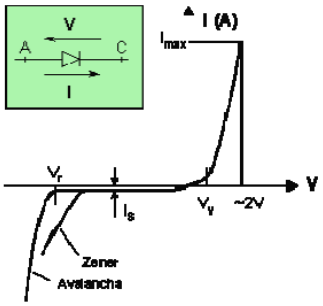
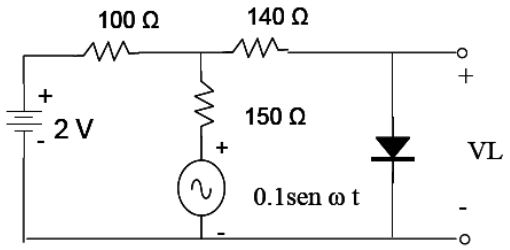
Modelo de pequeña señal del diodo semiconductor



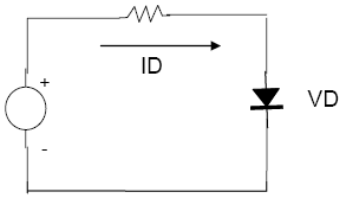
$$I = I_S\left(e^{V_D/(nV_T)} - 1\right)$$

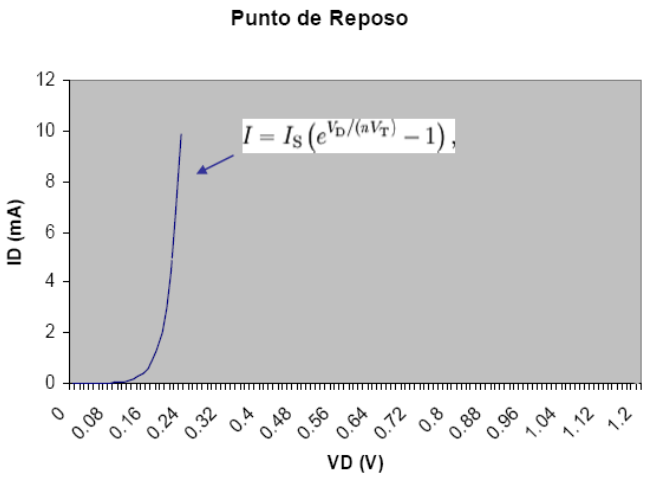
$I_s = 10^{-6}$ $nV_T = 25mV$

Obtener VL

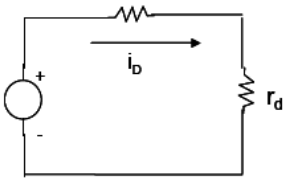


Corriente en reposo del diodo DC



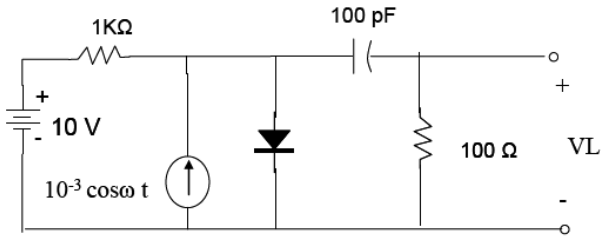


Resistencia dinámica del diodo r_d



$$\frac{1}{r_d} = \frac{dI_D}{dV_D}\bigg|_Q$$

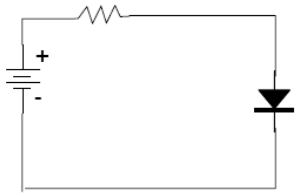
Problema Obtener VL

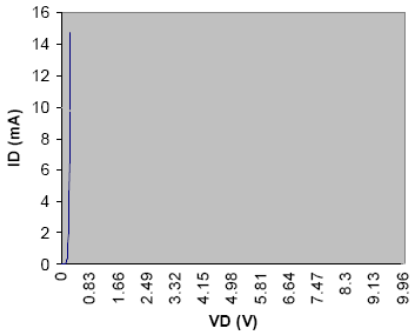


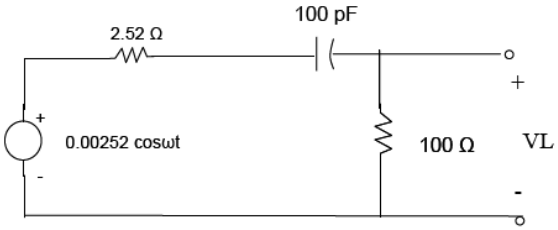
$$I_D = 10^{-6}(e^{V_D/V_T}-1)$$

V_T = 25 mV

Punto de Reposo







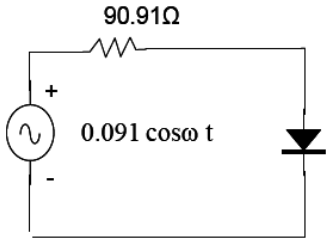
$Zc = 1/j\omega C$

Representado como fasor

$$VL = \frac{j\omega C*100}{1+j\omega C*102.52}\ 0.00252\cos\omega t \quad \Rightarrow \quad |VL| = \frac{\omega C*100}{\sqrt{1+(\omega C*102.52)^2}}\ 0.00252\cos\omega t$$

ω (rad/seg)	VL
10^6	
10^8	
10^{10}	

Recta de carga AC



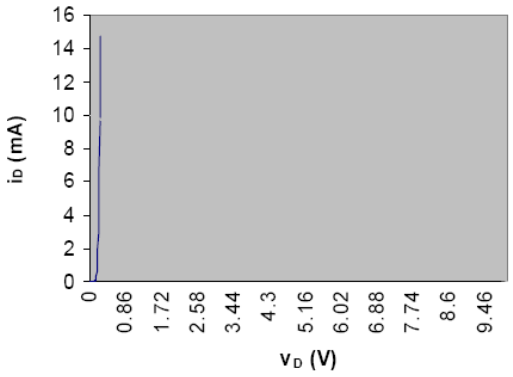
(Recta de Carga AC)

$$id = \frac{0.091\cos\omega t - vd}{90.91}$$

Cambio de coordenadas

$id = iD - ID$ $\qquad$ $vd = vD - VD$

Punto de Reposo



$$iD - ID = \frac{0.091\cos\omega t - (vD - VD)}{90.91}$$