LTspice Model
LED Driver
ROHM
BD18364EFV-M

Model Information

Model	A macro model
Call Name	MDC_BD18364EFV-M_LT
Pin Assign	1:IS 2:GL 3:BOOT 4:VIN 5:EN 6:VDRV5 7:ADIM 8:RT 9:COMP 10:GND 11:MONIAD 12:FAULT_B 13:CS 14:RX 15:TX 16:CH0 17:CH1 18:CH2 19:CH3 20:CH4 21:CH5 22:CH6 23:CH7 24:CH8 25:PGATE 26:SNSN 27:SNSP 28:PCLIM 29:PSW 30:PGND 31:EXP-PAD 32-39:LEDEN[0:7] 40-47:LEDFC[0:7]
File List	Model Library MDC_BD18364EFV-M_LT.lib Model Report MDC_BD18364EFV-M_LT.pdf(this file)
Verified Simulator Version	LTspice XVII
Note	Can be controlled by parameters and analog terminals instead of UART Using 。OPTION Method=Gear is highly recommended

References

The information which was used for modeling is as follow:

> [Data Sheet]
> ● Date/Version   2022.05.23 Rev.001/TSZ02201-0T1T0B400430-1-1
> ● Product name   BD18364EFV-M
> ● Company name   ROHM Co., Ltd.
>
>
> [Characteristics listed]
> ● Characteristics
>
>> PWM Dimming
>> Analog Dimming
>> LEDFC Control

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

| Functions	RANK=1	
Functions	RANK	Implemented
Control　Method(PWM,PFM)	1	◯
Enable Function	1	◯
Soft Start	1	—
Line Regulation	1	—
Load Reguration	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	—
Forard/Flyback Other Device in Circuit	3	—
Brown IN/OUT Function	—	—
ZT Pin OVP Function	—	—

controlled by parameters and analog terminals instead of UART

Register	Descriptions	Implement	Parameter	Terminal	Value
SWRST	Reset digital circuit,enabledfunctions	×			
SYSSET1	Set BoostEnable,SSCG、 VINDIM , VINDIM Implement	△	VINDIM		0-7
SYSSET2	Set OVPSET,COMPDIS、 LEDOPSET , OVPSET Implement	△	OVPSET		0,5,10,15
LEDOPSET	Set LED Open Detect	○	LEDOPSET[0:7]		0,1
SYSSET3	Set FPWM,PHEN	○	FPWM[0:7]		0-15
		○	PHEN		0,1
ADCTRL	Unknown	×			
ADSTORE	Unknown	×			
DCDIMH	Set DCDIM	○	DCDIM		1-1024
DCDIML	SetDCDIM,OCLIM	△	OCLIM		0-7
PWMDIM0	Set LightingDuty:SW0	○	PWMDIM[0:7]		0-255
LEDEN	Set LED Enable （=1:MOS=OFF)	○		LEDEN[0:7]	0,1
LEDFC	LED Dimming、 =1,PWM Duty=100%	○		LEDFC[0:7]	0,1
ERRDET	Already ON	×			
LEDOPEN	Already ON	×			
LEDSHORT	Already ON	×			

