Remember Diode Logic

Transistor Logic

Next: Inverter
Boolean operator or more.
V_{out} = 5\, V

\[ P = \frac{V_{out}^2}{R_{load}} = \frac{25 \, V^2}{R_{load}} \]

V_{out} = 0

\[ P = \frac{V_{cc}^2}{R_c} = \frac{25 \, V^2}{R_c} \]

3-input NOR Gate

Not(A or B or C)

Truth Table

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>out</th>
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<tbody>
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False = 0 volts

Everything Else F
NAND (Not And)

\[ \text{Not} (A \text{ and } B) \]

\[
\begin{array}{ccc}
A & B & \text{out} \\
T & T & F \\
T & F & T \\
F & T & T \\
F & F & T \\
\end{array}
\]

\begin{align*}
\text{A} & \quad R_B \\
\text{B} & \quad R_B
\end{align*}

\[ V_{cc} \quad V_{out} \quad V_{in} \quad V_{out} \]

\begin{align*}
200 & \quad 400 & \quad 600 & \quad 800 \text{ ns}
\end{align*}

Current Mirror Circuit