

Tutorial # 06

Frequency Response of an Amplifier:

1. A certain amplifier exhibits an output power of 5W with an input power of 0.5W. What is the power gain in dB?
2. If the output voltage of an amplifier is 1.2V rms and its voltage gain is 50, what is the rms input voltage? What is the gain in dB?
3. The midrange voltage gain of a certain amplifier is 65. At certain frequency beyond midrange, the gain drops to 25. What is the gain reduction in dB?
4. Determine the critical frequencies of each RC circuit in Fig.1.

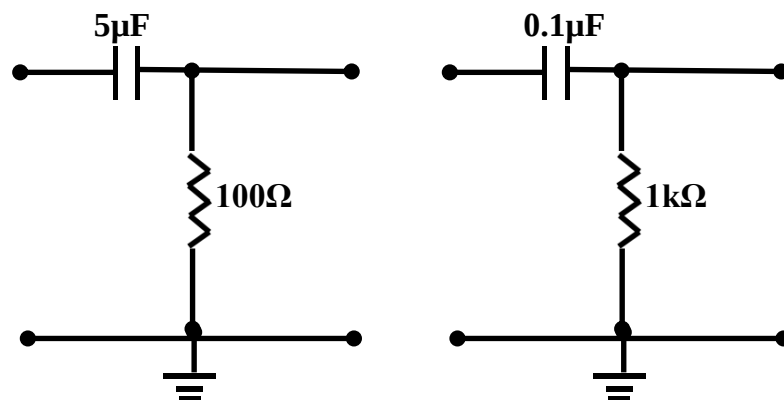


Fig.1

5. A particular amplifier has the following low critical frequencies: 25Hz, 42Hz, and 136Hz. It also has high critical frequencies of 8kHz, and 20kHz. Determine the upper and lower critical frequencies.
6. Determine the critical frequencies associated with the low-frequency response of the BJT amplifier in Fig.2. Which is the dominant critical frequency? Sketch the Bode plot.

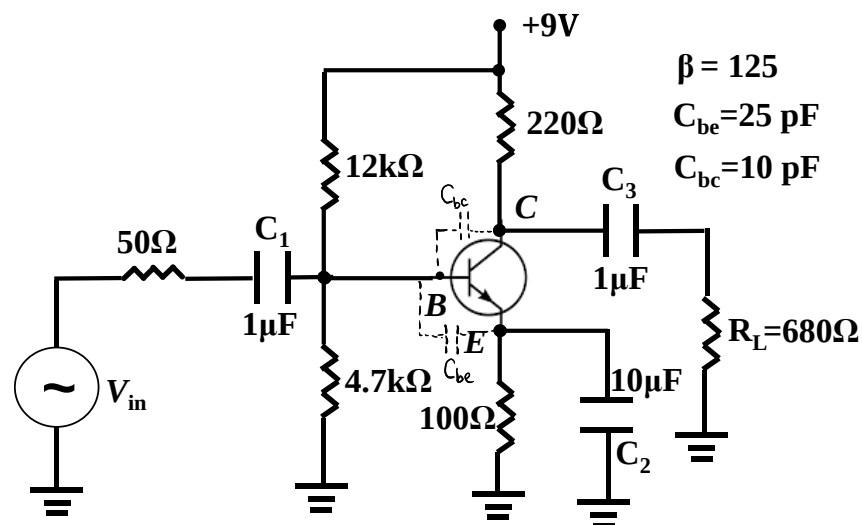


Fig.2

7. Determine the voltage gain (in dB) of the amplifier in Fig.2 at (i) one-tenth of the dominant critical frequency, (ii) the dominant critical frequency, and (iii) ten times the dominant critical frequency for the low-frequency response.
8. Determine the critical frequencies associated with the high-frequency response of the amplifier in Fig.2. Identify the dominant critical frequency and sketch the Bode plot.
9. Determine the voltage gain (in dB) of the amplifier in Fig.2 at the following frequencies: $0.1f_c$, f_c , $10 f_c$, and $100 f_c$, where f_c is the dominant critical frequency in the high-frequency response.
10. Determine the bandwidth of the amplifier in Fig.2.