SPICE is an analog simulator. Therefore, when dealing with digital signals, it takes a lot of simulation time. In this model, terminals and parameters are provided as alternatives.
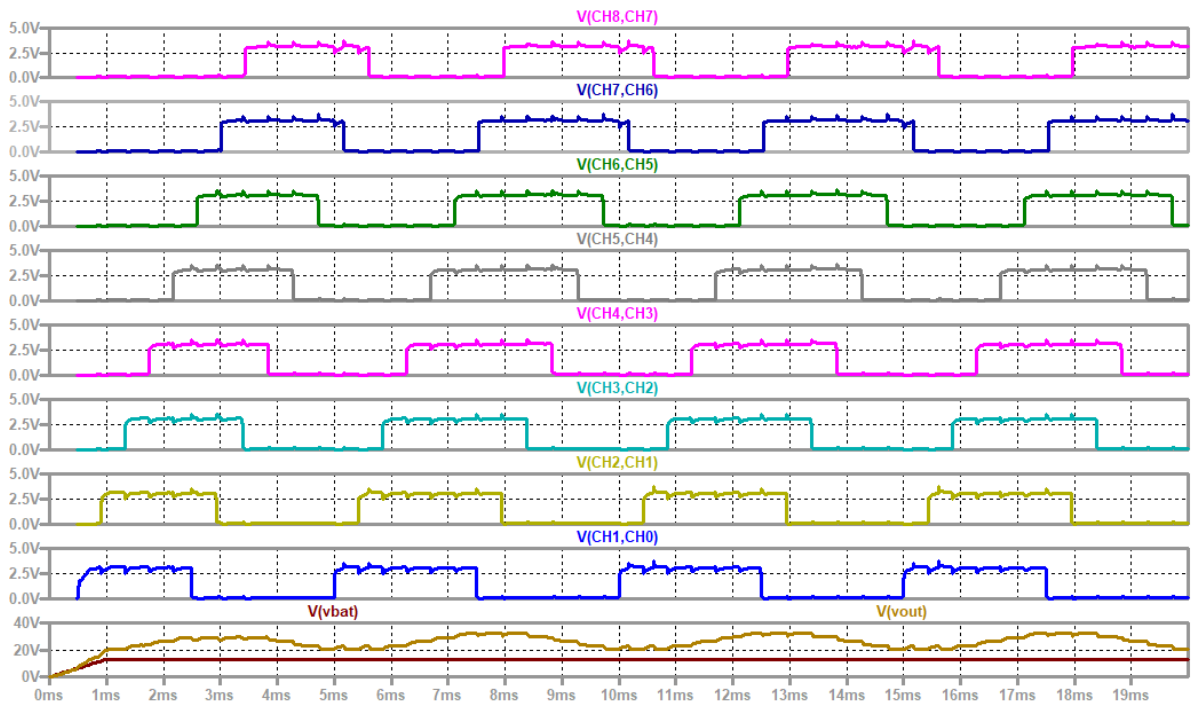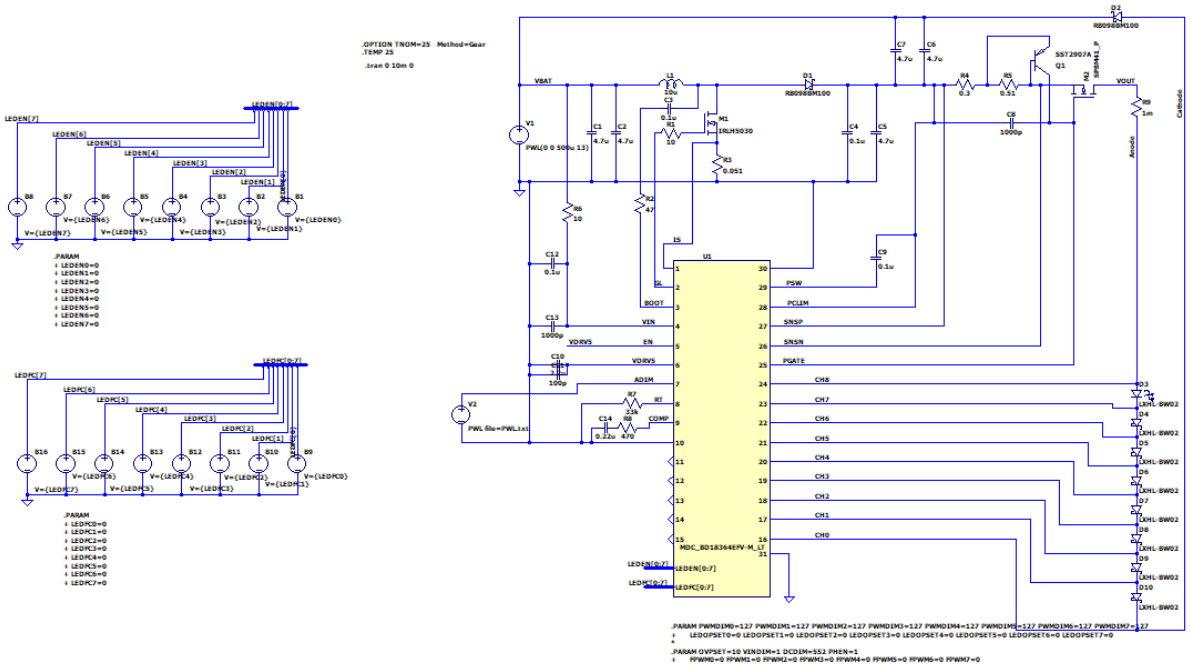
PWM Dimming Test bench

