

Device Modeling Report

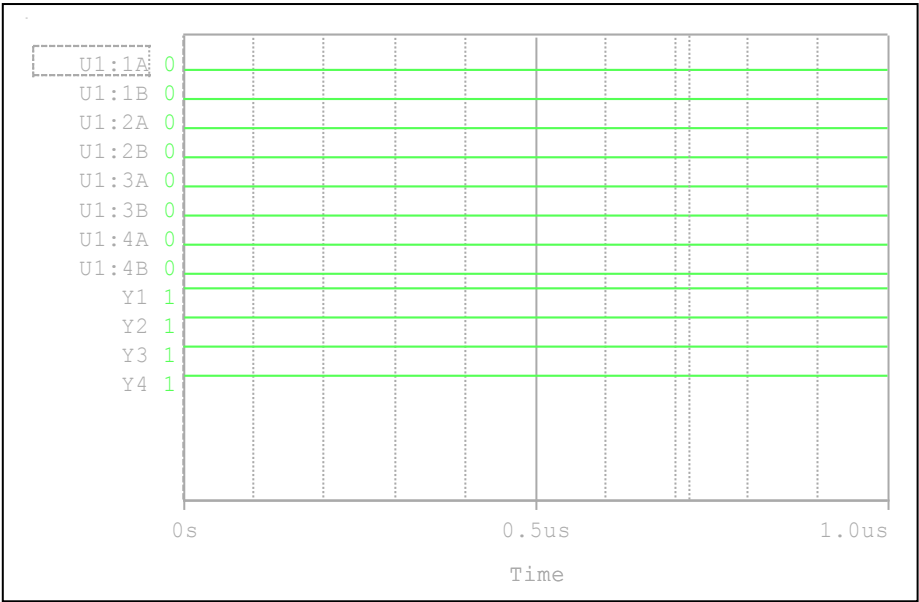
COMPONENTS : CMOS DIGITAL INTEGRATED CIRCUIT
PART NUMBER : TC74ACT02P
MANUFACTURER : TOSHIBA



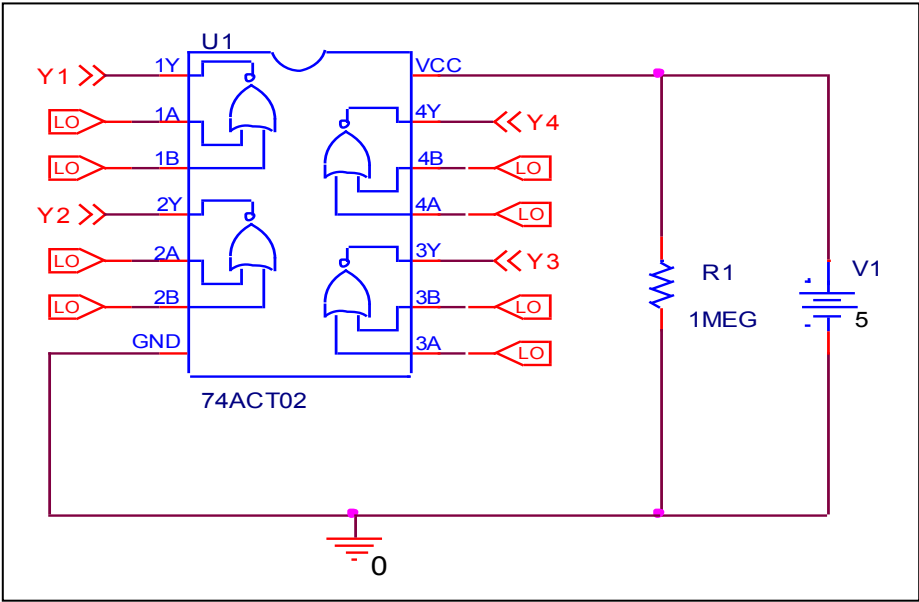
Bee Technologies Inc.

