PSpice Model
LDO
Nisshinbo Micro Devices Inc.
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	NO.EA-241-190523
●Product name	RP111N331D-TR-AE
●Company name	Nisshinbo Micro Devices Inc.

[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

LDO

○ : Implemented
× : Not Implemented
— : Not applicable

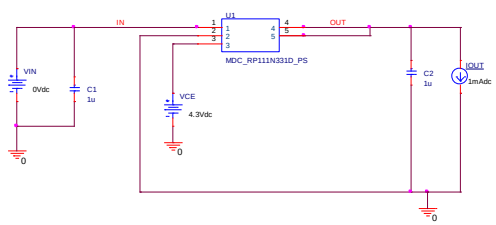
Model Functions Table

	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：-

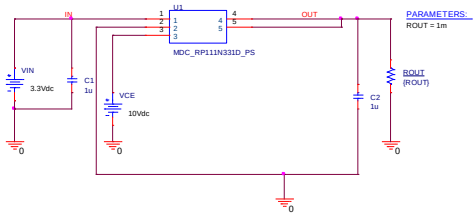
VIN-VOUT Testbench

Symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Vout	Vset≥1.8V, Vin=Vset+1.0V, Iout=1mA, Cin=Cout=1.0μF, Ta=25℃	×0..992	-	× 1.008	V
	Vset<1.8V, Vin=Vset+1.0V, Iout=1mA, Cin=Cout=1.0μF, Ta=25℃	-18	-	18	mV

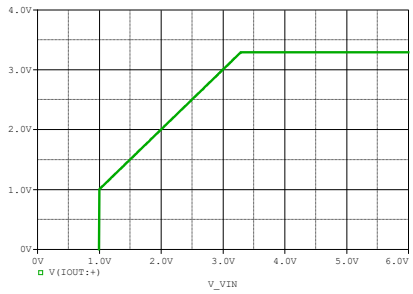


Vdrop Testbench

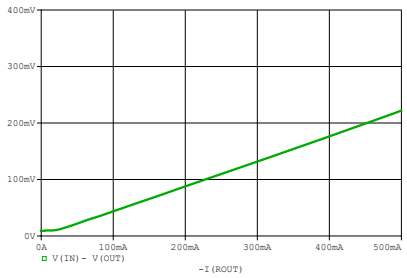
Symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Vdif	3.0V≤Vset≤ 3.6V, Iout=500mA, -40℃≤Ta≤105℃	-	0.22	0.32	V



