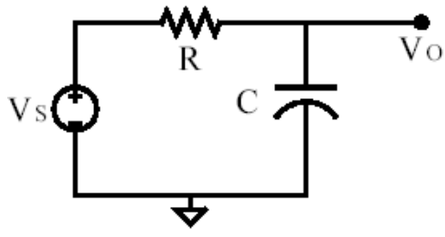


Magnitude ≡ Penguatan (dalam satuan dB) = 20 log $H(j\omega)$

$$H(j\omega) = Y(j\omega)/\ X(j\omega)$$

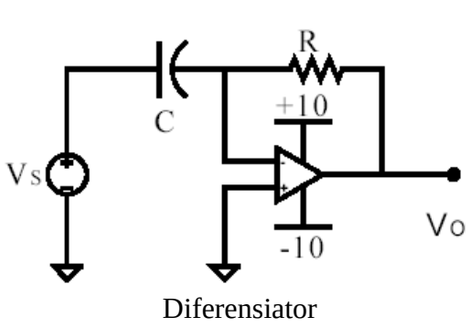


High Pass Filter

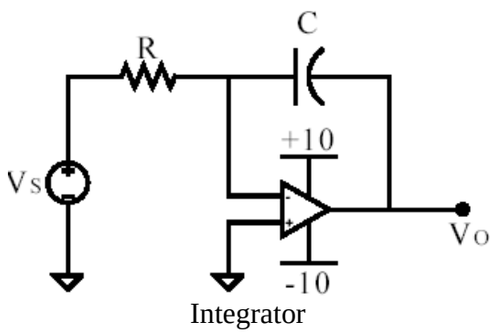


Low Pass Filter

Cutoff Frequency : $\omega_c = 1/RC$



Diferensiator



Integrator

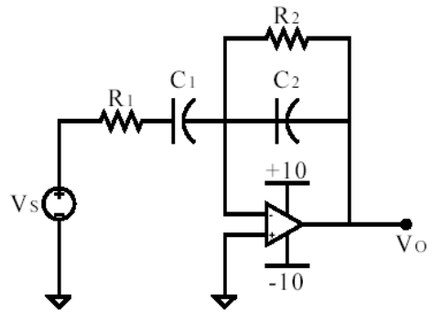


Figure 9. An Active Band Pass Filter.

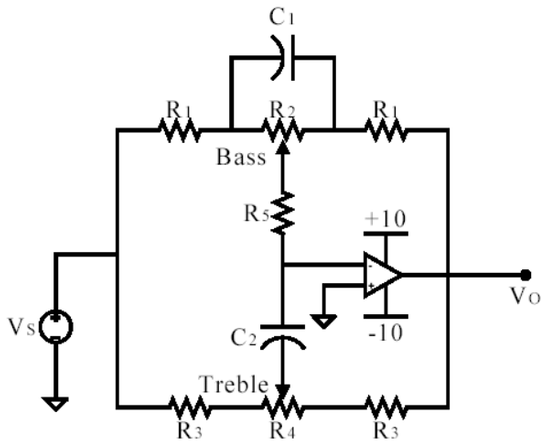


Figure 10. Bass and Treble Control.

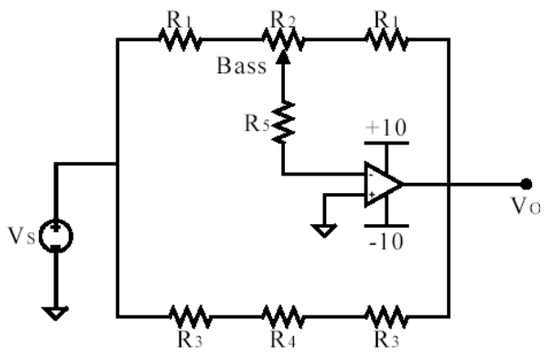


Figure 11. Bass Controler at Low Freqencies.

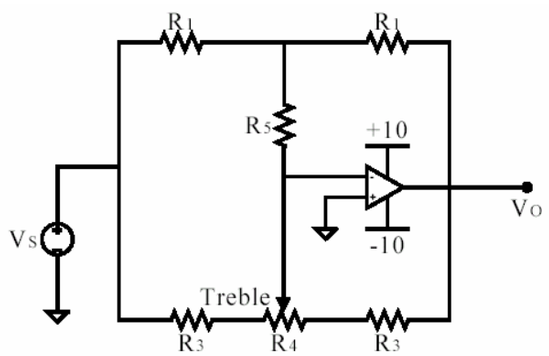


Figure 12. Treble Controller at High Freqencies.