

Device Modeling Report

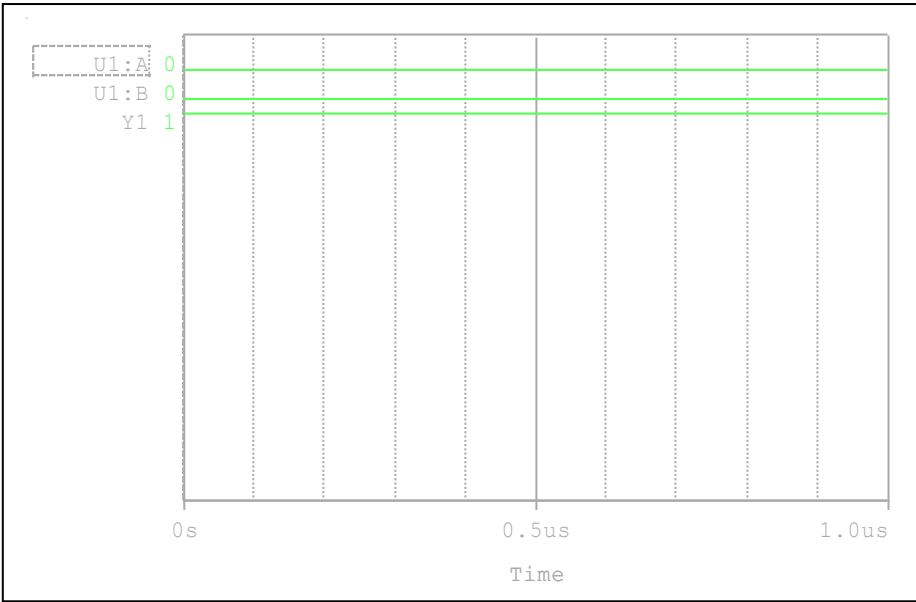
COMPONENTS : CMOS DIGITAL INTEGRATED CIRCUIT
PART NUMBER : TC7S02FU
MANUFACTURER : TOSHIBA



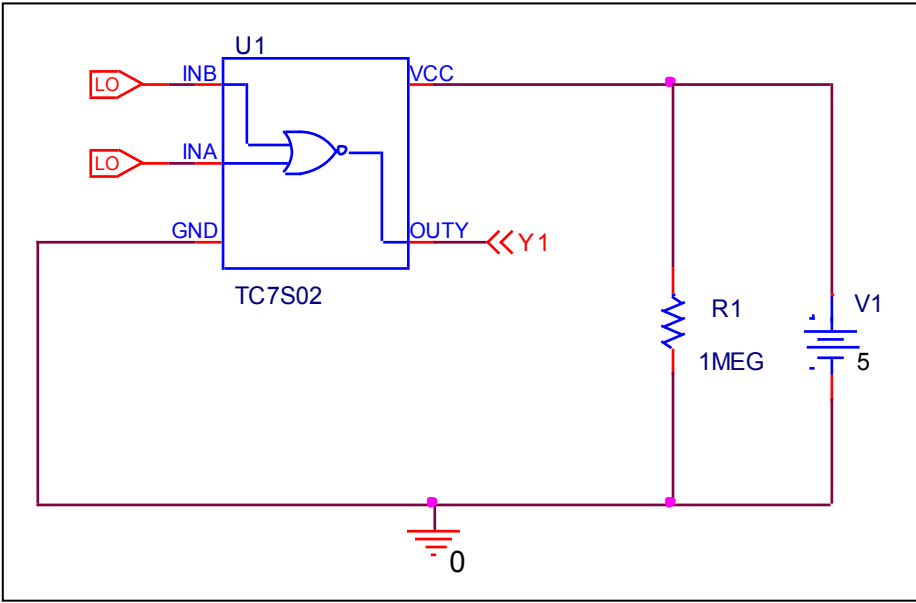
Bee Technologies Inc.

