

PSpice Model

LDO

RICOH

RP111N331D-TR-AE

Model Information

Model A macro model
Call Name MDC_RP111N331D_PS
Pin Assign 1:VDD 2:GND 3:CE 4:VFB 5:OUT
File List Model Library MDC_RP111N331D_PS.lib
Model Report MDC_RP111N331D_PS.pdf

Verified Simulator Version

Note

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version 29 September 2016
- Product name RP111N331D-TR-AE
- Company name RICOH

[Characteristics listed]

- Characteristics VIN-VOUT, Vdrop, Ilimit, Line-Reg, Load-Reg, CE Rise, CE Fall,

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

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○ : Implemented
× : Not Implemented
— : Not applicable

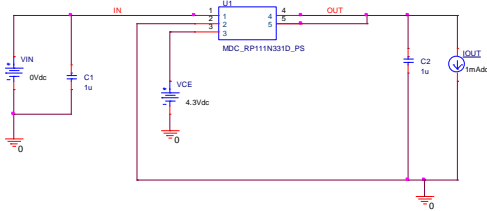
Model Functions Table
RANK=1

Functions	RANK	Implemented
Input/Output Voltage	1	○
Dropout Voltage	1	○
Line Regulation	1	○
Load Regulation	1	○
Line Transient	2	—
Load Transient	2	—
Ripple Rejection	3	—
Enable	1	○
UVLO	1	○
Current Limit	1	○
Auto Discharge	1	—

Simulation results are following.
Explanatory notes : -

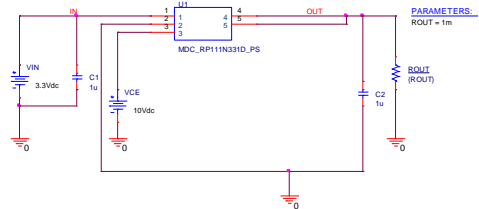
VIN-VOUT Testbench

Symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Vout	Vset≥1.8V, Vin=Vset+1.0V, Iout=1mA, Cin=Cout=1.0μF, Ta=25°C	×0.992	-	× 1.008	V
	Vset<1.8V, Vin=Vset+1.0V, Iout=1mA, Cin=Cout=1.0μF, Ta=25°C	-18	-	18	mV

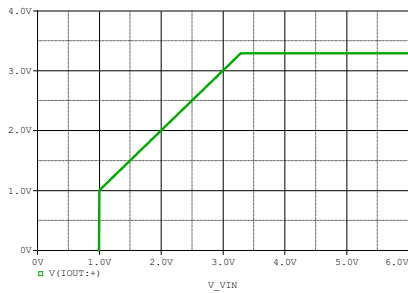


Vdrop Testbench

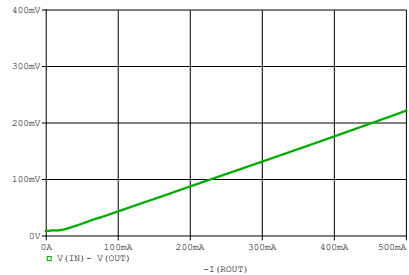
Symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Vdif	3.0V≤Vset≤ 3.6V, Iout=500mA, -40°C≤Ta≤105°C	-	0.22	0.32	V



VIN-VOUT Data Sheet

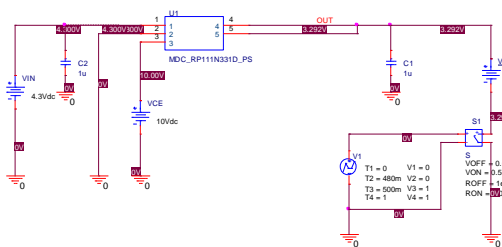


Vdrop Data sheet



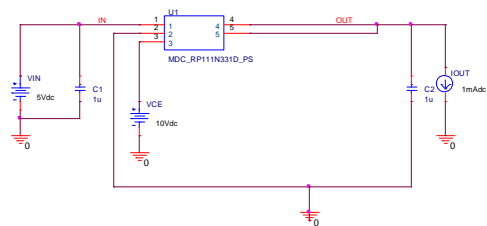
Ilimit(VOUT-IOUT) Testbench

Symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Iout	-40°C≤Ta≤105°C	500	-	-	mA

