LM5007 Buck Application Circuit Example

LM5007

SW

C11
0.01u

U1

BST

1	SW	FB	5	FB
2	BST	RON	6	RON
3	RCL	VCC	7	VCC
4	RTN	VIN	8	

RCL

LM5007

R23
500k

0

0

VIN

R1
100k

C2
0.1u

0

V1 = 0
V2 = 50
TD = 0
TR = 100u
TF = 100u
PW = 5m
PER =

V1

VIN

0

Output Stage

L1

SW

VOUT

100uH

D7
Dbreak

R27
1k

R15
1

R14
10

FB

R26
1k
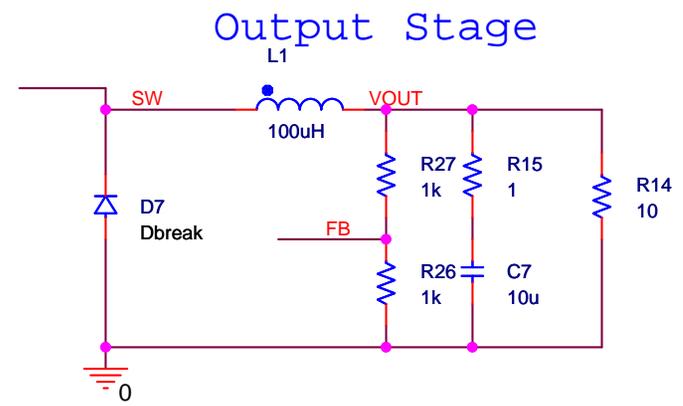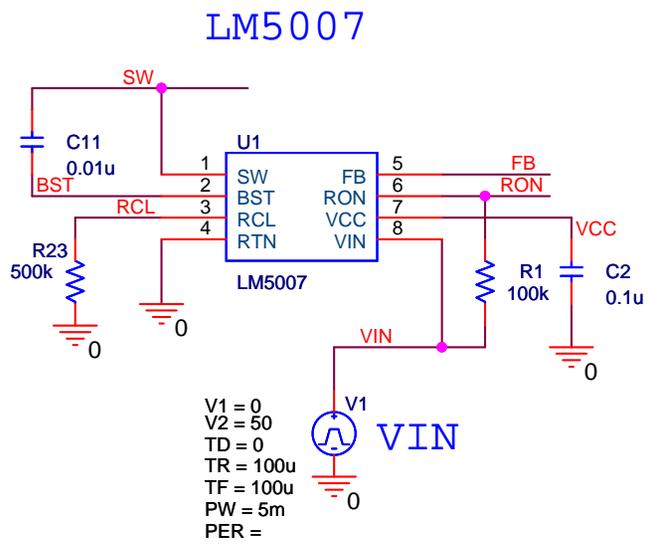
C7
10u

0

Title
LM5007 PSpice Simulation Example

Size
A

Document Number
Model by Vijay Choudhary, National Semiconductor, Santa Clara, CA

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A

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LM5007 Constant-On-Time Switching Regulator

National Semiconductor

<Introduction >
This document contains the PSPICE models and the simulation circuit example for National Semiconductor's
LM5007 Constant-On-Time switching regulator.

<LM5007 Model>
The LM5007 model contains all of the basic features including:
- Startup VCC Regulator
- Constant-On-Time Control
- Nearly Constant Switching Frequency Programmable with RON
- VCC UVLO
- Internal 2.5V Reference
- Intelligent Current Limit and OFF Timer
- External Shutdown Control

<Assumptions and limitations>
Model & Example Assumptions:
- Thermal Shutdown is not Modeled
- Temeperature or Process Dependence of IC Parameters are not Modeled. Typical Datasheet Values are Used.
- Internal IC Losses not Modeled

<Note>
- To run the simulation, a simulation profile should be added first.
- Click 'New Simulation Profile' and set the simulation time to 1 ms.
- The simulation takes less than 20 second per 1 ms simulation
on a 2.4 GHz machine.

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