Truth Table

Circuit simulation result



Evaluation circuit

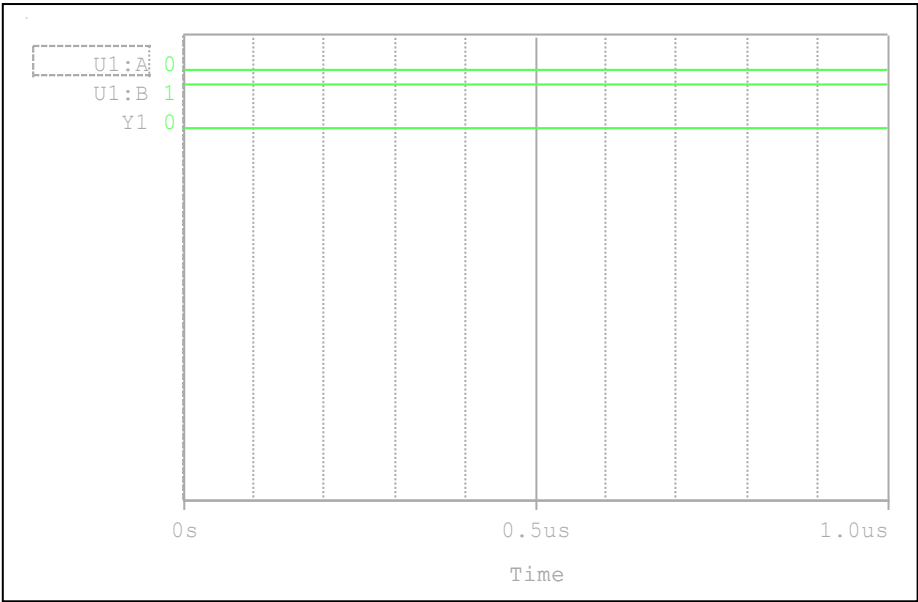


Comparison table

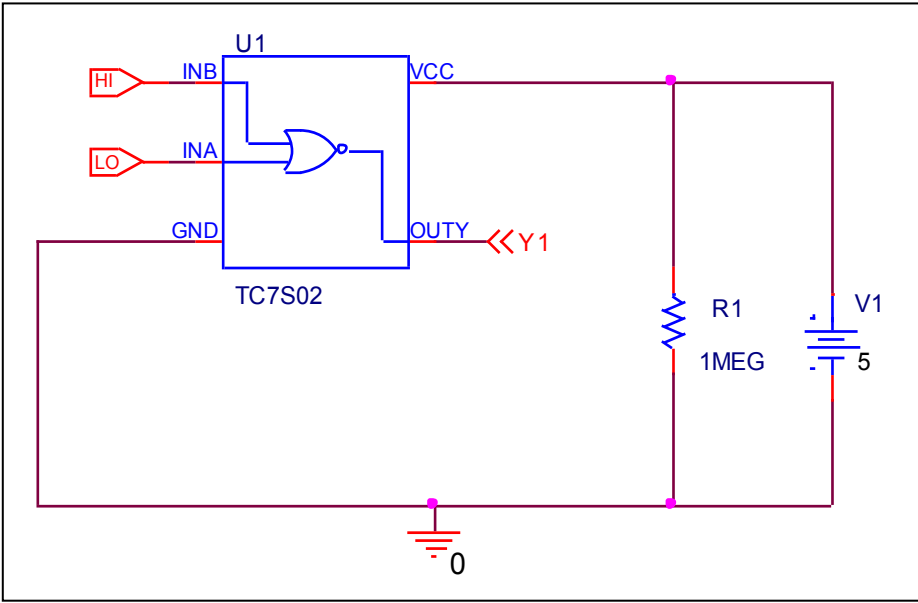
Input		Output		%Error
An	Bn	Yn (Measurement)	Yn (Simulation)	
L	L	H	H	0

