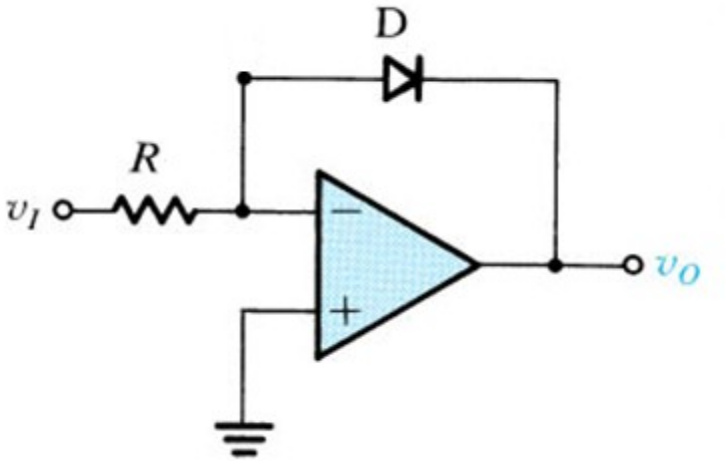
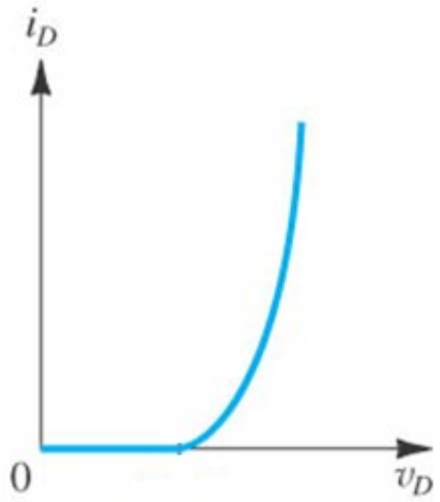
Amplificador Logarítmico



