

EE312 Diode Transistor Logic

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Motivation

To solve the fan-out limitation of RTL when output HIGH case.

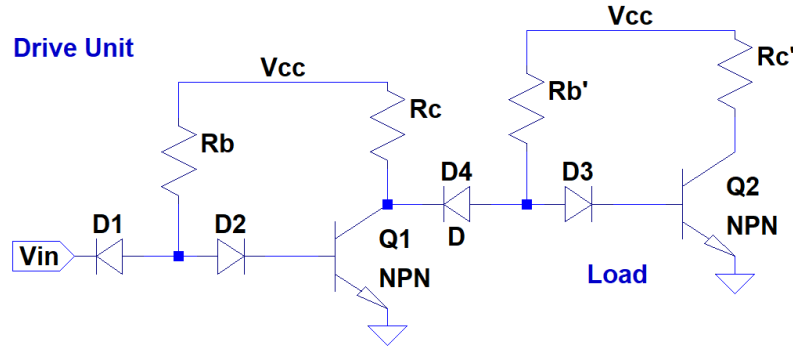


Figure 1: Diode Transistor Logic Inverter Circuit

Due to the fact that existence of D1 and D4 diodes, when V_{Q1c} is high (meaning that output high) there is no sinking current to the driver unit therefore output high fan-out is significantly improved.

Voltage Transfer Characteristic

$$\begin{cases} 5 & 0 \leq V_{in} \leq 0.7 \\ -\frac{4.8V_{in}}{0.1} & 0.7 \leq x \leq 0.8 \\ 0.2 & 0.8 \leq x \leq 5 \end{cases}$$