

LTspice Model

Current Sensor IC

Melexis

MLX91221KDF-ABR-050-RE

Model Information

Model A macro model
Call Name MDC_MLX91221KDF-ABR-050-RE_LT
Pin Assign 1:IP+1 2:IP+2 3:IP+3 4:IP+4 5:IP-1 6:IP-2 7:IP-3 8:IP-4 9:VSS 10:VREF 11:NC 12:VOUT
 13:OCDEXT 14:VDD 15:VOCEXT 16:OCDINT
File List Model Library MDC_MLX91221KDF-ABR-050-RE_LT01.lib
 Model Report MDC_MLX91221KDF-ABR-050-RE_LT.pdf (this file)
Verified Simulator Version LTspice XVII
Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version DOC. № 3901091221, REVISION 2.0 - MAY 4, 2022
- Product name MLX91221KDF-ABR-050-RE
- Company name Melexis

[Characteristics listed]

- Characteristics Normal operation
 Internal Overcurrent Detection
 External Overcurrent Detection
 Power on Delay
 Step Response Time

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

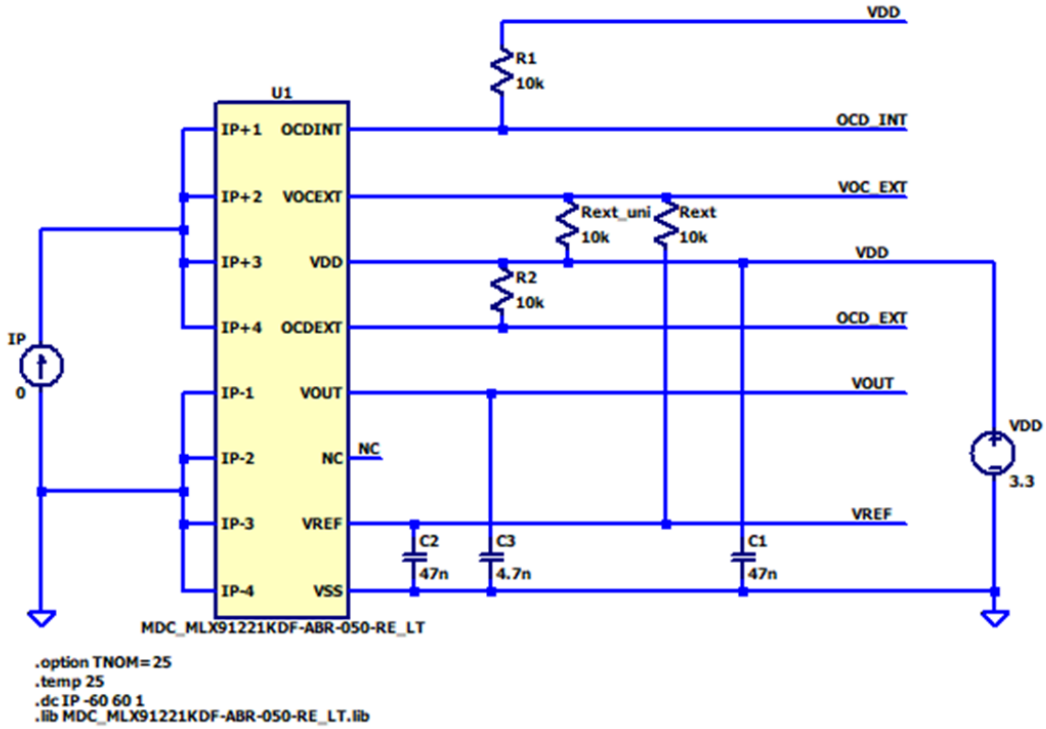
Current Sensor IC

○ : Implemented
 × : Not Implemented
 – : Not applicable

Model Functions Table

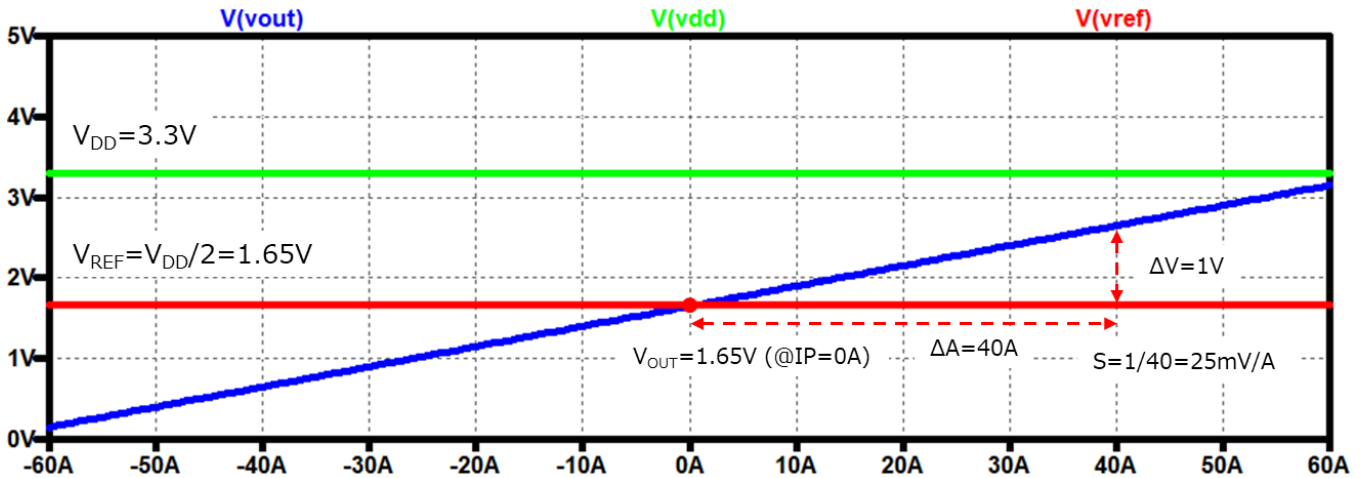
Functions	RANK=1	Implemented
Input Current-Output Voltage	1	○
Offset	1	○
UVLO	1	–
Clamp Output Voltage	1	–
Power on Delay	1	○
Step Response Time	1	○
Over Current Protection	1	○