Truth Table

Circuit simulation result



Evaluation circuit

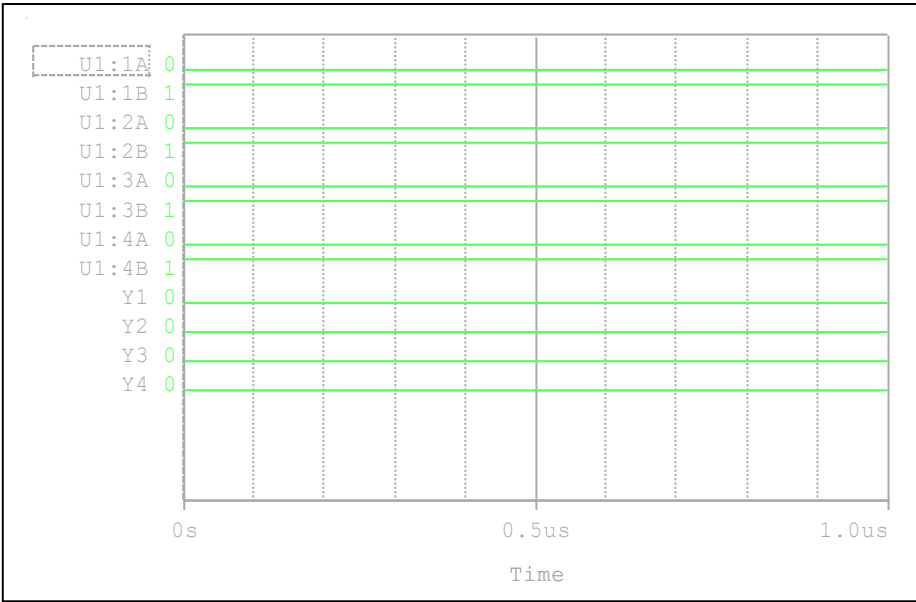


Comparison table

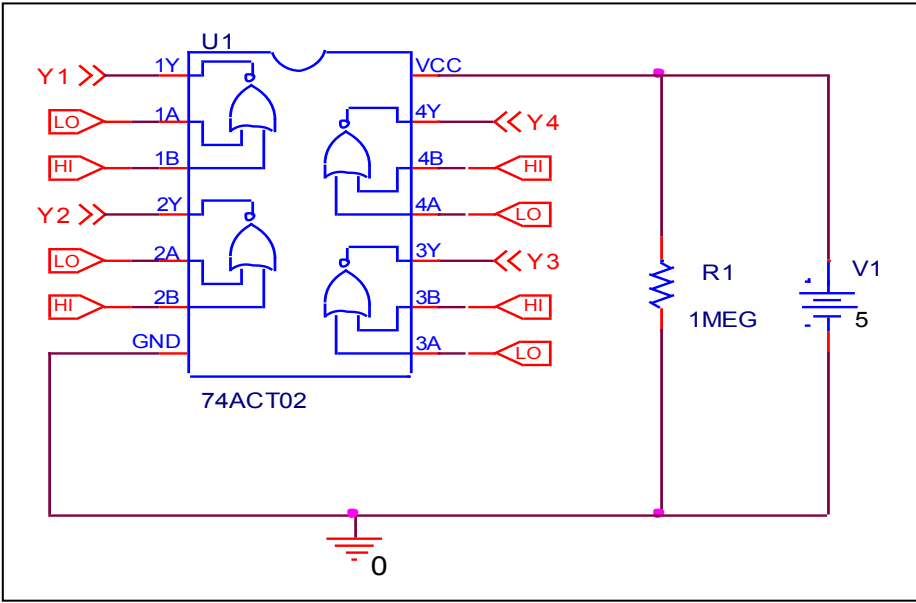
Input		Output		%Error
An	Bn	Yn (Measurement)	Yn (Simulation)	
L	L	H	H	0

