

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 723

DUAL HIGH EFFICIENCY WHITE LED (7/10) DRIVER

LT3466EDD

DESCRIPTION

Demonstration circuit 723 features the LT[®]3466 dual high efficiency white LED driver. There are two LED driver outputs on DC723. Vout1 drives 10 LEDs and Vout2 drives 7 LEDs in series with 12mA LED current. Both outputs are generated from a 3~8V input (or 3~20V with diode option).

Each output channel has a jumper for enabling the LED output (JP1, JP2) and a CTRL pin (CTRL1, CTRL2) for LED brightness (current) control. Placing the jumper to “SHDN” turns off the selected LED channel and jumper to “Enable” enables the selected LED channel of the LT3466. Modulating the voltage

at CTRL1 and CTRL2 pins respectively can change the LED current in the two drivers. As the voltage on the CTRL pin increases from 0V to 1.6V, the feedback voltage across the LED current programming resistor increases from 0 to 200mV varying the LED current from 0 to 12mA. The feedback voltage variation versus control voltage is shown in Figure 1.

Design files for this circuit board are available. Call the LTC factory.

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Table 1. Performance Summary ($T_A = 25^{\circ}\text{C}$)

PARAMETER FOR LED DRIVER	CONDITION	VALUE
Minimum Input Voltage		3V
Maximum Input Voltage	(20V with optional diode)	8V
LED Current		12mA
Typical Efficiency	With 8V input	82%
Typical Switching Frequency	With 147K Ω timing resistor	350kHz

QUICK START PROCEDURE

Demonstration circuit 723 is easy to set up to evaluate the performance of the LT3466. Refer to Figure 2. for proper measurement equipment setup and follow the procedure below:

1. With power off, connect the input power supply to Vin and GND. Make sure JP1 and JP2 are set to “ENABLE”.
2. Set the input supply between 3V to 8V. Turn on the power at the input.
3. Observe all white LEDs light up with uniform brightness. The output voltage should measure about 23V for 7 LEDs and 33V for 10 LEDs across the “Vout Test” terminal to “GND” terminal.
4. Test the shutdown function by placing the jumper to SHDN. JP1 controls the 10 LED output and JP2 controls the 7 LED output. Observe the LEDs turn off with each jumper move to SHDN.
5. The LED brightness is controlled by DC voltage at the CTRL terminal. With JP1 (or JP2) placed at SHDN, observe the LED brightness change with DC voltage applied to the CTRL1 (or CTRL2) pin. The voltage range recommended for dimming is 200mV ~ 1.6V. See the LT3466 data sheet for more information on CTRL dimming control.
6. Place JP1 (or JP2) back to “ENABLE” to enable the “Vout1 Test” (or “Vout2 Test”) LED string.

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Note: LT3466 can operate up to 20V input with an optional diode (D18 on the backside of the DC723 board). The diode is used to protect the internal Schottky diode during startup.

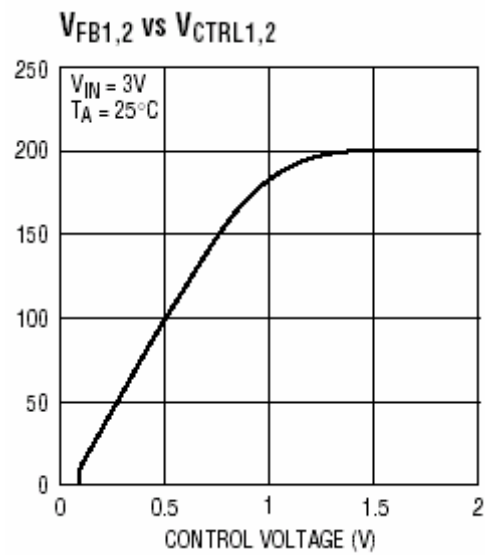


Figure 1. $V_{FB1,2}$ vs $V_{CTRL1,2}$

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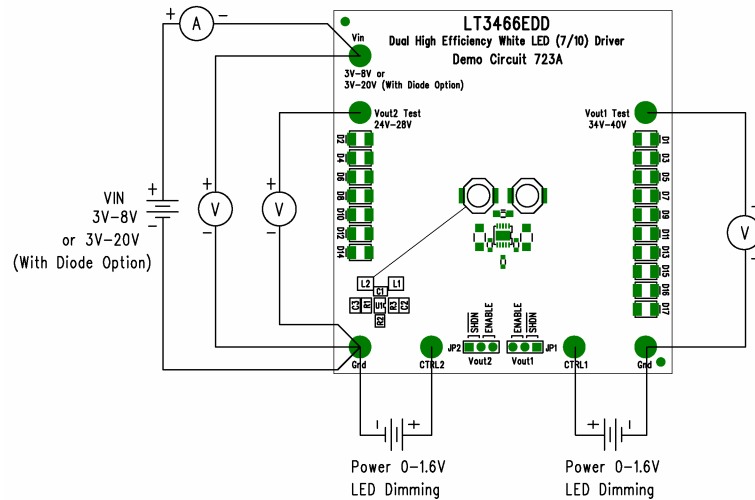