Normal operation Testbench

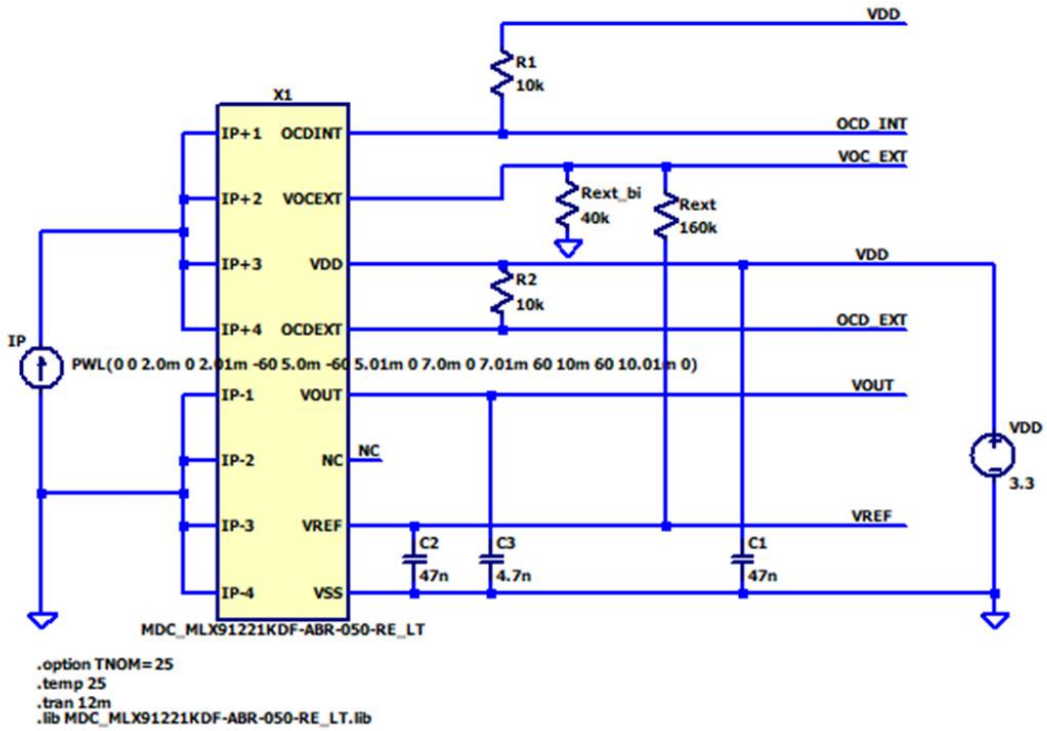


Simulation results are following.
 Explanatory notes — : simulated

Normal operation

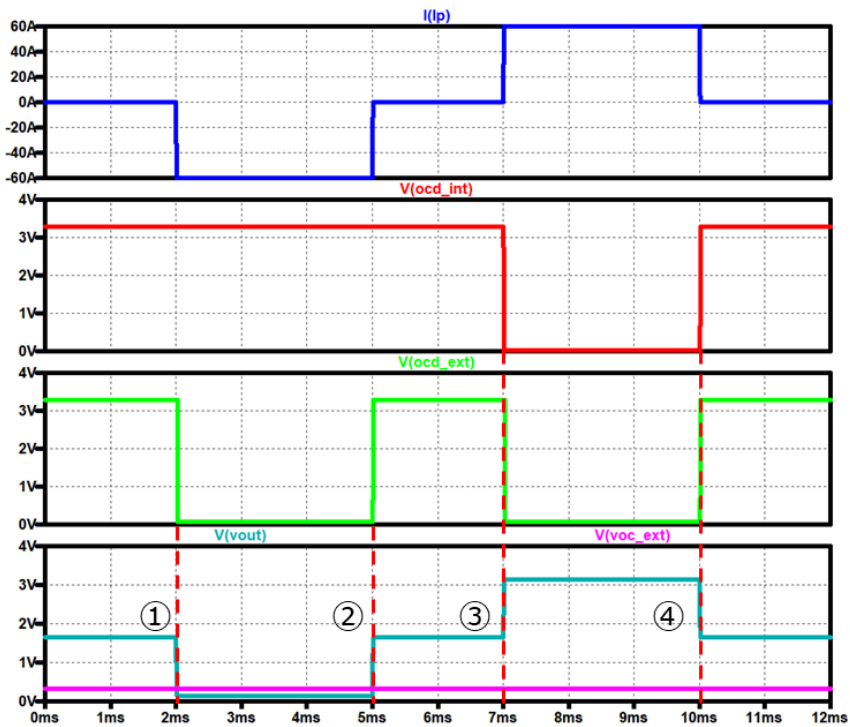