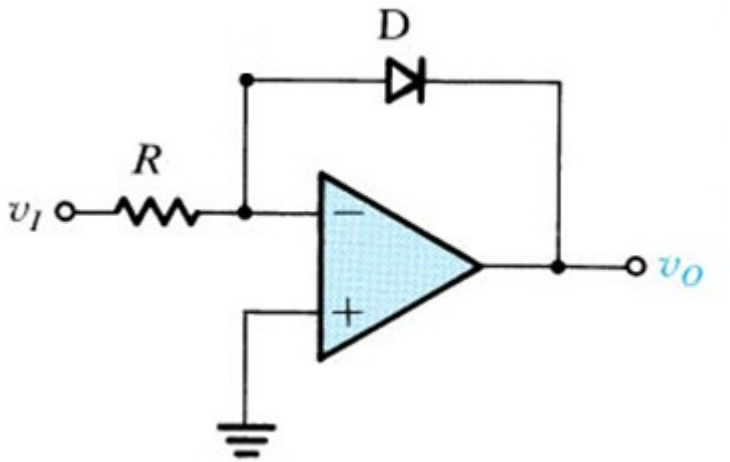
Característica *i* x *v* do diodo



$$I_D = I_S\left[e^{\left(\frac{qV_D}{nkT}\right)} - 1\right]$$

$$V_T = \frac{kT}{q} \qquad I_S = f(T)$$

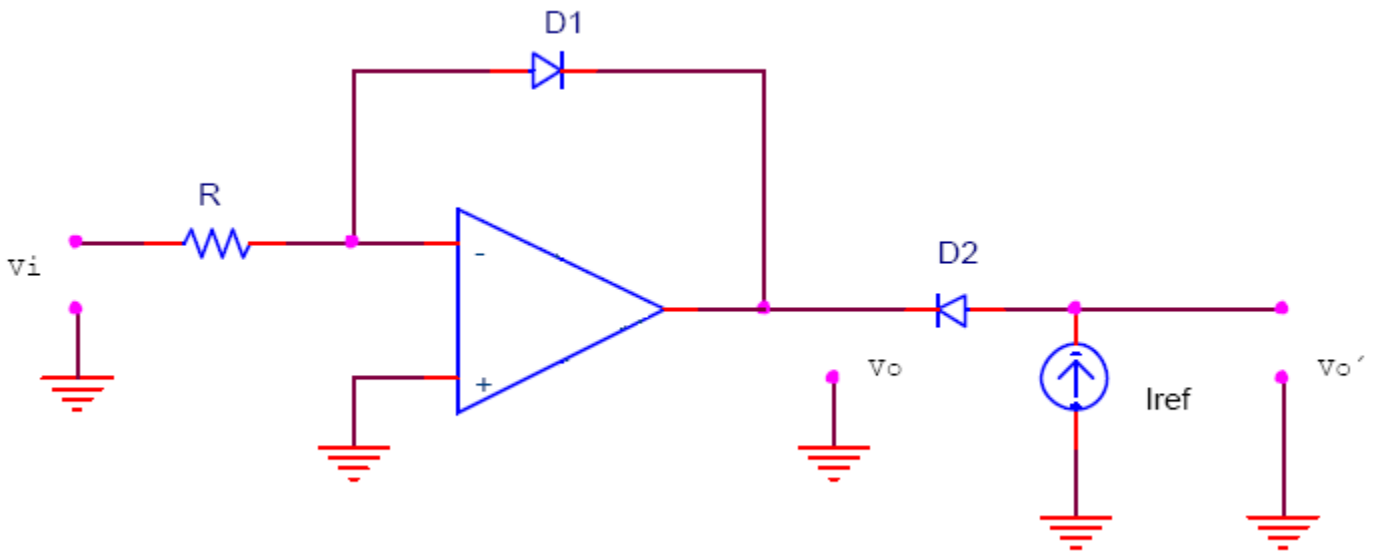
