

ZXLD1371EV1 EVALUATION BOARD USER GUIDE

DESCRIPTION

The ZXLD1371EV1, Figure 1, is an evaluation board for the ZXLD1371 LED driver chip. The board is in a Buck configuration with an input voltage of 48 VDC and will drive a string of 12 LEDs. It is set for an output current of 1.5A and offers convenient connections for external control inputs and monitoring. The board also includes components for reducing radiated and conducted EMI emissions.

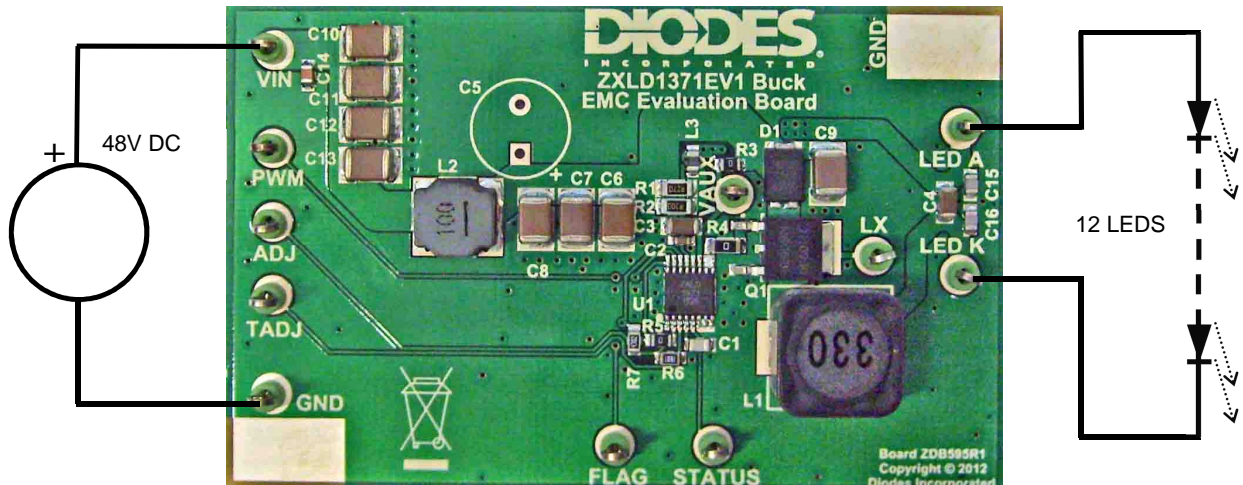


Figure 1: ZXLD1371EV1 evaluation board and connection diagram

QUICK START

- 1) Connect 48V DC supply across Vin and GND points (observe correct polarity).
- 2) Connect LED string across LED A and LED K points (observe correct polarity). LED current is set at 1.5A, so ensure LED string is capable of this current.
- 3) Cover LED string or wear eye protection. Do not look directly at LEDs in use.
- 4) Switch on DC power supply.

ZXLD1371EV1 Connection Point Definition	
Name	Description
Vin	Positive supply voltage. 48V DC
GND	Supply Ground (0V).
PWM	External PWM dimming input
ADJ	External DC dimming input (Remove R8 for DC Dimming)
TADJ	External thermal dimming input (NTC to GND)
VAUX	VAUX monitoring point
FLAG	FLAG pin monitoring point
STATUS	STATUS pin monitoring point
LX	LX monitoring point
LED K	LED Cathode connection
LED A	LED Anode connection