OCD_bi Testbench



Simulation results are following.
 Explanatory notes — : simulated

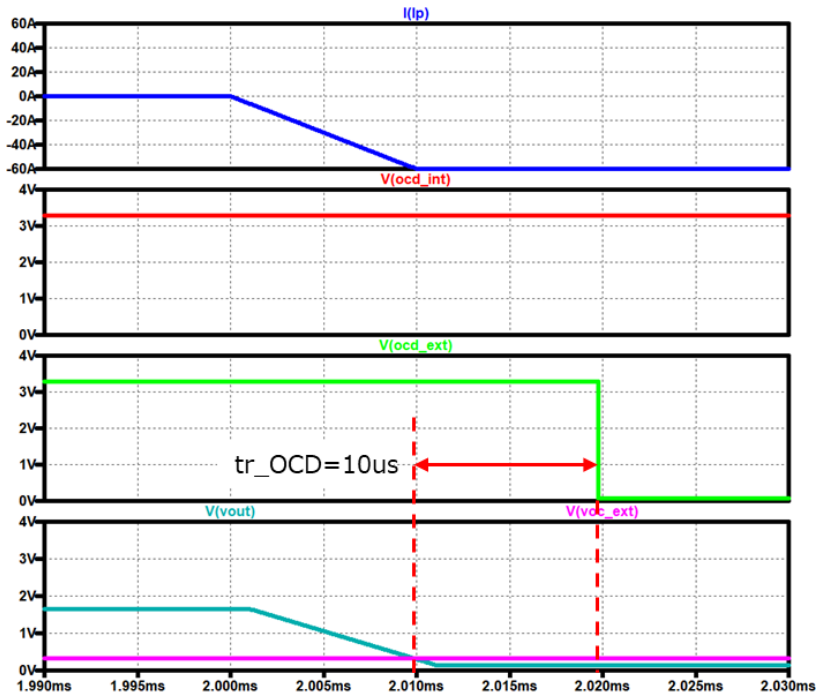
OCD_bi



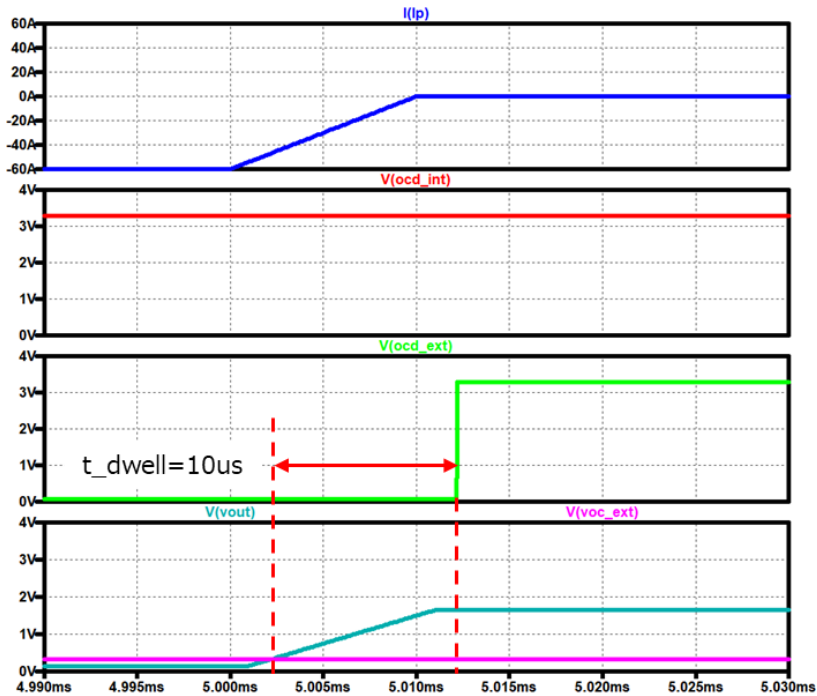
Simulation results are following.
