

LTspice Model

2-Input AND Gate

Toshiba Corporation

TC7S08F

Model Information

Model A macro model
Call Name MDC_TC7S08F_LT
Pin Assign 1:INB 2:INA 3:GND 4:OUTY 5:VCC
File List Model Library MDC_TC7S08F_LT.lib
Model Report MDC_TC7S08F_LT.pdf(this file)
Verified Simulator Version PSpice 17.2
Note

References

The information which was used for modeling is as follow:

[Data Sheet]
●Date/Version 2014.03.01/Unknown
●Product name TC7S08F
●Company name Toshiba Corporation

[Characteristics listed]
●Characteristics VIL,VIH,VOL,VOH
tTLH,tTHL,tpLH,tpHL

Simulation Condition

This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.

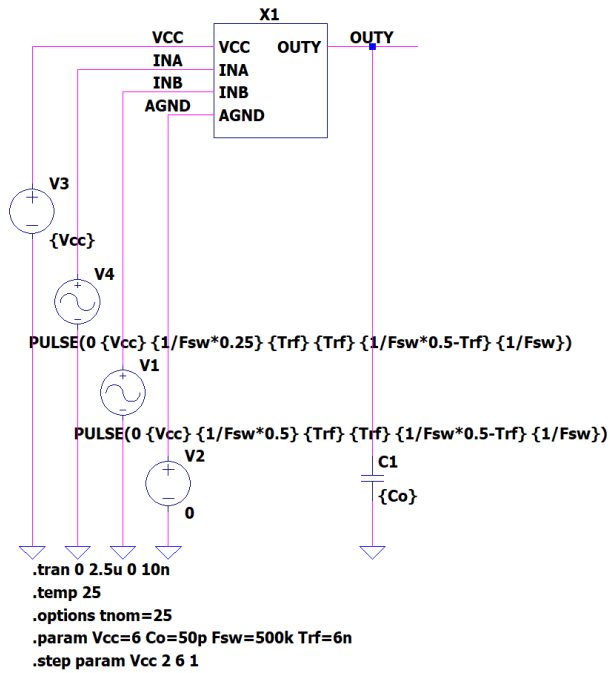
Item	Condition	Unit
Temperature	25	deg C

Model Functions Table

Functions	Implemented
2-input AND output	○
High Speed : $t_{pd} = 7\text{ns}$ (typ.) at $V_{CC} = 5\text{V}$	○
Low power dissipation : $I_{CC} = 1\ \mu\text{A}$ (max) at $T_a = 25[\text{degC}]$	○
High noise immunity : $V_{NIH} = V_{NIL} = 28\% V_{CC}$ (min)	○
Symmetrical Output Impedance $ I_{OH} = I_{OL} = 2\text{mA}$ (min)	○
Balanced propagation delays : $t_{pLH} \doteq t_{pHL}$	○
Wide operating voltage range : $V_{CC} = 2\text{ to }6\text{V}$	○

