

# LTspice Model PWM Controller ROHM BM2P104E

## Model Information

**Model** A macro model  
**Call Name** MDC\_BM2P104E\_LT  
**Pin Assign** 1:SOURCE 2:BR 3:GND 4:FB 5:ZT 6:VCC 7:DRAIN  
**File List** Model Library MDC\_BM2P104E\_LT.lib  
 Model Report MDC\_BM2P104E\_LT.pdf(this file)  
**Verified Simulator Version** LTspice XVII  
**Note** Integration Method=Gear

## References

The information which was used for modeling is as follow:

[Data Sheet]

- Date/Version TSZ02201-0F1F0A200350-1-1 2018.09.12 Rev.001
- Product name BM2P104E
- Company name ROHM Co., Ltd.

[Characteristics listed]

- Characteristics  
 Transient(Soft Start)  
 VCC Charge  
 Frequency Reduction

## 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

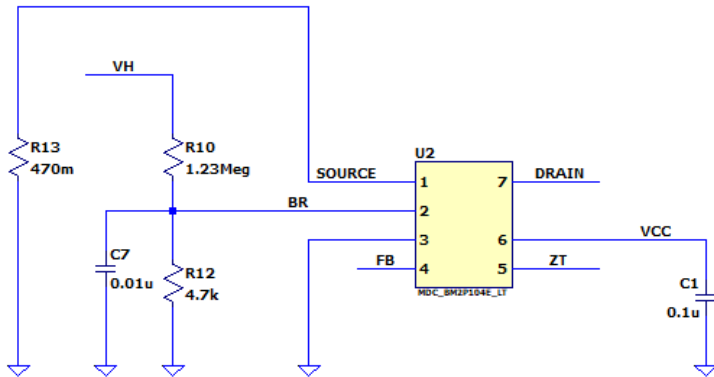
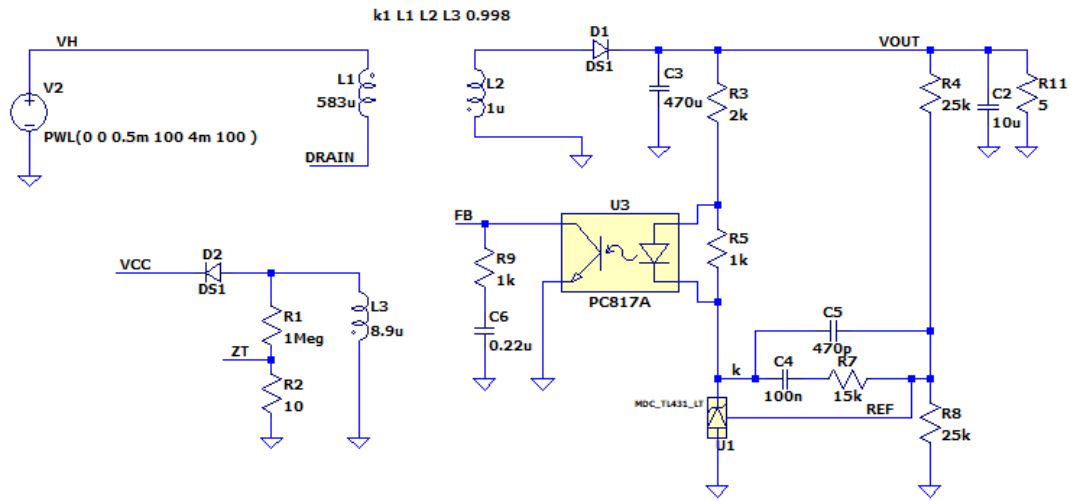
**Model Functions Table**

Functions	Implemented
Switching Frequency=100kHz	○
Built-in Frequency Hopping Function	×
Burst Operation at Light Load	○
Frequency Reduction Function	○
VCC Pin Under/Over Voltage Protection	○
Over Current Limiter Function per Cycle	○
Soft Start Function	○
Brown IN/OUT Function	○
ZT Pin OVP Function(DC Detect)	○

