

# ***MICROELECTRONIC CIRCUIT DESIGN THIRD EDITION***

by

**RICHARD C. JAEGER and TRAVIS N. BLALOCK**

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## **Third Edition Errata**

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### Text Corrections

Page 33    The first answer to the exercise at the bottom of the page should be 9.20 kohms.

Page 46    The units on the vertical axis of Fig. 2.4 should be  $\text{cm}^{-3}$ .

Page 108   Exercise: 2.13 mA, 1.13 mA, -1.27 V

Page 117   Exercise: 0.912 ms, 19.7°

Page 118   Exercise at bottom: 0.994 V, 1.07 V

Page 172   Units in the equation near the bottom of the page should be  $\text{A/V}^2$

Page 178   Third exercise (25.4  $\mu\text{A}$ , 6.52 V)

Page 182   Exercise answer should be 83.2  $\mu\text{A}$

Page 186   Exercise (2.22  $\mu\text{A}$ , 2.96 mV)

Page 192   Last exercise 127 GHz

Page 193   Near the end of the first sentence:  $10^5 \text{ V/cm}$

Page 217 Last answer in exercise - 1.07 mA

Page 223 Exercise answers (b) 0.300 fA, 5.26 aA, -0.305 fA

Page 229  $V_{CE}$  in second exercise should be 5.44 V

Page 237 The units on  $D_n$  in the exercise are  $\text{cm}^2/\text{s}$ .

Page 240 First exercise - 1.24  $\mu\text{F}$

Page 250 Q-Point: (206  $\mu\text{A}$ , 4.18 V)

Page 278 Fig. 6.3(a): Remove the labels and arrows indicating  $NM_L$  and  $NM_H$ .

Page 302 Exercise;  $I_{DD} = 278 \mu\text{A}$

Page 306 In the figure, the voltages should be  $V_{DSS} = 0.20 \text{ V}$   $V_{DSL} = 3.10 \text{ V}$

Page 321 Spice Results Table: 11000 132 64.4 0 | 11111 64.6 31.9 31.9

Page 330 Exercise: 4.47 ns  $\rightarrow$  4.97 ns, 3.84 ns  $\rightarrow$  2.84 ns

Page 358 Exercise: 1.27 V

Page 362  $C = 0.75 \text{ pF}$  in the first exercise.  $\tau_P = 2.4 \times (2\text{pF}/0.75\text{pF}) \times (2/1)/(8/1) = 1.6 \text{ ns}$  Also "delay of 1.6 ns" just above the equation. The delay in Fig. 7.13(b) is 1.6 ns.

Page 362 In the second exercise:  $(W/L)_P = 78.8/1$   $(W/L)_N = 31.5$

Page 380 Exercise:  $P = 12.5 \text{ mW}$

Page 456 The frequency used in the simulations is 2000 Hz, not 1000 Hz.

Page 549 Example 11.2: The gain of E1 should be negative,  $-10^9$

Page 573 Gain block E1 is not connected properly in Example 11.8. E1 should be flipped (mirrored) vertically, and the inverting input should be connected to the positive output.

Page 626 Example 12.6: Known information:  $A = 80 \text{ dB}$

Page 656 SPICE Results:  $R_{in} = 28.9 \text{ T}\Omega$  ( $10^{12}$ )

Page 700 VAF should be 75 V in the SPICE simulation

Page 725 The SPICE value of the input resistance should be 14.8  $\text{k}\Omega$ , not 16.0  $\text{k}\Omega$ .

Page 726 Example 13.10 - "with feedback bias" should be deleted

Page 842 SPICE results:  $V_{CE}-V_{BE} = 7.90 \text{ V}$  and  $BF = 116$

Page 938 SPICE Exercise Results: 64.164  $\mu\text{V}$ , 0.520

Pages 1021 & 1030 Examples 16.6 and 16.7:  $C_1 = C_2 = 3.9 \text{ uF}$ ,  $C_3 = 0.082 \text{ uF}$

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### Problem Statements

2.48 The second dimension in Fig. P2.48 should be 2  $\mu\text{m}$ , not 3  $\mu\text{m}$

4.39 Page (c) should refer to Fig. P4.39(b).

4.134  $V_{DS} = -5 \text{ V}$

7.91 Use  $V_{DD} = 2.5\text{V}$

8.23  $C_{BL} = 500 \text{ fF}$

11.10 & 11.18  $V_S$  should be  $v_S$

11.69 3-kohms should be 3-kohms

13.33  $R_S = 1 \text{ kohms}$  and  $R_4 = 1 \text{ kohms}$

14.1 In Fig. 14.1(m), the power supply should be positive:  $+V_{DD}$ .

14.14  $V_{CC} = 15 \text{ V}$ ,  $-V_{EE} = -15 \text{ V}$

14.69  $C_3 = 2.2 \text{ uF}$ .

14.76 Ignore reference to  $C_3$ .

14.115  $C_3 = 2.2 \text{ uF}$

14.122  $C_1 = C_2 = C_3 = 1 \text{ uF}$ .

15.96 Ignore the last sentence in the problem statement.

15.203 Problem should refer to Prob. 15.202.

16.65 Problem should refer to Prob. 16.14(e).

16.83  $R_L$  is connected between the collectors of transistors  $Q_1$  and  $Q_2$ .

17.104 The transistor parameters should be  $K_p = 1.25 \text{ mA/V}^2$  and  $V_{TN} = -4 \text{ V}$ .

17.108  $R_S = 820 \Omega$ , and the transistor parameters should be  $K_p = 1.25 \text{ mA/V}^2$  and  $V_{TN} = -4 \text{ V}$ .