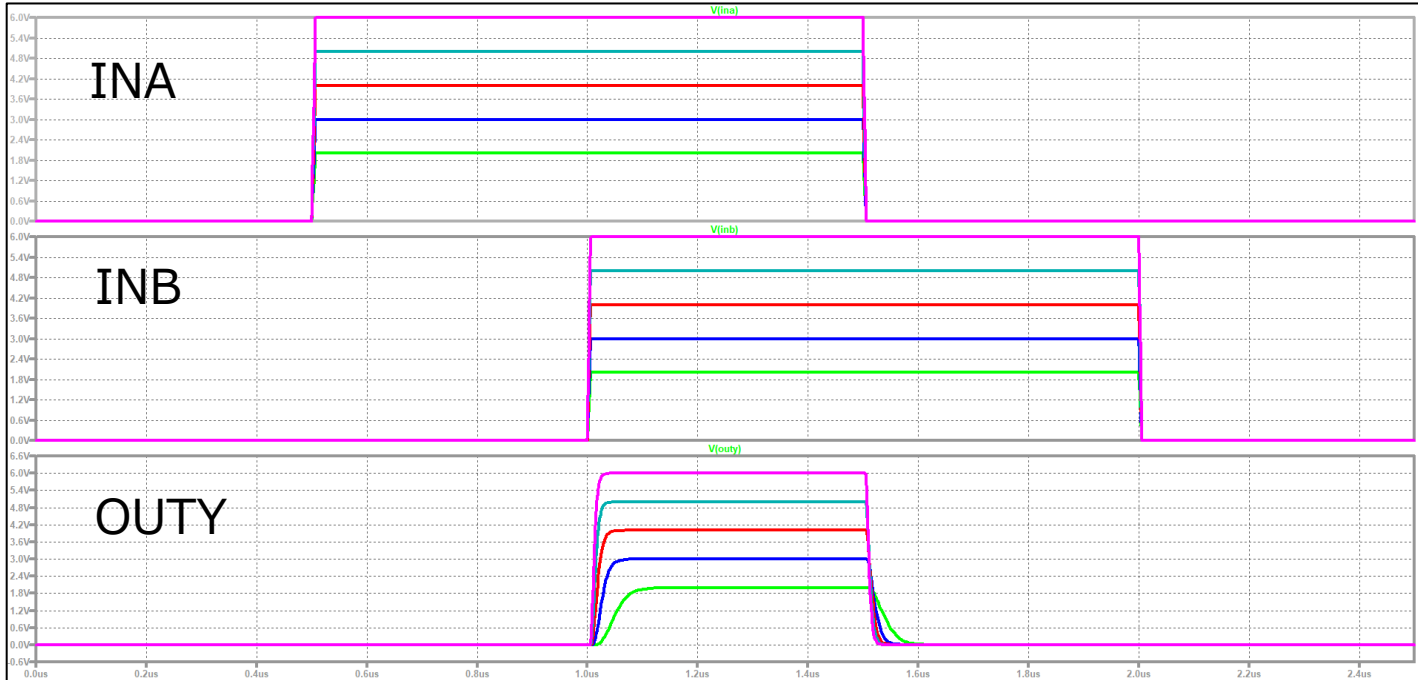
2-input AND gate function Testbench

Referred to Data Sheet



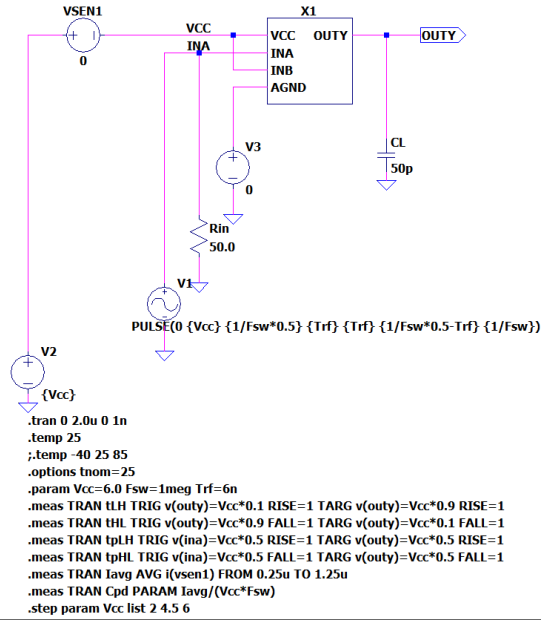
Simulation results are following.
Explanatory notes — : simulated

2-input AND gate function ($V_{cc} = 2V - 6V$)



