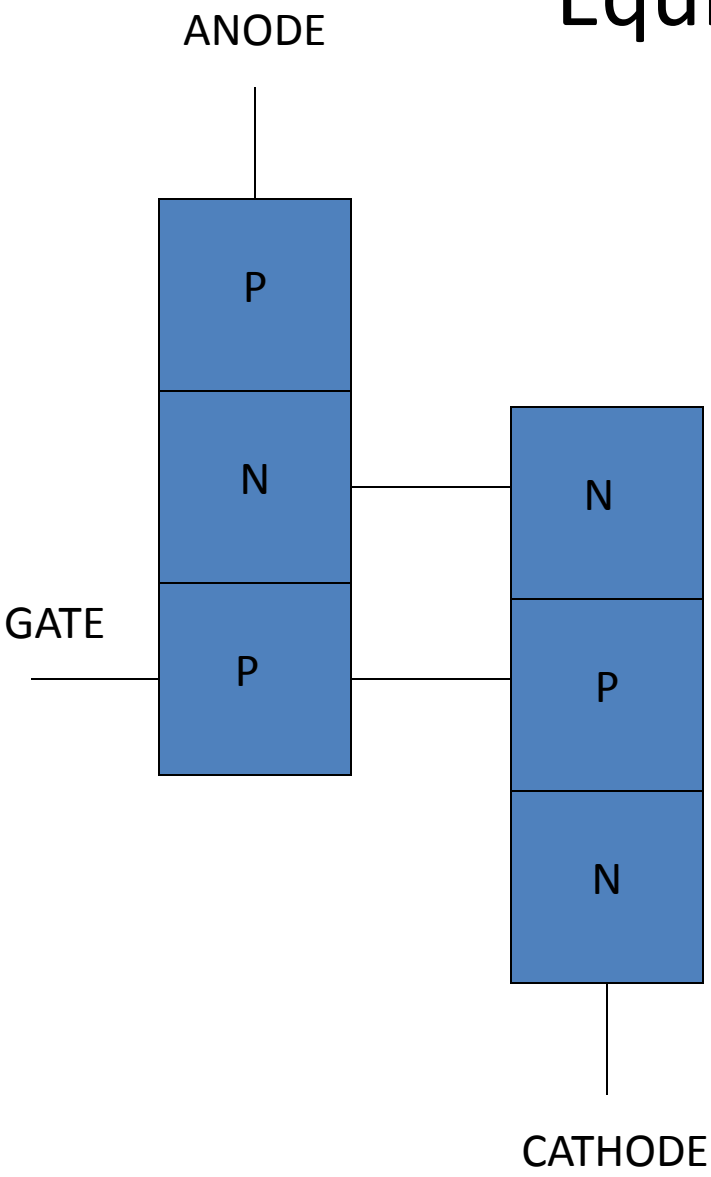
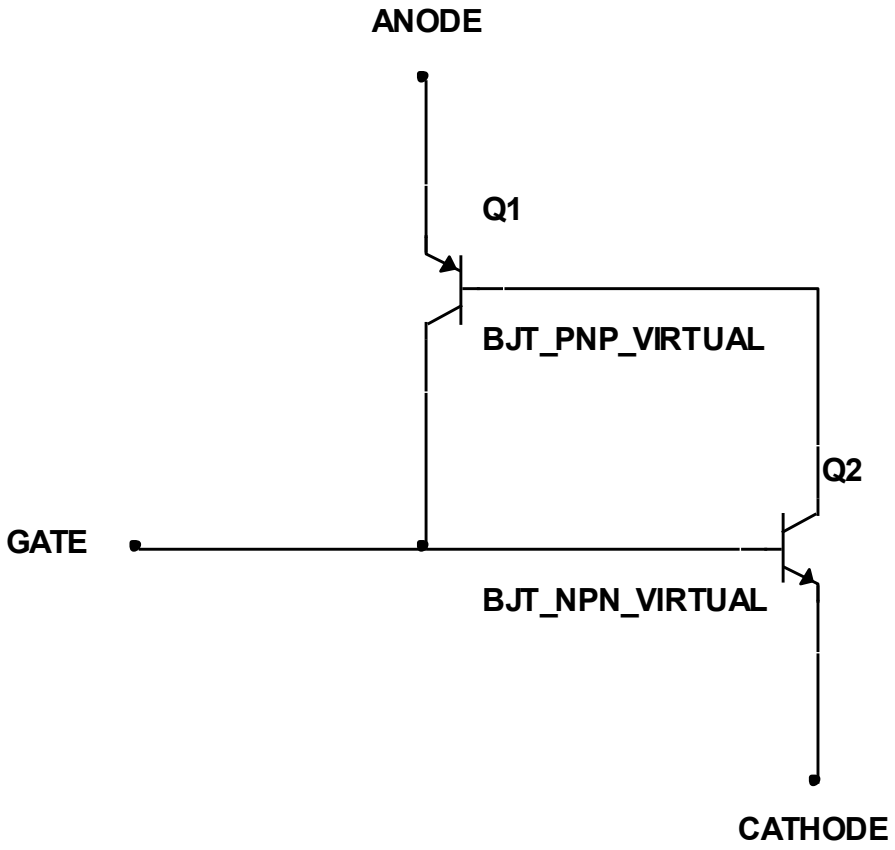
Equivalent Circuit