**Transient(Soft Start) Testbench**  
**Referred to Data Sheet**

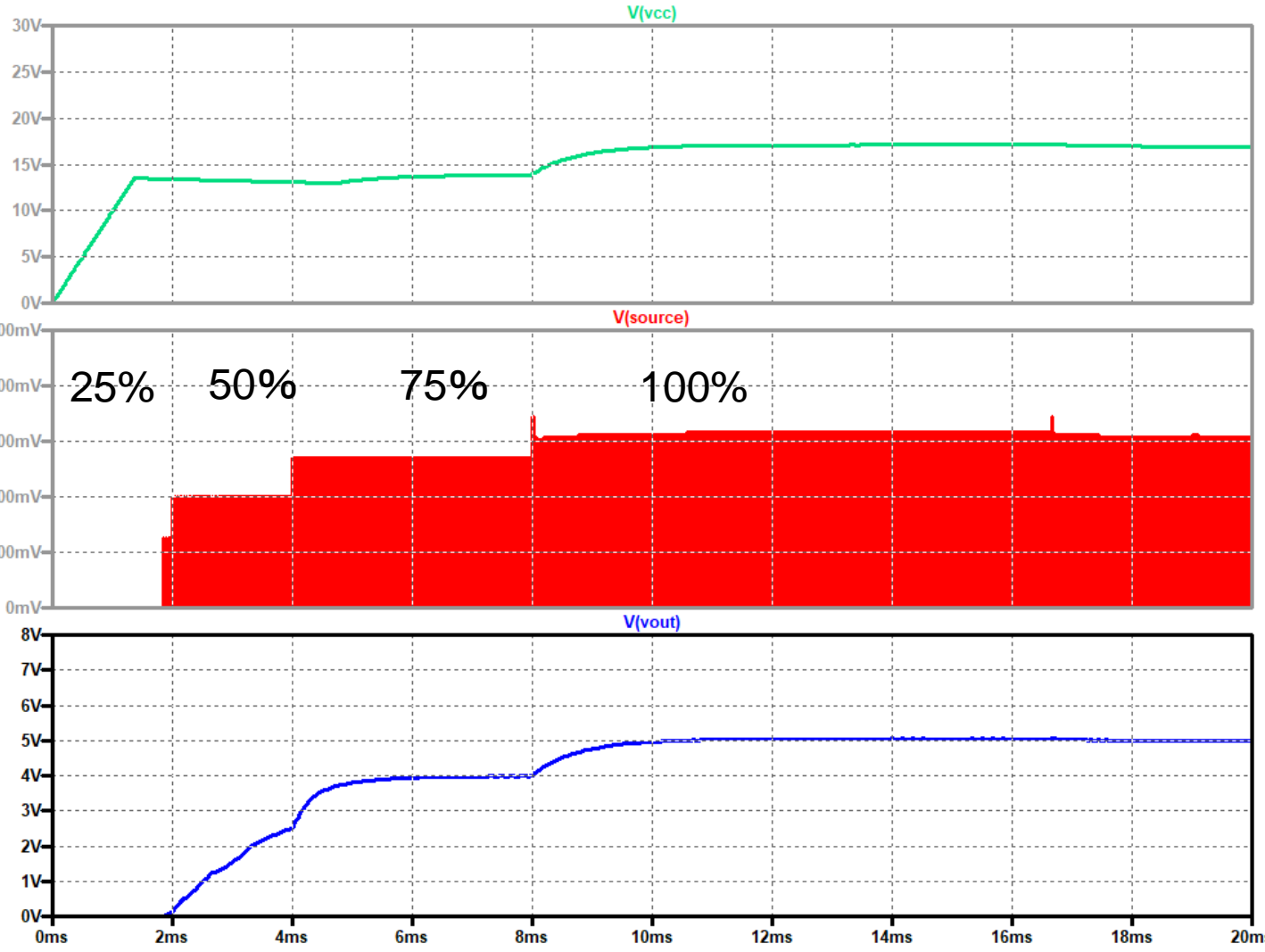
```
.MODEL DS1 D
+ IS=10n
+ RS=10m
+ N=1.0
+ BV=1000
+ IBV=100m
+ CJO=10p
+ VJ=0.7
+ M=0.33
+ TT=2n
+ EG=0.7
+ XTI=2

.tran 0 20m 0
.option TNOM=25
.temp=25
```