 Explanatory notes — : simulated

OCD_bi

①



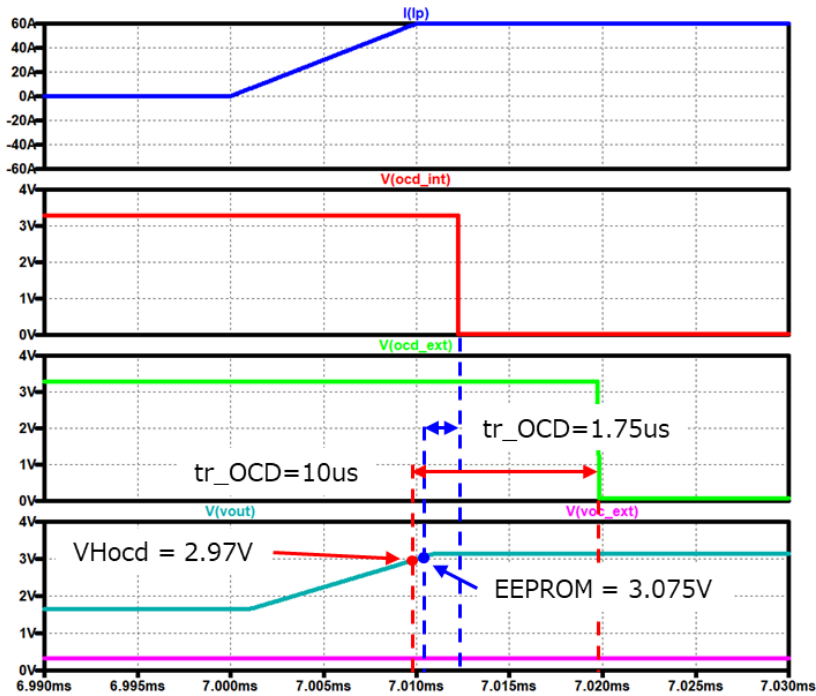
②



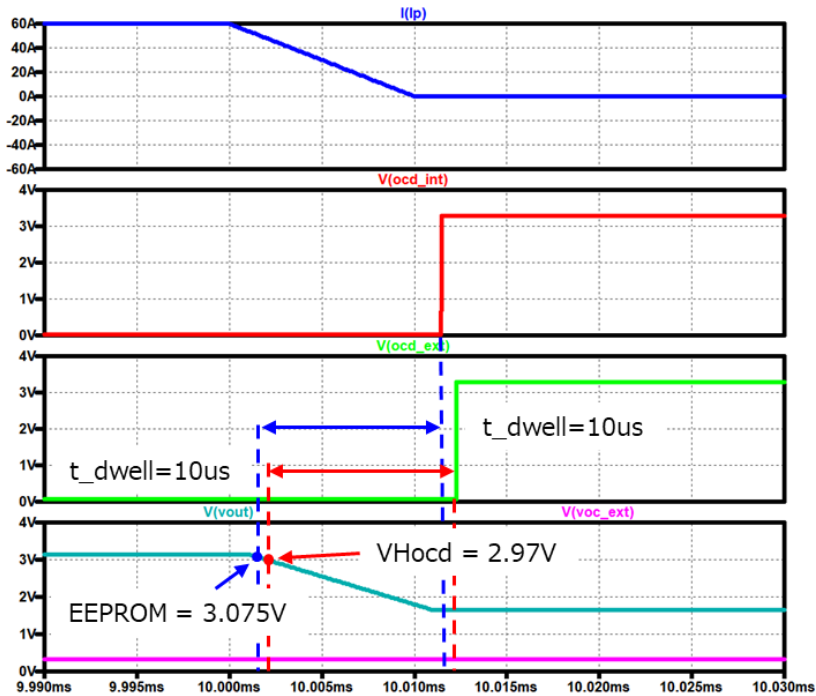
Simulation results are following.
 Explanatory notes — : simulated

