

Device Modeling Report

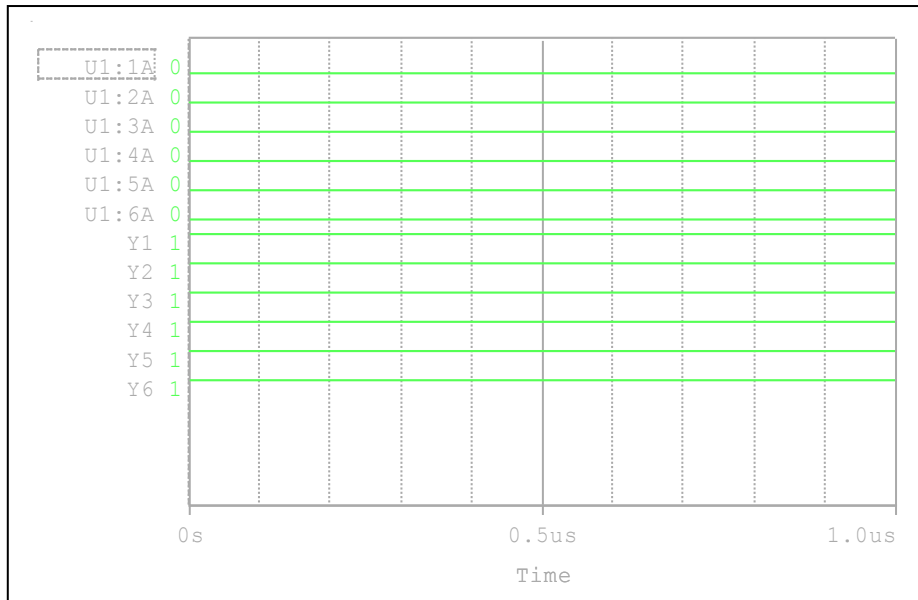
COMPONENTS : CMOS DIGITAL INTEGRATED CIRCUIT
PART NUMBER : TC74VHCT04AF
MANUFACTURER : TOSHIBA



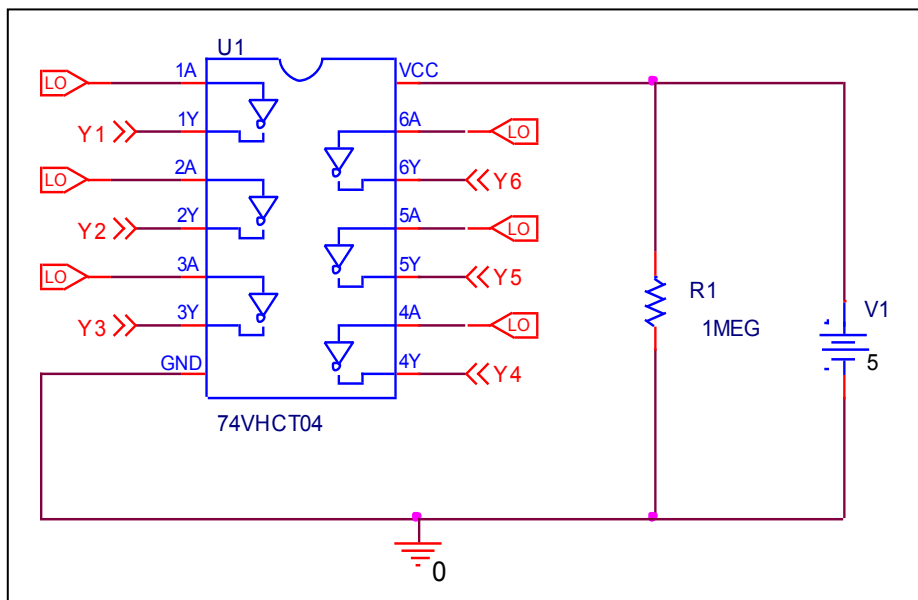
Bee Technologies Inc.

