

# LTspice Model

## PWM Controller

### Texas Instruments Incorporated

## TL594INSR

### Model Information

**Model** A macro model  
**Call Name** MDC\_TL594INSR\_LT  
**Pin Assign** 1:INP1 2:INM1 3:FEEDBACK 4:DTC 5:CT 6:RT 7:GND 8:C1  
 9:E1 10:E2 11:C2 12:VCC 13:OUTPUT\_CTRL 14:REF 15:INM2 16:INP2  
**File List** Model Library MDC\_TL594INSR\_LT.lib  
 Model Report MDC\_TL594INSR\_LTpdf(this file)  
**Verified Simulator Version** LTspice XVII  
**Note**

### References

The information which was used for modeling is as follow:

- [Data Sheet]
- Date/Version SEPTEMBER 2016
  - Product name TL594INSR
  - Company name Texas Instruments Incorporated

- [Characteristics listed]
- Characteristics

Operational Test Circuit  
 32-V to 5-V, 10-A Power Supply Application

### Simulation Condition

This table shows the range of evaluated simulation range that was not occurs any convergence problems in this area.

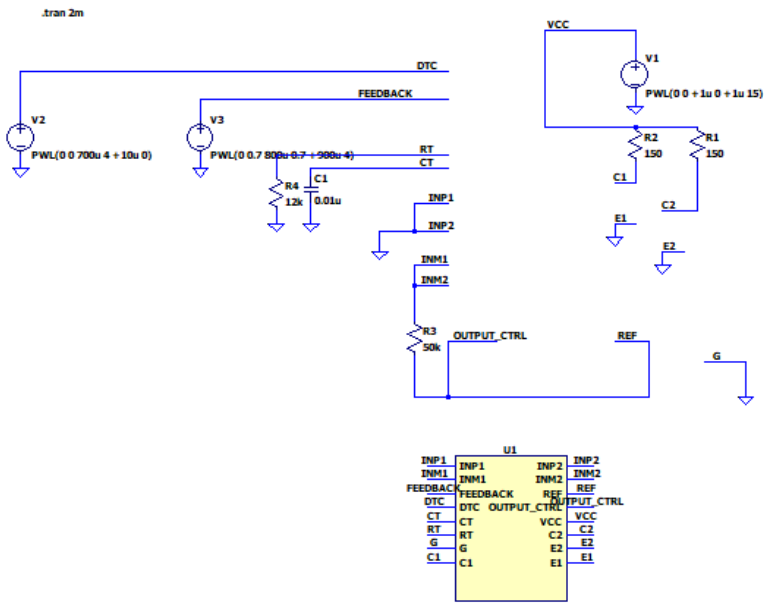
Item	Condition	Unit
Temperature	25	deg C

○ : Implemented  
× : Not Implemented  
— : Not applicable

**Model Functions Table**
**RANK=1**

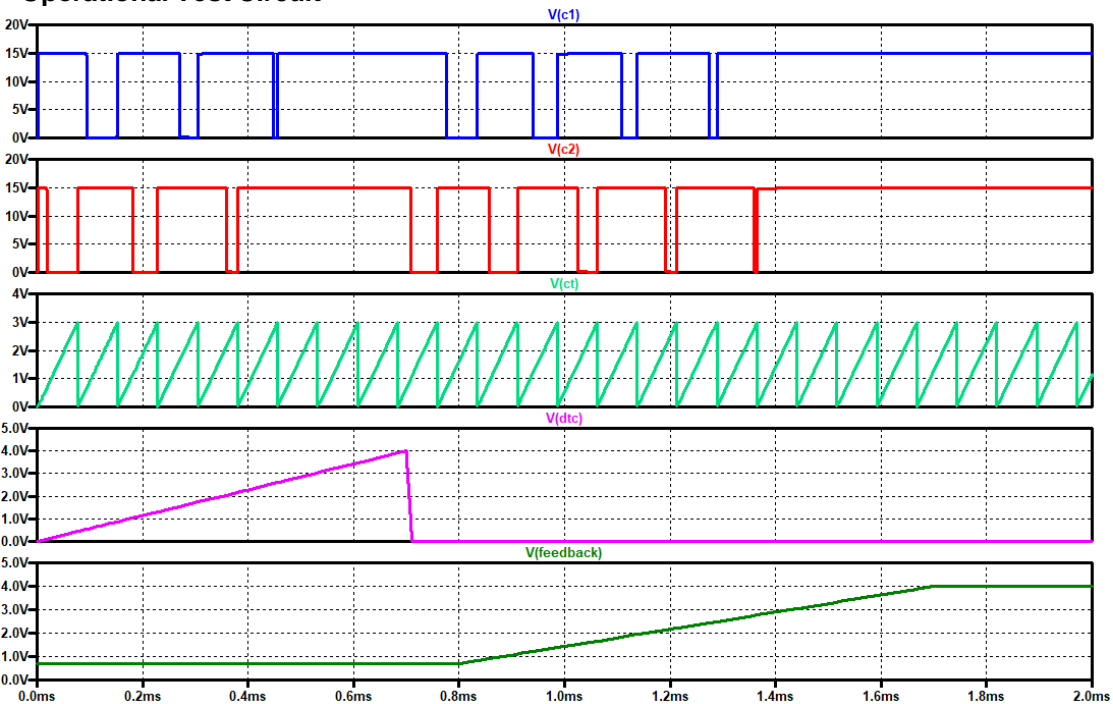
Functions	RANK	Implemented
Control Method(PWM,PFM)	1	○
Enable Function	1	—
Soft Start	1	○
Line Regulation	1	—
Load Regulation	1	—
Synchronous External Oscillation	1	—
UVLO	1	○
Line Transient	2	—
Load Regulation	2	—
Light Load Current Mode	2	—
Spread Spectrum	2	×
Over Current Protection	2	—
Over Voltage Protection	2	—
Forward/Flyback Other Device in Circuit	3	—
Brown IN/OUT Function	—	—
ZT Pin OVP Function	—	—