Análise do amplificador logarítmico



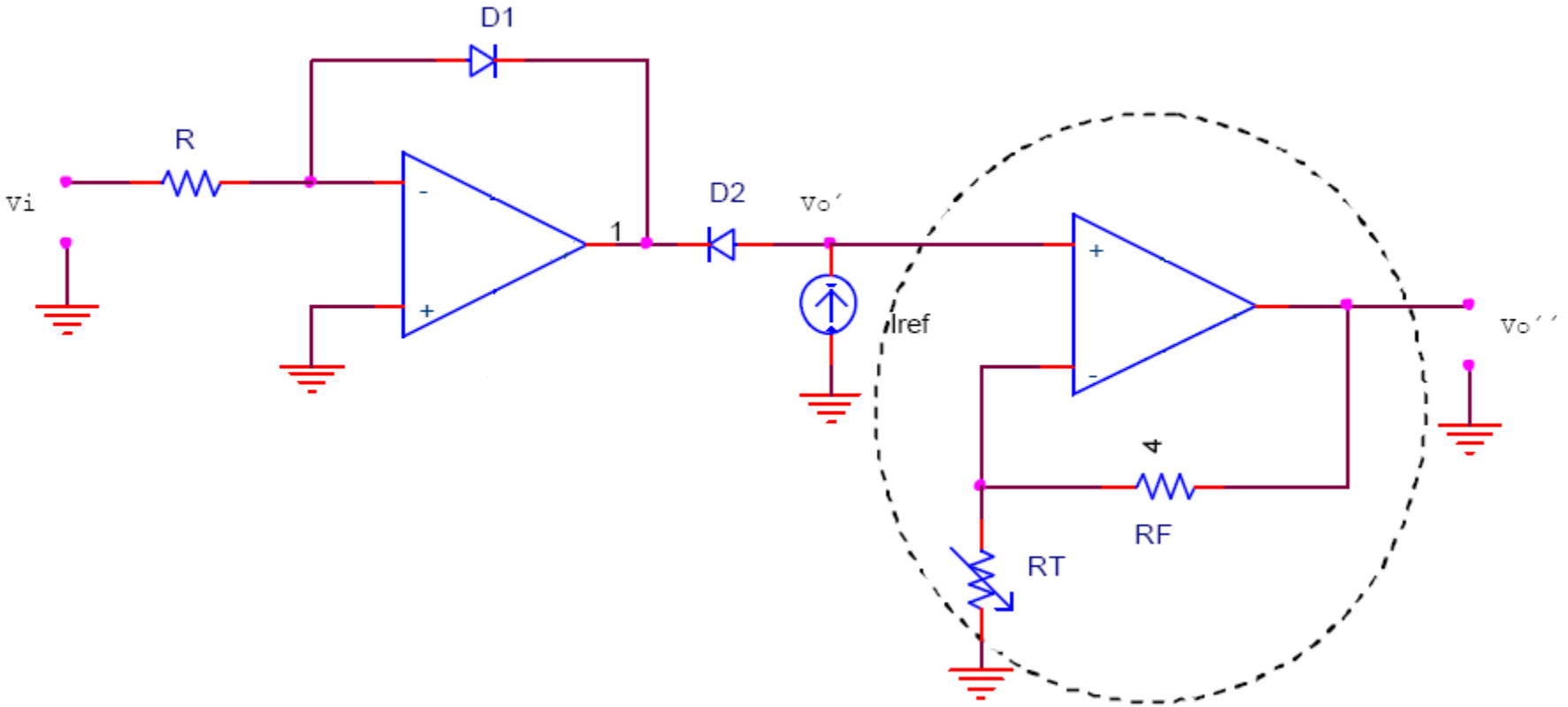
Compensação de temperatura

Para que o Amplificador Logarítmico funcione em diferentes temperaturas é necessário um circuito que compense variações de V_T e I_S .