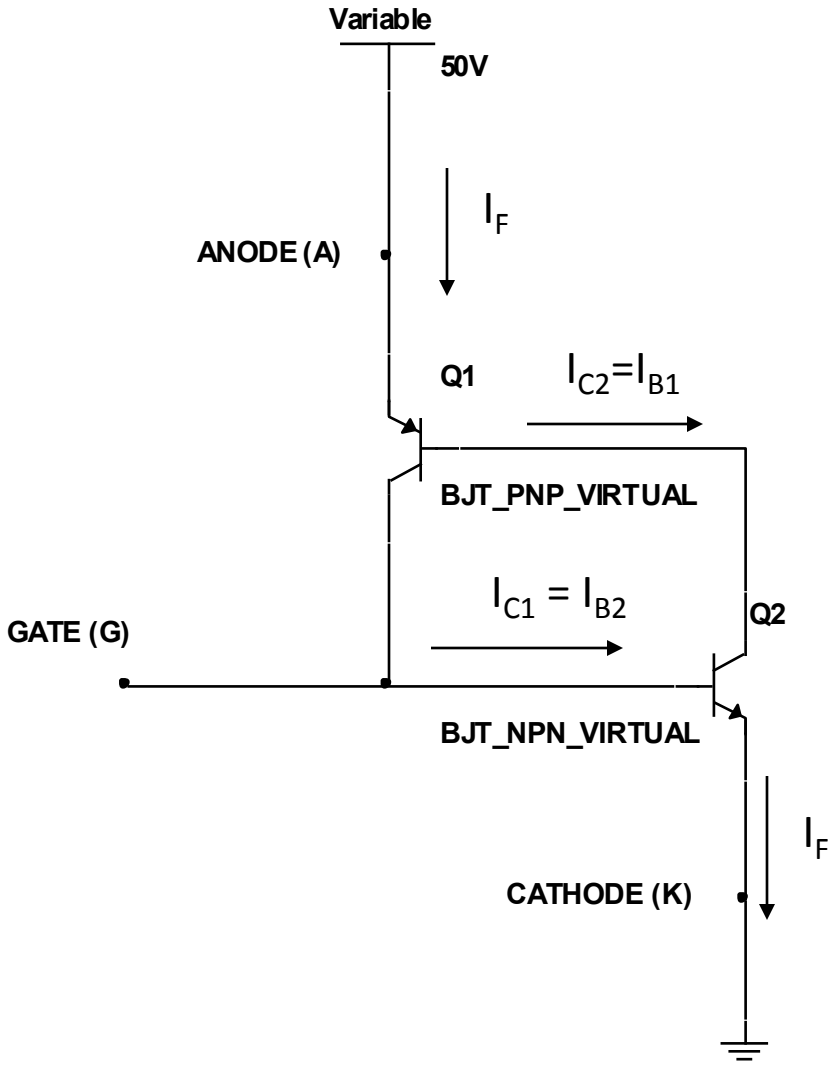




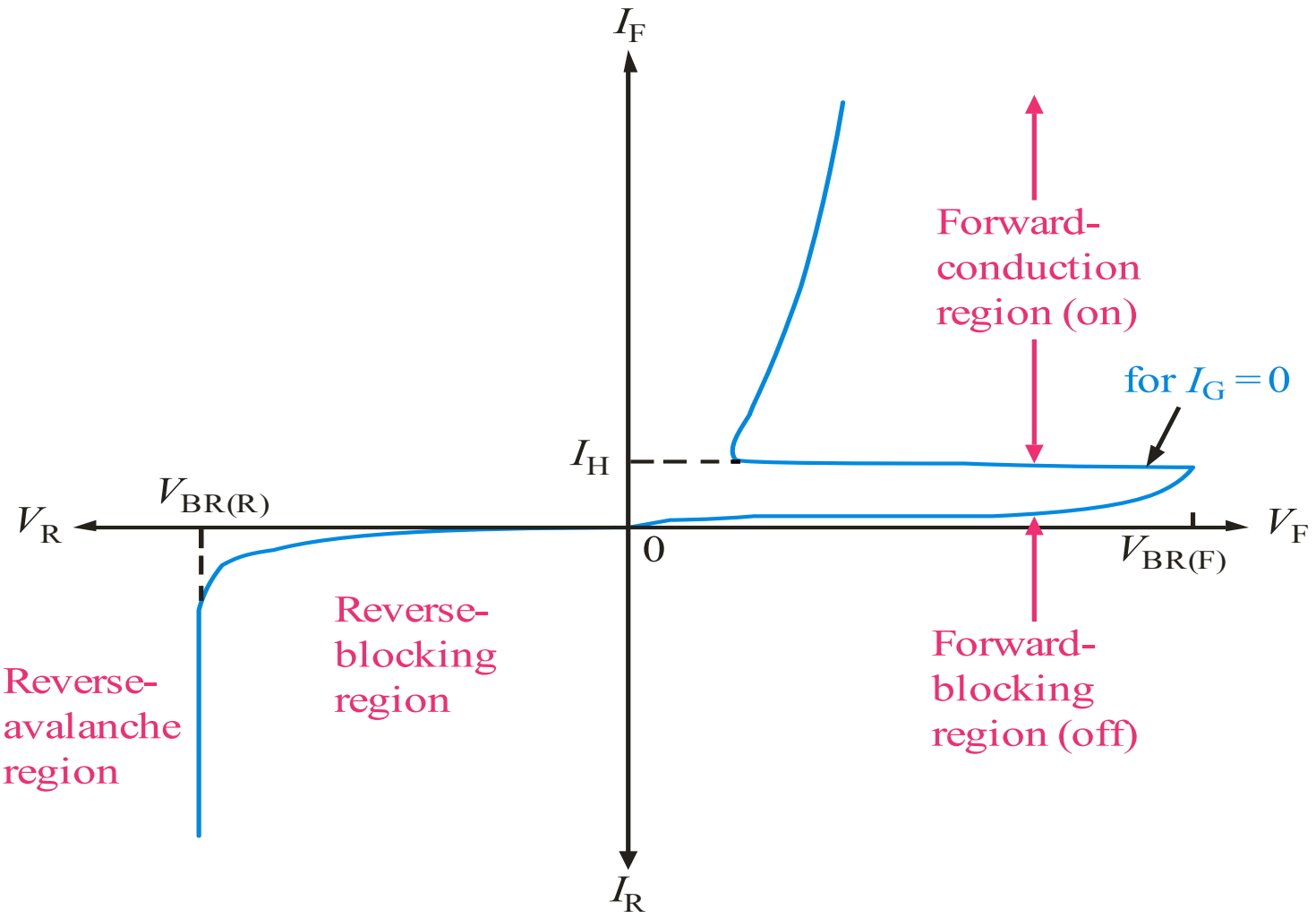
Apply Biasing

With the Gate terminal OPEN, both transistors are OFF. As the applied voltage increases, there will be a "breakdown" that causes both transistors to conduct (saturate) making $I_F > 0$ and $V_{AK} = 0$.