Truth Table

Circuit simulation result



Evaluation circuit

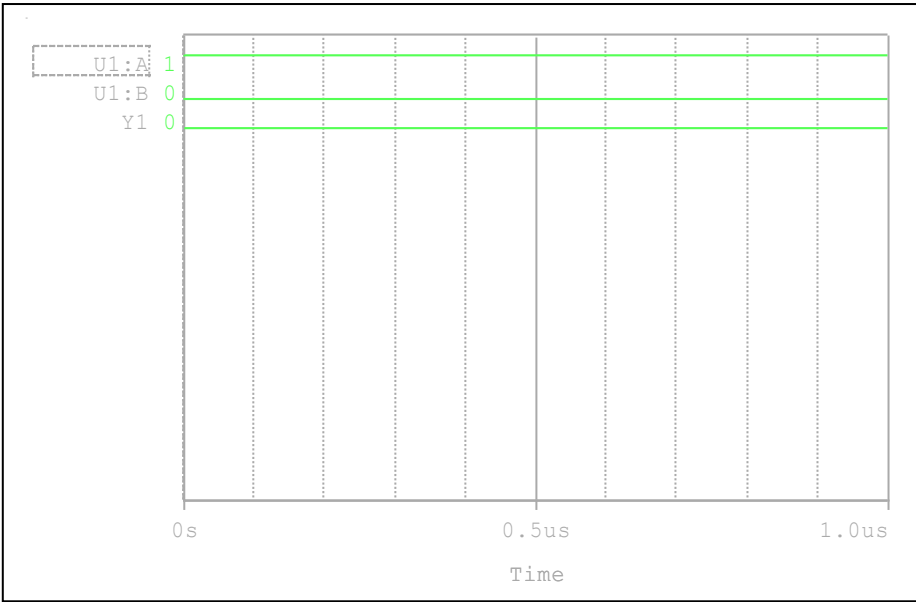


Comparison table

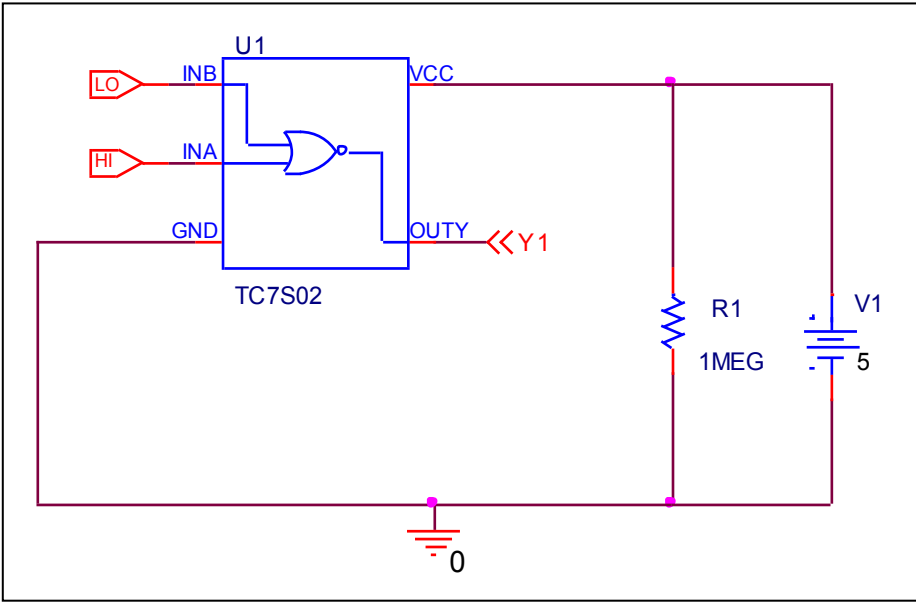
Input		Output		%Error
An	Bn	Yn (Measurement)	Yn (Simulation)	
L	H	L	L	0

