Device Modeling Report

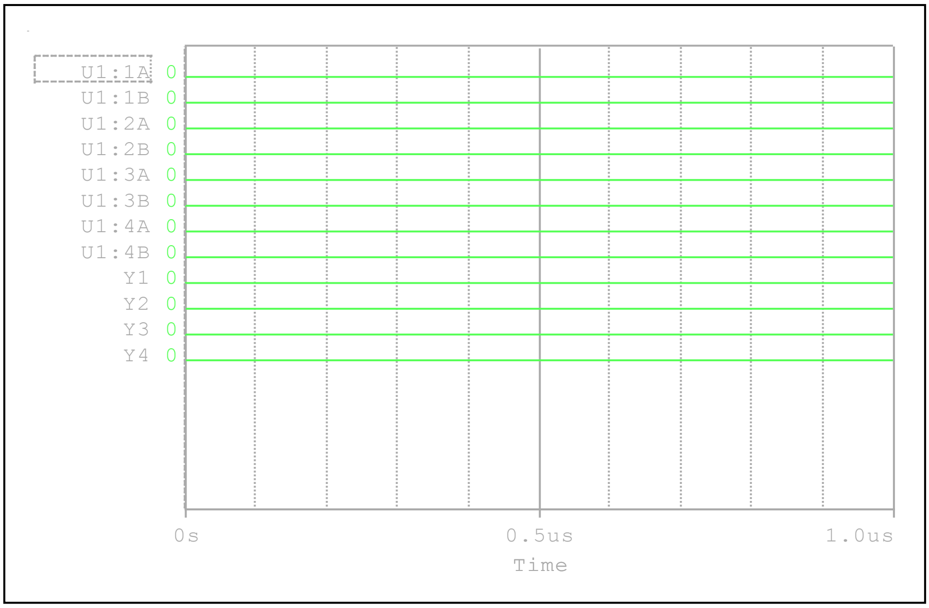
COMPONENTS : CMOS DIGITAL INTEGRATED CIRCUIT
PART NUMBER : TC74HC08AP
MANUFACTURER : TOSHIBA

Bee Technologies

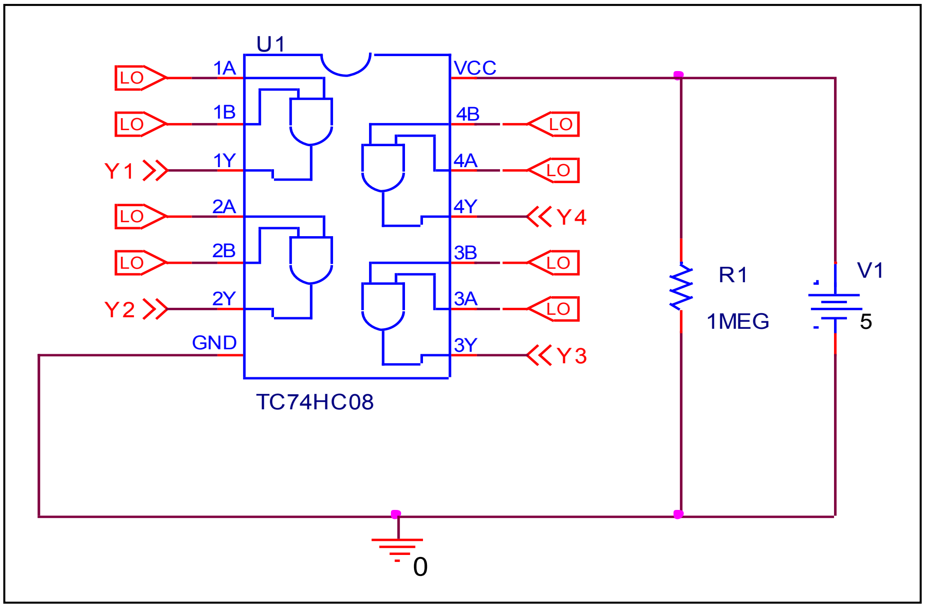
Bee Technologies Inc.

