LTspice Model
Charge Pump
New Japan Radio
NJW4190R

Model Information

Model	A macro model
Call Name	MDC_NJW4190R_LT
Pin Assign	1:FB 2:C+ 3:V+ 4:C- 5:GND 6:CLK 7:ONOFF 8:VOUT
File List	Model Library MDC_NJW4190R_LT.lib
	Model Report MDC_NJW4190R_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   Ver.2013-02-12
- ●Product name   NJW4190
- ●Company name   New Japan Radio Co.,Ltd.

[Characteristics listed]
- ●Characteristics   Boot
  VOUT-IOUT
  Ripple

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

Model Functions Table

| Functions	Implemented
Doubler Output (34V max.)	○
Wide Operating Voltage Range (5V to 17V)	○
VOUT Programmable	○
ON/OFF Function	○
Built-in Oscillation Circuit (300kHz typ.)	○
External Synchronization Function divide-by-4 counter	○

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Boost Testbench

Referred to Data Sheet

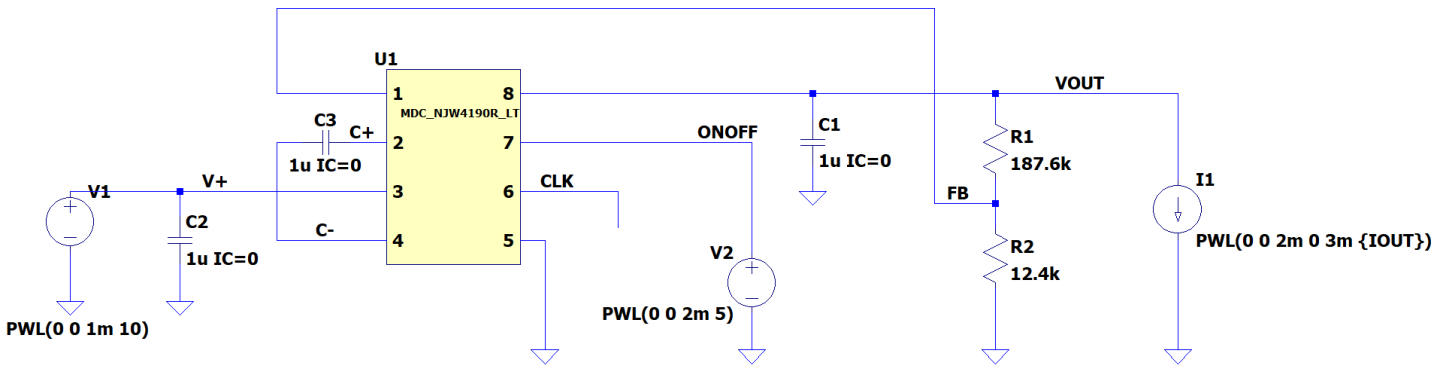**.OPTION TNOM=25**
.TEMP 25

.tran 0 5.0m 0 10u

Simulation results are following.
Explanatory notes　　— : simulated

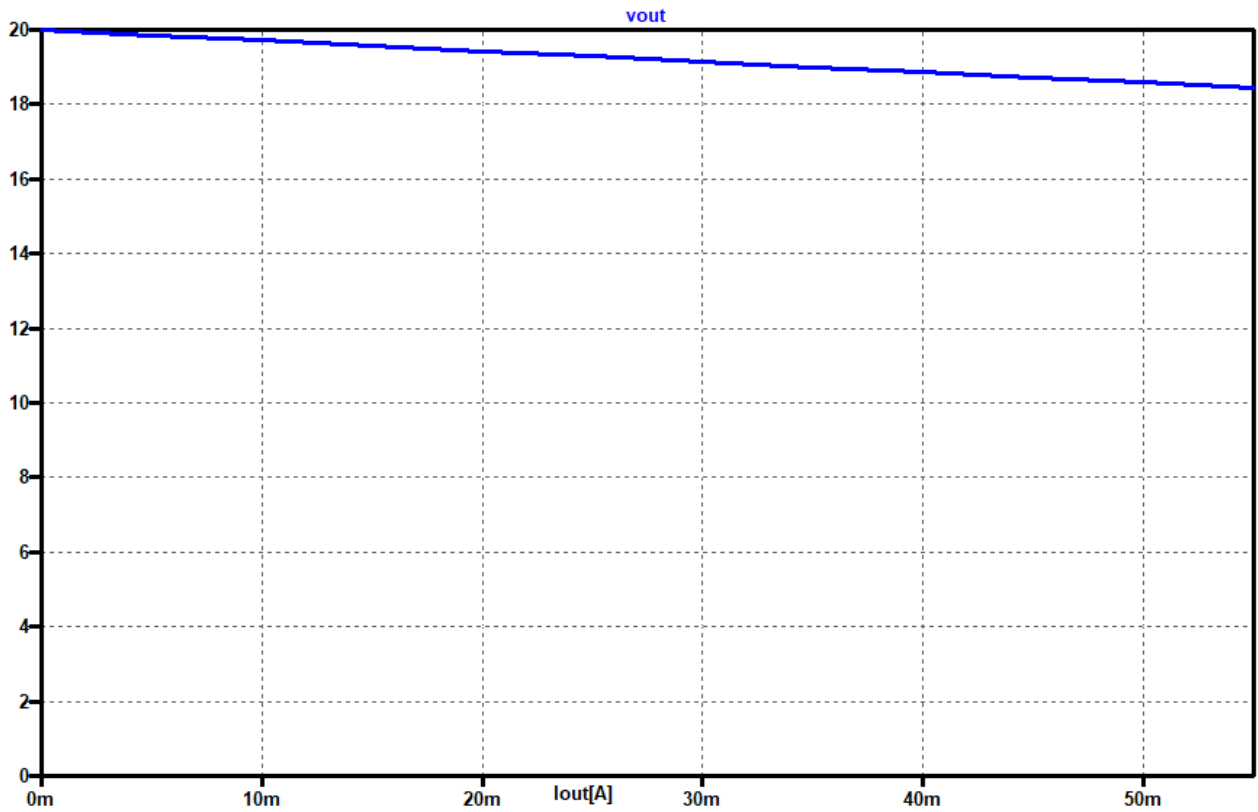**Boost**
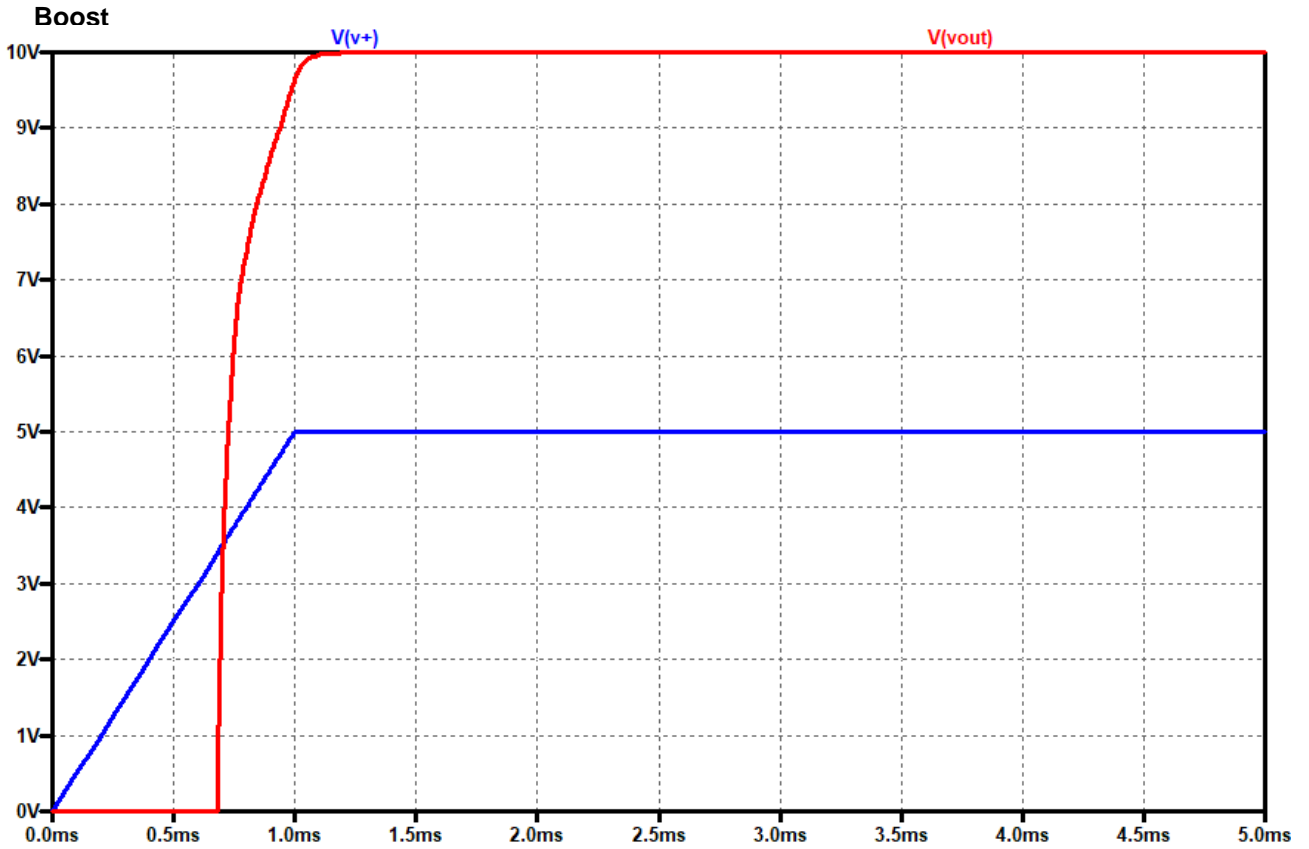
VOUT-IOUT Testbench

