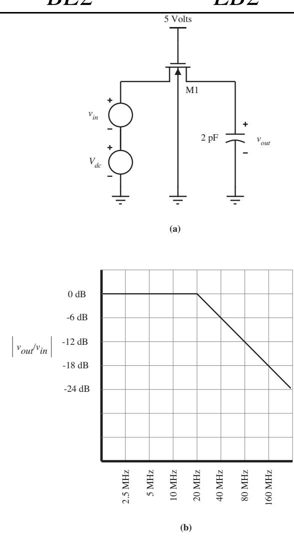
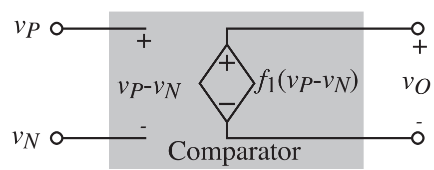
Errata of "CMOS Analog Circuit Design" 3rd Edition
By Phillip E. Allen and Douglas R. Holberg

Highlighted Page Numbers identify corrections made to this version.

Page	Errata
	Changes made in this version indicated by yellow shading in page column.
Ack.	Under Douglas: Change "Lenng" to "Leung"
62	Prob. 2.4-5 – Replace "…a nominal value of 10kΩ when the voltage at both terminals is 2.5V." with "…a nominal value of 10kΩ when the voltage at both terminals is 0V."
68	Fig. 3.1-1 – To remove any confusion by the use of arrows to designate potentials, in this figure the arrow goes from the negative potential to the positive potential.
82	Paragraph 1, line 6: "Thus, a value for CBX of 12.1 F and 9.9 F results…" → "Thus, a value for CBX of 12.1fF and 9.9fF results…" (Thanks to Volker Typke)
164	Eq. (4.6-26): Replace "V_{BE2}" with "V_{EB2}".
175	Fig. P4.1-5 should be  Figure P4.4
175	Prob. 4.1-7 – Replace "Assume that CGSO and CGDO are both 5 fF." with "Assume that CGSO and CGDO are given in Table 3.2-1."
176	Prob. 4.3-1: Remove "Ignore the body effect."
177	Prob. 4.3-4: At the end add "Ignore the body effect to simplify calculations."
183	Prob. 4.6-5: Change first sentence to "If the bipolar transistor in Fig. 4.6-8(a) is a true vertical bipolar transistor (can be......"
205	Fig. 5.2-9: Right "$g_{m1}v_{gs1}$" in both figures should be "$g_{m2}v_{gs2}$"
250	Prob. 5.2-6: Add before the period of the last sentence "and V_{DD} = 2.5V"
250	Prob. 5.2-10: Change "Assume that I_{SS} is 50μA." to "Assume that I_{SS} is 50μA and all W/L=1."