OCD_bi

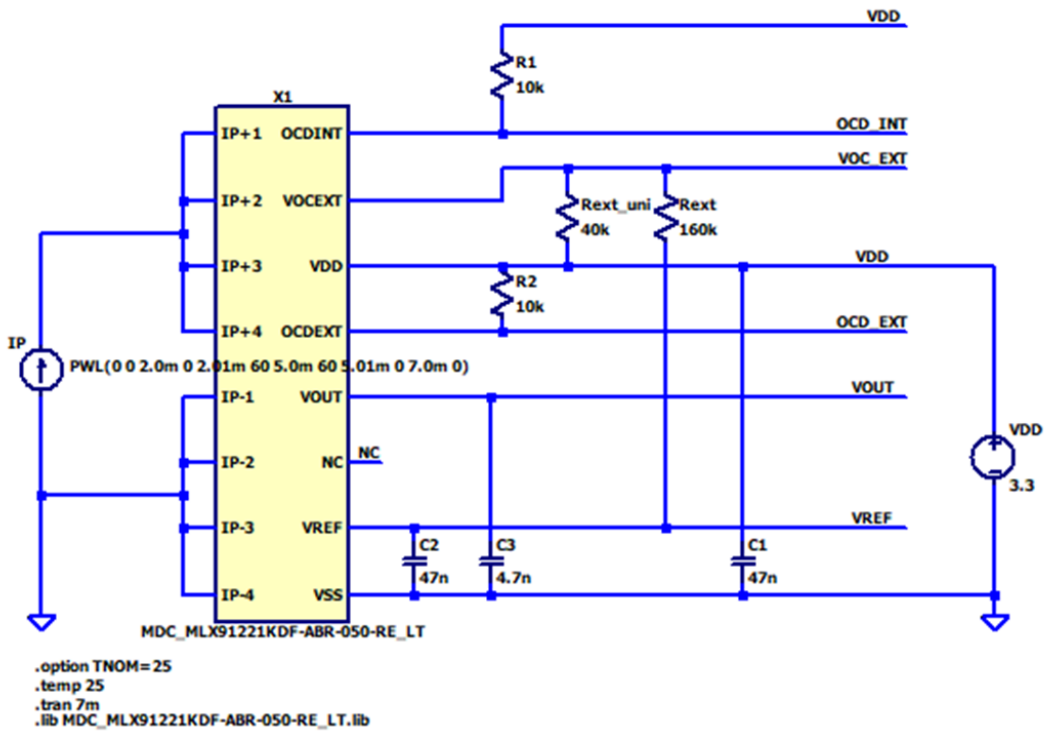
③



④

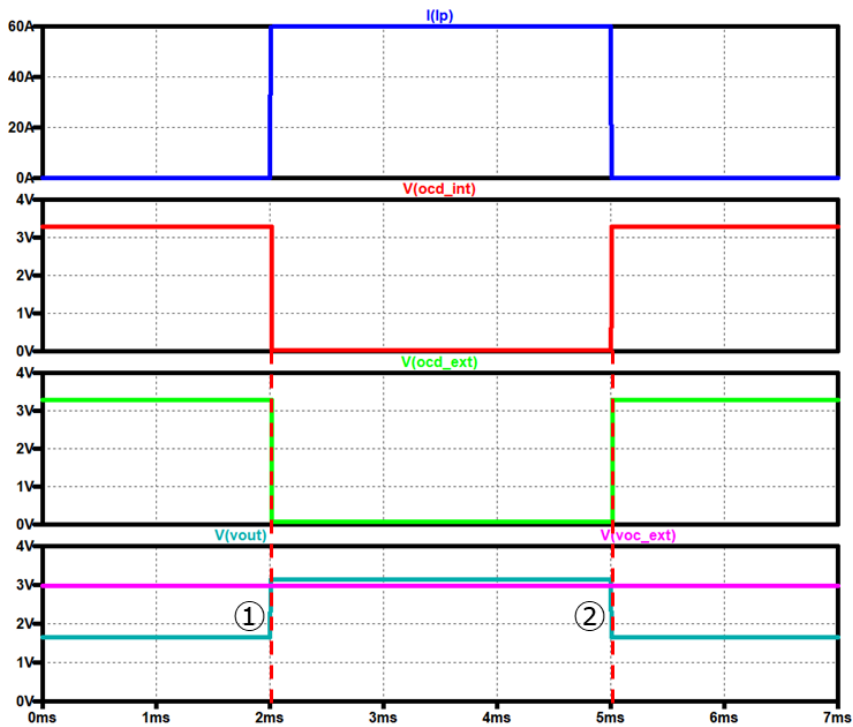


OCD_uni Testbench



Simulation results are following.
 Explanatory notes — : simulated

