

LTspice Model

Photo coupler

TOSHIBA

TLP2309

Model Information

Model A macro model
Call Name MDC_TLP2309_LT
Pin Assign 1:Anode,3:cathode,4:GND,5:Vo,6:Vcc
File List Model Library MDC_TLP2309_LT.lib
 Model Report MDC_TLP2309_LT.pdf(this file)
Verified Simulator Version LTspice XVII 17.0

Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version Rev.9.0
- Product name TLP2309
- Company name TOSHIBA

[Characteristics listed]

- Characteristics IF-VF-Temp, Iout-Vout-IF, Iout-IF, Switching (Typ.)

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

Photo coupler

○ : Implemented
 × : Not Implemented
 – : Not applicable

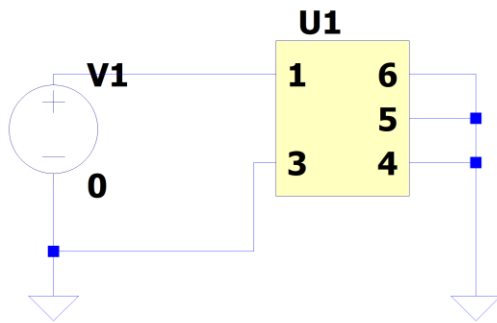
Model Functions Table
RANK=1

Functions	RANK	Implemented
IF-VF-Temp	1	○
Iout-Vout-IF	1	○
Iout-IF	1	○
Iout/IF-IF(CTR-IF)	1	–
CJ-VR	1	–
Propagation delay	1	–
Switching (Typ.)	1	○

IF-VF-Temp Testbench

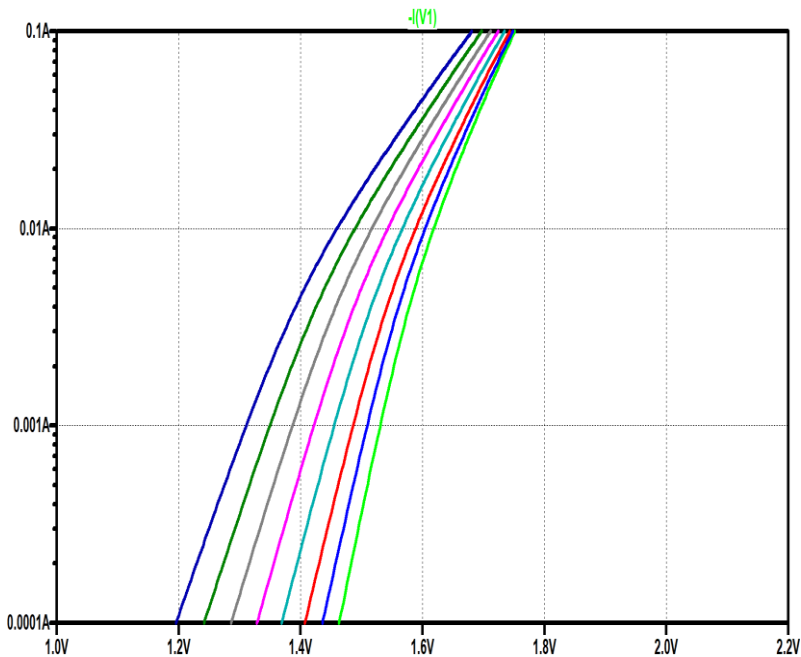
Referred to Data Sheet

```
.OPTION TNOM=25
.temp -40 -20 0 25 50 75 100 125
.lib MDC_TLP2309_LT.lib
.dc V1 1 2.2 0.01
```