Referred to Data Sheet

.OPTION TNOM=25
.TEMP 25
.tran 0 10m 0 10u

.meas Vout FIND V(Vout) WHEN time=9m
.step param IOUT 0 55m 5m

U1

1	MDC_NJW4190R_LT	8
2	C+	7
3		6
4	C-	5

C3
1u IC=0

C2
1u IC=0

V1
PWL(0 0 1m 10)

V+

ONOFF

CLK

C1
1u IC=0

V2
PWL(0 0 2m 5)

VOUT

R1
187.6k

FB

R2
12.4k

I1
PWL(0 0 2m 0 3m {IOUT})

Simulation results are following.
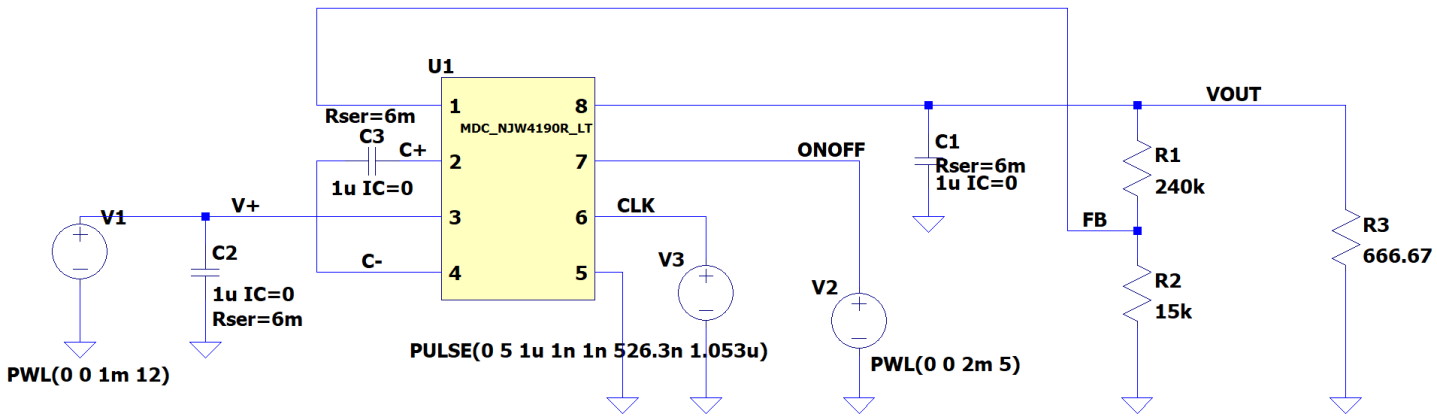Explanatory notes　　－ : simulated

