

Расчетно - графическая работа №3.

Определение h - параметров биполярного транзистора

Тип транзистора -КТ301Б

$$U_k = 8 \text{ В}$$

$$I_G = 200 \times 10^{-6} = 0.2 \times 10^{-3} \text{ А}$$

По вольтамперным характеристикам в пределах центральной рабочей области транзистора определим его h-параметры

$$[U_{бэ}(1)] = 0.75 \quad [I_{б}(1)] = 0.2 \times 10^{-3} \quad [U_{кэ}(1)] = 8$$

$$[U_{бэ}(2)] = 0.64 \quad [I_{б}(2)] = 0.1 \times 10^{-3} \quad [U_{кэ}(3)] = 0$$

$$[U_{бэ}(3)] = 0.62$$

$$[I_{к}(4)] = 4 \times 10^{-3} \quad [I_{б}(4)] = 200 \times 10^{-6} \quad [U_{кэ}(6)] = 20$$

$$[I_{к}(5)] = 2 \times 10^{-3} \quad [I_{б}(5)] = 100 \times 10^{-6} \quad [U_{кэ}(4)] = 8$$

$$[I_{к}(6)] = 4.3 \times 10^{-3}$$

$$h_{11э} = \frac{[U_{бэ}(1)] - [U_{бэ}(2)]}{[I_{б}(1)] - [I_{б}(2)]} = \frac{0.75 - 0.64}{0.2 \times 10^{-3} - 0.1 \times 10^{-3}} = 1.1 \cdot 10^3 \text{ Ом}$$

$$h_{12э} = \frac{[U_{бэ}(1)] - [U_{бэ}(3)]}{[U_{кэ}(1)] - [U_{кэ}(3)]} = \frac{0.75 - 0.62}{8 - 0} = 0.016$$

$$h_{21э} = \frac{[I_{к}(4)] - [I_{к}(5)]}{[I_{б}(4)] - [I_{б}(5)]} = \frac{4 \times 10^{-3} - 2 \times 10^{-3}}{200 \times 10^{-6} - 100 \times 10^{-6}} = 20$$

$$h_{22э} = \frac{[I_{к}(6)] - [I_{к}(4)]}{[U_{кэ}(6)] - [U_{кэ}(4)]} = \frac{4.3 \times 10^{-3} - 4 \times 10^{-3}}{20 - 8} = 2.5 \cdot 10^{-5} \quad \text{Сим}$$

