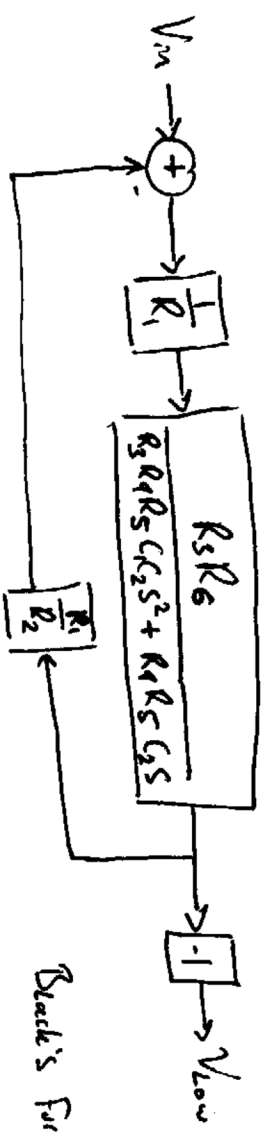


$$C_1 || R_3 = \frac{R_3}{R_3 C_1 s + 1}$$

$$\frac{C_2}{R_4} = \frac{1}{R_4 C_2 s}$$



Block's Formula: $\frac{1}{1 + F(s)G(s)}$



$$\frac{V_{low}}{V_{in}} = \frac{1}{K_1} \left(\frac{R_3 R_6}{R_3 R_4 R_5 C_1 C_2 s^2 + R_4 R_5 C_2 s} \right) = \frac{1}{K_1} \frac{R_3 R_6}{R_3 R_4 R_5 C_1 C_2 s^2 + R_4 R_5 C_2 s + \frac{R_3 R_6}{R_4 R_5}}$$

Low pass!

$$\frac{V_{band}}{V_{in}} = \frac{V_{band}}{V_{low}} \frac{V_{low}}{V_{in}} = \left(\frac{R_2}{R_3} \frac{1}{R_4 C_1 s} \right) \frac{V_{low}}{V_{in}} = \frac{1}{s^2 + \frac{1}{R_3 C_1} s + \frac{R_6}{R_2 R_4 R_5 C_1 C_2}}$$

Band Pass!

$$\omega_o = \sqrt{\frac{R_6}{R_2 R_4 R_5 C_1 C_2}}$$

$$Q = \frac{1}{R_3 C_1} = \frac{\sqrt{R_2 R_4 R_5 C_1 C_2}}{\sqrt{R_3^2 C_1^2 R_6}} = \sqrt{\frac{R_2 R_4 R_5 C_2}{R_3^2 R_6 C_1}}$$