318	Line 6 from top: Replace "…M2 is on and M1 is off." with "…M1 is on and M2 is off."
348	Prob. 6.5-1: Delete the sentence "Design the value of R to keep the source-drain voltage of M3 and M4 to be equal to V_{ds}(sat)."
362	Eq. (7.1-8) should be $$R_{out} = \frac{1}{(g_{ds6}+g_{ds7})\left[1+\left(\frac{g_{m2}}{2g_{m4}}\right)(g_{m6}+g_{m8})R_o\right]}$$ (Thanks to Paulo Narita)
400	Fig. 7.4-2 There should be a "v_{i1}" next to the gate of M1 in Fig. 7.4-2.
400	Eq. (7.4-10): Last term should be "$= \frac{1}{(\lambda_6 + \lambda_7)n_1 V_t}$"
437	Prob. 7.1-3: Replace "...simulate Fig. 7.1-2 and..." with "...simulate Fig. 7.1-2 assuming V_{DD} = 10V and V_{SS} = -10V and ..."
437	Prob. 7.1-4: Delete "for an input-stage bias current of 20 μA"
438	Prob. 7.1-11: Add at the end of the statement, "Assume the BJT has a current gain of β_F = 100."
441	Prob. 7.4-2: Replace "… n_n = 2.5 and V_t = 25mV." With "… n_n = 2.5, V_t = 25mV and C_c=1pF."
447	Fig. 8.1-5: Replace $(v_P\text{-}v_N) > 0$ with $(v_P\text{-}v_N)>V_{IH}$ and $(v_P\text{-}v_N) < 0$ with $(v_P\text{-}v_N)<V_{IL}$  $$f_1(v_P\text{-}v_N) = \begin{cases} V_{OH} \text{ for } (v_P\text{-}v_N) > V_{IH} \\ A_v(v_P\text{-}v_N) \text{ for } V_{IL}< (v_P\text{-}v_N)<V_{IH} \\ V_{OL} \text{ for } (v_P\text{-}v_N) < V_{IL} \end{cases}$$ (Thanks to Pete Lee)
451	Example 8.2-1, equation for V_{OH} (change 14 to 94): $$V_{OH} = 2.5 - (2.5 - 0 - 0.7)\left[1 - \sqrt{1 - \frac{2\cdot 95\text{x}10^{-6}}{50\text{x}10^{-6}\cdot 94(2.5 - 0 - 0.7)^2}}\right] = 2.49 \text{ V}$$ (Thanks to Pete Lee)
451	Last line on page should be: $$V_{\text{in}}(\text{min}) = \frac{V_{OH} - V_{OL}}{A_v(0)} = \frac{4.99 \text{ V}}{7696} = 0.648 \text{ mV}$$ (Thanks to Pete Lee)
452	Last Eq. of Example 8.2-1 should be: $$p_2 = -\frac{g_{ds6} + g_{ds7}}{C_{II}} = -\frac{95\text{x}10^{-6}(0.04 + 0.05)}{5\text{x}10^{-12}} = -1.71\text{x}10^6 \text{ (0.272 MHz)}$$ (Thanks to Pete Lee)

452	Eq. (8.2-6) should be " $v_{out}(t) = A_v(0)V_{in}\left[1 + \frac{p_2 e^{tp1}}{p_1 - p_2} - \frac{p_1 e^{tp2}}{p_1 - p_2}\right]$" (Thanks to Pete Lee)
453	Eq. (8.2-12) should be "$v'_{out}(t_n) = 1 - e^{tp1} + tp_1 e^{tp1} = 1 - e^{-tn} - t_n e^{-tn}$ " (Thanks to Pete Lee)
453	Fig. 8.2-2, horizontal axis label should be: "Normalized Time ($t_n = -tp_1$)" (Thanks to Pete Lee)
455	Eq. (8.2-17) should be "$t_{pn} \approx \sqrt{\frac{V_{OH} - V_{OL}}{mA_v(0)V_{in}}} = \sqrt{\frac{V_{in}(\text{min})}{mV_{in}}} = \frac{1}{\sqrt{mk}}$" (Thanks to Pete Lee)
455	Example 8.2-3, solution should read as follows: "From Example 8.2-1 we know that V_{in}(min) = 0.648 mV and m = 0.253. For V_{in} = 10 mV, k = 15.432, which gives t_{pn} = 0.506. This corresponds ··· the amplitude is 1/(2k) or 0.0324. Dividing by $\|p_1\|$ give the propagation time delay as 72.75 ns. Similarly, for V_{in} = 100 mV and 1 V we get propagation delay times of 23.7 ns and 7.5 ns, respectively." (Thanks to Pete Lee)
456	Eq. (8.2-22) should be: $V_{G1} - V_{GS1}(I_{SS}/2) < v_{o1} < V_{G1} - V_{GS1}(I_{SS}/2) + V_{DS2}(\text{sat})$ (Thanks to Pete Lee)
457	Eq. (8.2-23 should be: $V_{S1}(I_{SS}/2) < v_{o1} < V_{S1}(I_{SS}/2) + V_{DS2}(\text{sat})$, $v_{G2} > V_{G1}$, $i_1 > 0$ and $i_2 < I_{SS}$ (Thanks to Pete Lee)
457	Lines 3-5 following Eq. (8.2-23): Replace "still valid until the source voltage of M1 or M2 causes M5 to leave the saturated region. When that happens, I_{SS} decreases and v_{o1} can approach V_{SS} and v_{out} will be determined as was illustrated in Example 5.1-2." with " still valid as long as M5 remains in the saturation region and i_3 is equal to i_4. If for some reason, M5 leaves the saturation region, then I_{SS} decreases and v_{o1} can approach V_{SS} and v_{out} will be determined as was illustrated in Example 5.1-2."
457	Table 8.2-1, entry in row 4 and Initial State of v_{o1} column should be: "V_{SS}" Table 8.2-1, entry in row 5 and Initial State of v_{o1} column should be: "$V_{S1}(I_{SS}/2) < v_{o1} < V_{S1}(I_{SS}/2) + V_{DS2}(\text{sat})$" Table 8.2-1, entry in row 6 should be: "$v_{G2} >> V_{G1}$, $i_1 = i_2 = I_{SS}/2$ $v_{o1} = V_S(I_{SS}/2) + V_{DS2}(\text{sat})$ Eq.(5.1-9) for PMOS"
458	Eq. (8.2-28): K_N and K_P in the equation should be K_N' and K_P' (Thanks to Pete Lee)
459	Equation at the bottom of page should be equal to 1.196 and not 0.496. (Thanks to Pete Lee)

