

PSpice Model

LDO

RICOH

RP111N001D

Model Information

Model A macro model
Call Name MDC_RP111N001D_PS
Pin Assign 1:VDD 2:GND 3:CE 4:VFB 5:OUT
File List Model Library MDC_RP111N001D_PS.lib
Model Report MDC_RP111N001D_PS.pdf

Verified Simulator Version

Note
TR AE

References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version 29 September 2016
- Product name RP111N331D
- 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

LDO

○ : Implemented
 × : Not Implemented
 — : Not applicable

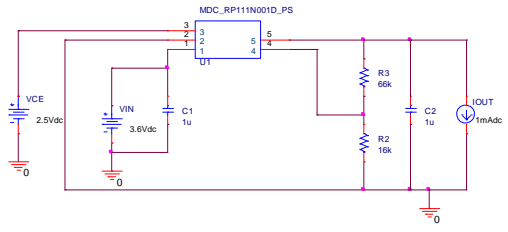
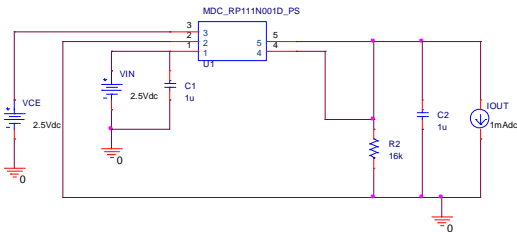
Model Functions Table
RANK=2

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	—

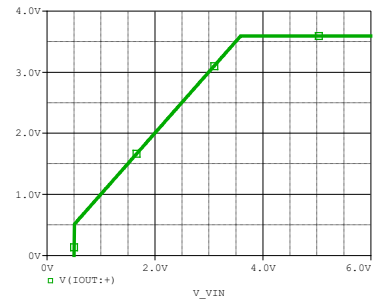
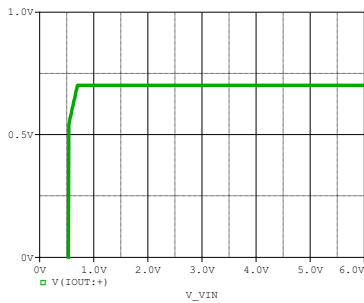
Simulation results are following.
 Explanatory notes — : simulated

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

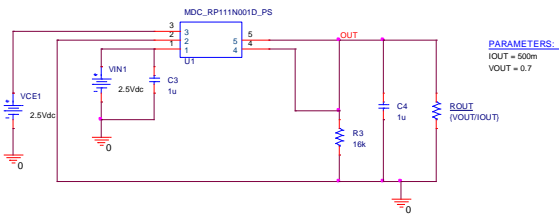


VIN-VOUT Data Sheet



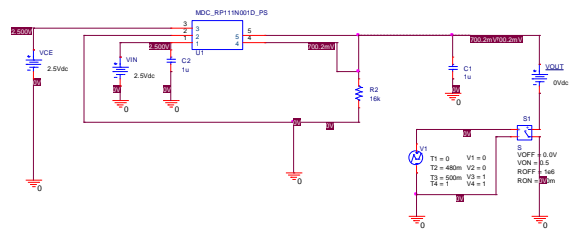
Vdrop Testbench

Symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Vdf	Vout=Vfb, Iout=500mA	-	-	0.88	V

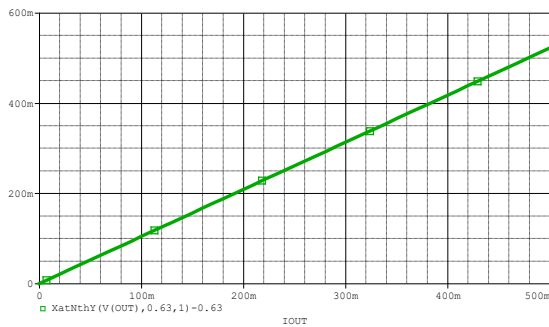


Ilimit(VOUT-IOUT) Testbench

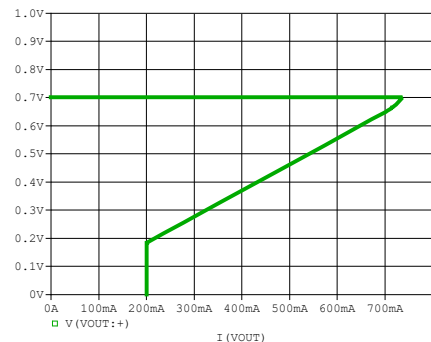
Symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Iout	-40°C ≤ Ta ≤ 105°C	500	-	-	mA



