Answer on Question #43356, Physics, Other

Task:

In the common bas e circuit the emittercurrent Ie=5uA and the collector current Ic=50 uA and theemittercircut resistance Re=10 ohm collector Rc=50k ohm. Find power amplification factor

Solution:

Let power amplification factor=K_p; input power P_{in}; output power P_{out};

$$K_p = 10\lg\frac{P_{out}}{P_{in}} = 10\lg\frac{I_c^{\,2}\cdot R_c}{I_e^{\,2}\cdot R_e} = 10\lg\frac{(50\cdot 10^{-6})^2\cdot 50\cdot 10^3}{(5\cdot 10^{-6})^2\cdot 10} = 10\lg 5\cdot 10^5 \approx 56.98dB$$

Answer: K_p=56.98Db