Simulation results are following.
 Explanatory notes — : simulated

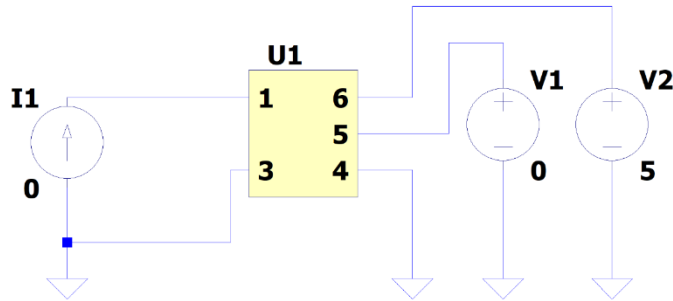
IF-VF-Temp



Iout-Vout-IF Testbench

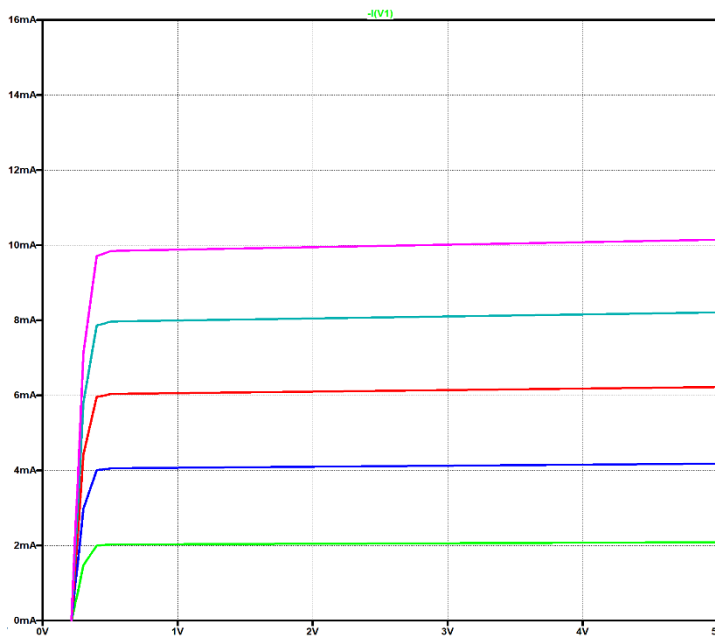
Referred to Data Sheet

```
.OPTION TNOM=25
.TEMP 25
.lib MDC_TLP2309_LT.lib
.dc V1 0 5 0.1 I1 list 5m 10m 15m 20m 25m
```