Truth Table

Circuit simulation result



Evaluation circuit

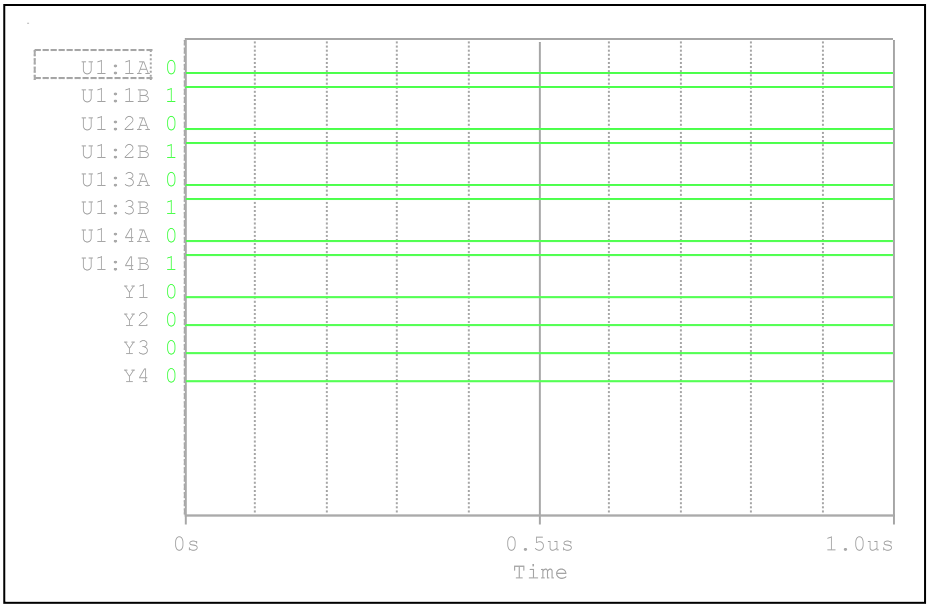


Comparison table

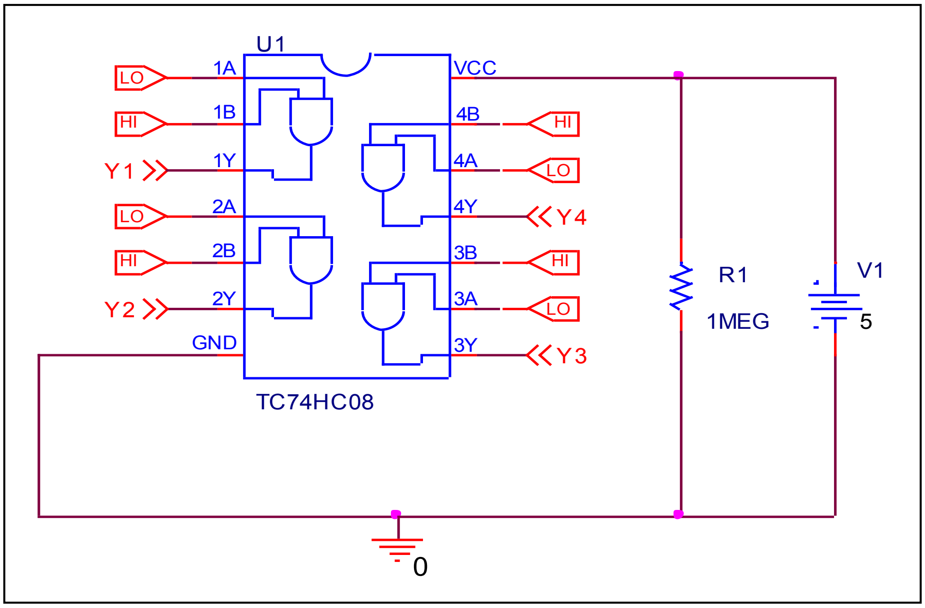
Input		Output		%Error
An	**Bn**	**Yn (Measurement)**	**Yn (Simulation)**	
L	**L**	L	L	0