Vdrop Data sheet



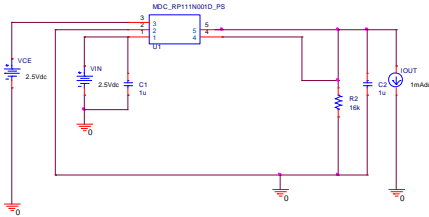
Ilimit(VOUT-IOUT) Data Sheet



Simulation results are following.
 Explanatory notes — : simulated

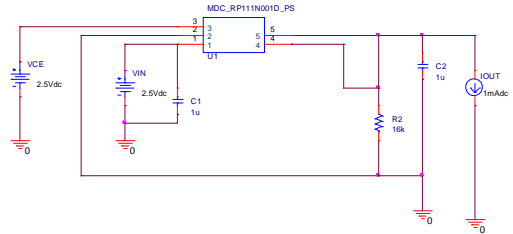
Line-Reg Testbench

symbol	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$\Delta V_{out}/\Delta V_{in}$	$-40^{\circ}\text{C} \leq T_a \leq 105^{\circ}\text{C}$ $V_{set} + 0.5\text{V} \leq V_{in} \leq 5.25\text{V}, V_{in} \geq 1.4\text{V}$	-	0.02	0.10	%/V



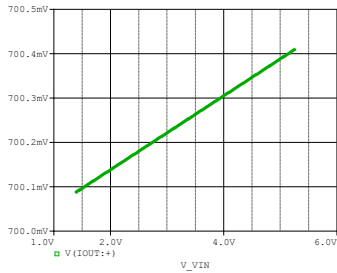
Load-Reg Testbench

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



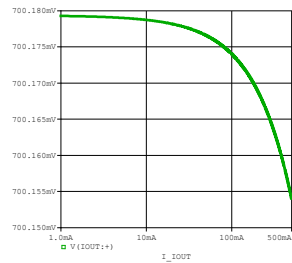
Line-Reg Data Sheet

Trace Name	Y1	Y2	Y1 - Y2
X Values	5.2400	1.4000	3.8400
V(OUT:+) [mV]	700.408m	700.088m	320.000u

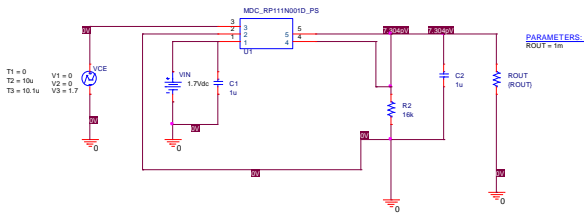


Load-Reg Data Sheet

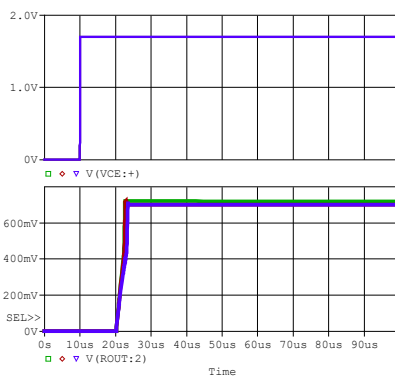
Trace Name	Y1	Y2	Y1 - Y2
X Values	1.0000m	499.900m	-498.900m
V(OUT:+) [mV]	700.179m	700.154m	25.244u



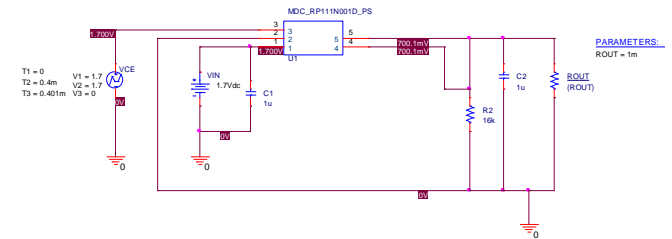
CE Rise Testbench



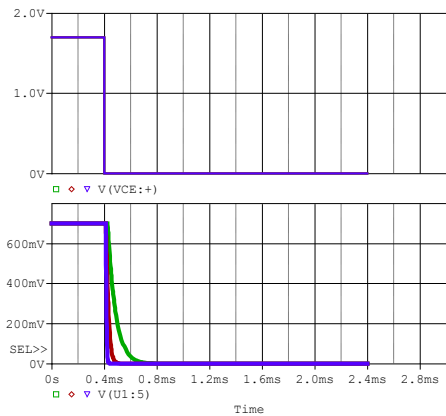
CE Rise Data Sheet



CE Fall Testbench



CE Fall Data Sheet



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