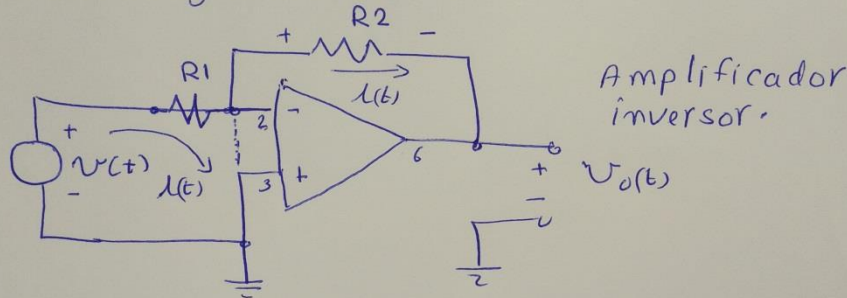


Op Amp. Aplicações

F540

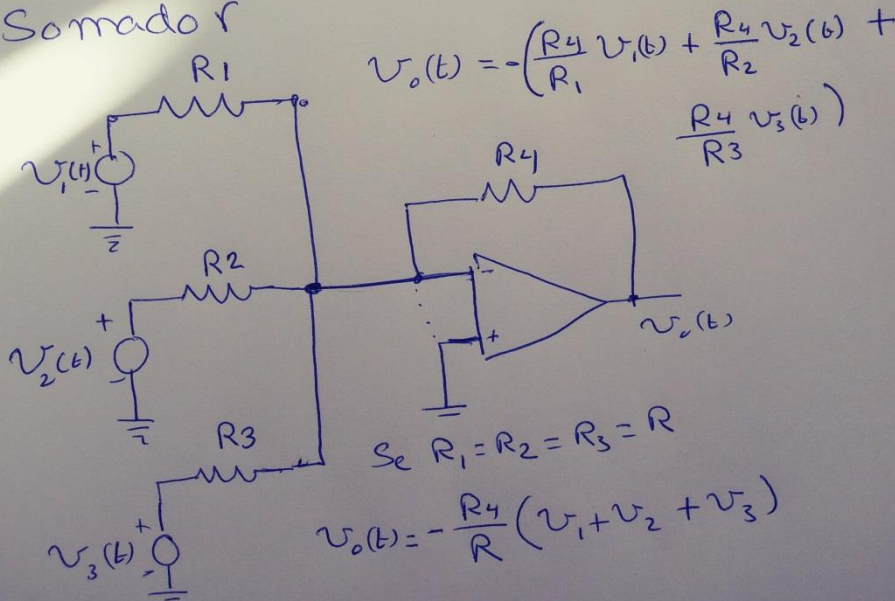
F 540

Aplicações: Amplificador, somador,
Circuito integrador; circuito diferenciador.



$$i(t) = \frac{v(t)}{R} \quad \therefore \quad v_o(t) = -R_2 \cdot i(t)$$
$$v_o(t) = -\frac{R_2}{R_1} \cdot v(t)$$

Somador

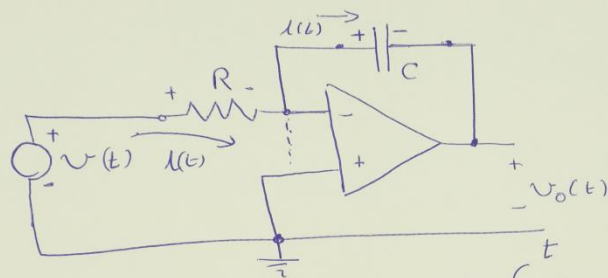


$$v_o(t) = -\left(\frac{R_4}{R_1} v_1(t) + \frac{R_4}{R_2} v_2(t) + \frac{R_4}{R_3} v_3(t)\right)$$

$$v_o(t) = -\frac{R_4}{R} (v_1 + v_2 + v_3)$$

Circuito integrador . \int

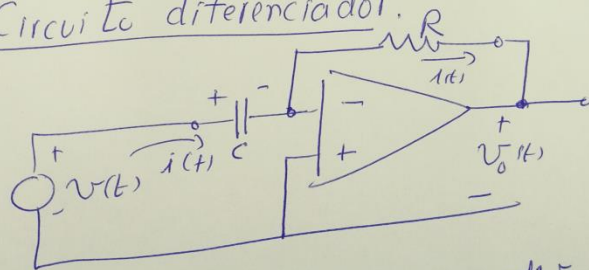
2



$$i(t) = \frac{v(t)}{R} \quad \therefore v_o(t) = -\frac{1}{C} \int_0^t i dt$$

$$v_o(t) = -\frac{1}{C} \int_0^t \frac{v(t)}{R} dt \quad \therefore v_o(t) = -\frac{1}{RC} \int_0^t v dt$$

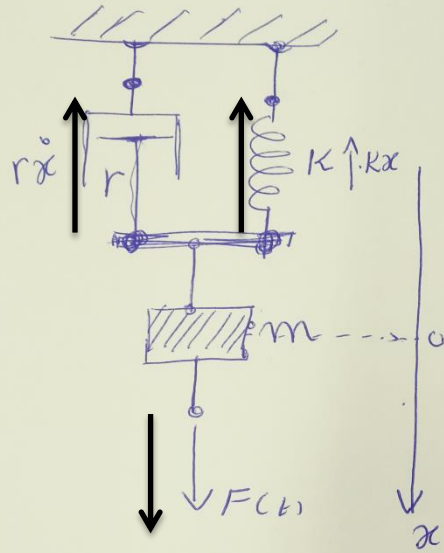
Circuito diferenciador



$$i(t) = C \frac{dv}{dt} \quad \therefore v_o = -RC \frac{dv}{dt}$$

Computação analógica:

3



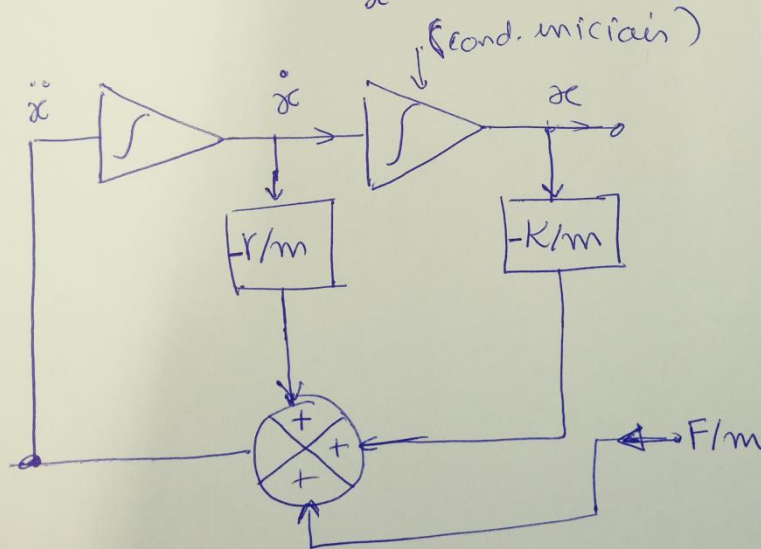
$$\sum F = m \frac{d^2 x}{dt^2} = m \ddot{x}$$

$$F - r \dot{x} - Kx = m \ddot{x}$$

$$F = m \ddot{x} + r \dot{x} + Kx$$

$$\frac{F}{m} = \ddot{x} + \frac{r}{m} \dot{x} + \frac{K}{m} x$$

$$\ddot{x} = \frac{F}{m} - \frac{r}{m} \dot{x} - \frac{K}{m} x$$



Fim