Truth Table

Circuit simulation result



Evaluation circuit

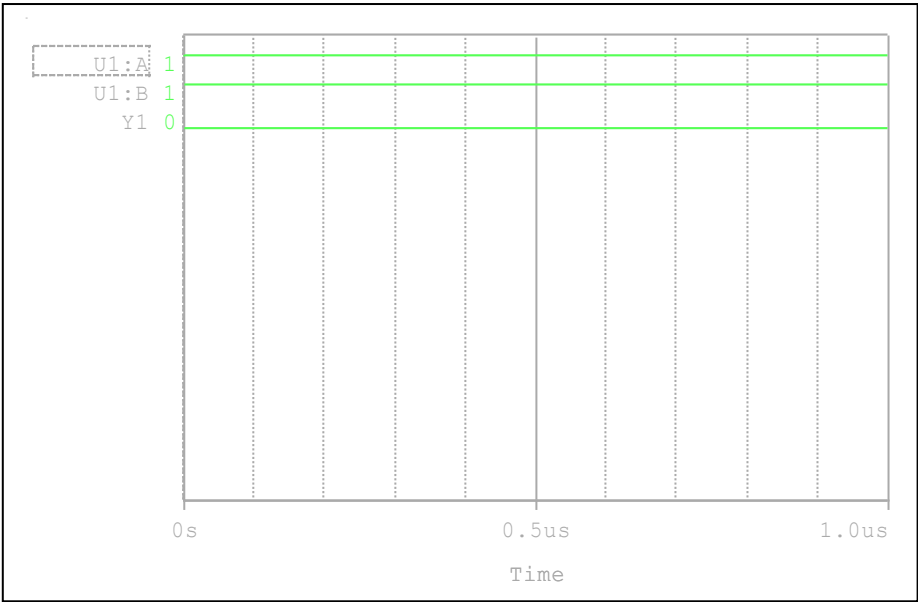


Comparison table

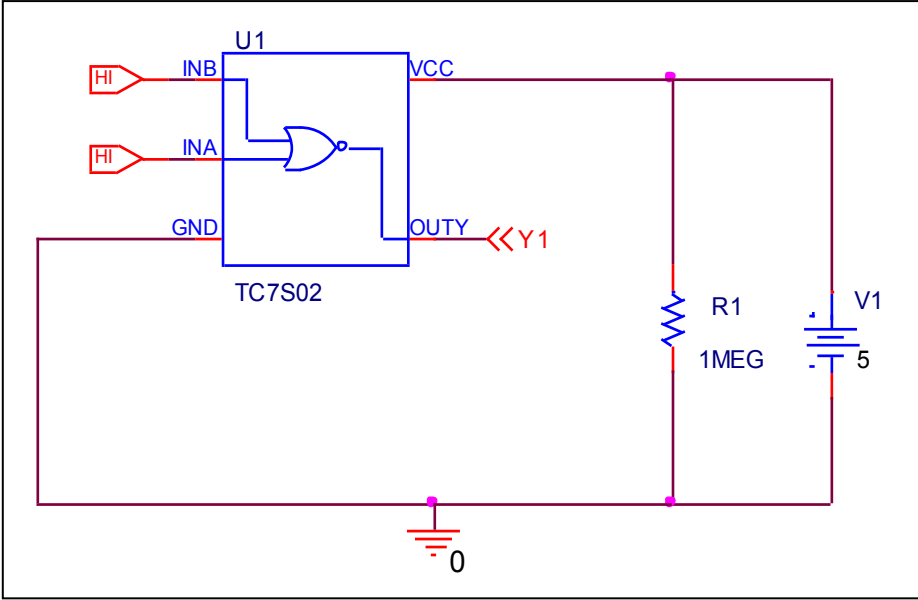
Input		Output		%Error
An	Bn	Yn (Measurement)	Yn (Simulation)	
H	L	L	L	0