Simulation results are following.
 Explanatory notes — : simulated

Iout-Vout-IF



Iout-IF Testbench

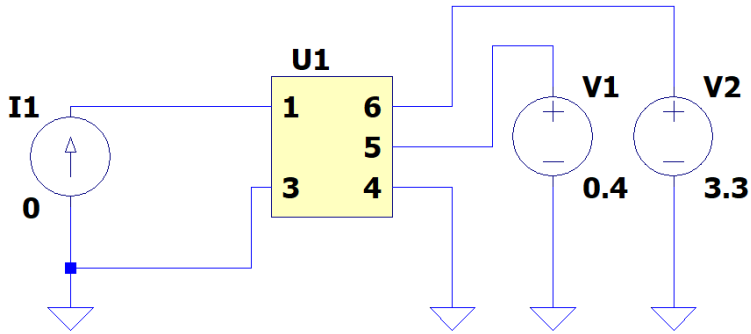
Referred to Data Sheet

.lib MDC_TLP2309_LT.lib

.OPTION TNOM=25 GMIN=1E-15

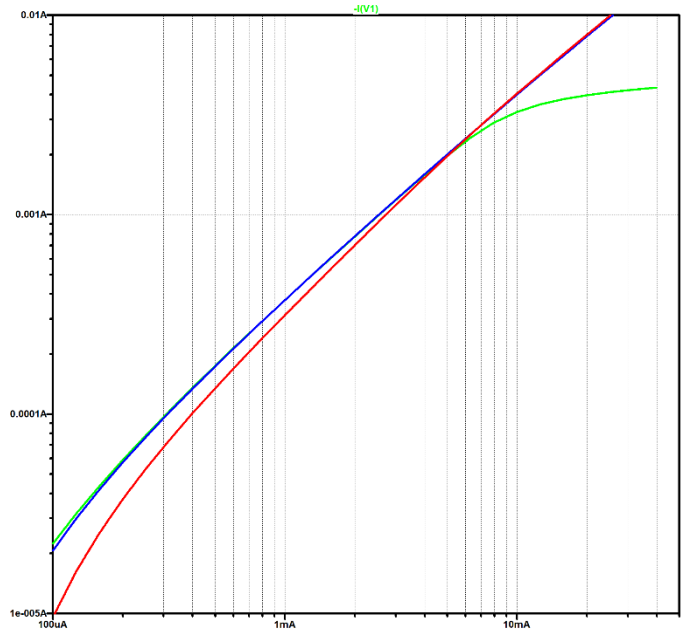
.TEMP -40 25 110

.dc dec I1 0.1m 50m 10

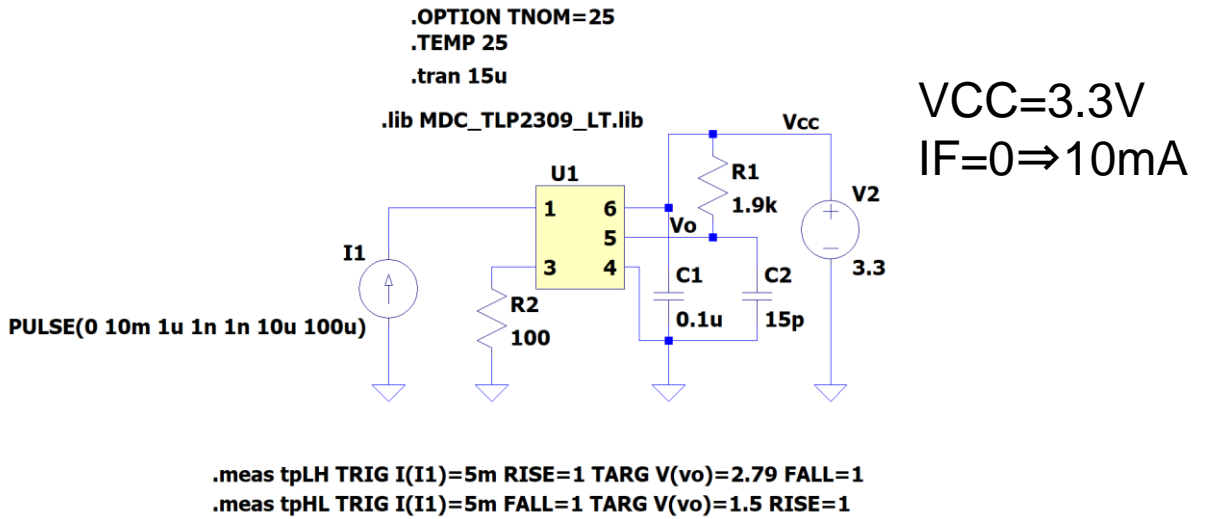


Simulation results are following.
 Explanatory notes — : simulated

Iout-IF



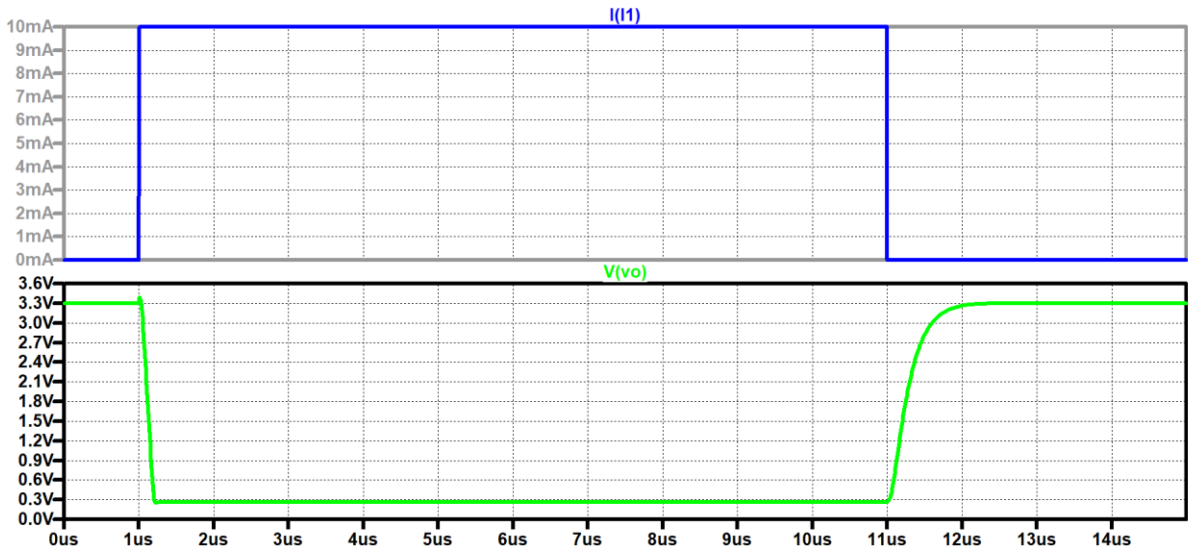
Switching (Typ.) Testbench
 Referred to Data Sheet



