RF Microelectronics, Second Edition

Errata

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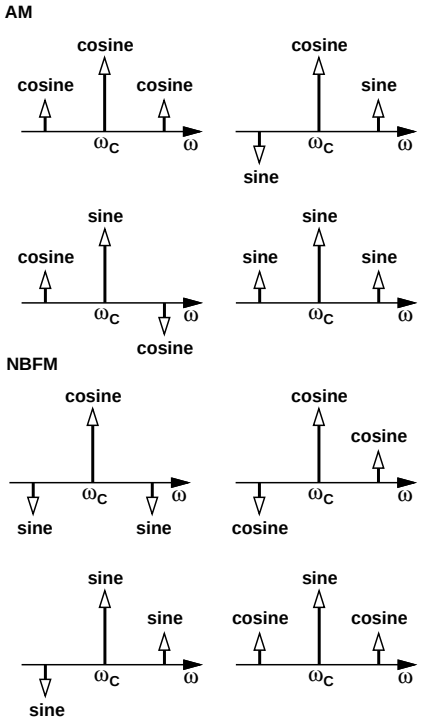
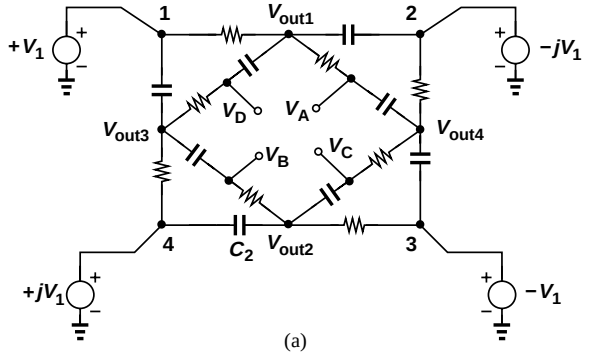
- Fig. 2.4: the spectrum of the square wave should contain an impulse at dc; the spectrum on the bottom right should include a copy of the spectrum of V_{in2} around zero frequency.
- Example 2.11, change Eq. (2.53) to 3.16 V_p and Eq. (2.54) to $+20$ dBm.
- On page 40, last paragraph, the noise current of a resistor should read $\overline{I_n^2} = \overline{V_n^2}/R_1^2$.
- Fig. 2.51(b): output noise should read $\overline{V_{n2}^2}$.
- Eq. (2.213): multiply C_X in the denominator by R_S.
- P. 80, Example 2.34, fourth line below Eq. (2.237): should read $\exp(j\omega_3 t)$.
- Prob. 2.3, second line should read: consider the cascade of identical ...
- Prob. 2.5 should read $\omega_3 - \omega_2 = \omega_2 - \omega_1$.
- Fig. 3.9 should be changed as shown below:



- In Fig. 3.11, change ω_0 to ω_c.
- In the first paragraph of Section 3.3.3, change the last sentence to ... decrease this bandwidth to about $1/T_b$.
- On page 115, in the paragraph starting with "The concept of QAM ..." change eight to six.
- Eq. (3.50), last term should read $a_n(t)\cos(\omega_c t + \theta_n)$.
- P. 127, fifth line in paragraph starting with "How is the received ...": should read $y(t) = x_{BB1}(t) \cdot W_1^2(t)$.
- P. 137, first line: change CMDA to CDMA.
- Eq. (3.53): divide all terms containing m by 2.
- Fig. 3.80: remove 0 from the center of the horizontal axis.
- Fig. 3.85: caption should read 11b.
- Fig. 4.29(b): image band is 48 MHz wide.
- Fig. 4.52(b) swap sine and cosine and change ω_0 to ω_c.
- P. 205: second line: $\omega_c < \omega_{LO}$; third line: $\omega_c > \omega_{LO}$.
- In Fig. 4.15(b), change $2\omega_{in} - \omega_{LO}$ to $2\omega_{LO} - \omega_{in}$.
- In Example 4.27, page 202, change $\exp(-j\omega_c t)$ to $\exp(+j\omega_c t)$.
- P. 211: left side of (4.84) should read $x_D(t)$ and left side of (4.85) should read $x_C(t)$. Also, the right side of (4.86) should be multiplied by -1.
- Fig. 4.69: top left: the spectrum should be negative; top right: change ω_c to ω_{im}; bottom left: the spectrum should be positive.
- P. 217: Remove last paragraph and Fig. 4.74.
- Fig. 4.81(a) should be changed as shown below:



(a)