Truth Table

Circuit simulation result



Evaluation circuit

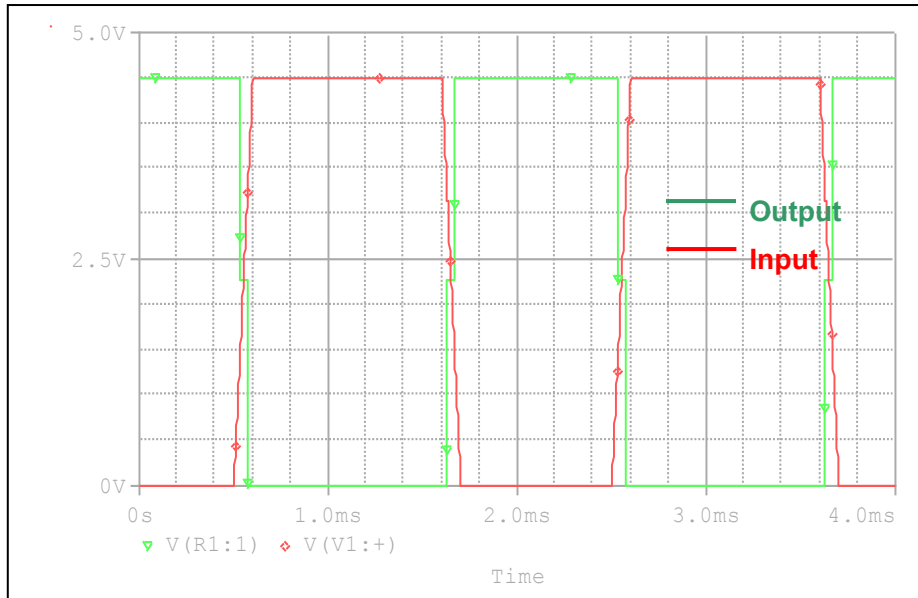


Comparison table

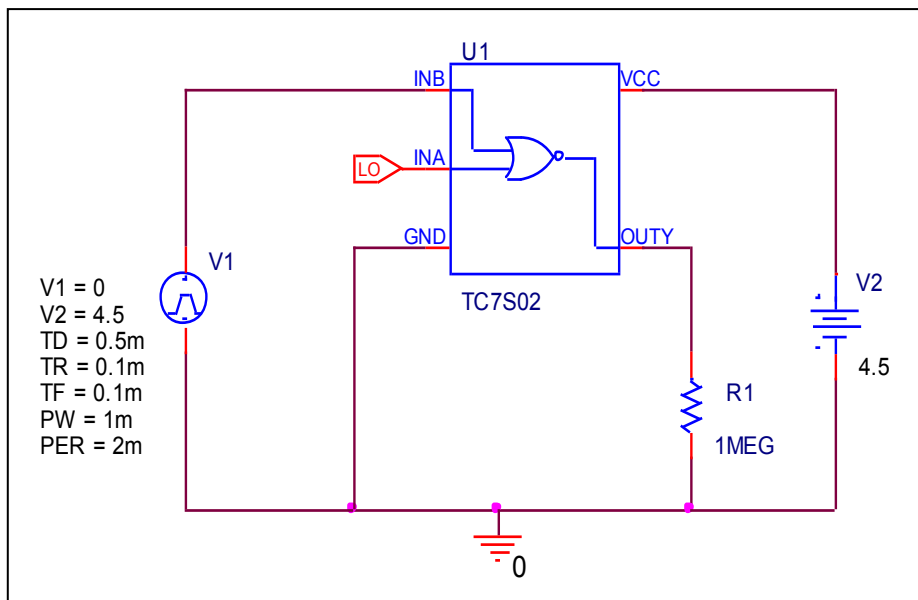
Input		Output		%Error
An	Bn	Yn (Measurement)	Yn (Simulation)	
H	H	L	L	0