VOUT-IOUT
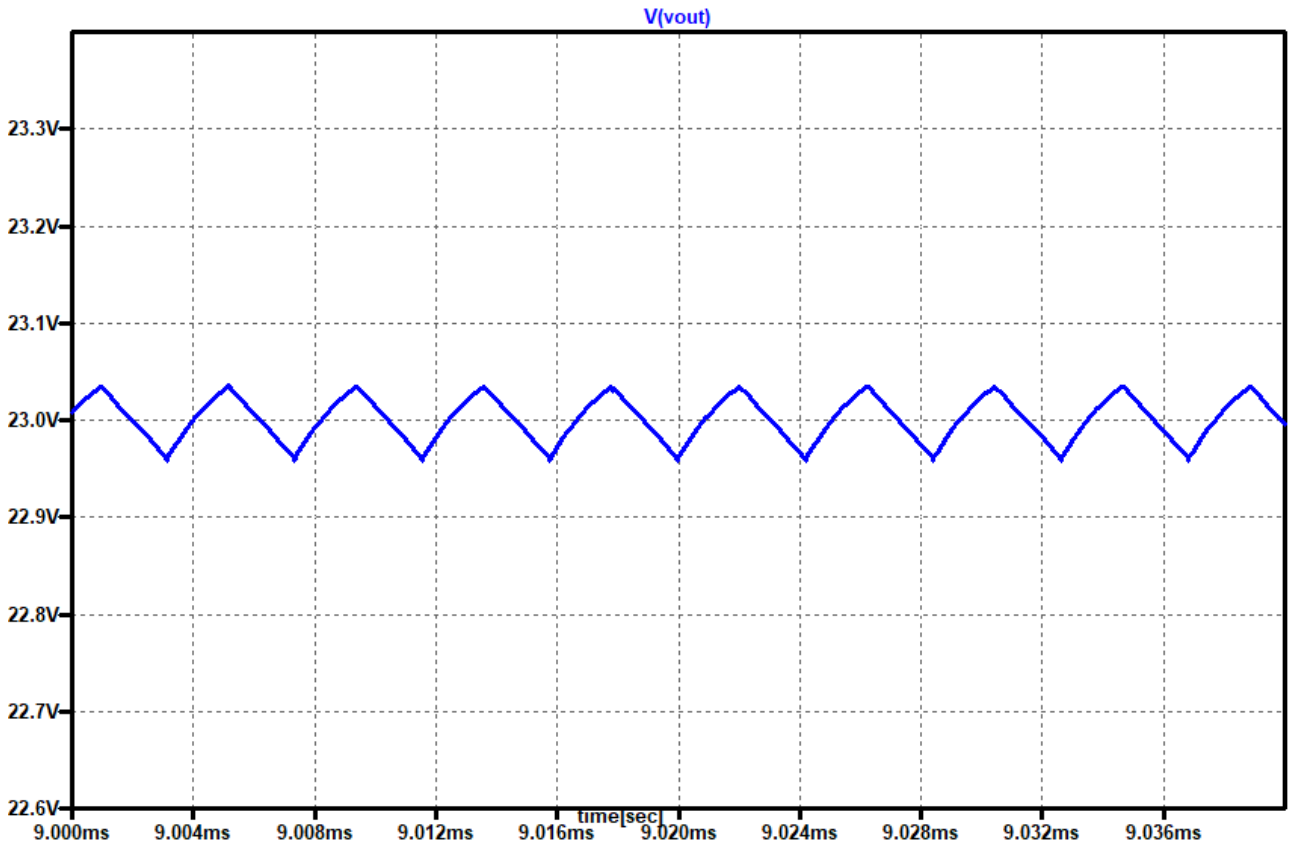
Ripple Testbench

Referred to Data Sheet

.OPTION TNOM=25
.TEMP 25

.tran 0 10m 0 10u

Simulation results are following.
Explanatory notes　　─ : simulated

Ripple

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MoDeCH

Modeling Design Technology

MoDeCH Inc.

Head Office
Location: 5-15 Yokoyama-cho, Hachioji-Shi, Tokyo 192-0081, Japan
Tel:+81-42-656-3360
E-Mail:model-on-support@modech.co.jp
URL:http://www.modech.com/en/

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