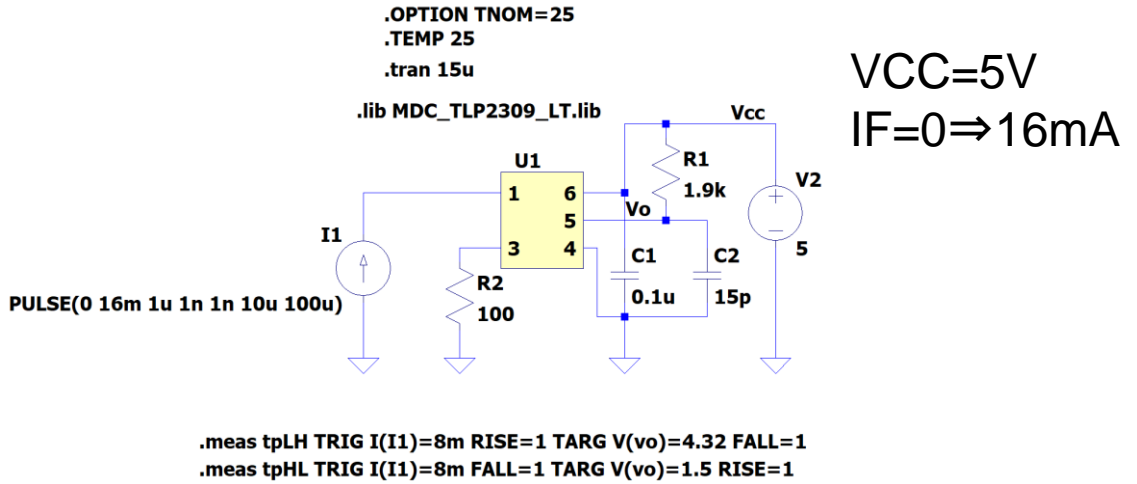
Simulation results are following.
 Explanatory notes — : simulated

Switching (Typ.)

TpHL:2.013e-7
 TpLH:6.145e-8



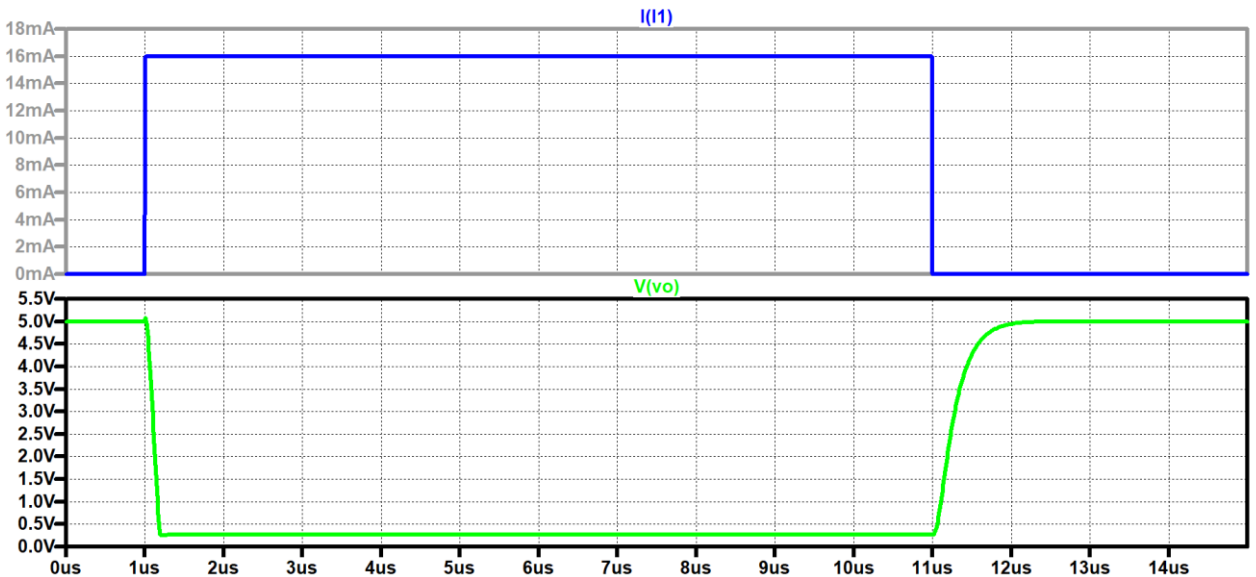
Switching (Typ.) Testbench
 Referred to Data Sheet



Simulation results are following.
 Explanatory notes — : simulated

Switching (Typ.)

TpHL:1.452e-7
 TpLH:5.063e-8



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