$$i_D=I_S\left(e^{rac{v_D}{nV_T}}-1
ight)$$
 $C_D=rac{ au}{V_T}I_Se^{rac{v_D}{nV_T}}+rac{C_{j0}}{\left(1-rac{v_D}{V_0}
ight)^n}$ v_D