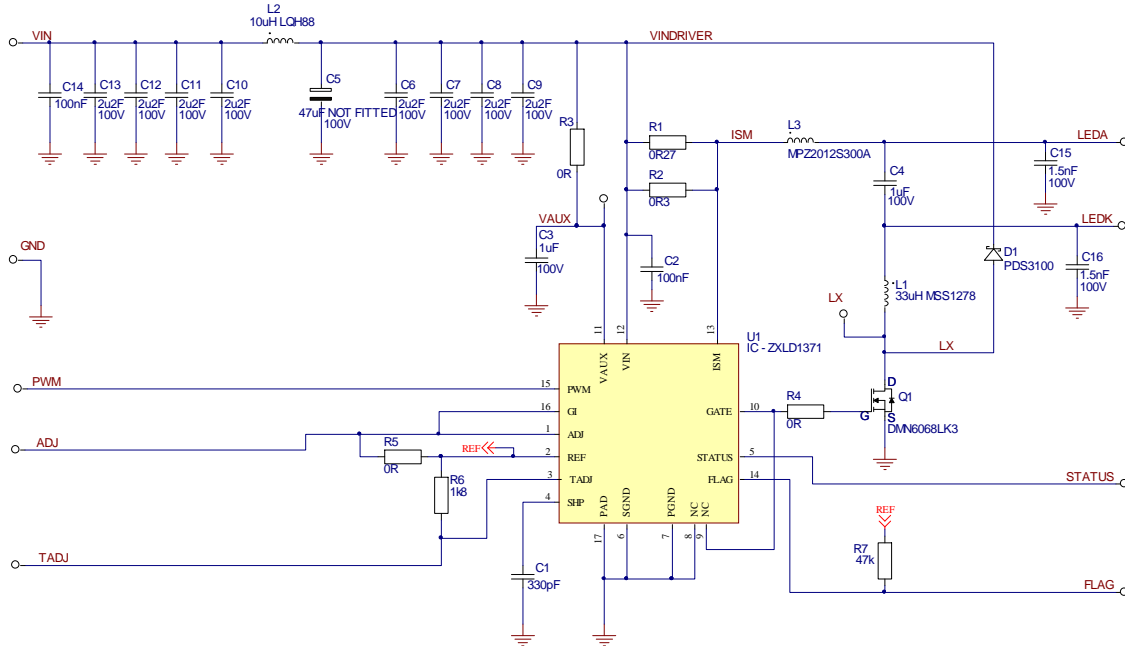


Figure 2: ZXLD1371EV1 evaluation board Schematic

ZXLD1371EV1 EVALUATION BOARD REFERENCE DESIGN

The ZXLD1371EV1 is a Boost reference design, based around the ZXLD1371 lighting IC. The circuit will accept an input voltage of 12 VDC and can drive an output string of 12 LEDs at 1.5A. The board has three control inputs and multiple signal monitoring points.

The PWM input allows the user to input a PWM brightness signal. It is recommended to be between 100Hz and 500Hz for maximum LED current dynamic range.

The ADJ input allows for DC dimming input, with a voltage between 0.125V and 1.25V for full brightness. In order to use an external control on ADJ, R8 must be removed.

The TADJ input is for connection of an external 10k NTC thermistor which will dim the LEDs as temperature increases, for maximizing LED lifetime. With a 10k NTC and R7 = 1.8kΩ, the thermal trip point will be around 70°C.

The VAUX monitoring point allows easy connection to the chip auxiliary power supply and measurement of the bootstrap circuit where used. It can also be used to feed in an external source of VAUX if R3 and R4 are removed. R4 connects VAUX to LX through D2 as a bootstrap circuit, allowing for operation at low Vin values (5-8V). If bootstrapping is not required, remove R4 and fit R3 = 0Ω.

FLAG and STATUS monitoring points allow these outputs of the chip to be monitored. For further information on output information on these pins see the ZXLD1371 datasheet.

The LX switching point can be monitored on the test point, in order to easily monitor the output PWM.

The LED string load can be connected across the LED A and LED K points.

ZXLD1371EV1 Component list

QTY	PCB IDENT	VALUE	DESCRIPTION
1	U1	ZXLD1371	TSSOP16EP LED driver IC – Diodes Zetex
1	Q1	DMN6068LK3	60V N-Channel Enhancement Mode MOSFET – Diodes Inc.
1	D1	PDS5100	Freewheeling diode 5A, 100V – Diodes Inc.
1	R1	0R27	Resistor 1206 1% thick film 250ppm generic
1	R2	0R3	Resistor 1206 1% thick film 250ppm generic
2	R3, R5	0R	Resistor 0805 1% thick film 250ppm generic
1	R4	0R0	Resistor 1206 1% thick film 250ppm generic
1	R6	1k8	Resistor 0805 1% thick film 250ppm generic
1	R7	47k	Resistor 0805 1% thick film 250ppm generic
1	C1	330pF	Capacitor 0805, 100v C0G generic
1	C2	100nF	Capacitor 0603, 100V X7R generic
2	C3, C4	1uF	Capacitor 1206, 100V X7R generic
0	C5	DO NOT FIT	Electrolytic capacitor P5D10
8	C6, C7, C8, C9, C10, C11, C12, C13	2u2F	Capacitor, 1812, 100V X7R generic Murata GRM43ER72A225KA01L
1	C14	100nF	Capacitor 0805, 100v X7R generic
2	C15, C16	1n5F	Capacitor 0805, 100v X7R generic
1	L1	33uH	Coilcraft MSS1278-333MLB NIC Components NPIS27H330MTRF
11	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11	Test Point	2.15mm dia. test loops, green, generic, Hughes 100-108

Note: The component values and part numbers are correct at the time of publication. Diodes Inc. reserves the right to substitute other parts where necessary, without further notification.

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www.diodes.com

Sales offices**The Americas**

3050 E. Hillcrest Drive
Westlake Village,
CA 91362-3154
Tel: (+1) 805 446 4800
Fax: (+1) 805 446 4850

Europe

Kustermannpark
Balanstraße 59,
D-81541 München
Germany
Tel: (+49) 894 549 490
Fax: (+49) 894 549 4949

Taiwan

7F, No. 50,
Min Chuan Road
Hsin-Tien
Taipei, Taiwan
Tel: (+886) 289 146 000
Fax: (+886) 289 146 639

Shanghai

Rm. 606, No.1158
Changning Road
Shanghai, China
Tel: (+86) 215 241 4882
Fax (+86) 215 241 4891

Shenzhen

Room A1103-04,
ANLIAN Plaza, #4018
Jintian Road
Futian CBD,
Shenzhen, China
Tel: (+86) 755 882 849 88
Fax: (+86) 755 882 849 99

Korea

6 Floor, Changhwa B/D,
1005-5 Yeongtong-dong,
Yeongtong-gu, Suwon-si,
Gyeonggi-do, Korea 443-813
Tel: (+82) 312 731 884
Fax: (+82) 312 731 885