Truth Table

Circuit simulation result



Evaluation circuit

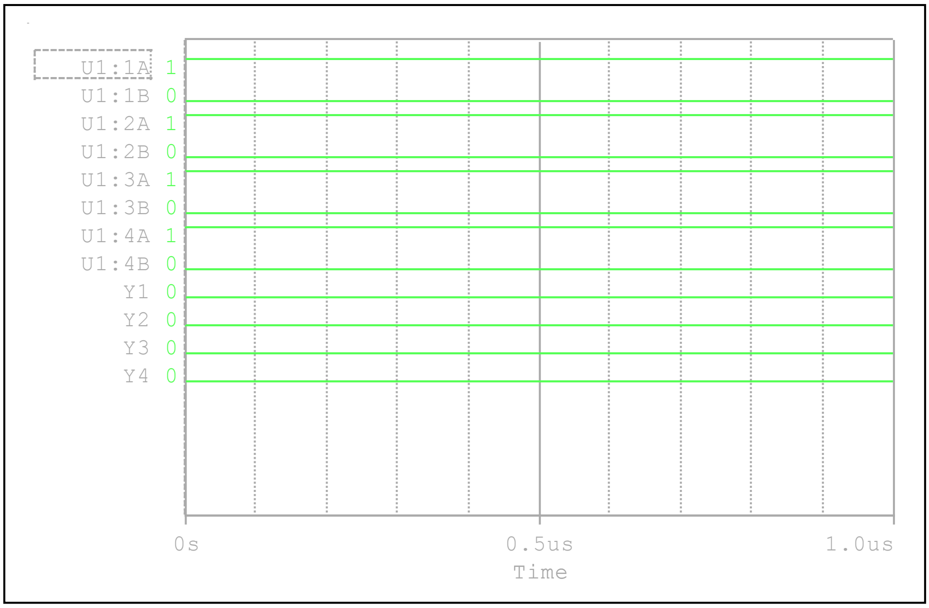


Comparison table

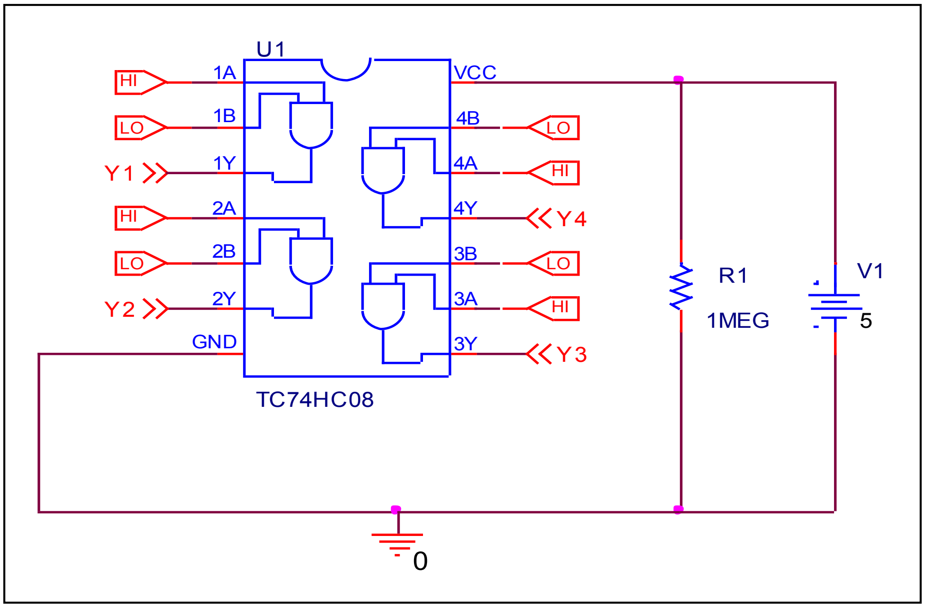
Input		Output		%Error
An	**Bn**	**Yn (Measurement)**	**Yn (Simulation)**	
L	**H**	L	L	0

