

$$V_{B1} \approx V_{CC} \frac{R_{B2}}{R_{B1} + R_{B2}} \approx 1.3007 \text{ V}$$

$$I_{C1} \approx I_{E1} = \frac{V_{B1} - 0.7 \text{ V}}{R_{E1}} \approx 0.0011 \text{ A}$$

$$V_{CE1} \approx V_{CC} - (R_{C1} + R_{E1}) I_{C1} \approx 2.6033 \text{ V}$$

$$V_{B2} = V_{CC} - R_{C1} I_{C1} \approx 3.2040 \text{ V}$$

$$I_{C2} \approx I_{E2} = \frac{V_{B2} - 0.7 \text{ V}}{R_{E2}} \approx 0.0021 \text{ A}$$

$$V_{CE2} = V_{CC} - (R_{C2} + R_{E2}) I_{C2} \approx 4.9052 \text{ V}$$

$$g_{m1} = \frac{I_{C1}}{V_T} \approx 0.0429$$

$$r_{\pi 1} = \frac{\beta}{g_{m1}} \approx 4661.2$$

$$\alpha = \frac{\beta}{\beta + 1} \approx 0.9950$$

$$g_{m2} = \frac{I_{C2}}{V_T} \approx 0.0835$$

$$r_{\pi 2} = \frac{\beta}{g_{m2}} \approx 2396.1$$

$$r_{e1} = \frac{r_{\pi 1}}{\beta + 1} \approx 23.19$$

$$r_{e2} = \frac{r_{\pi 2}}{\beta + 1} \approx 11.92$$

$$C_{\pi 1} = \frac{g_{m1}}{2\pi f_t} - C_{\mu} \approx 4.1026 \cdot 10^{-11} \quad C_{\pi 2} = \frac{g_{m2}}{2\pi f_t} - C_{\mu} \approx 8.4062 \cdot 10^{-11}$$

$$C_{Mi1} = C_{\mu 1} \left(1 + \frac{r_{\pi 1} g_{m1} (R_{C1} \parallel r_{\pi 2})}{r_{\pi 1} + R_{E1} (\beta + 1)} \right) \approx 1.88 \cdot 10^{-11}$$

$$C_{Mo1} = C_{\mu 1} \left(1 + \frac{r_{e1} + R_{E1}}{R_{C1} \parallel r_{\pi 2}} \right) \approx 5.92 \cdot 10^{-12}$$

$$C_{Mi2} = C_{\mu 2} (1 + g_{m2} R_{C2} \parallel R_L) \approx 5.82 \cdot 10^{-10}$$

$$C_{Mo2} = C_{\mu 2} \left(1 + \frac{1}{g_{m2} R_{C2} \parallel R_L} \right) \approx 4.54 \cdot 10^{-12}$$

$$\tau_{H1} = C_{Mi1} (R_{B1} \parallel R_{B2} \parallel R_S \parallel (r_{e1} + R_{E1}) (\beta + 1)) \approx 1.58 \cdot 10^{-8}$$

$$\tau_{H2} = C_{\pi 1} \left(r_{\pi 1} \parallel \frac{R_S \parallel R_{B1} \parallel R_{B2} + R_{E1}}{1 + g_{m1} R_{E1}} \right) \approx 2.28 \cdot 10^{-9}$$

$$\tau_{H3} = (C_{Mo1} + C_{Mi2} + C_{\pi 2}) (R_{C1} \parallel r_{\pi 2}) \approx 1.25 \cdot 10^{-6}$$

$$\tau_{H4} = C_{Mo2} \cdot (R_{C2} \parallel R_L) \approx 6.97 \cdot 10^{-9}$$

$$\tau_{L1} = C_{c1} (R_S + R_{B1} \parallel R_{B2} \parallel ((\beta_1 + 1)R_{E1} + r_{\pi 1})) \approx 4.26 \cdot 10^{-2}$$

$$\tau_{L2} = C_{E2} \left(R_{E2} \parallel \frac{r_{\pi 2} + R_{c1}}{\beta_2 + 1} \right) \approx 3.43 \cdot 10^{-5}$$

$$\tau_{L3} = C_{c2} (R_{c2} + R_L) \approx 4.96 \cdot 10^{-2}$$

$$f_{H3dB} \approx \frac{1}{2\pi(\tau_{H1} + \tau_{H2} + \tau_{H3} + \tau_{H4})} \approx 4634.81 \text{ Hz}$$

$$f_{L3dB} \approx \frac{1}{2\pi} \sqrt{\frac{1}{\tau_{L1}^2} + \frac{1}{\tau_{L2}^2} + \frac{1}{\tau_{L3}^2}} \approx 127753.97 \text{ Hz}$$

$$R_{S1} = (R_M \parallel R_{B2} \parallel R_S) \approx 846.81$$

$$A_v \approx 2148.84 \quad A'_c \approx 2148.81 \quad |A'_B \approx 1994$$

$$B_B \approx 0.0302 \quad B_C \approx 0.0153$$

$$R_{iB} \approx 114674.84 \Omega \quad R_{ic} \approx 116343.93 \Omega$$

$$R_{iB} \approx 70 \quad R_{iB} \approx 114.67 \cdot 10^3 \quad R_{ic} \approx 116.34 \cdot 10^3$$

$$R_{ifB} \approx 7.01 \cdot 10^6 \quad R_{ifc} \approx 4 \cdot 10^6 \quad R_{oB} \approx 4.26 \cdot 10^3 \quad R_{oc} \approx 4.42 \cdot 10^3$$

$$R_{ofB} \approx 69.62 \cdot 10^3 \quad R_{ofc} \approx 128.73$$

$$R_{outB} \approx 70.59 \Omega \quad R_{outc} \approx 132.06 \Omega$$

$$A_{vB} \approx$$