

**Subject**  
**4-Strings LED Demo Board Manual**

Board Model: LD50V1.0A3365.00  
 Doc. No.: OB\_DOC\_DBM\_336500

**Description:**

The performance of LED backlight power supply for LCD monitor backlight application is presented. It is designed with OB3365 which integrates a boost converter and 4 channels of current source optimized to drive LED arrays. The detailed block diagram, schematic, BOM, PCB layout and test data are also described.

The test data in this report is by 17Series 4Parallel White LED array.

## Revision History

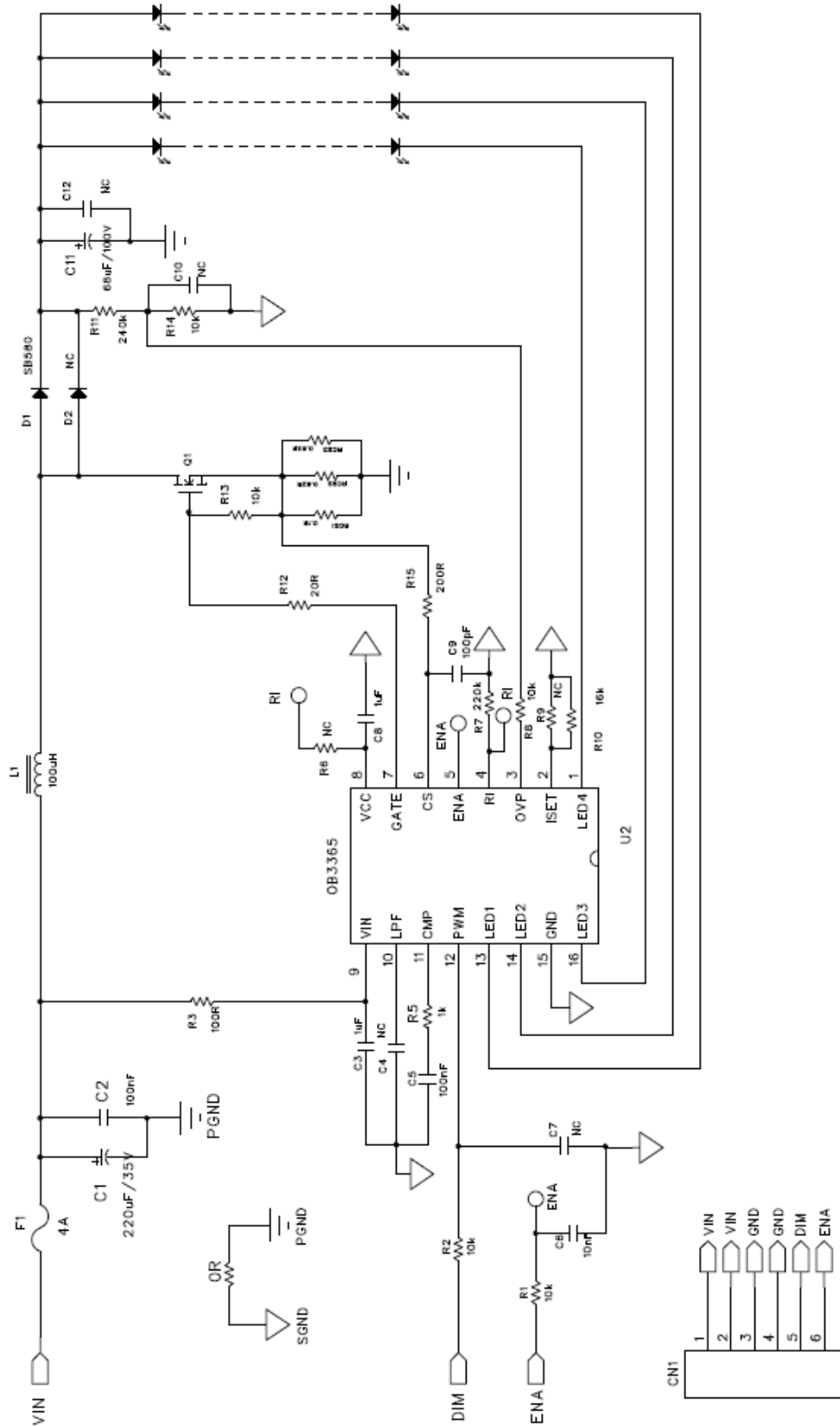
Revise Date	Version	Reason/Issue
2016-06-12	00	First Issue

## 1. Board Information

### 1.1. Features

- $\pm 1.5\%$  matching accuracy between 4 LED strings current (100% brightness)
- Up to 250mA current capability per string
- 12V gate drive, better MOS compatibility
- Programmable operating frequency
- Build in both PWM to Analog and Direct PWM dimming
- Support 3 channel operation
- Thermal foldback function for LED output current control
- Comprehensive protections coverage covers output open, LED short /open, OVP, Diode/Inductor short, LEDX short to GND, OTP etc.

## 1.3. Electrical Schematic



## 2. Test Data & Waveform

### 3.1 Test Data Summary

#### 3.1.1 Key Item Overview

Item	Symbol	Test result				Spec	Unit	Remark
		LED1	LED2	LED3	LED4			
LED Current	$I_{OUT}$	253.80	251.90	250.90	251.40	237.5-262.5	mA	Pass
LED Array voltage	$V_P$	49.06	49.6	48.7	49	50	V	--
LED Current Matching	0.57%				<1.5%			Pass
	$V_{IN}$ (V)	$I_{IN}$ (A)	$P_{IN}$ (W)	$P_{OUT}$ (W)	Efficiency	Spec		Remark
Efficiency	23.99	2.25	53.995	49.46	91.6%	>85%		Pass
	<b>L1 (Core)</b>		<b>Q1</b>		<b>U2 (OB3365)</b>		<b>D1</b>	
Thermal	56.6°C		65.9°C		85°C <sup>①</sup>		56.2°C	

Note:  $V_{IN}=24V$ , under 25 °C ambient with 17S4P white LED array.

① This temperature is under IC power loss is 1.2W

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