Truth Table

Circuit simulation result



Evaluation circuit

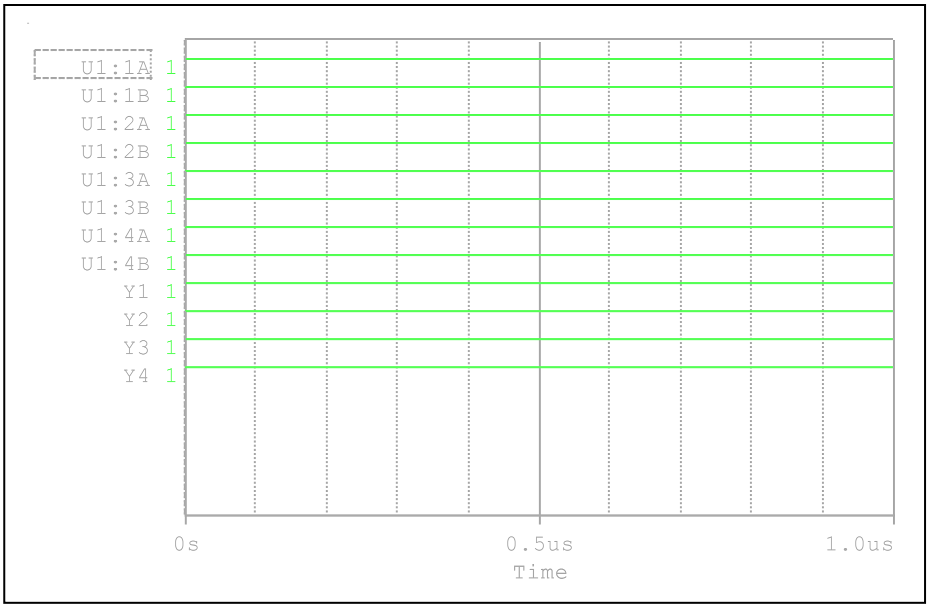


Comparison table

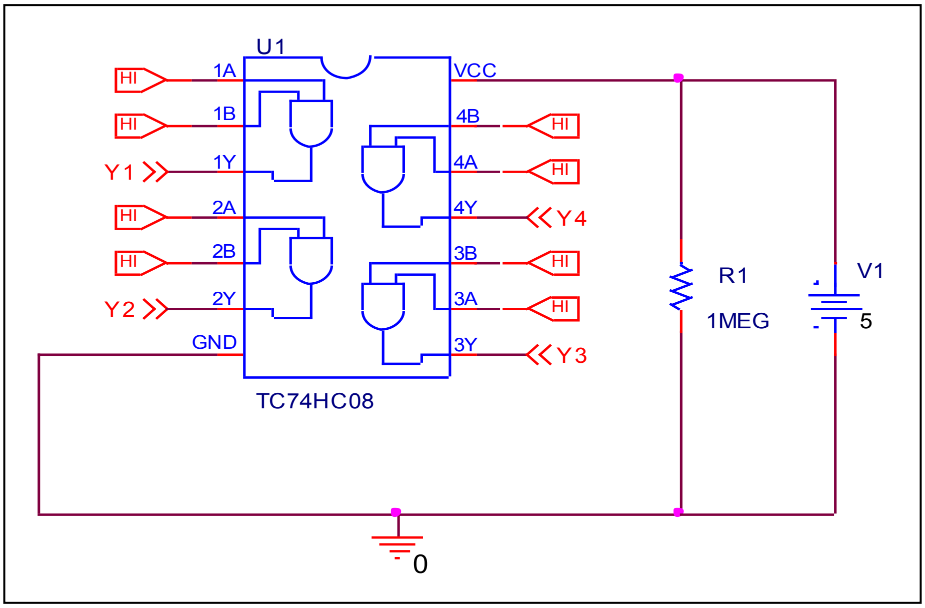
Input		Output		%Error
An	**Bn**	**Yn (Measurement)**	**Yn (Simulation)**	
H	**L**	L	L	0

