Schmitt Trigger

Simulation Exercise:

1. Write ngspice net list for the Schmitt trigger circuit shown in Fig. 1 below for $R_1 = R_2 = 10K$ and input sinusoidal/triangular signal of 20Vp-p, 1 KHz.

2. Run it and observe the input output waveforms in time domain.

3. Obtain the transfer characteristics of the same circuit. Note the values of V_{TH} and V_{TL}. Verify with their calculated values.

4. Vary the value of R_1 to $6.8K$ keeping $R_2 = 10K$ and repeat the steps (2) and (3).

5. Fig. 2 shows the schematic of a non-inverting Schmitt trigger. Analyze the circuit and obtain V_{TH} and V_{TL}.

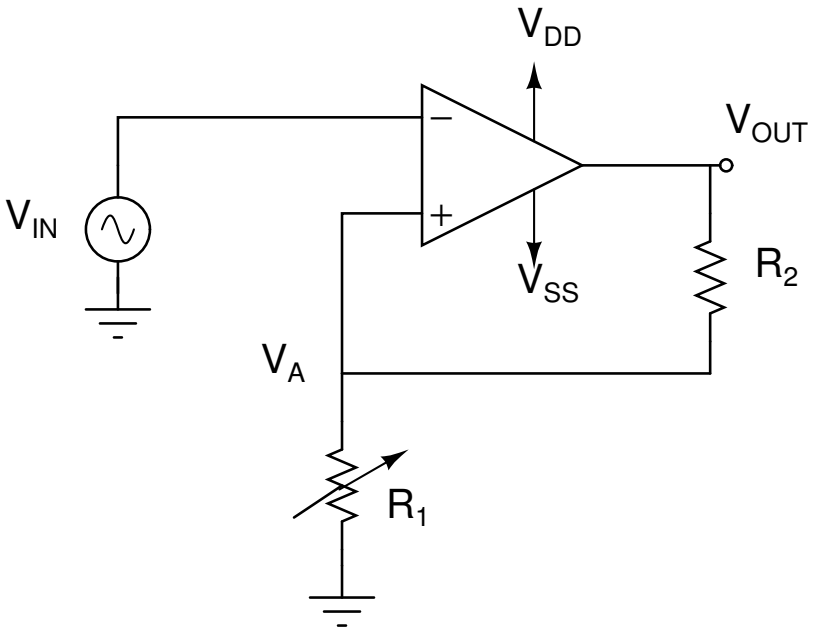

Figure 1: Inverting Schmitt trigger circuit

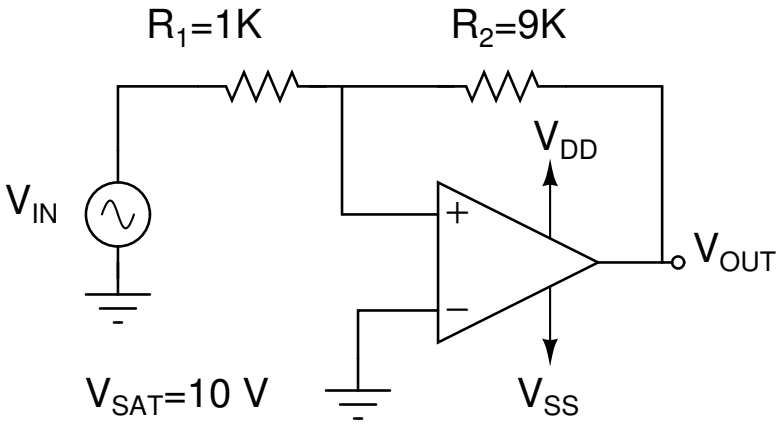

Figure 2: Non-inverting Schmitt trigger circuit