Referred to Data Sheet
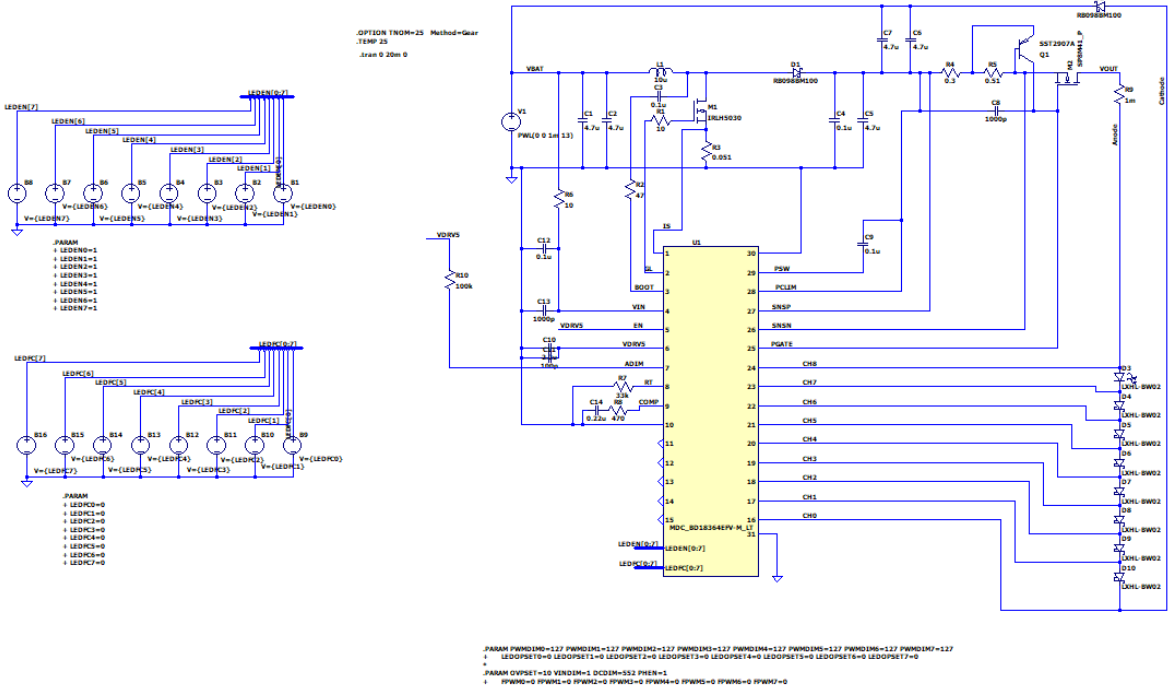
Simulation results are following.
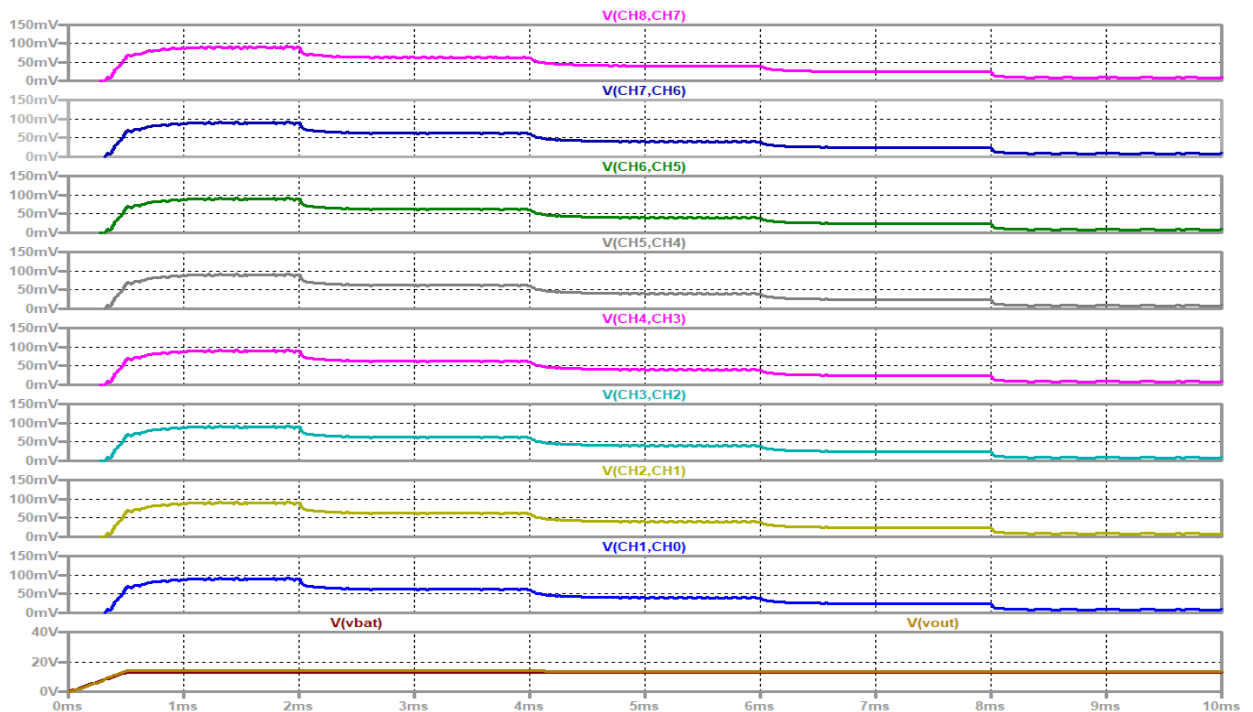Explanatory notes   — : simulated