Truth Table

Circuit simulation result



Evaluation circuit

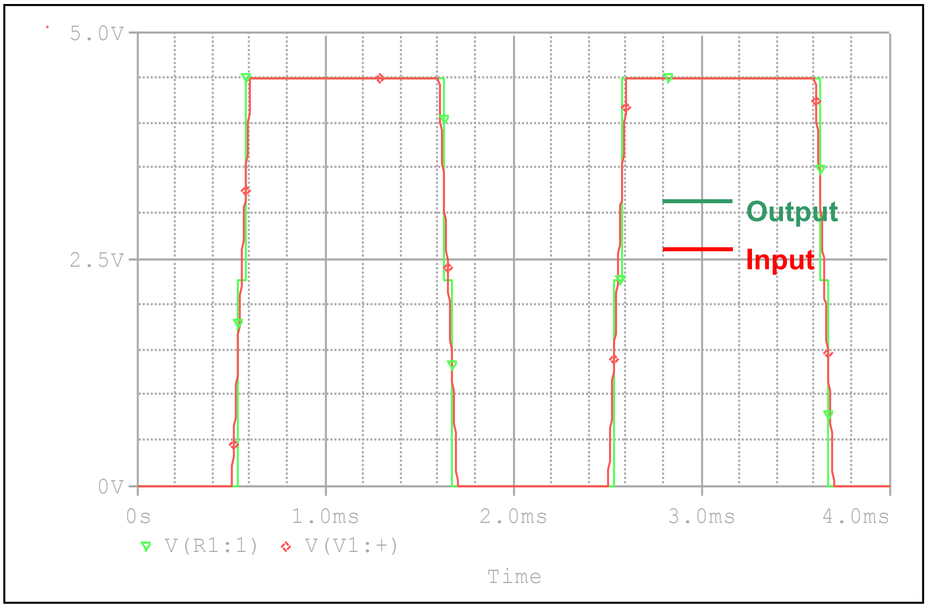


Comparison table

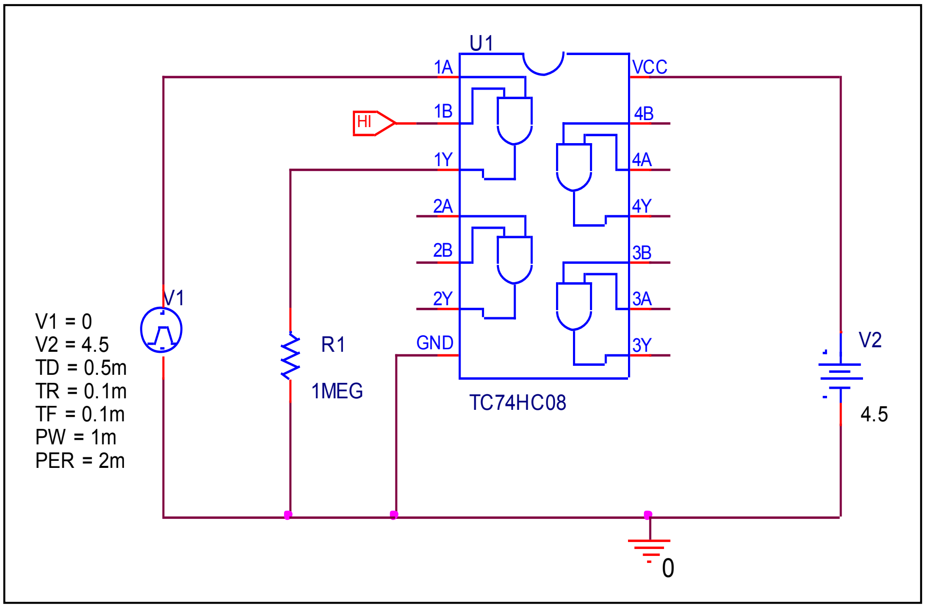
Input		Output		%Error
An	**Bn**	**Yn (Measurement)**	**Yn (Simulation)**	
H	**H**	H	H	0