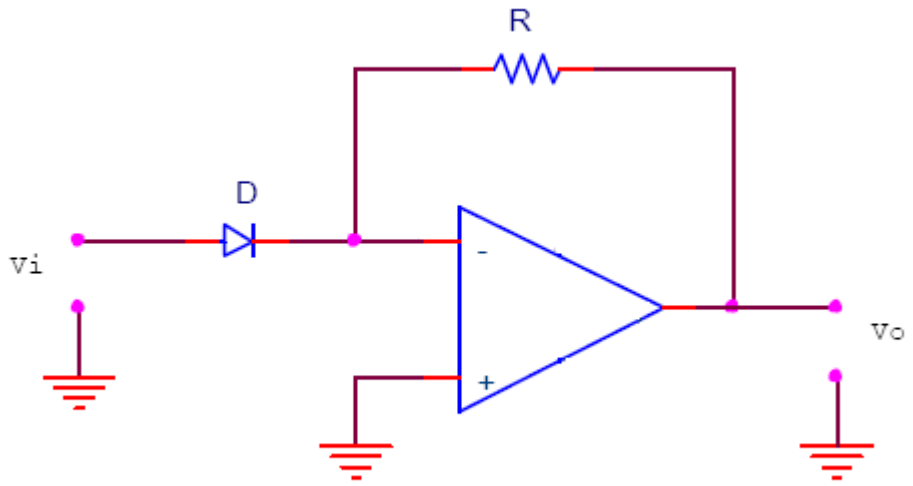
Compensação de I_S



Compensação de V_T

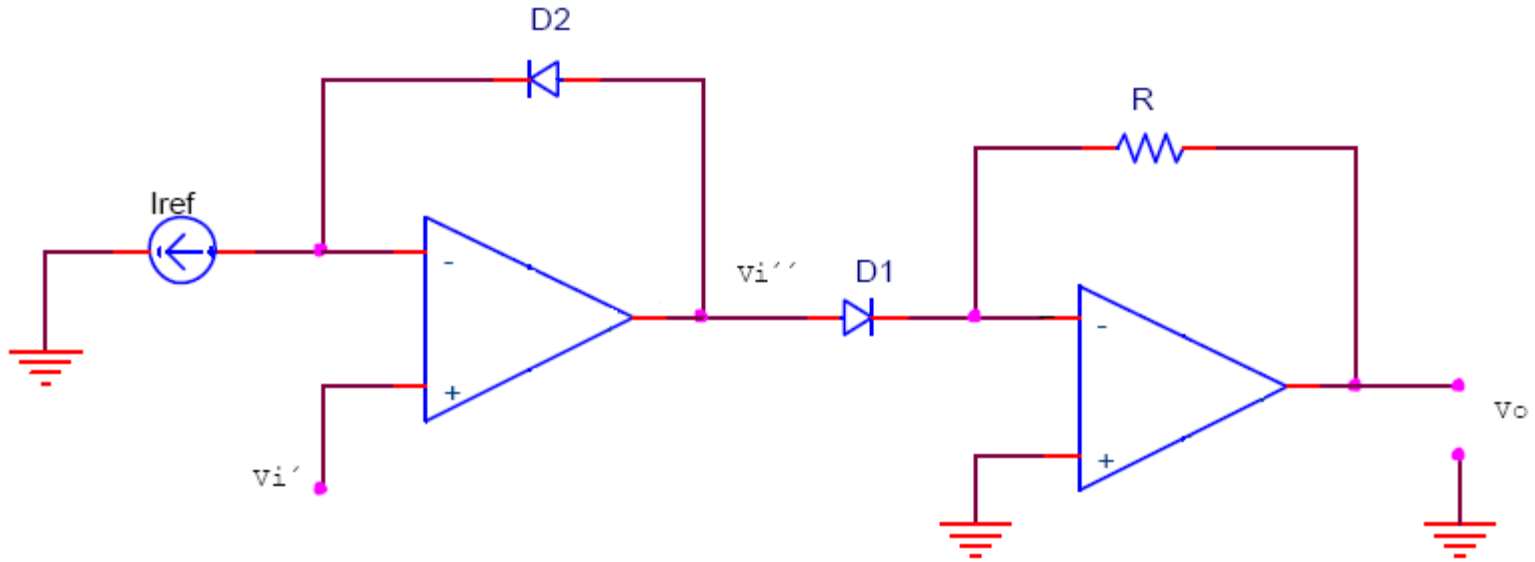


Amplificador Exponencial

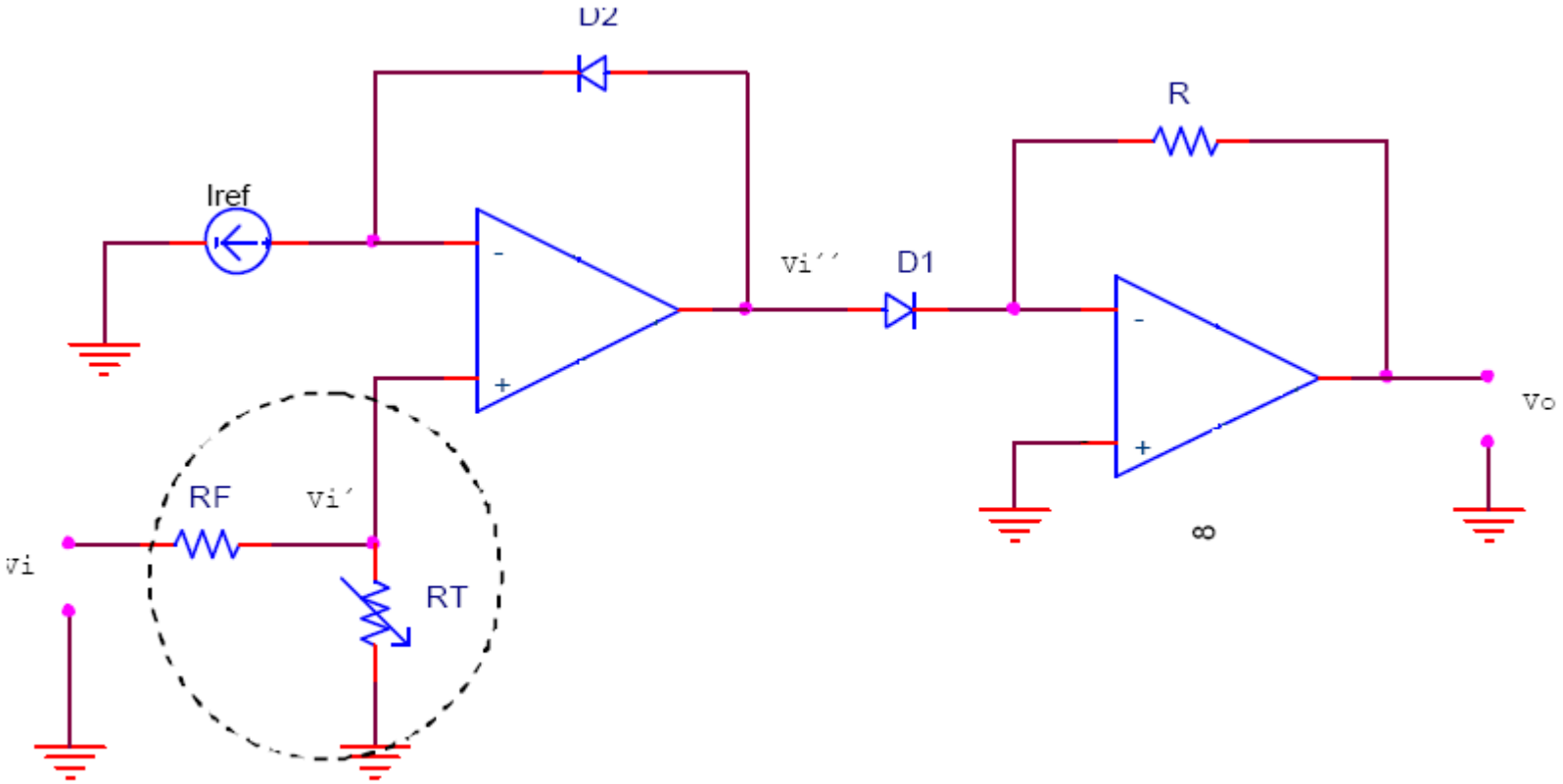


Compensação de temperatura

Compensação de I_S



Compensação de V_T