Truth Table

Circuit simulation result



Evaluation circuit

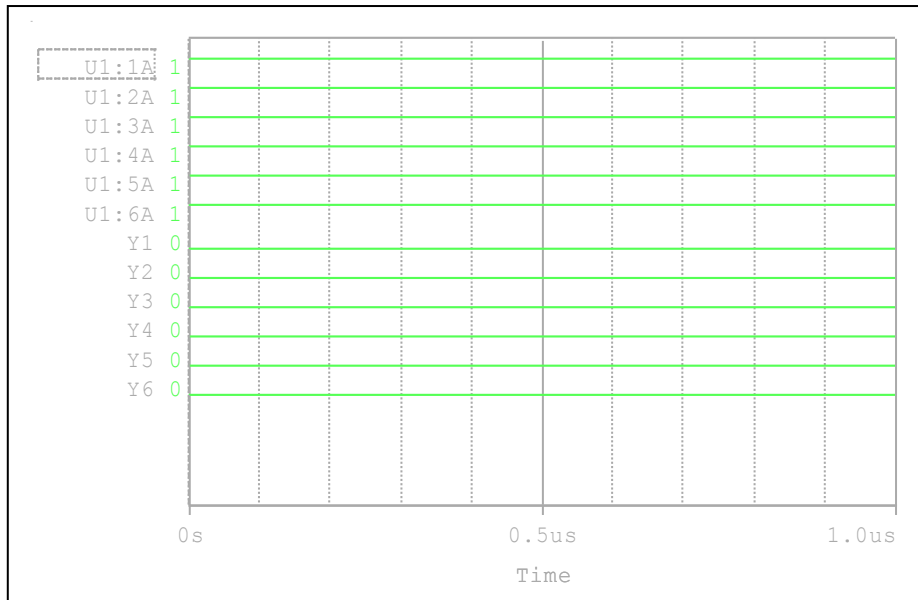


Comparison table

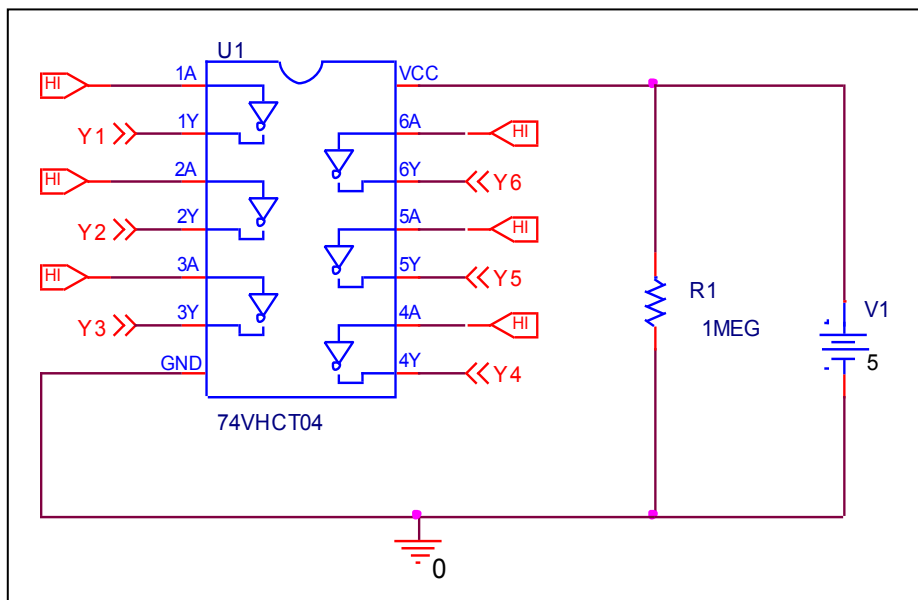
Input	Output		%Error
	Yn (Measurement)	Yn (Simulation)	
L	H	H	0