Truth Table

Circuit simulation result



Evaluation circuit

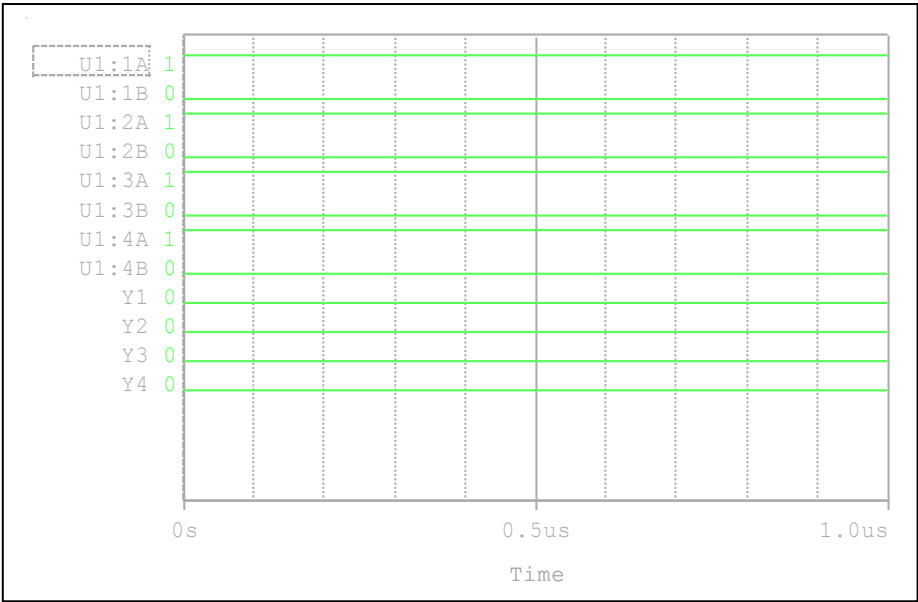


Comparison table

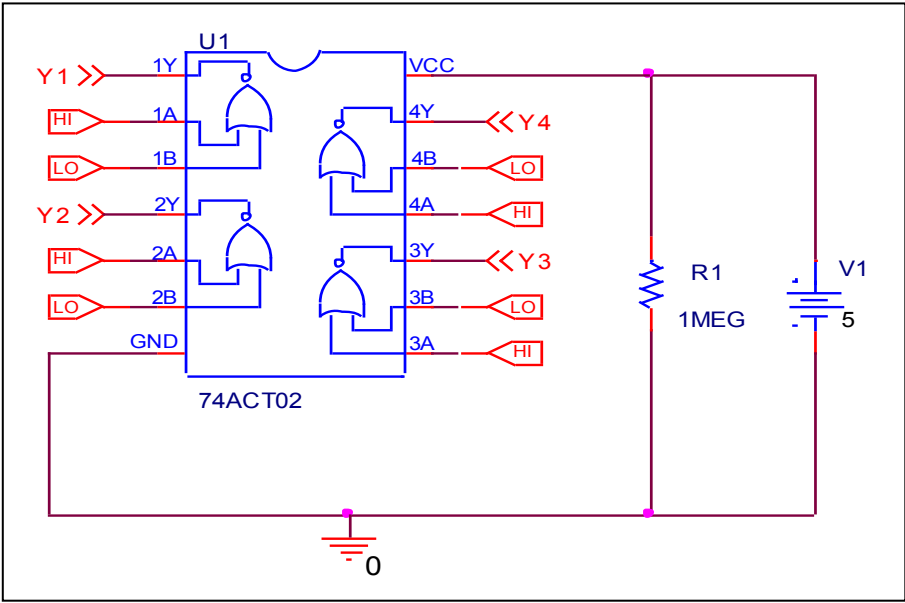
Input		Output		%Error
An	Bn	Yn (Measurement)	Yn (Simulation)	
L	H	L	L	0

