COMMON GATE AMPLIFIER
A common-gate amplifier is one of three basic single-stage field-effect transistor (FET) amplifier topologies, typically used as a current buffer or voltage amplifier. In the circuit the source terminal of the transistor serves as the input, the drain is the output and the gate is connected to ground, or common, hence its name. The analogous bipolar junction transistor circuit is the common-base amplifier.

- Input signal is applied to the source, output is taken from the drain.

- Current gain is about unity, input resistance is low, output resistance is high a CG stage is a current buffer. It takes a current at the input that may have a relatively small Norton equivalent resistance and replicates it at the output port, which is a good current source due to the high output resistance.
Circuit Topology
The common-source and common-drain configurations have extremely high input resistances because the gate is the input terminal. In contrast, the common-gate configuration where the source is the input terminal has a low input resistance.

Common gate FET configuration provides a low input impedance while offering a high output impedance.

Although the voltage gain is high, the current gain is low and the overall power gain is also low when compared to the other FET circuit configurations available.
- The common-gate amplifier is often used in high-frequency application and has a much larger bandwidth than the common source configuration.

- The common gate amplifier has the highest output impedance of the three FET amplifier.

- The common Gate amplifier is used as a Current buffer Amplifier, it has the relatively small input resistance and also relatively large output resistance.

- The common Gate amplifier provides a power Gain for the signal amplifier.
The Common Gate Amplifier configuration is used less often than the common source or source follower.

The commonly used applications are CMOS RF receivers, especially when operating near the frequency limitations of the FETs, it is desirable because of the ease of Impedance matching and potentially has lower noise.

Thus the Common Gate Amplifier model is Implemented using the Activate tool.