Truth Table

Circuit simulation result



Evaluation circuit

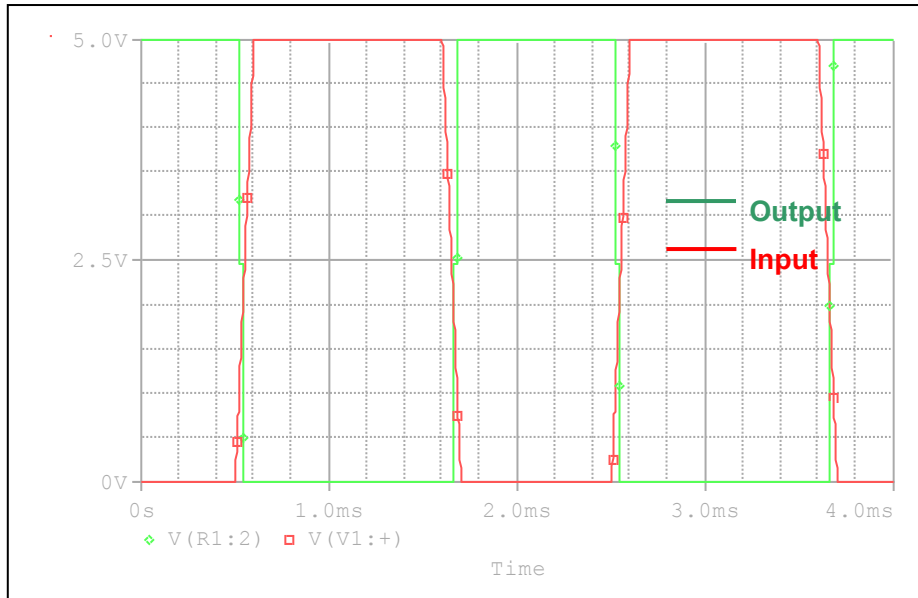


Comparison table

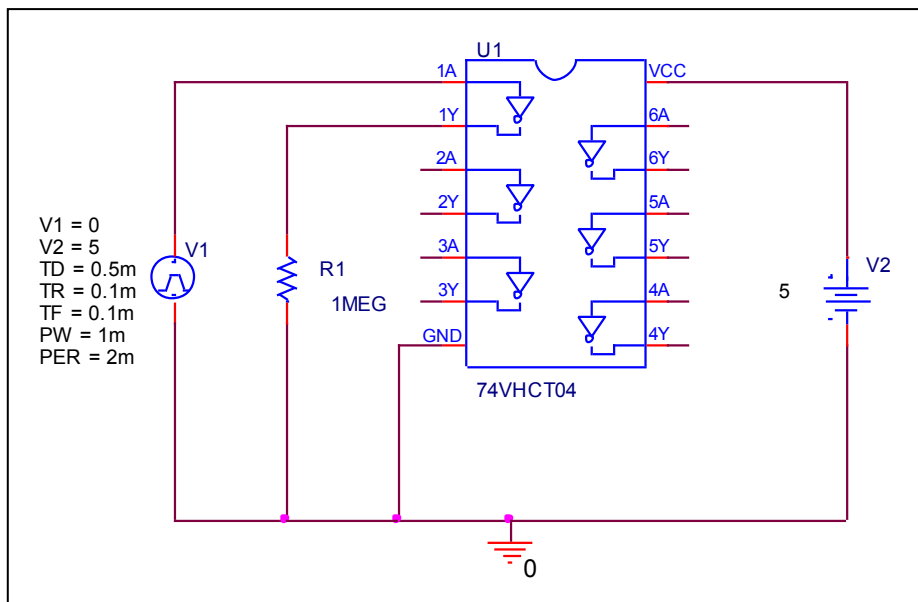
Input	Output		%Error
	Yn (Measurement)	Yn (Simulation)	
H	L	L	0

