The MOSFET High-Frequency Small-Signal Model

Combine the internal capacitances in a modified MOSFET small-signal model.

* Therefore use this model to construct small-signal circuit when \( v_i \) is operating at high frequency.

* Note since \( \omega \), all currents and voltages will be dependent on operating frequency \( \omega \).

* Note that at high frequencies, the gate current is non-zero (i.e., \( i_g(\omega) \neq 0 \))!!! Therefore, \( i_d(\omega) \neq i_s(\omega) \).

* Note at low-frequencies, the model reverts to the original MOSFET small-signal model.