Truth Table

Circuit simulation result



Evaluation circuit

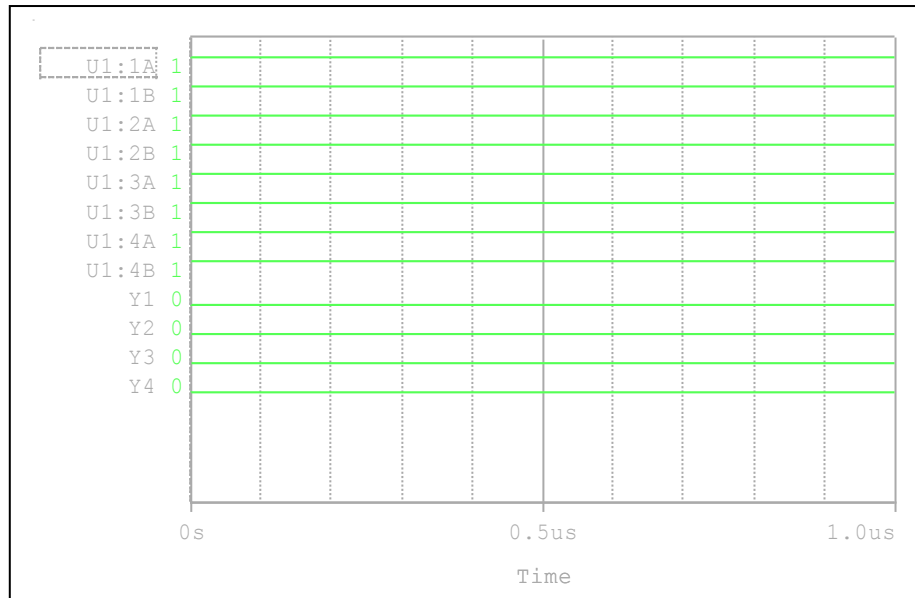


Comparison table

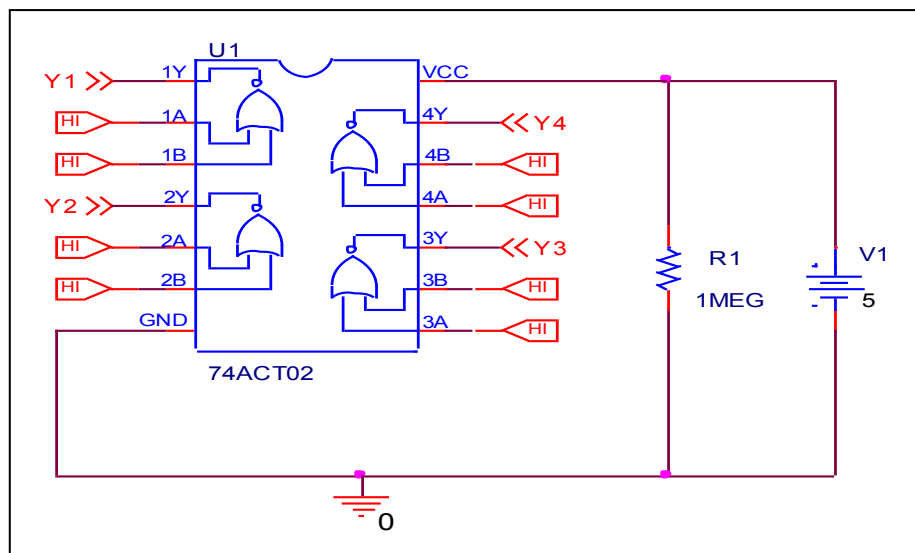
Input		Output		%Error
An	Bn	Yn (Measurement)	Yn (Simulation)	
H	L	L	L	0