High Level and Low Level Input Voltage

Circuit simulation result



Evaluation circuit

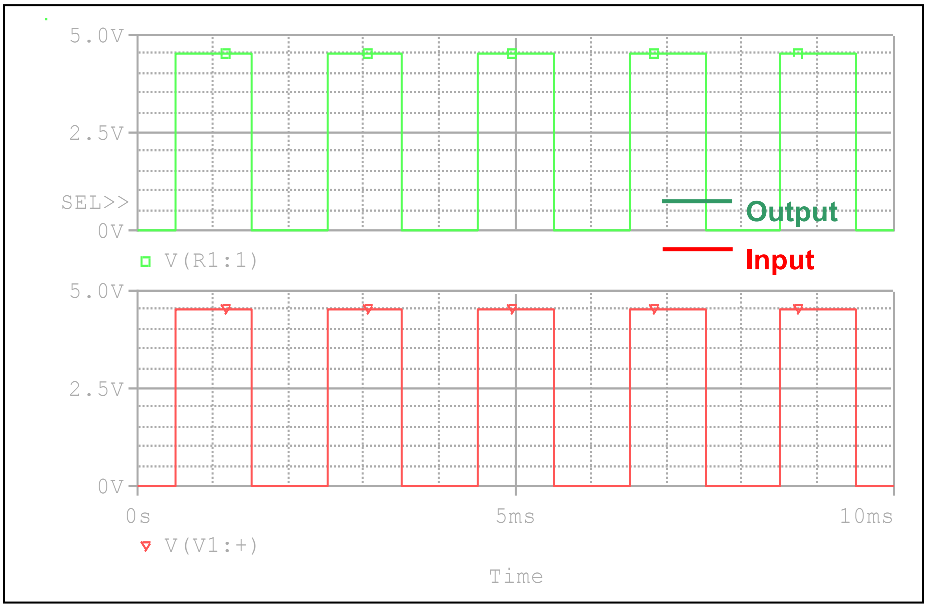


Comparison table

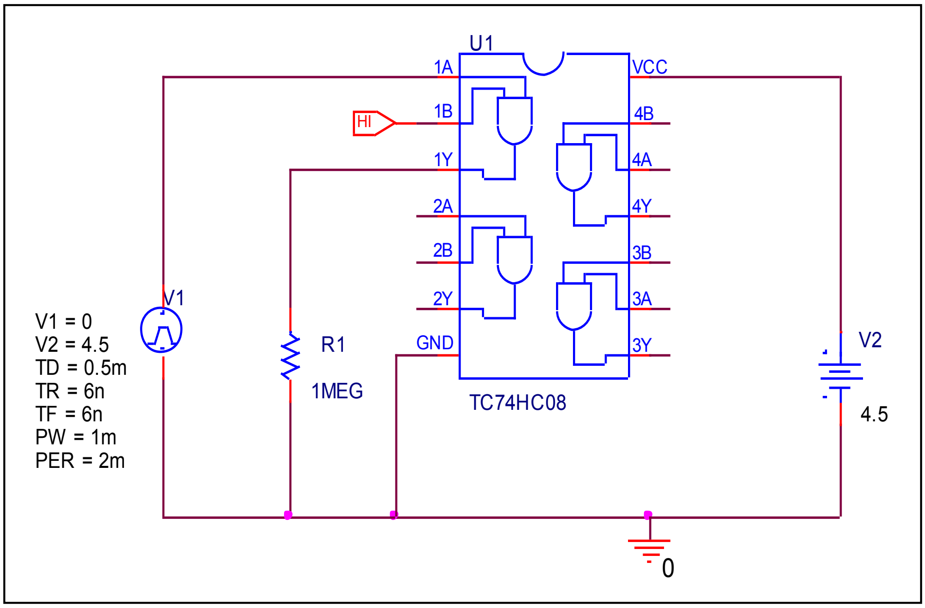
V_{CC} = 4.5V	Measurement	Simulation	%Error
V_{IH} (V)	3.15	3.1505	0.016
V_{IL} (V)	1.35	1.3454	-0.341