VIN-VOUT Data Sheet

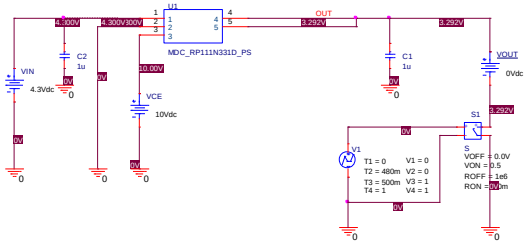


Vdrop Data sheet



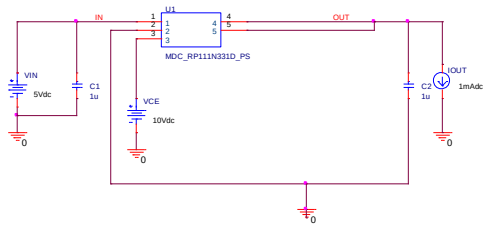
Ilimit(VOUT-IOUT) Testbench

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

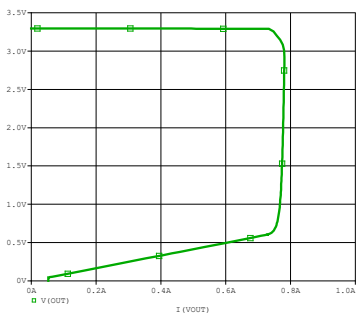


Line-Reg Testbench

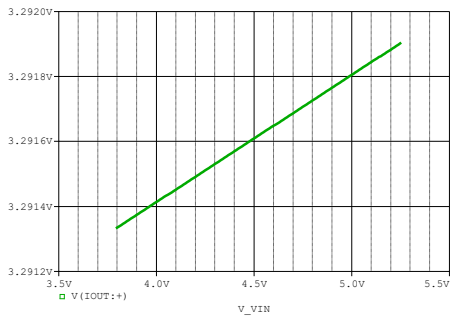
symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
ΔVout/ΔVin	-40℃≤Ta≤105℃ Vset+0.5V≤Vin≤5.25V,Vin≥1.4V	-	0.02	0.10	%/V



Ilimit(VOUT-IOUT) Data Sheet



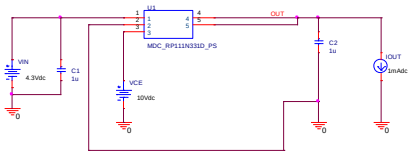
Line-Reg Data Sheet



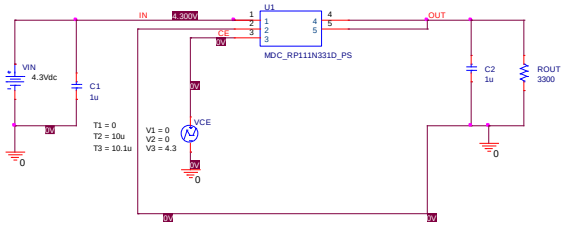
Simulation results are following.
Explanatory notes：

Load-Reg Testbench

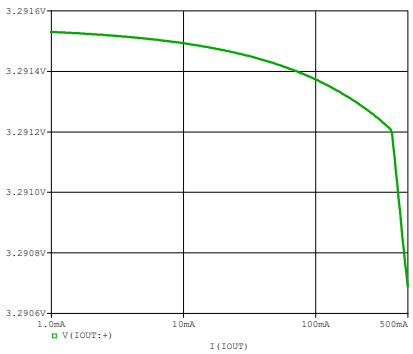
symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
ΔVout/ΔVin	-40℃≤Ta≤105℃ 1mA≤Iout≤500mA		1	20	mV



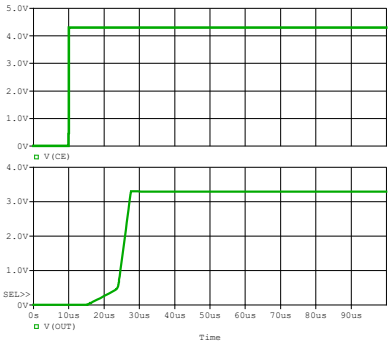
CE Rise Testbench



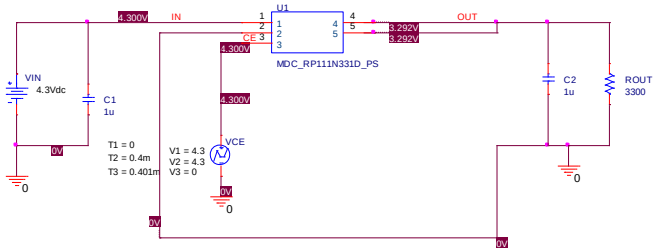
Load-Reg Data Sheet



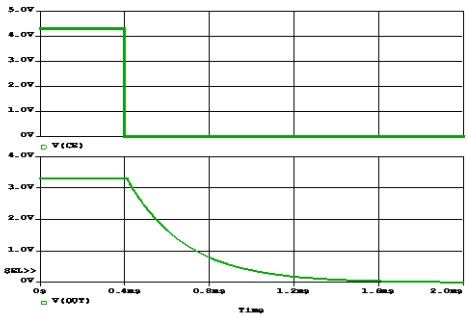
CE Rise Data Sheet



CE Fall Testbench



CE Fall Data Sheet



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