

## ACTIVE ANTENNA

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Antennas that are much shorter than  $1/4$  wavelength present a very small and highly relative impedance that is dependent on the received frequency. It is difficult to match impedances over a decade of frequency coverage. Instead, input stage Q1 is an FET source-follower. A high-impedance input successfully bridges antenna characteristics at any frequency.

Transistor Q2 is used as an emitter-follower to provide a high-impedance load for Q1, but more importantly, it provides a low-drive impedance for common-emitter amplifier Q3, which provides all of the amplifier's voltage gain. Transistor Q4 transforms Q3's moderate output impedance into low impedance, thereby providing sufficient drive for a receiver's 50 ohms, antenna-input impedance.