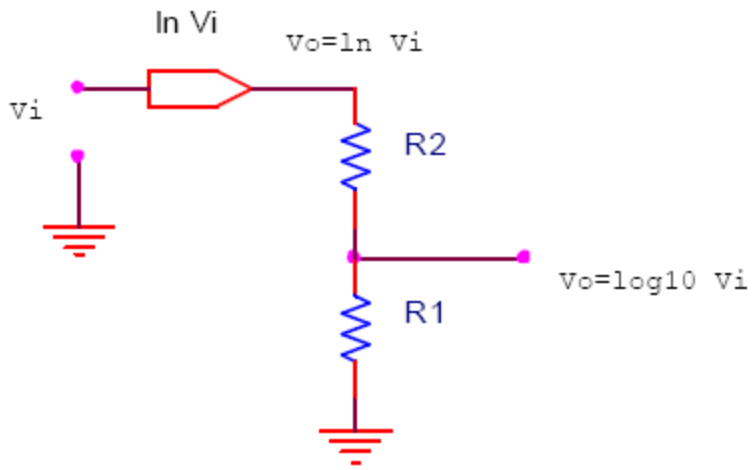


Mudança de base em amplificadores log

$$\log_B x = \frac{\ln x}{\ln B}$$

Exemplo 1: Determine os valores de R_1 e R_2 de modo a obter

$$v_o = \log_{10} v_i$$



Exemplo 2: Determine os valores de R_1 e R_2 de modo a obter

$$v_o = \log_2 v_i$$