High Level and Low Level Input Voltage

Circuit simulation result



Evaluation circuit

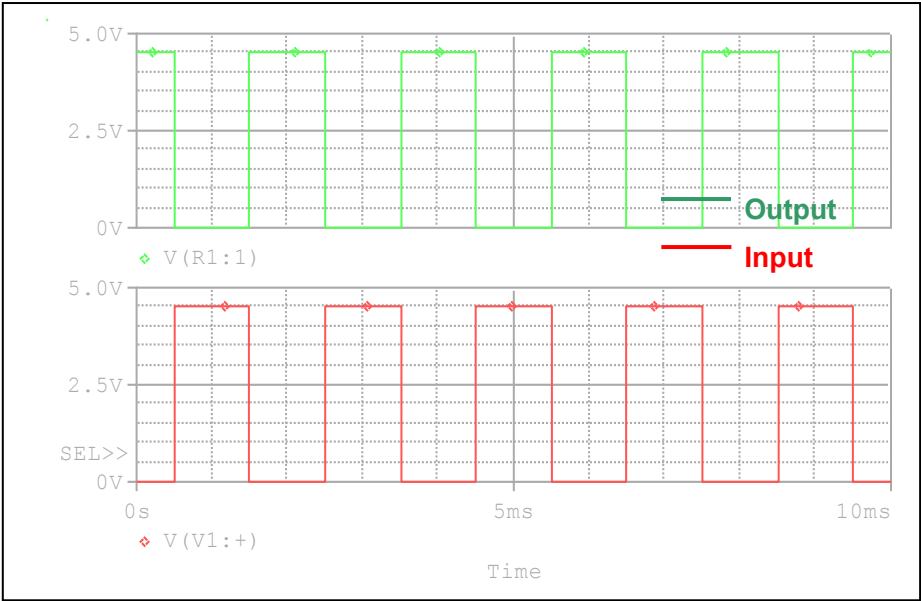


Comparison table

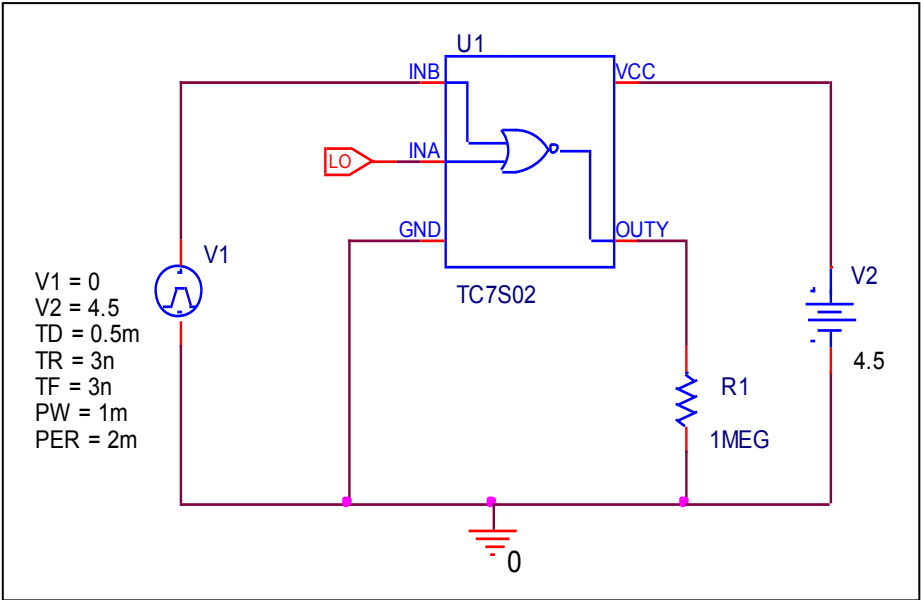
$V_{CC} = 4.5V$	Measurement	Simulation	%Error
$V_{IH} (V)$	3.15	3.1507	0.022
$V_{IL} (V)$	1.35	1.3452	-0.356