- Example 4.36, the first sentence in solution should read: We have $V_{out1} = (1/2)(1-j)V_1$ and ... observing that V_{out1} and V_{out4} ...
- Fig. 4.84: change Casade to Cascade
- Line after Eq. (4.124) should read $\cos(\omega_c + \omega_{in})t$.
- P. 230, above Example 4.38: change cancellation to constellation. P. 231, first line should read We observe that if ϵ is ...; also, in Eq. (4.132), multiply the right side by V_0^2.
- Fig. 4.122: the bottom signal going to the adder should be subtracted from the top signal.
- P. 261 before the paragraph entitled Bandwidth: change UBW to UWB.
- P. 263: paragraph starting with Let us ...: multiply C_F by $1 + g_m R_D$
- Eq. (5.34), in the numerator: multiply the first square bracket by $C_F\omega$ and multiply the last ω_2 by C_F.
- Example 5.5, third line in solution: Since it is desired

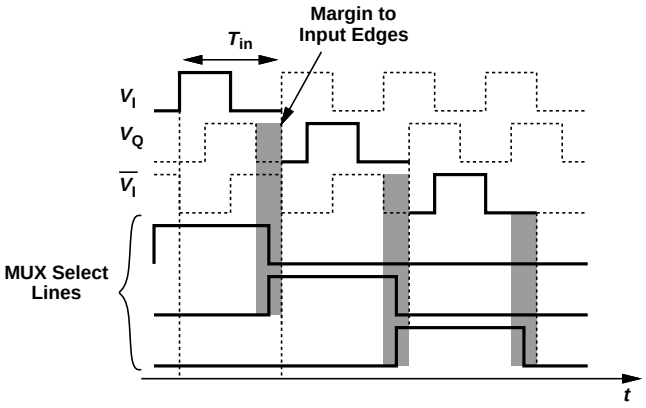
that $R_{in} = R_S$,

- The denominator of (5.43) should read $2R_S$.
- (5.69): change r_{O1} in the first numerator to r_{O2}.
- Sec. 5.3.4, second line, change many to may.
- The R_S in the denominators of (5.96) and (5.100) must be multiplied by j.
- (5.100): multiply R_S in the denominator by j.
- Example 5.16: last paragraph: Change Fig. 5.39(b) to Fig. 5.39(c).
- (5.135): add ω^2 in the numerator.
- P. 315: above paragraph entitled Differential CG LNA, change Figs. 5.66(a) and (b) to Figs. 5.65(a) and (b).
- Above (5.149): change $[R_1/(2R_1/2)]$ to $[R_1/(2R_{S1}/2)]^2$.
- Three lines above (5.159): change reduced to increased.
- Right side of (5.197) should read $4\sqrt{(2I_{SS})/(3\mu_n C_{ox}W/L)}$. Change the coefficient of (5.198) from $\sqrt{6}$ to $4\sqrt{2/3}$.
- Sec. 5.7.4: change numerator of (5.201) from 1 to 2 and right side of (5.203) from $6\alpha_3$ to $3\alpha_3$. Also, the right side of (5.204) should read $2I_0\sqrt{(2/3)g_m(R_S + 2/g_m)^3}$.
- On page 349, first paragraph, change Fig. 6.16(b) to Fig. 6.16.
- In Fig. 6.14(b), the spectral density on the right should change from $2kTR_S$ to kTR_S.
- Three lines above Fig. 6.24: change single-ended to single-balanced.
- P. 360: Above (6.31): and hence only the noise around $\pm f_{LO}$ is significant: Change the right side of (6.31) to $(2/\pi^2)(2kTR_1)$. Change the coefficient on the right side of (6.32) from 0.226 to 0.2. Next paragraph: change Fig. 6.21 to Fig. 6.23, and $t/(2T_{LO})$ to $2t/T_{LO}$.
- P. 361: right side of (6.33): change $(2f_{LO}^2)$ to $(2f_{LO})^2$. Above (6.36) remove π.
- P. 368, second sentence should read: In fact, current-driven mixers ...
- Fig. 6.43(a): swap M_5 and M_6.
- Fig. 6.44(a): add V_{DD}.
- Eq. (6.76): remove the factor of 2 from the fraction within the square brackets.
- P. 385: line above (6.89) should read: voltages of M_2 and M_3 are equal ...
- (6.116): the denominator of second fraction: $|V_{GS} - V_{TH}|_4$. Also, in Example 6.25.
- (6.129): change V_{IM2} to I_{IM2}.
- (6.133) should read ...$(-V_m \cos\omega_1 t - V_m \cos\omega_2 t +$ ...
- (6.143): change the $+$ sign before $X(f + f_{LO})$ to $-$ sign.
- P. 413, third line: remove V_{GS1}.
- P. 414: line before last paragraph: change -34 to -14. Also, change litter in footnote to little.
- Example 7.6, Eq. (7.33) should read:

$$C_{eq} = \frac{C_1 + \cdots + C_{4(N-1)}}{[4(N-1)]^2} \qquad (1)$$

  Eq. (7.125) in Problem 7.3 must also be corrected as above.