Simulation results are following.  
Explanatory notes — : simulated

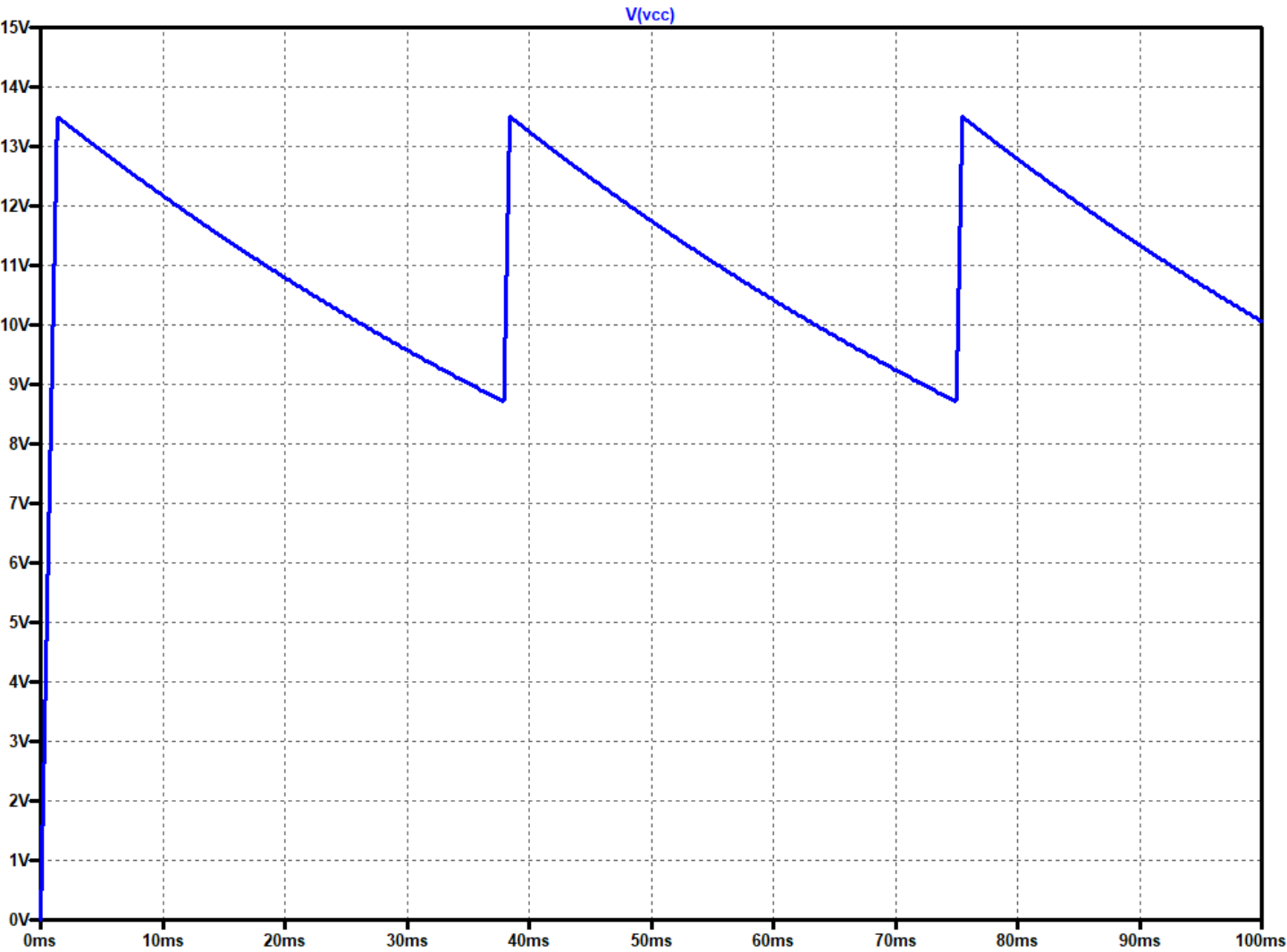
Transient(Soft Start)