Truth Table

Circuit simulation result



Evaluation circuit

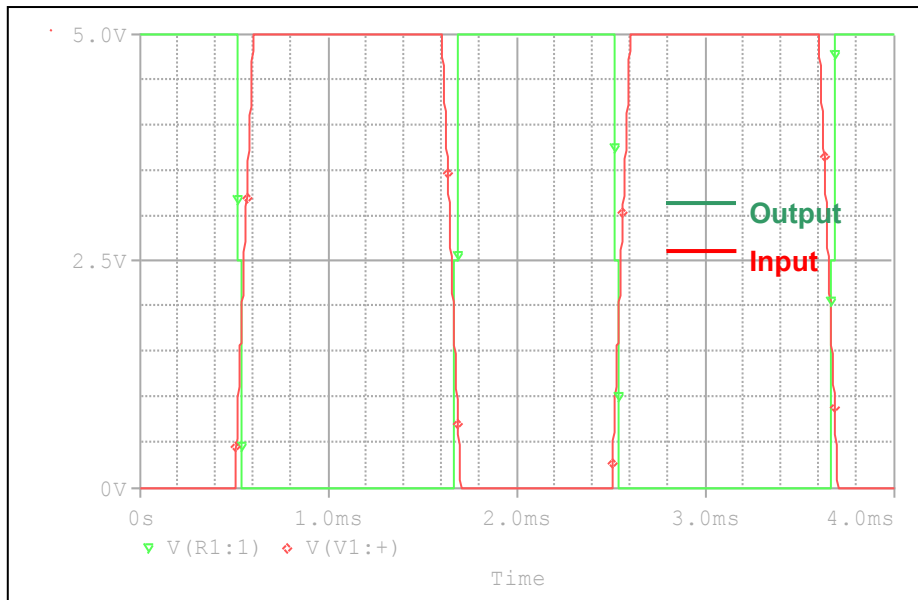


Comparison table

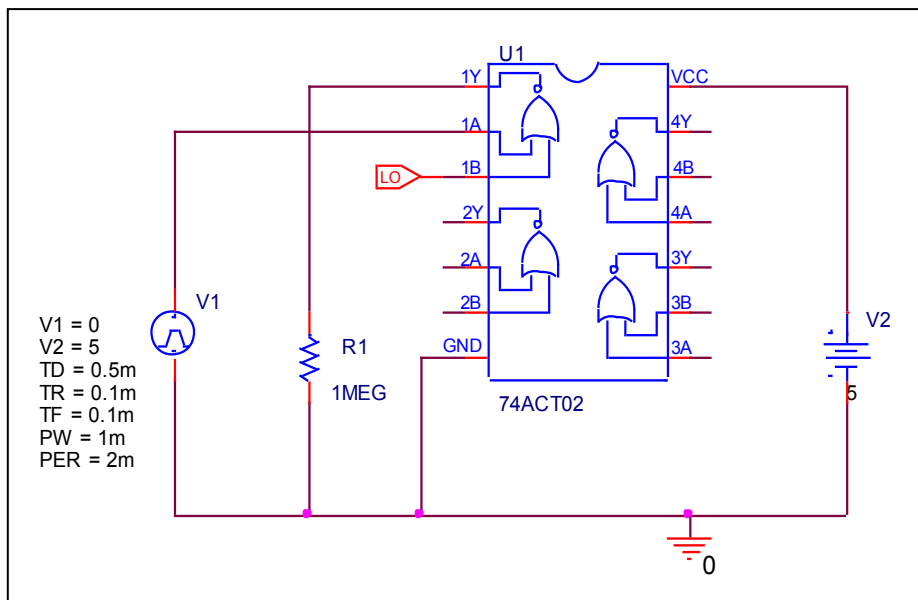
Input		Output		%Error
An	Bn	Yn (Measurement)	Yn (Simulation)	
H	H	L	L	0