Figure 2. Proper Measurement Equipment Setup

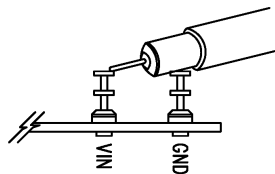
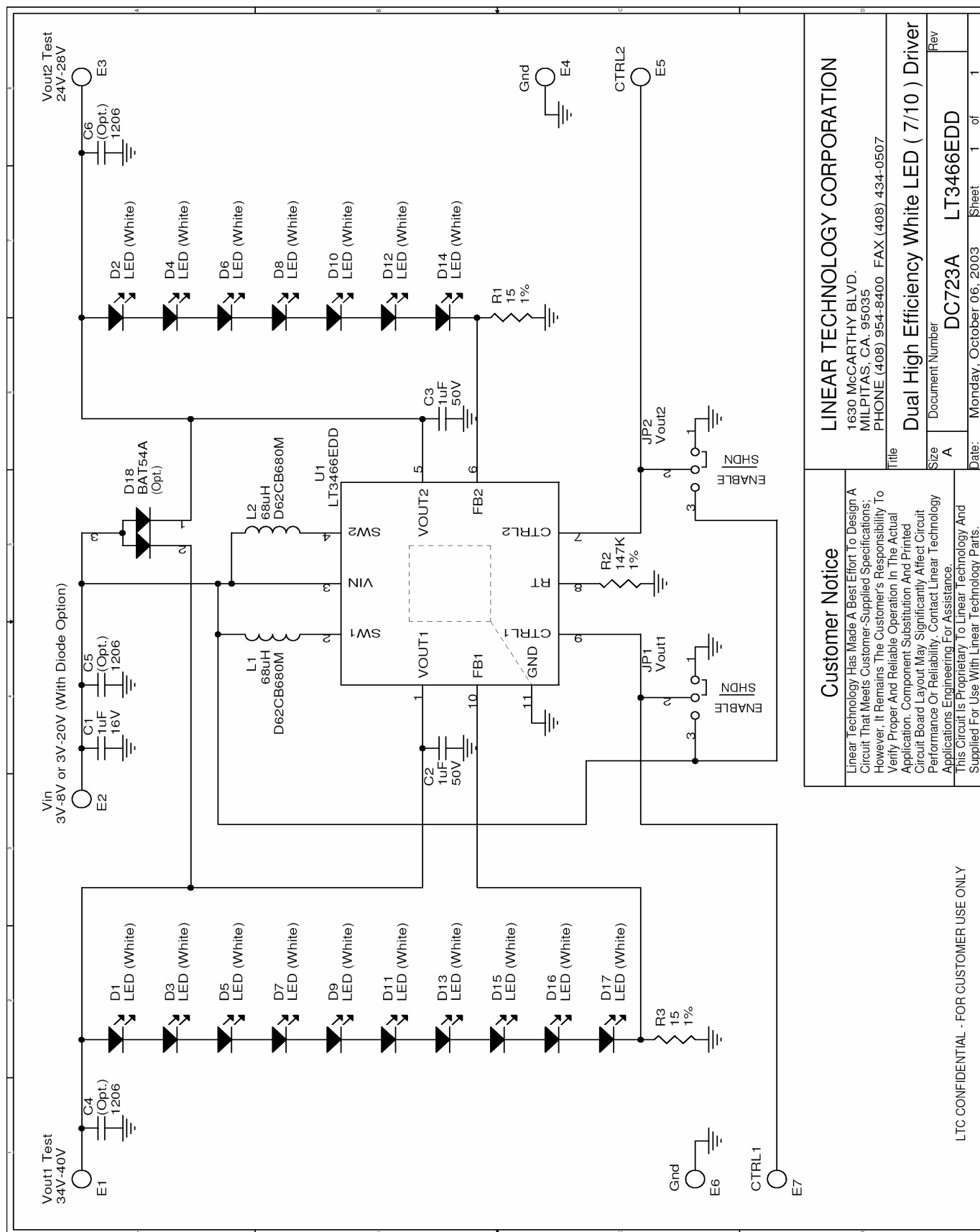


Figure 3. Scope Probe Placement for Measuring Input or Output Ripple

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Customer Notice

Linear Technology Has Made A Best Effort To Design A Circuit That Meets Customer-Supplied Specifications; However, It Remains The Customer's Responsibility To Verify Proper And Reliable Operation In The Actual Application. Component Substitution And Printed Circuit Board Layout May Significantly Affect Circuit Performance Or Reliability. Contact Linear Technology Applications Engineering For Assistance.
This Circuit Is Proprietary To Linear Technology And Supplied For Use With Linear Technology Parts.

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