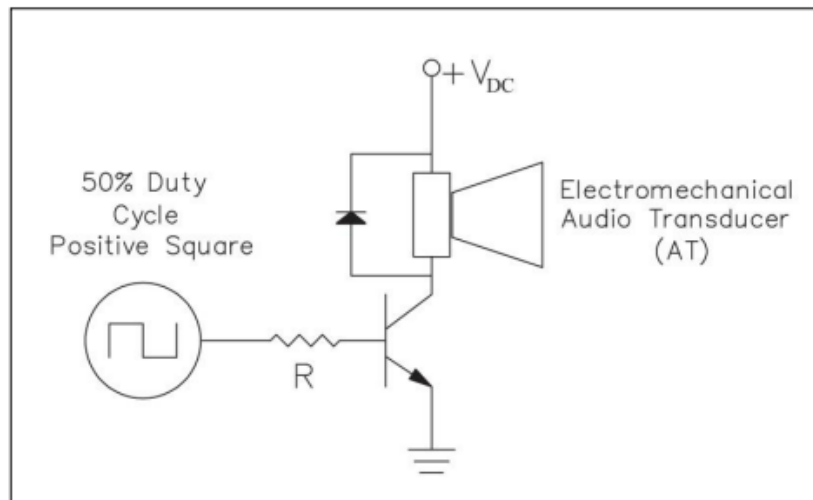


## Electromechanical Drive Circuit

An electromechanical transducer can create a wide range of sounds: pure tones, sweeps, ticks, polyphony music, and other sounds. This type of transducer is designed to move the diaphragm in one direction only and is polarized. For the highest SPL, driving an electromechanical transducer requires a positive-biased 0V to V<sub>pk</sub> input square-wave signal, with a 50% duty cycle. Sine waves can be used for softer, less harsh tones but produce less total output. Electromechanical transducers can be connected to a modulated voltage rail if current supply is sufficient. Where current supply is limited, we recommend connecting the tone generation circuit to a fast switching transistor with a high hFE, such as the 2N2222A. The circuit diagram below shows the standard transistor drive circuit configuration when driven from a processor.



The positive transducer terminal connects directly to the voltage rail, which needs to be within the transducer's operating voltage range. Input to the base of the transistor should be high enough voltage from the processor, to ensure that the transistor is driven hard to the ground to allow the transducer to oscillate at the input frequency.

To protect the voltage source from back EMF (caused by flyback voltage from the transducer's internal coil), place a diode in parallel with the transducer

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