High Level and Low Level Input Voltage

Circuit simulation result



Evaluation circuit

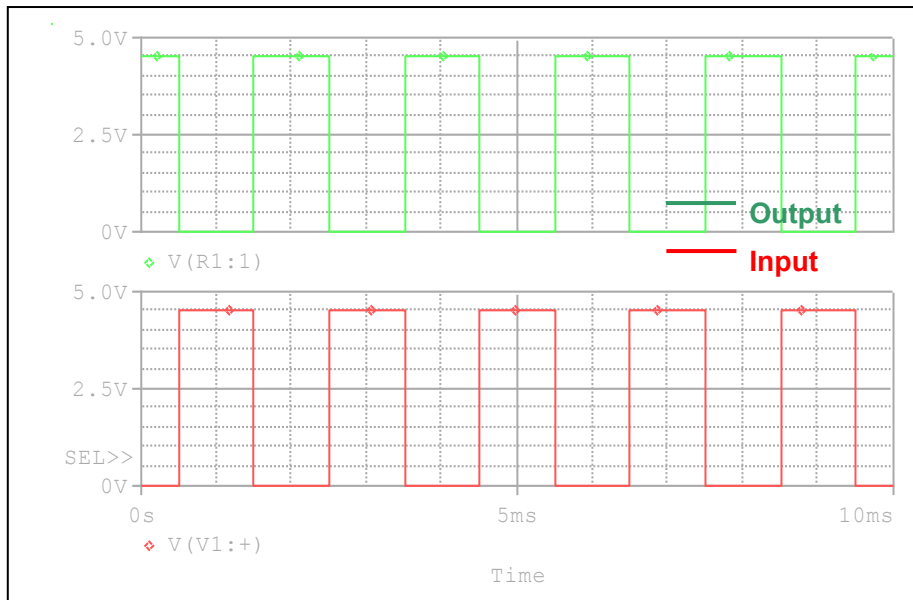


Comparison table

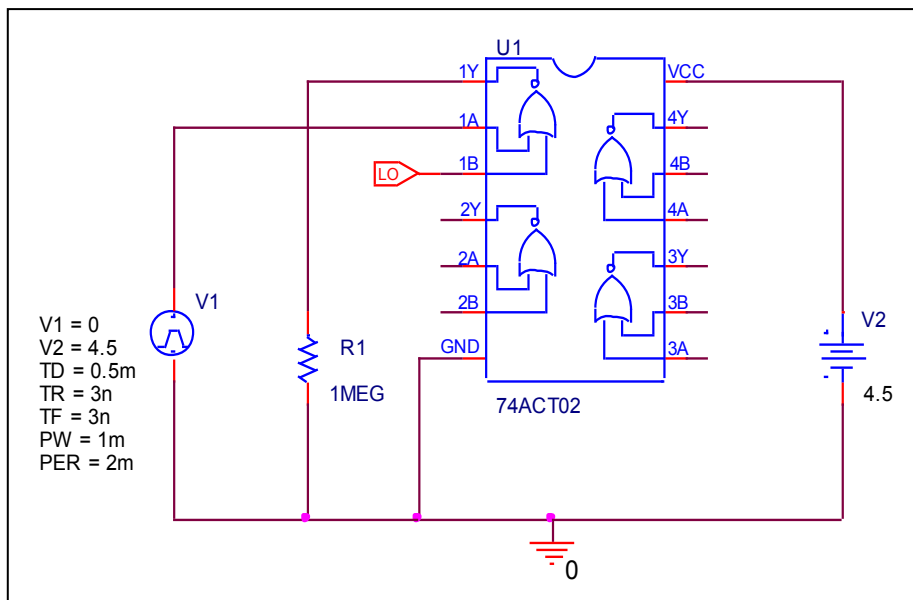
V_{CC} = 5V	Measurement	Simulation	%Error
V_{IH} (V)	2.0	2.0021	0.105
V_{IL} (V)	0.8	0.799535	-0.058