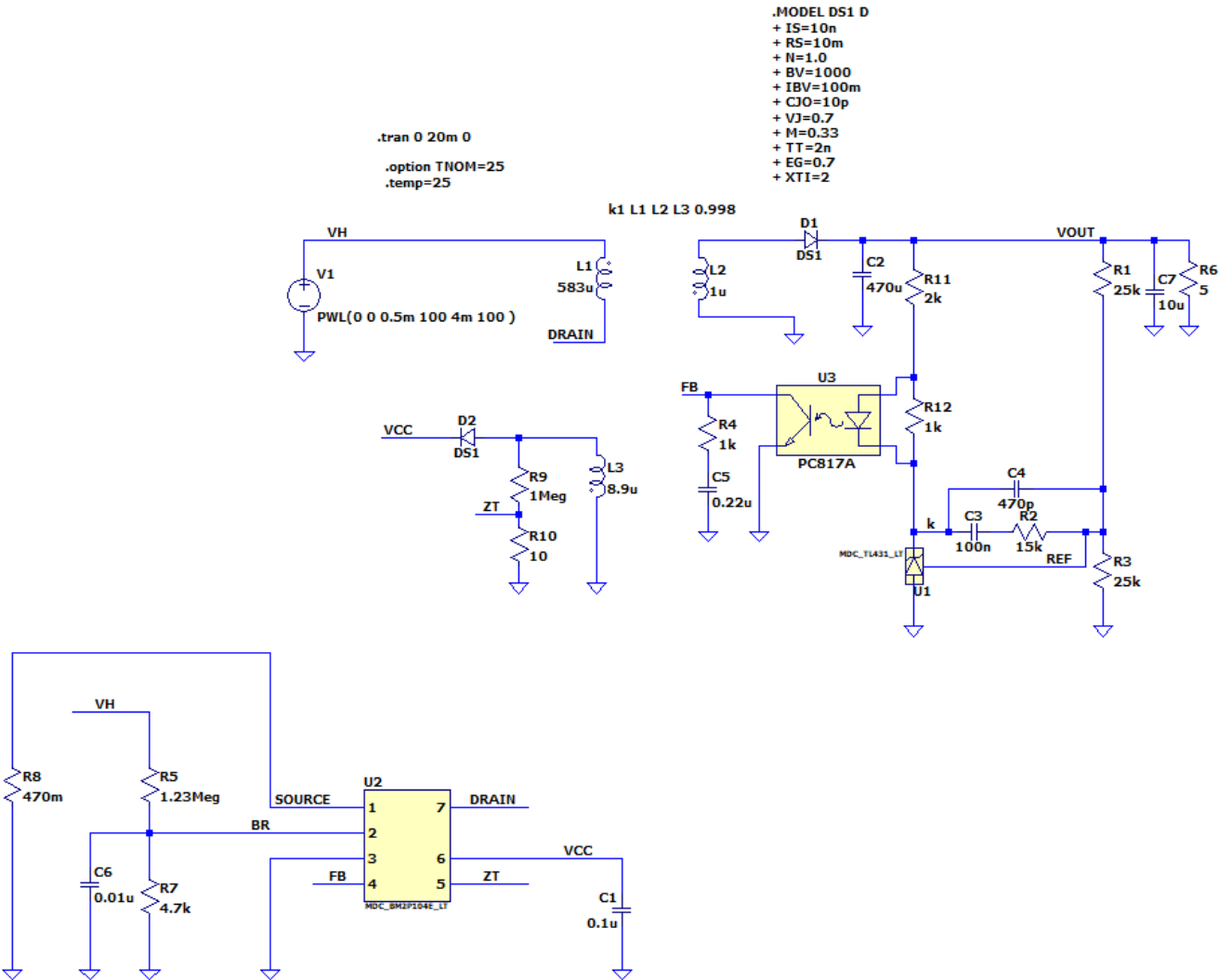


Simulation results are following.  
Explanatory notes — : simulated

VCC Charge

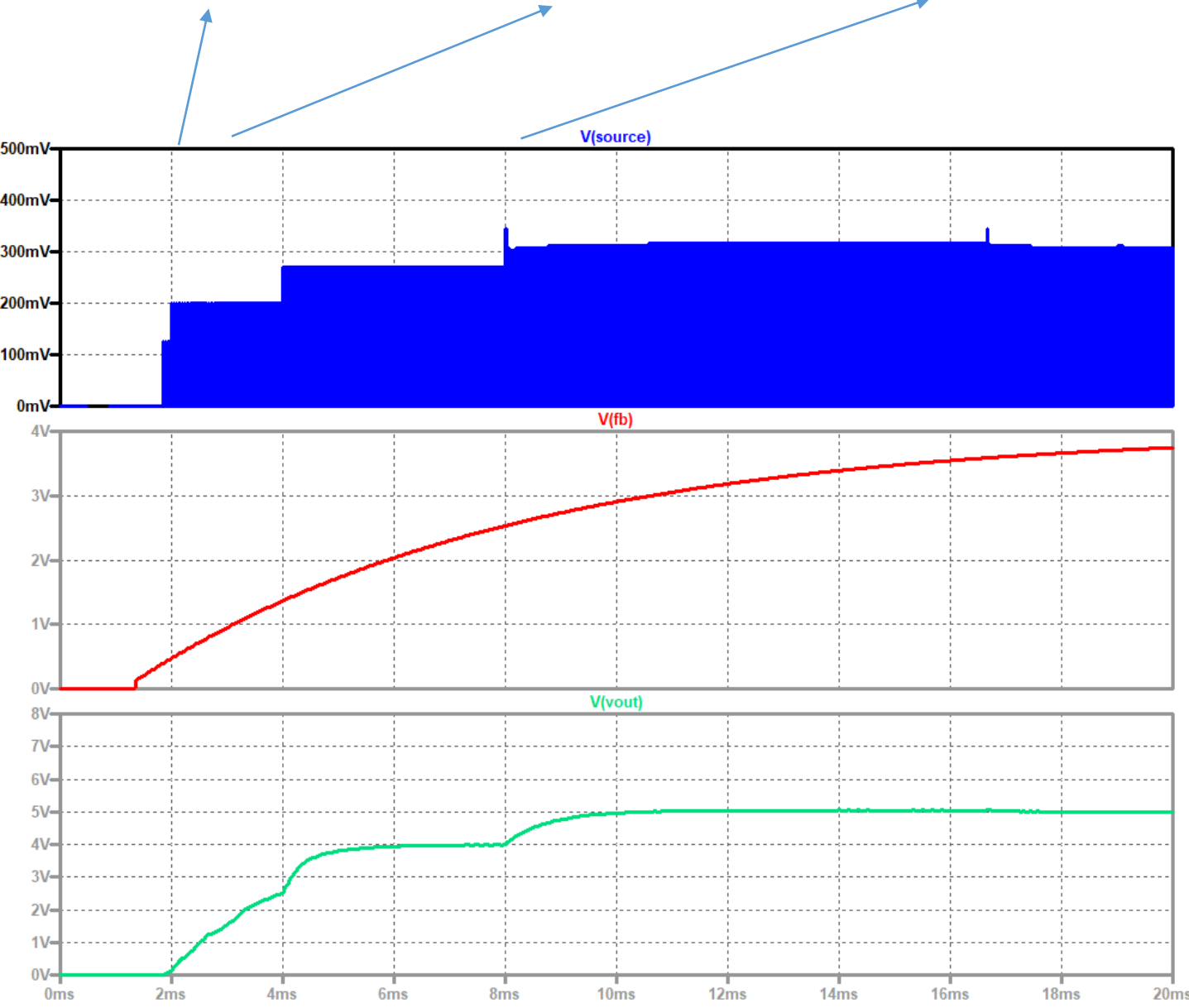
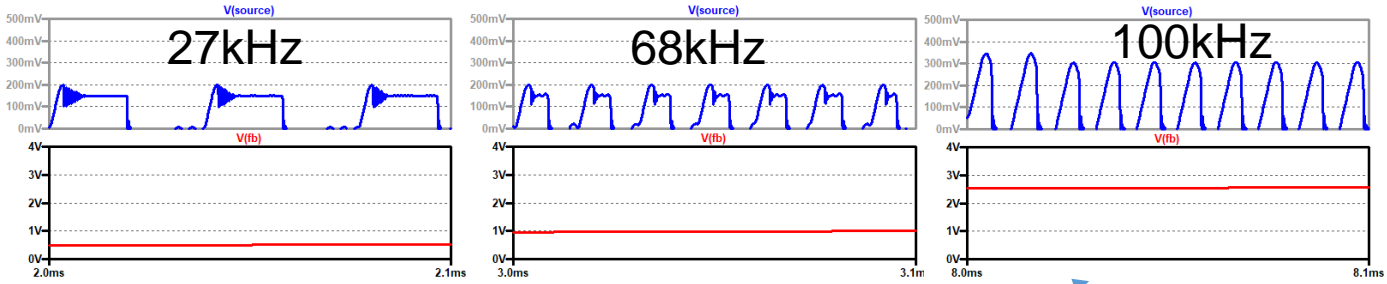


**Frequency Reduction Testbench  
Referred to Data Sheet**



Simulation results are following.  
Explanatory notes — : simulated

Frequency Reduction





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