High Level and Low Level Output Voltage

Circuit simulation result



Evaluation circuit

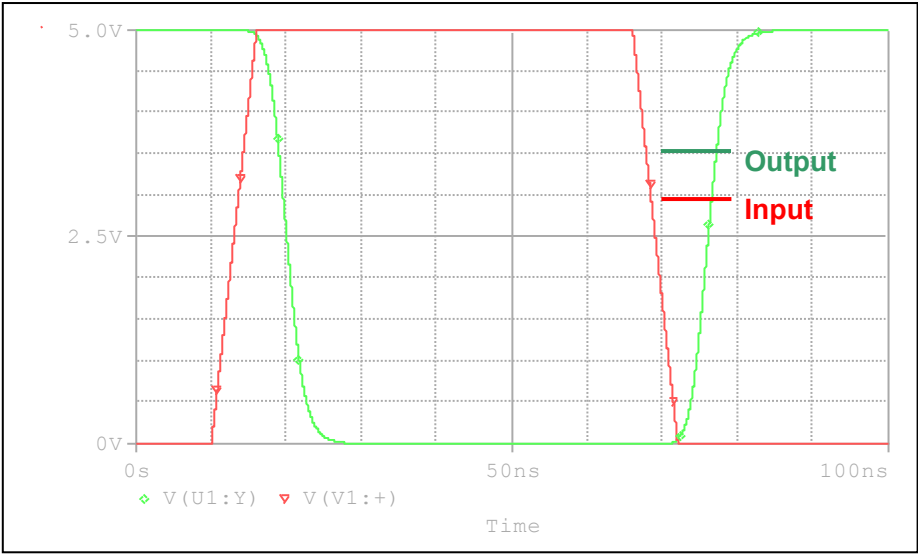


Comparison table

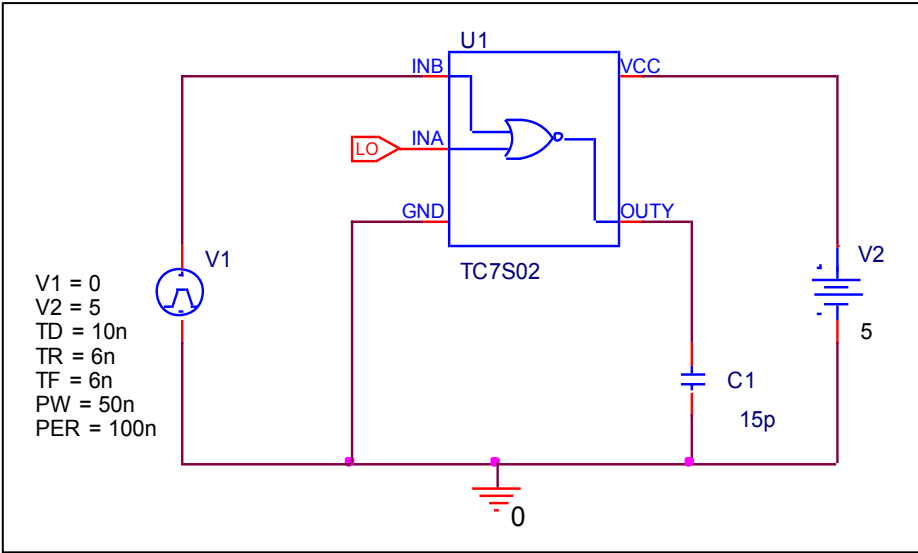
V _{CC} = 4.5V	Measurement	Simulation	%Error
V _{OH} (V)	4.5	4.4955	-0.1
V _{OL} (V)	0	0	0

Propagation Delay Time

Circuit simulation result



Evaluation circuit



Comparison table

$C_L=15\text{pF}, V_{CC} = 5\text{V}, t_r=t_f=6\text{ns}$	Measurement	Simulation	%Error
$t_{TLH} \text{ (ns)}$	5	5.0239	0.478
$t_{THL} \text{ (ns)}$	5	5.0223	0.446
$T_{pLH} \text{ (ns)}$	7	7.0315	0.450
$T_{pHL} \text{ (ns)}$	7	7.0137	0.196