High Level and Low Level Output Voltage

Circuit simulation result



Evaluation circuit

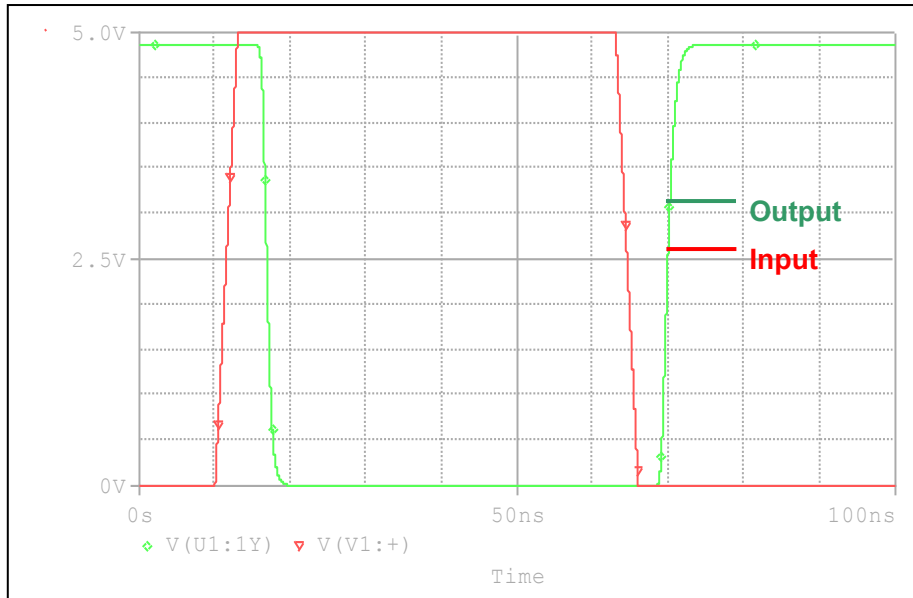


Comparison table

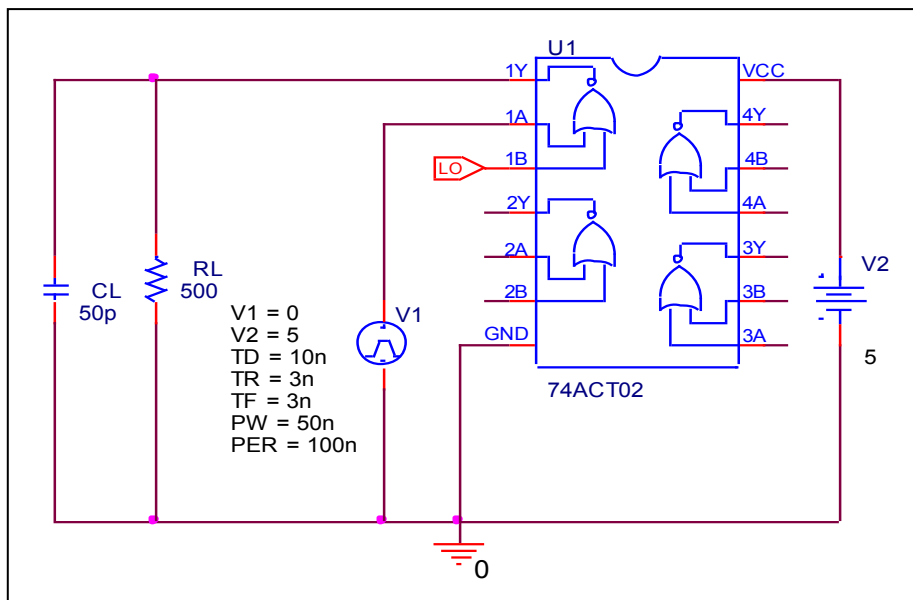
$V_{CC} = 4.5V$	Measurement	Simulation	%Error
$V_{OH} (V)$	4.5	4.4994	-0.013
$V_{OL} (V)$	0	0	0

Propagation Delay Time

Circuit simulation result



Evaluation circuit



Comparison table

$C_L=50\text{pF}, R_L=500\Omega, T_r=T_f=3\text{ns}$	Measurement	Simulation	%Error
$t_{pLH} \text{ (ns)}$	5.3	5.371	1.340
$t_{pHL} \text{ (ns)}$	5.3	5.3655	1.236