High Level and Low Level Output Voltage

Circuit simulation result



Evaluation circuit

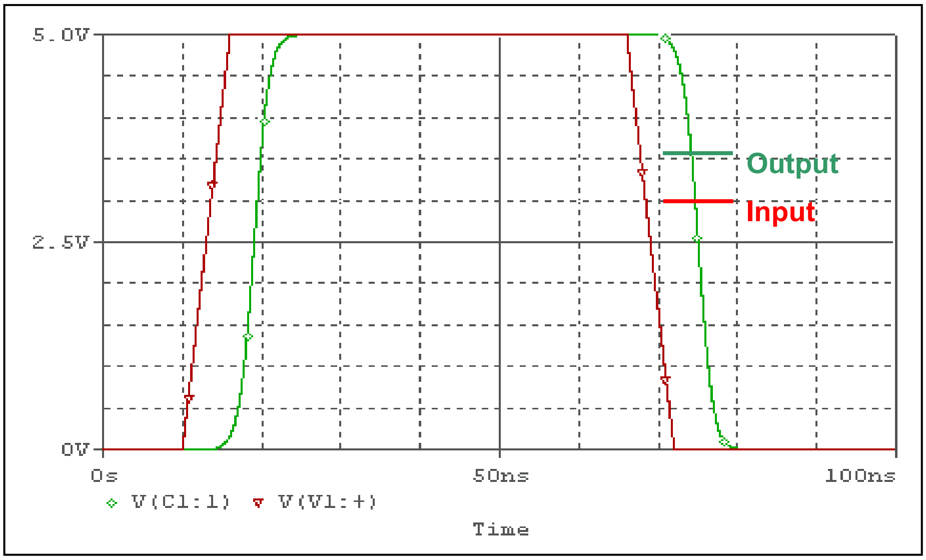


Comparison table

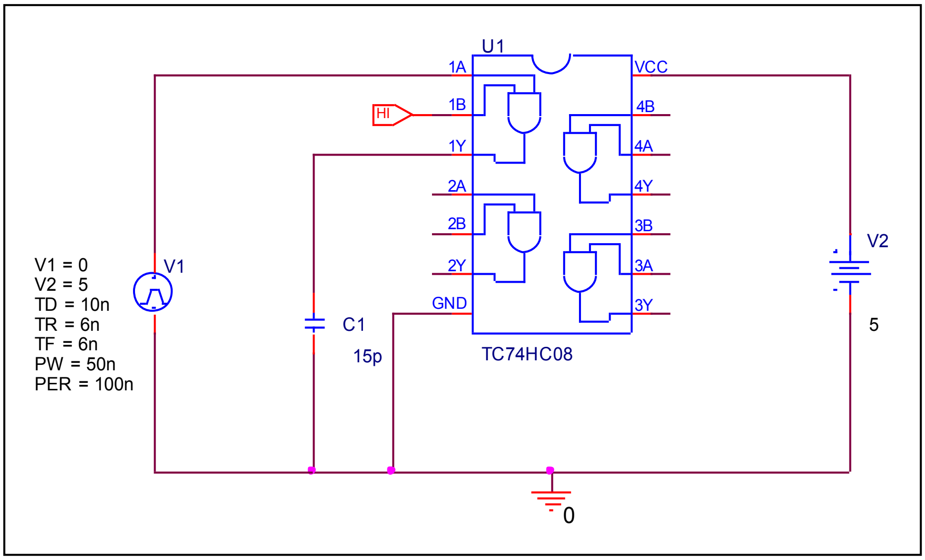
V_{CC} = 4.5V	Measurement	Simulation	%Error
V_{OH} (V)	4.5	4.4975	-0.056
V_{OL} (V)	0	0	0

Propagation Delay Time

Circuit simulation result



Evaluation circuit



Comparison table

C_L=15pF,V_{CC} = 5V,tr=tf=6ns	Measurement	Simulation	%Error
t_{TLH} (ns)	4	4.0014	0.035
t_{THL} (ns)	4	4.0169	0.422
T_{pLH} (ns)	6	6.0612	1.020
T_{pHL} (ns)	6	6.0398	0.663