

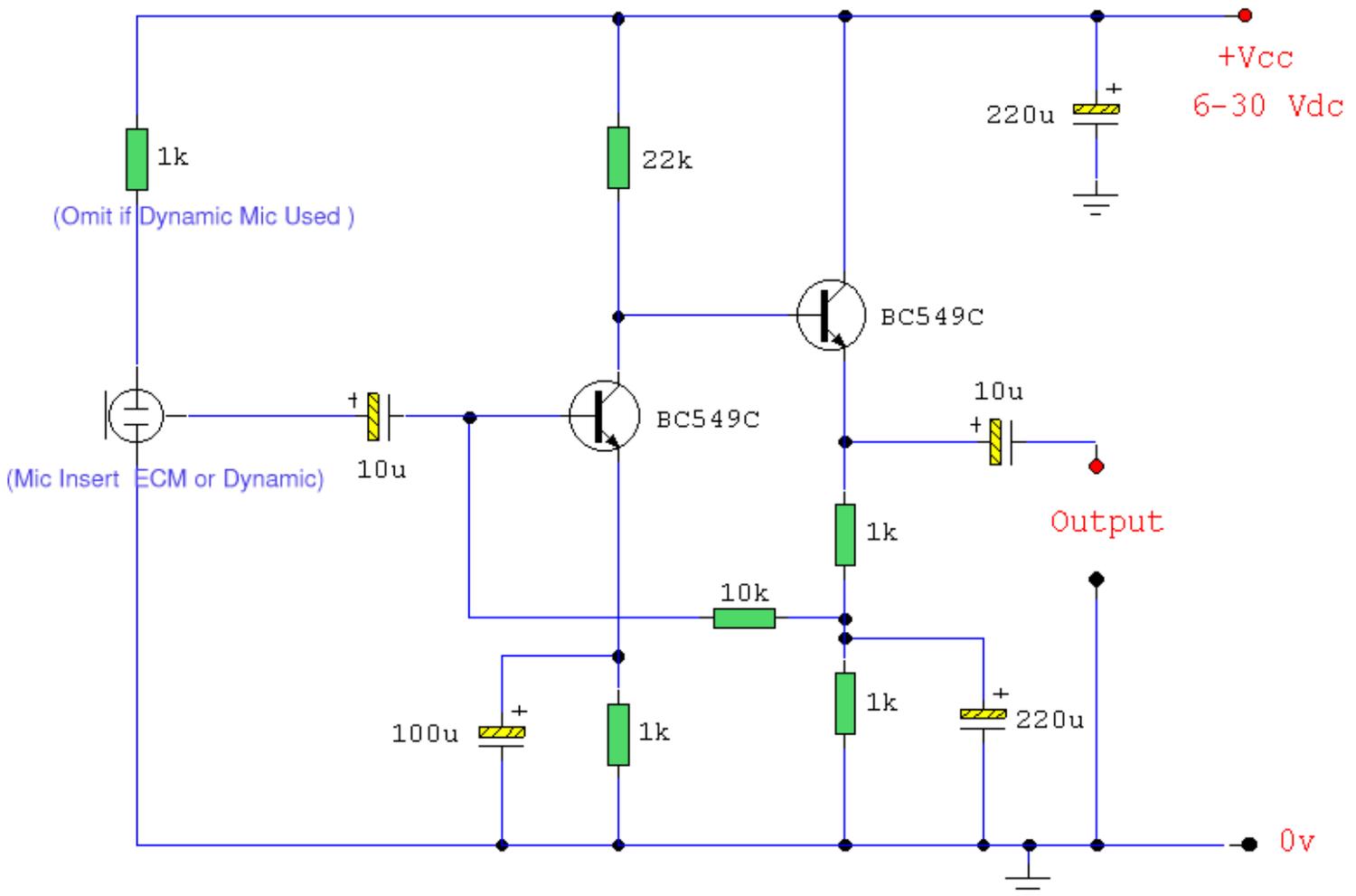
ECM Mic Preamplifier

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Description:

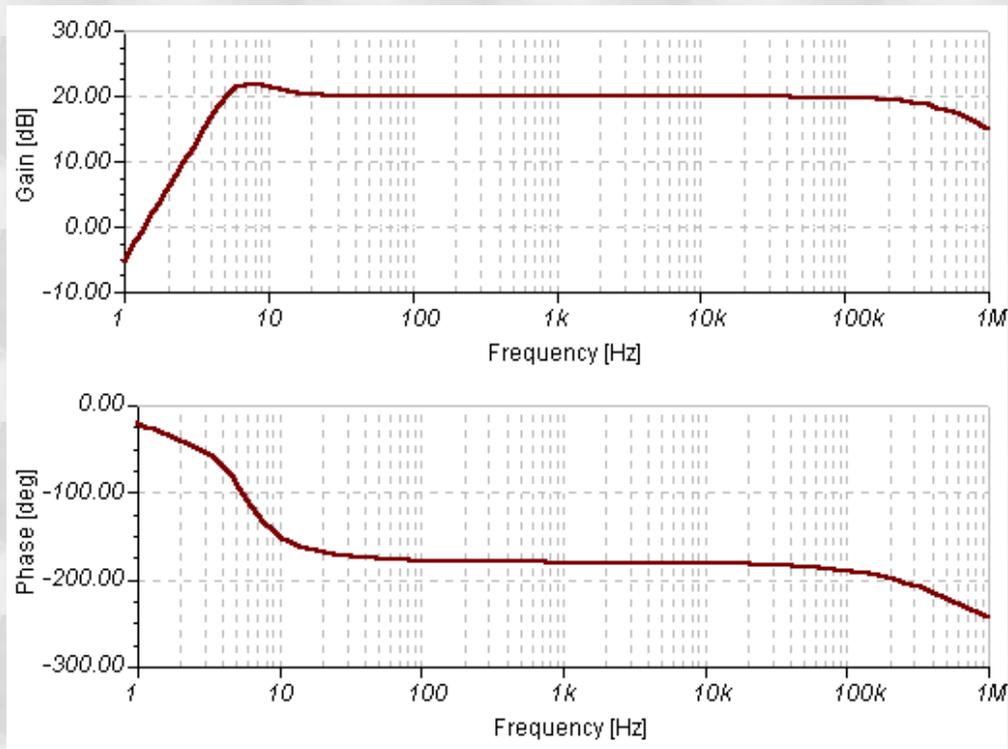
A microphone amplifier that may be used with either Electret Condenser Microphone (ECM) inserts or dynamic inserts, made with discrete components.



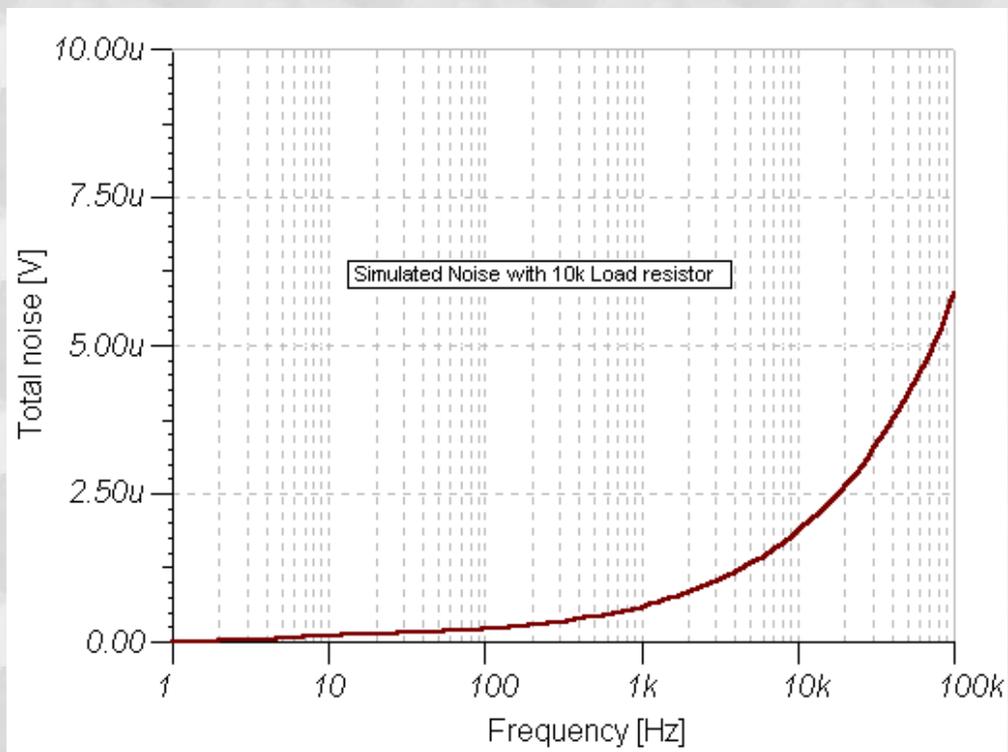
Notes:

Both transistors should be low noise types. In the original circuit, I used BC650C which is an ultra low noise device. These transistors are now hard to find but BC549C or BC109C are a good replacement. The circuit is self biasing and will set its quiescent point at roughly half the supply voltage at the emitter of the last transistor. The electret condenser microphone (ECM) contains a very sensitive microphone element and an internal FET preamp, a power supply in the range 2 to 10 volts DC is therefore necessary. Suitable ECM's may be obtained from Maplin Electronics. The 1k resistor limits the current to the mic. This resistor should be increased to 2k2 if a supply voltage above 12 Volts DC is used and is not needed if the Mic insert is dynamic. The output impedance is very low and well suited to driving cables over distances up to 50 meters. Screened cable therefore is not necessary.

The frequency response measured across a 10k load resistor is plotted below simulated using a 12V power source:



The noise response of the amplifier measured across the 10k load is shown below. Please note that this plot was made with the mic insert replaced by a signal generator.



This preamplifier has excellent dynamic range and can cope with anything from a whisper to a loud shout, however care should be taken to make sure that the auxiliary equipment i.e. amplifier or tape deck does not overload.

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