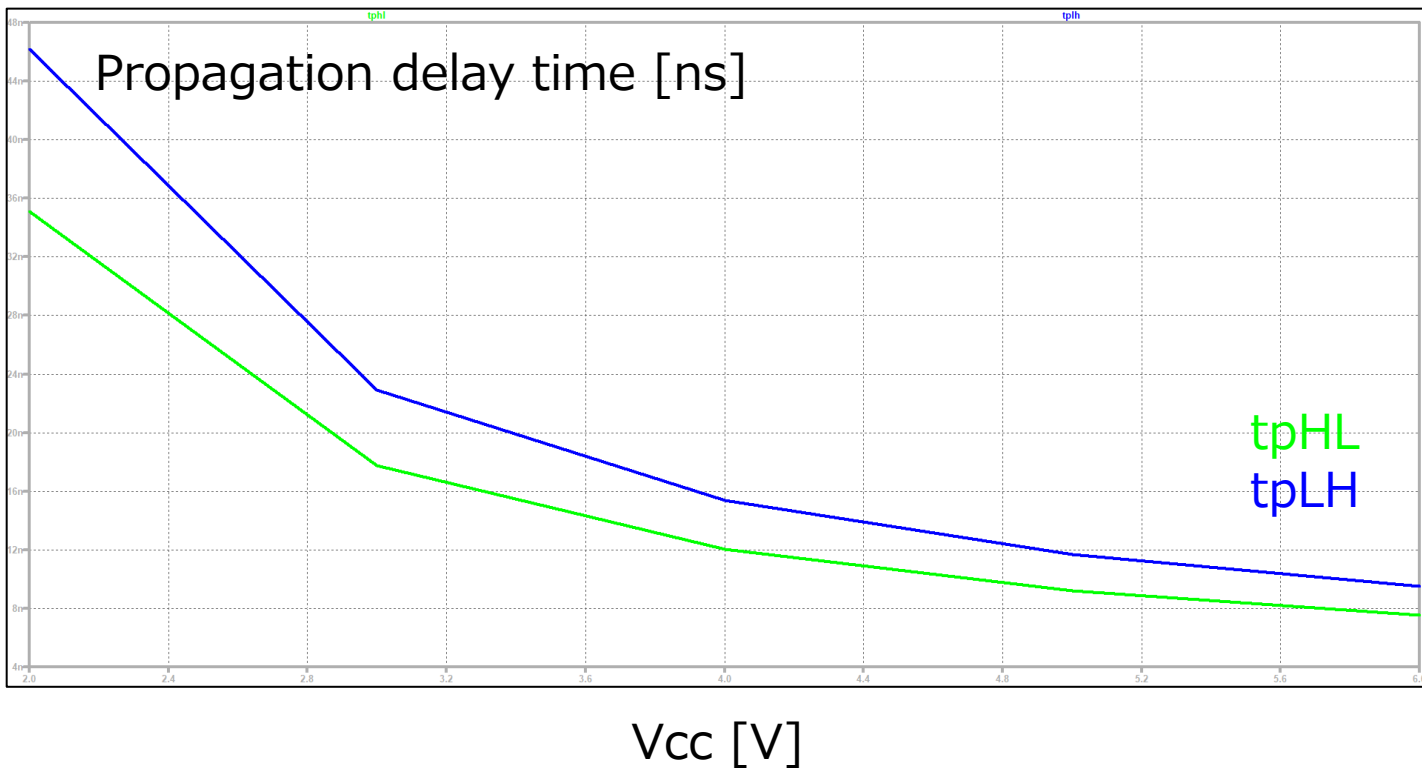
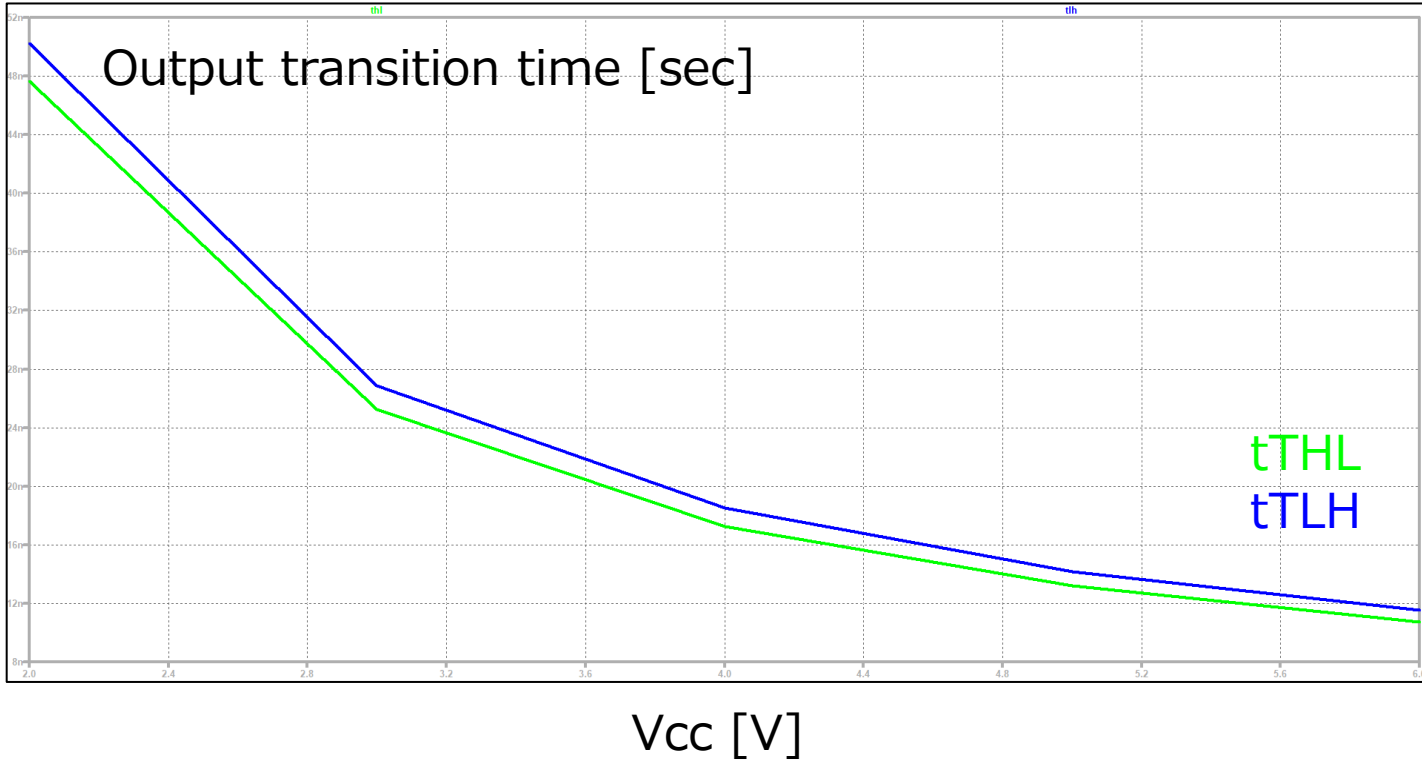
Output Transition Time / Propagation delay time Testbench (Vcc = 2[V] – 6[V], CL = 50[pF])
 Referred to Data Sheet

AC Characteristics Simulation for AND Gate



Simulation results are following.
 Explanatory notes — : simulated

Output transition time / Propagation delay time (Vcc = 2[V] – 6[V], CL = 50[pF])



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