460	Third line from bottom (not counting the equation): "Therefore, $v_{o1} \approx V_{SS}$ = -2.5 V and …" should be "Therefore, $v_{o1} \approx V_{G6}$ = -1 V and …" (Thanks to Pete Lee)
465	Last line (equation) should be: $\frac{W_1}{L_1} = \frac{W_2}{L_2} = \frac{(81)^2}{100 \cdot 20} = 2.98 \rightarrow \frac{W_1}{L_1} = \frac{W_2}{L_2} = 3$ (Thanks to Pete Lee)
466	Line 4 and 5: "…finding V_{GS1} as 1.00V, which gives V_{DS5}(sat) = 0.25V." should be "… finding V_{GS1} as 0.95V, which gives V_{DS5}(sat) = 0.3V." (Thanks to Pete Lee)
466	Equation after line 5 should be: $\frac{W_5}{L_5} = \frac{2 \cdot 20}{(0.3)^2 \cdot 110} = 4$ (Thanks to Pete Lee)
497	Eq. (9.1-3) Should be "$v_{OUT} = KV_{REF}\left(\frac{b_0}{2^1} + \frac{b_1}{2^2} + \frac{b_2}{2^3} + \cdots + \frac{b_{N\text{-}1}}{2^N}\right)$"
534	Second equation should be $1 = \frac{\Delta R}{R} + (2^{12} - 1)\frac{\Delta C}{C}$. The third equation should be $\frac{\Delta C}{C} = \frac{2^4 - 2}{2^{16} - 2^{11} - 2^4} = 0.000221 \rightarrow \frac{\Delta C}{C} = 0.0221\%$
616	Prob. 9.7-06 Change to "...a gain of 2.1 and the analog input is 1.5V."
616	Prob. 9.7-09 Replace "If V_{in}* = 0.1V_{REF}," with "If V_{in}* = 0.2V_{REF},"
733	Prob. 5.2-6: Replace "R_{out} = 2.22 kΩ" with "R_{out} = 2.22 MΩ"
735	Prob. 5.3-8: Replace "A_v = -41.42 V/V" with " A_v = -4145 V/V "
735	Prob. 5.3-10: Replace "V_{out}(min) = -3.6V" with "V_{out}(min) = -4.9V"
739	6.3-8: Replace "C_C = 74.2 pF" with "C_C = 11.8 pF", "C_L(max) = 141.5 pF" with "C_L(max) = 22.5 pF" and "*SR* = 0.674 V/μs" with "*SR* = 4.24 V/μs"
744	At the bottom of the page, add: "**8.5-8** t_p = 39.32 ns."