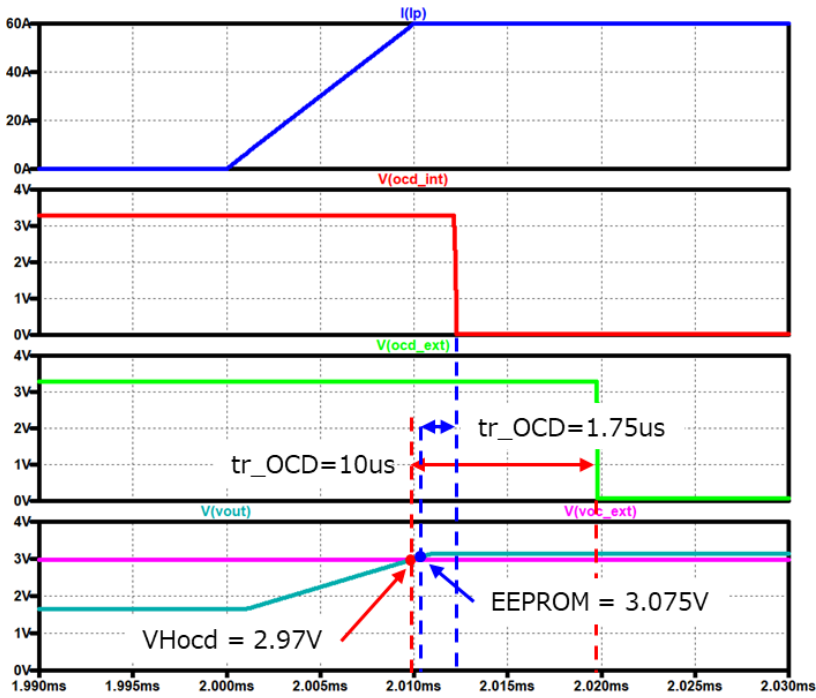
OCD_uni



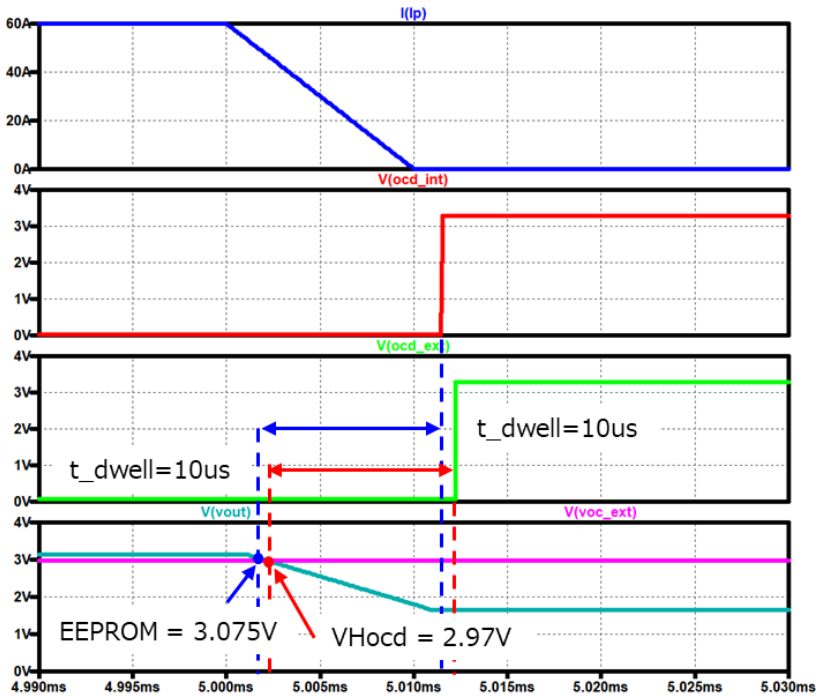
Simulation results are following.
 Explanatory notes — : simulated