$V_{Breakdown} = V_{BR(F)}$



Static I-V Characteristics of SCR



Apply a Gate Current

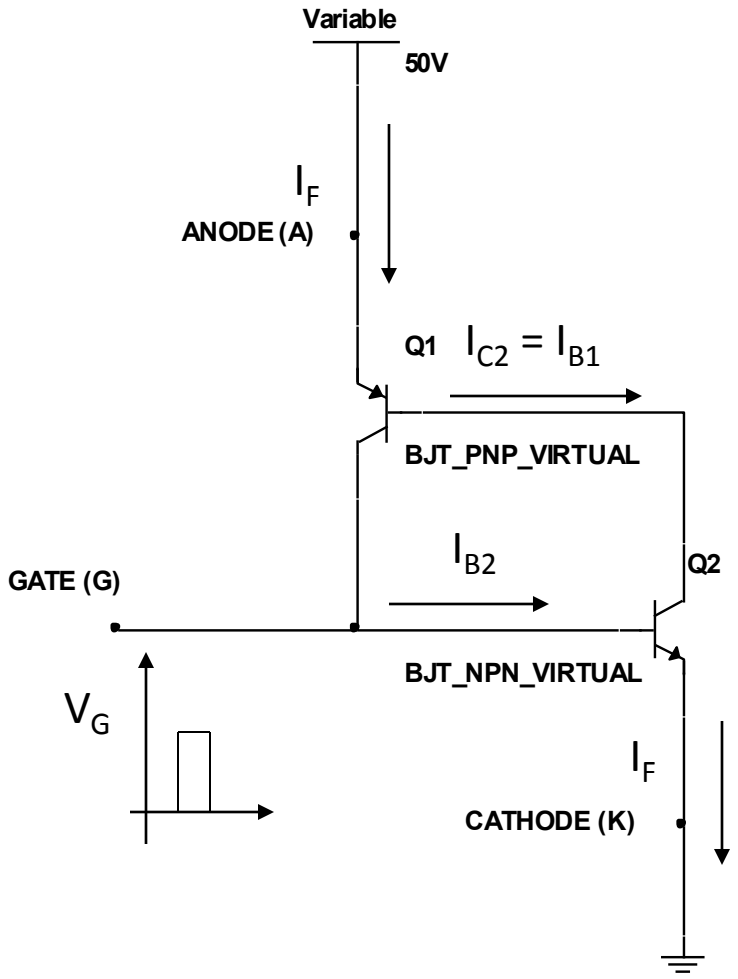
For $0 < V_{AK} < V_{BR(F)}$,

Turn Q_2 ON by applying a current into the Gate

This causes Q_1 to turn ON, and eventually both transistors SATURATE

$V_{AK} = V_{CEsat} + V_{BEsat}$

If the Gate pulse is removed, Q_1 and Q_2 still stay ON!



Latching & Holding Current

Latching current

Minimum anode current that must flow through the SCR in order for it to stay on initially after gate signal is removed.

Holding Current

Minimum value of anode current, required to maintain SCR in conducting state.