Operational Test Circuit Testbench  
 Referred to Data Sheet



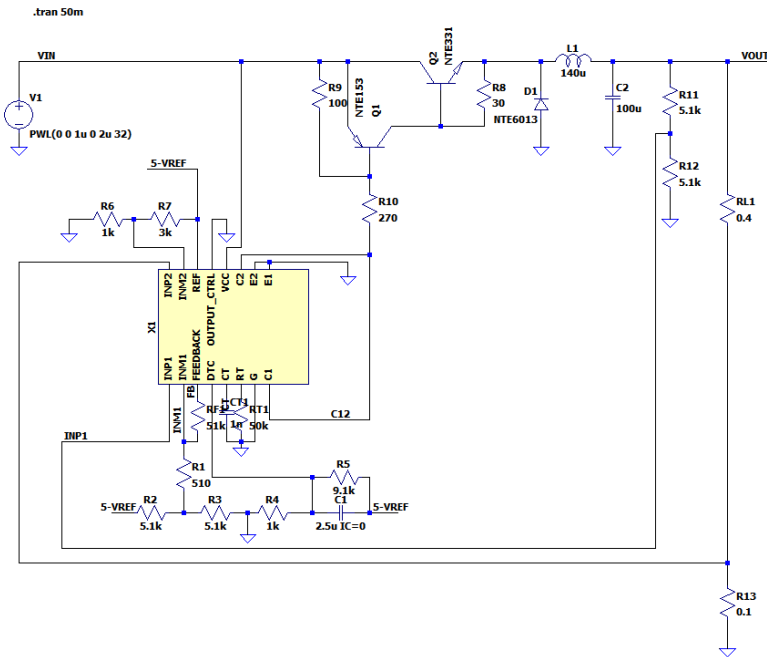
Simulation results are following.  
 Explanatory notes — : simulated

Operational Test Circuit



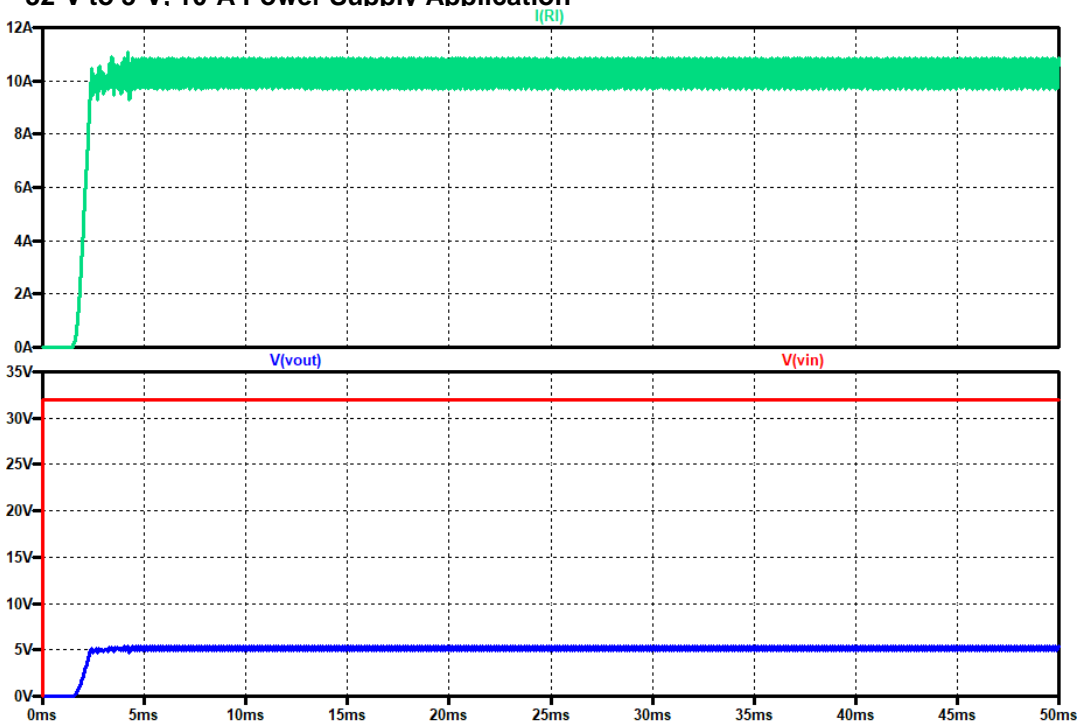
32-V to 5-V, 10-A Power Supply Application Testbench

Referred to Data Sheet



Simulation results are following.  
 Explanatory notes — : simulated

32-V to 5-V, 10-A Power Supply Application



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