High Level and Low Level Input Voltage

Circuit simulation result



Evaluation circuit

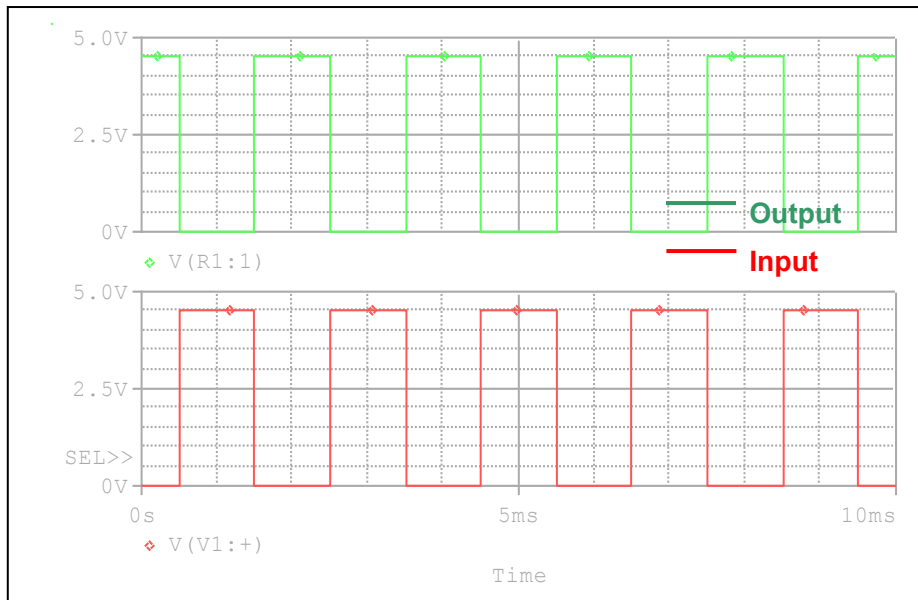


Comparison table

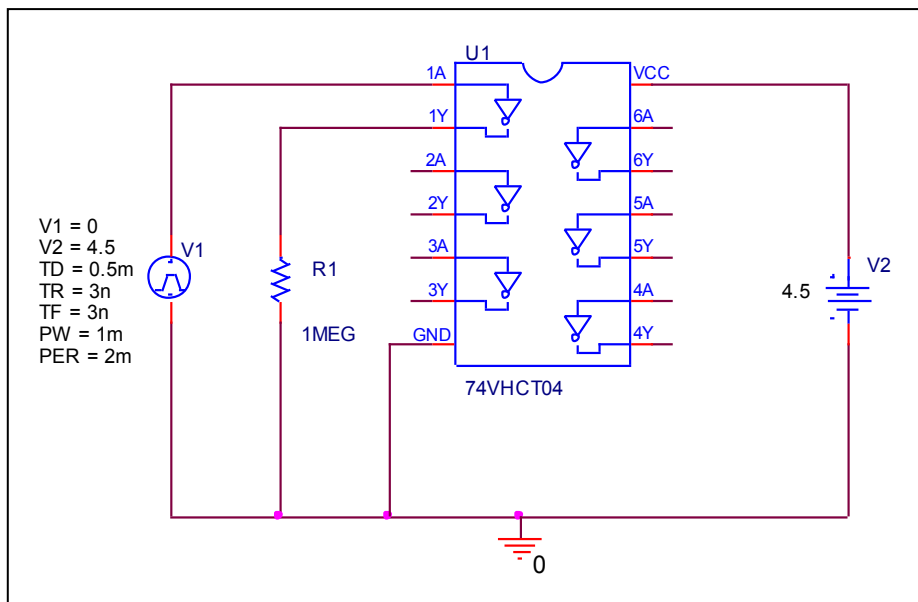
$V_{CC} = 5V$	Measurement	Simulation	%Error
$V_{IH} (V)$	2	2	0
$V_{IL} (V)$	0.8	0.799235	-0.096

