

Some important pages from Sedra/Smith 7th edition

1. Junction diode:

- a) equation , p. 184, Eq. 4.1
- b) small signal conductance, p. 197, Eq. 4.17 & 4.19 (P. 198)
- c) load Line, Q point, p. 191, Fig. 4.11 & small signal p.196, Fig. 4.14.

2. BJT

- a) equations, p. 322, Table 6.2
- b) curves, p. 330, Fig. 6.20; VA, p. 327, Fig. 6.18
- c) bias, p. 315, Fig. 6.29(a); p. 720, Fig. 10.3 (C's to isolate bias)
- d) Pi equivalent circuit, p. 407, Fig. 7.24; p. 718, Fig. 10.14(a) (with C_π & C_μ)
- e) Transition frequency, F_T , p. 715, Eq. (10.29)

3. MOS [symbols, p. 265, Fig. 5.11(N) & p. 274, Fig. 5.19(P)]

- a) equations, I_D , p. 266, Table 5.1(NMOS), p. 272, Eq. (5.23) [output NMOS]; p. 275, Table 5.2(PMOS)
- b) curves, p. 267, Fig. 5.13
- c) bias, p. 282, Fig. 5.24
- d) body effect (substrate bias), p. 288, Eq.(5.30)
- e) Pi equivalent circuit, p. 715, Fig. 10.13

4. Amplifier, basic Voltage gain, $A_v = -g_m R_L$, p. 429, Eq. (7.94)

- a) MOS summary, p. 452, Table 7.4 [CS & S follower]
- b) BJT summary, p. 453, Table 7.5 [CE & E follower]
- c) Use of admittance matrix (on-line- appendix C) $A_v = -y_{21}/[y_{22} + y_L]$; y_L =load admittance

$$y_{in} = [y_{11}y_L + \det(Y)]/[y_{22} + y_L]; y_{out} = [y_{22}y_s + \det(Y)]/[y_{11} + y_s]; y_s = \text{source admittance}$$

- d) Push-pull, p. 941, Fig. 12.5; biased, p. 940, Fig. 12.14

5. Current mirrors

- a) BJT, p. 520, Fig. 8.9 & p. 521, Fig. 8.10
- b) BJT cascode, p. 561, Fig. 9.40
- c) MOS, p. 812, Fig. 8.1, eqs. (9.2) & (8.4)
- d) MOS cascode, p. 560, Fig. 8.30
- e) MOS current steering, p. 516, Fig. 8.4

6. OTA = operational transconductance amplifier

- a) BJT, p. 651, Fig. 9.36(a); p. 617, Eqs. (9.48) & (9.49) [and difference; $I_T \tanh(v_{id}/(2V_T))$]
- b) MOS, p. 648, Fig. 9.32; p. 604, Eqs. (9.13) & (9.19) [and difference]