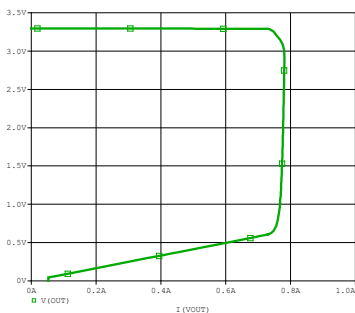


Line-Reg Testbench

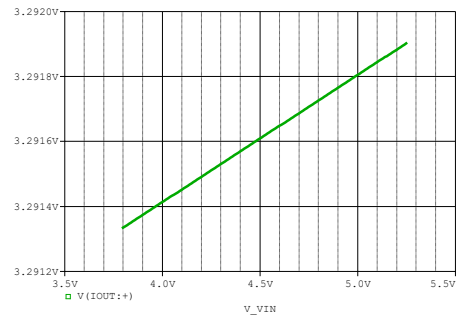
symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
ΔVout/ΔVin	-40°C≤Ta≤105°C Vset+0.5V≤Vin≤5.25V, Vin≥1.4V	-	0.02	0.10	%/V



Ilimit(VOUT-IOUT) Data Sheet



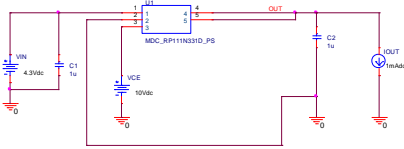
Line-Reg Data Sheet



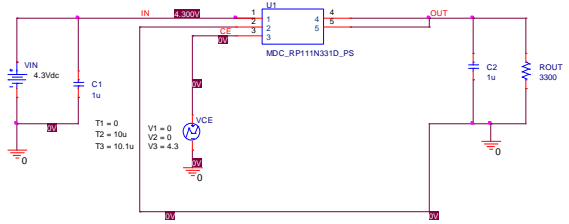
Simulation results are following.
Explanatory notes :

Load-Reg Testbench

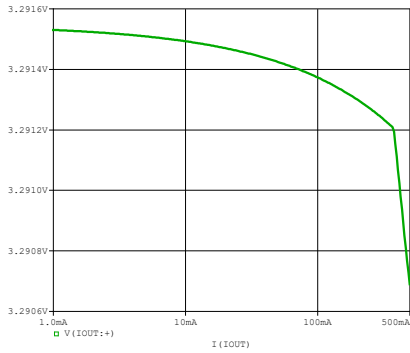
symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$\Delta V_{out}/\Delta V_{in}$	$-40^{\circ}\text{C} \leq T_a \leq 105^{\circ}\text{C}$ $1\text{mA} \leq I_{out} \leq 500\text{mA}$		1	20	mV



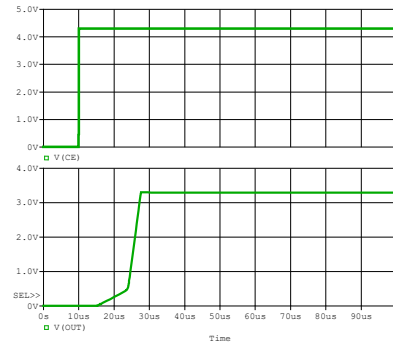
CE Rise Testbench



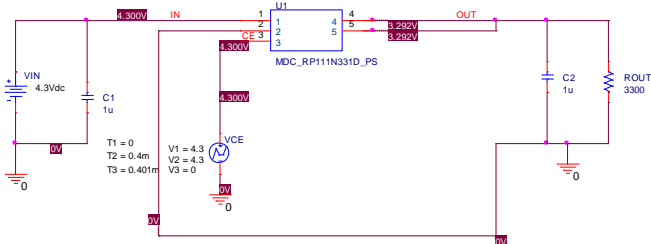
Load-Reg Data Sheet



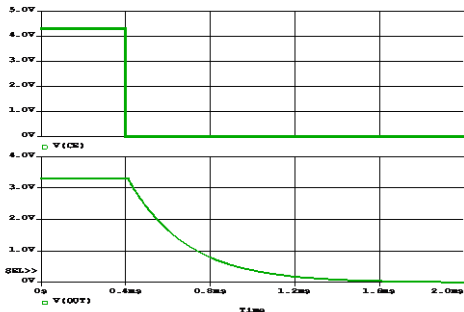
CE Rise Data Sheet



CE Fall Testbench



CE Fall Data Sheet



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