High Level and Low Level Output Voltage

Circuit simulation result



Evaluation circuit

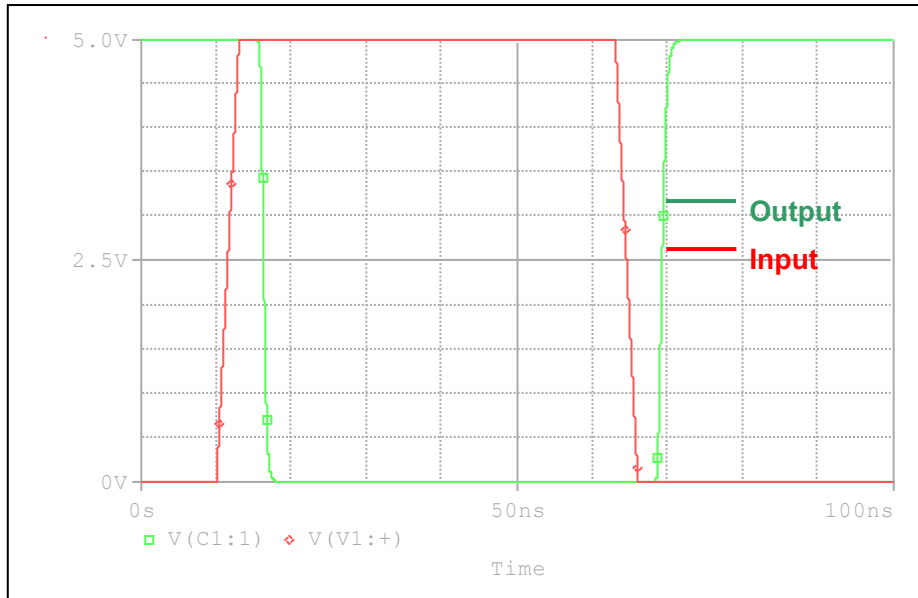


Comparison table

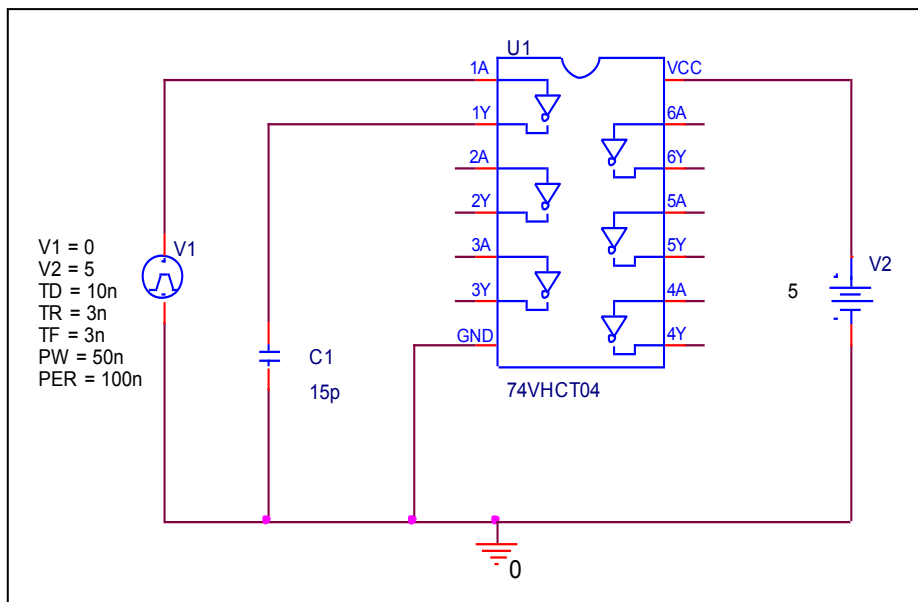
$V_{CC} = 4.5V$	Measurement	Simulation	%Error
$V_{OH} (V)$	4.5	4.4988	-0.027
$V_{OL} (V)$	0	0	0

Propagation Delay Time

Circuit simulation result



Evaluation circuit



Comparison table

$C_L=15\text{ pF}, V_{CC}=5\text{ V}, T_r=T_f=3\text{ ns}$	Measurement	Simulation	%Error
$t_{pLH}\text{ (ns)}$	4.7	4.7416	0.885
$t_{pHL}\text{ (ns)}$	4.7	4.7743	1.581