PWM Dimming

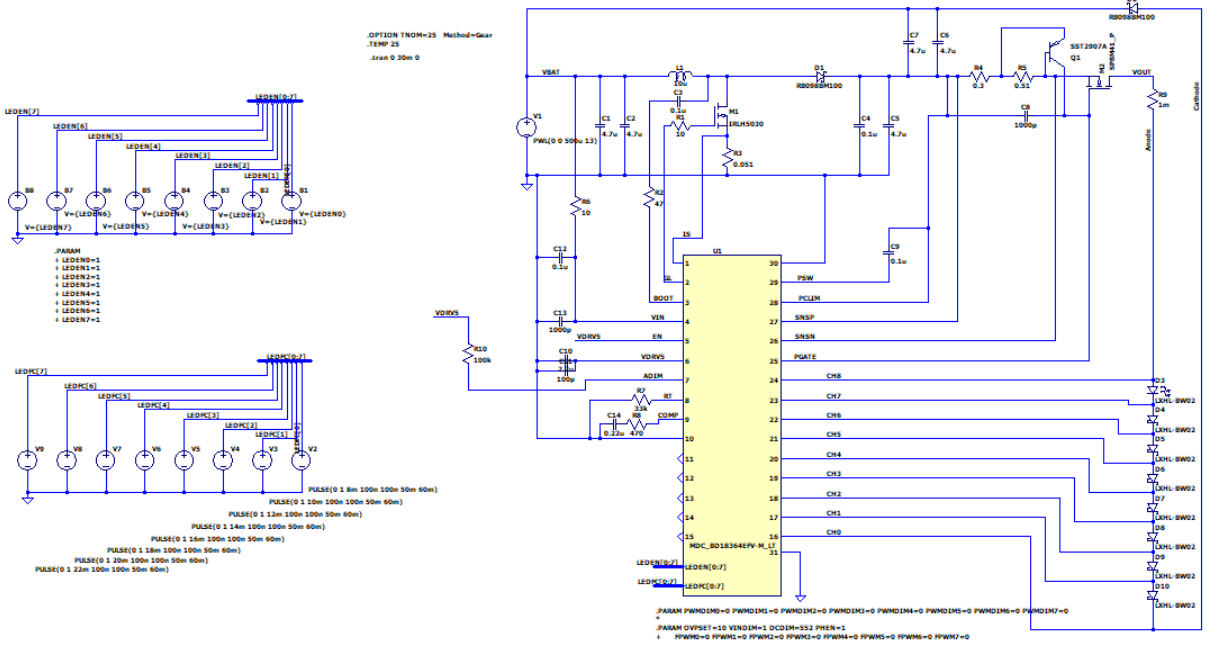**DC Dimming Test bench**

Referred to Data Sheet

Simulation results are following.
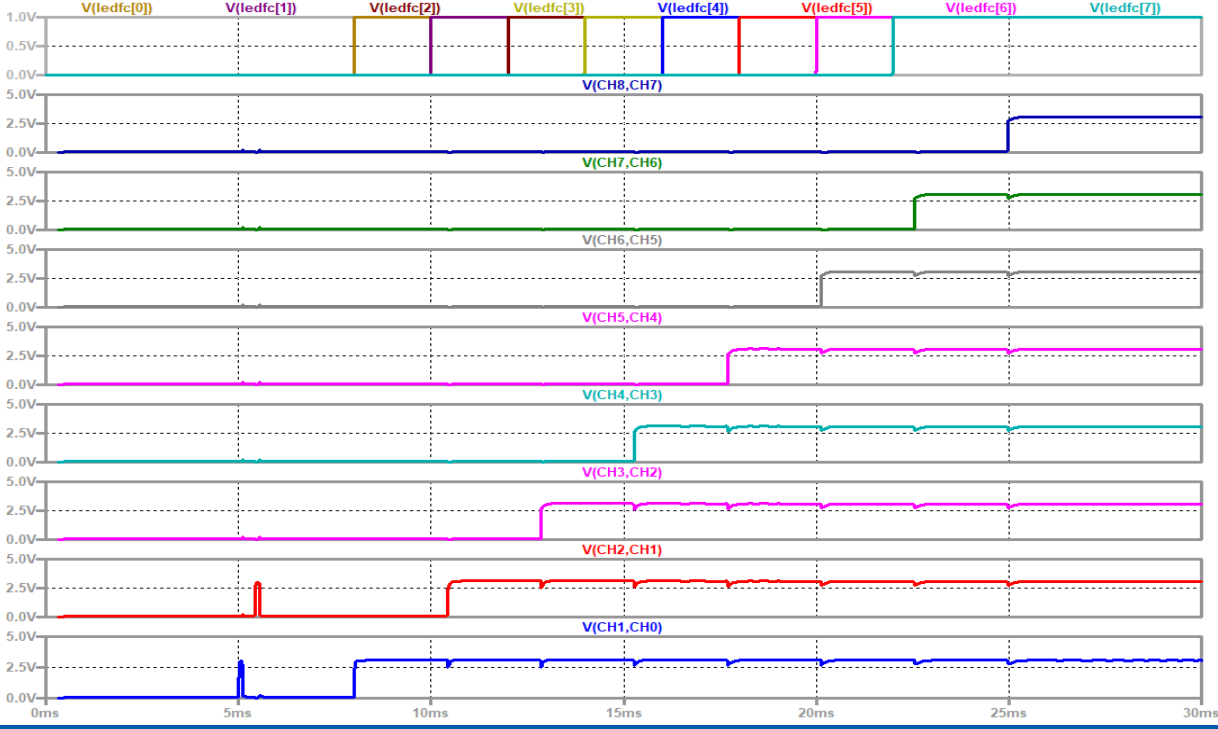Explanatory notes — : simulated

DC Dimming

LEDFC Control Test bench

Referred to Data Sheet

Simulation results are following.

Explanatory notes　—：simulated

LEDFC Control

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