OCD_uni

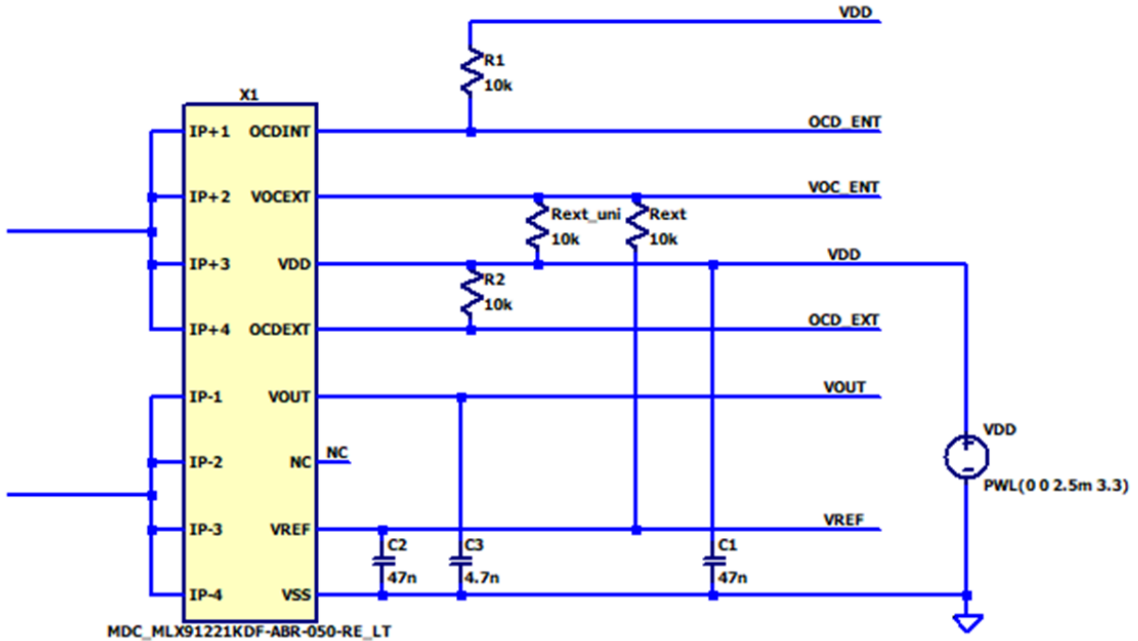
①



②



Power on Delay Testbench

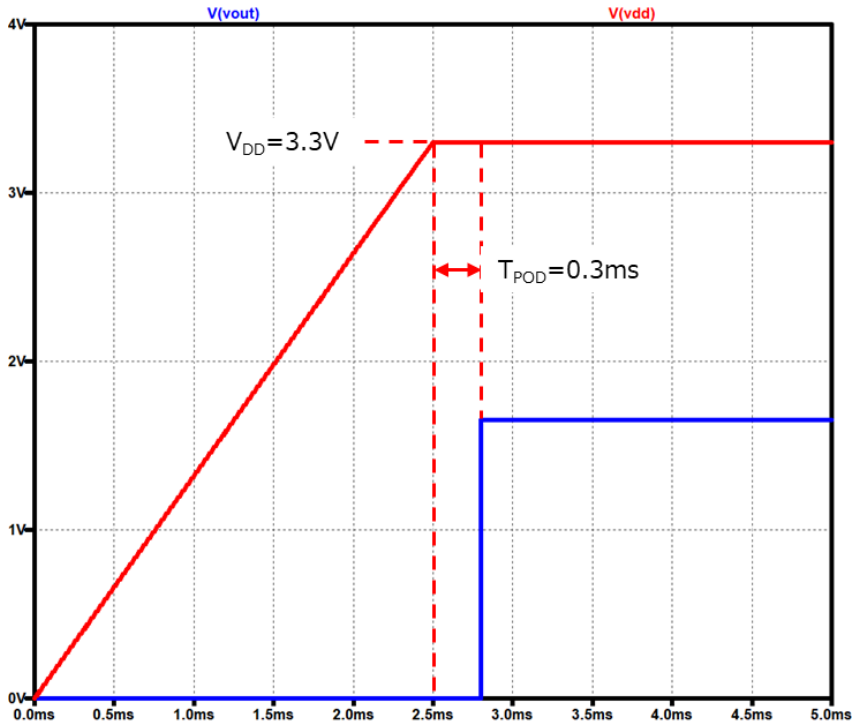


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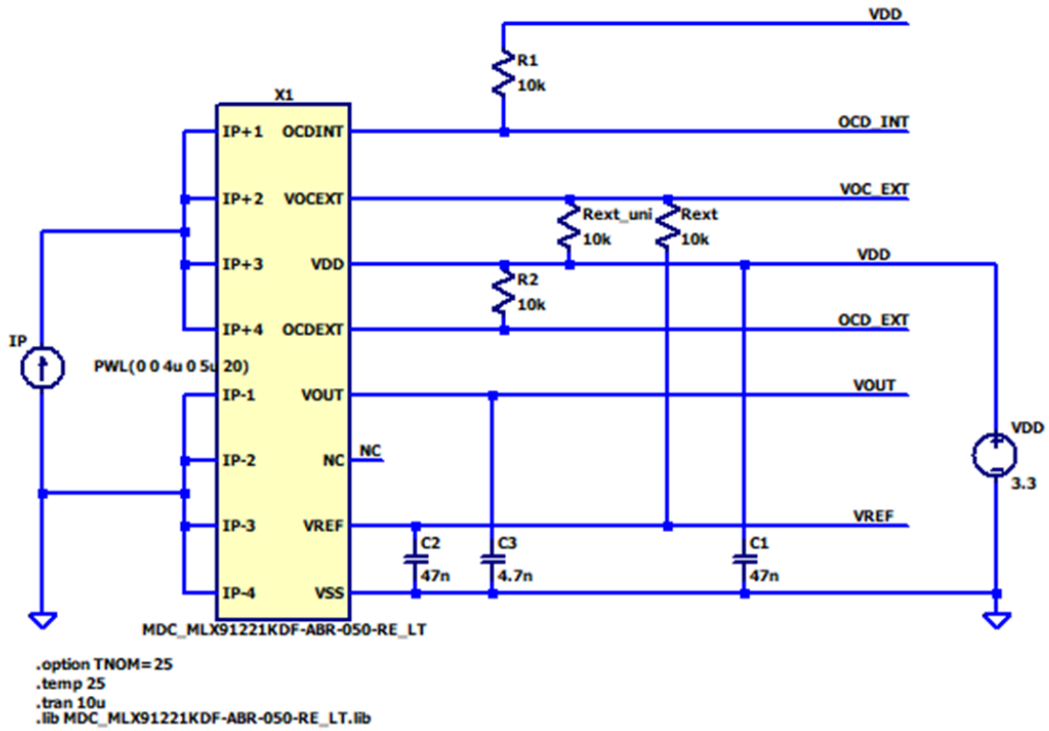
.option TNOM=25
.temp 25
.tran 5m
.lib MDC_MLX91221KDF-ABR-050-RE_LT.lib
    
```