- Example 7.13: change 30 to 35.
- The line above Eq. (7.48) should read: equal to $K|I_{u,n}|^2 R_{sub}$.
- (7.96): multiply the right side by Z_0.
- p. 488, the sentence below Eq. (7.114) should read $Z_1 d = R_{tot}/2$ and $Y_1 d = C_{tot}s/2$.
- Fig. 7.75(b), label the rightmost transistor as M_{22}.
- Prob. 7.10, Assume the inductance is about 9 times that of one spiral.
- Eq. (8.5): the sign before the second fraction should change from positive to negative.
- In Eq. (8.19), change ϕ_0 to ϕ_1.
- P. 517: second line: change R_p to $1/R_p$.
- In the sentence above Eq. (8.43), change rad/Hz/V to rad/s/V.
- P. 536: paragraph starting with Some recent ...: change stops to steps.
- P550: line below (8.113) should read ... is simply ...
- P 554, last line of first paragraph: change R_p to $1/R_p$.
- Example 8.32, last line: the zero crossings are unaffected, and in the latter, the peaks.
- P. 564: last paragraph: change t to τ and ϕ_j to ϕ_m.
- Fig. 8.84(b): change $2L_1$ to $L_1/2$. Also, in line above, change doubled to halved.
- Line above Sec. 8.11.2: multiply ω_0 by j.
- Example 9.1: remove "having a frequency equal to the difference ..."
- Line above (9.1): change ϕ to $\Delta\phi$.
- P. 607: sixth line should read Example 9.8 ...
- Fig. 9.28: change C_p to C_1.
- Four lines above (9.17) should read: [Fig. 9.31(b)].
- P. 621: remove "The inverse Laplace transform of"
- On page 622, below Eq. (9.30) should read: Note that $\omega_{p1}/\omega_{p2} \approx 1/(4\zeta^2) \ll 1$. Does this mean ω_{p1} becomes a dominant pole? No, interestingly, the *zero* is also located at $-\omega_n/(2\zeta)$, cancelling the effect of ω_{p1}. Thus, ... $1/|\omega_{p2}|$ ...
- Three lines above (9.43) should read: $2(\Delta T I_p/C_2)T_{res}/T_{in}$.
- The inverting and non-inverting inputs of A_0 in Figs. 9.51 and 9.53 should be swapped.
- P. 644, lines above last paragraph: change N to M.
- (9.79): change the power of ζ in the denominators to 4. Also, in the line below this eq.
- P. 675: first line should read Fig. 10.24; remove (point B) from fourth line.
- Fig. 10.26: change the AND gates to XNOR gates.
- Fig. 10.34: change the circuit in gray box to the divider in Fig. 10.31.
- (10.45): multiply $0.5T_{CK}$ by a negative sign.
- Fig. 10.65: change $\omega_{in}t$ to $(\omega_{in}/2)t$.
- Eq. (10.75): change R_p to R_1; denominator should read Ns rather than NS.
- Fig. 11.12 caption: change high to low and low to high.
- Fig. 11.21: change 0.5 to 1.
- Change Fig. 11.45 as shown below:
- Fig. 12.53(b): divide $S_\phi(\omega)$ by N.



- Problem 12.3 should read: Prove that in Fig. 12.17, the voltage swings above and below V_{DD} are equal to V_p/π and $V_p(\pi - 1)/\pi$, respectively, where V_p denotes the peak voltage at each node. (Hint: the average value of V_X and V_Y must be equal to V_{DD}.)
- In the solution of Example 13.1, the second line should read: However, a 64QAM OFDM signal exhibits ... . And the last sentence should read: The -82-dBm PSK OFDM signal has roughly the same behavior. Note that this correction affects the gain calculations after this example.
- In Figs. 13.17, 13.19, and 13.22, change the length of the baseband PMOS devices from 1.2 to 0.12.