Simulation results are following.
 Explanatory notes — : simulated

Power on Delay

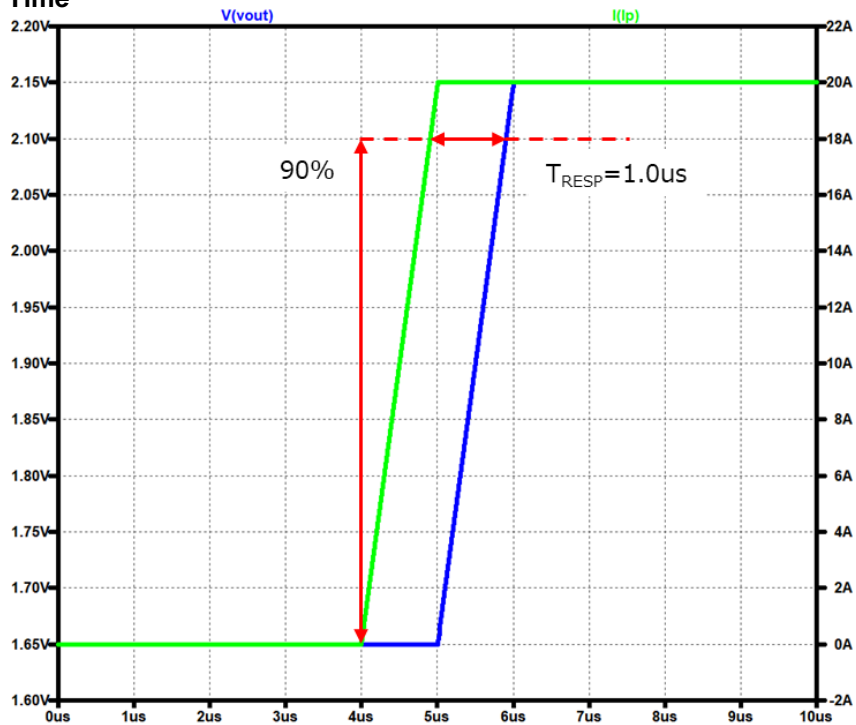


Step Response Time Testbench



Simulation results are following.
 Explanatory notes — : simulated

Step Response Time



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