

ZXLD1615EV1

ZXLD1615EV1 USER GUIDE

DESCRIPTION

The ZXLD1615 is a PFM inductive boost converter designed to provide LCD and OLED bias voltages of up to 28V from a 2.5V to 5.5V input supply.

The ZXLD1615 includes the output switch and peak current sense resistor, and can provide up to 10mA output current at maximum output voltage. Higher current is available at lower output voltages.

Quiescent current is typically 60 μ A and a shutdown function is provided to reduce this current to less than 100nA in the 'off' state.

ADVANCED FEATURES

- Internal 30V NDMOS switch
- True analogue output voltage control via PWM with internal filter

FEATURES

- Low profile TSOT23-5 pin package
- Internal PWM filter for flicker free output
- High efficiency (80% typ)
- Wide input voltage range: 2.5V to 5.5V
- Up to 50mA output current
- Low quiescent current: (60 μ A typ)
- 100nA maximum shutdown current
- Up to 1MHz switching frequency
- Low external component count

ORDERING INFORMATION

ORDER NUMBER: ZXLD1615EV1

Please note evaluation boards are subject to availability and qualified leads.

Nominal output voltage can be set up to a maximum of 28V by two external resistors and can be adjusted to lower values by a PWM control signal applied to the 'Enable' pin. Depending upon the control frequency, the PWM signal will provide either continuous (low ripple) or gated control. The PWM filter components are contained within the chip. Minimum output voltage is determined by the input supply.

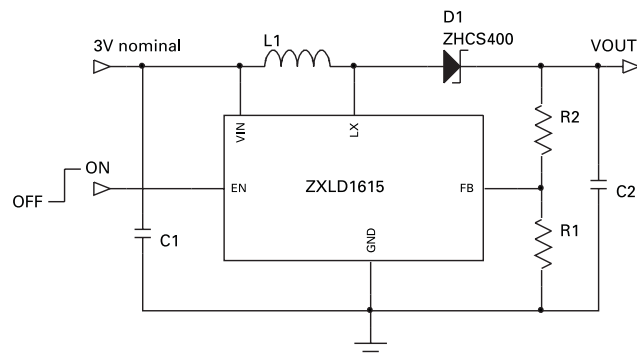
The device is assembled in a low profile TSOT23-5 pin package.

The ZXLD1615EV1 is configured as for a OLED and LCD bias converter with a single 12V output.

APPLICATIONS

- Mobile phones
- Digital cameras
- PDAs
- LCD modules
- Portable internet appliances
- Palmtop computers

TYPICAL APPLICATION CIRCUIT



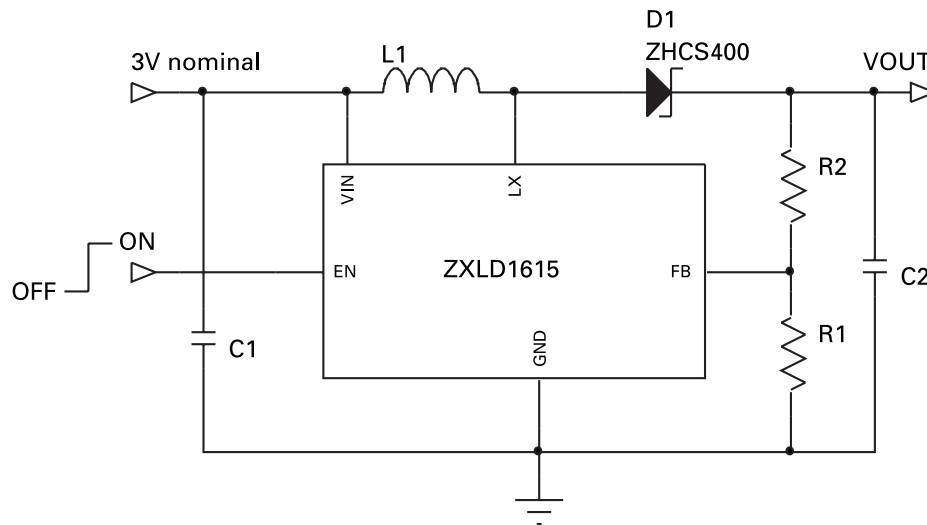
ZXLD1615EV1

REFERENCE DESIGN

ZXLD1615EV1 is configured to the reference design below. The main application is a boost converter for a single 12V output LCD or OLED Bias providing up to 80mA output current at 5V input voltage.

For other reference designs or further applications information please refer to the ZXLD1615 datasheet.

SCHEMATIC DIAGRAM

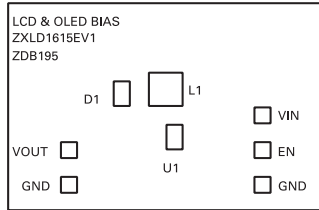


ABSOLUTE MAXIMUM RATINGS

REF	VALUE	PACKAGE	PART NUMBER	MANUFACTURER	NOTES
U1		TSOT23-5	ZXLD1615ET5	Zetex	LCD & OLED Bias IC
D1	400mA	SOD323	ZHCS400	Zetex	400mA Schottky Diode
L1	22 μ H	1210	LQH32CN220K21L	Murata	
R1	91k Ω	0603	Generic	Generic	
R2	1M Ω	0603	Generic	Generic	
C1	4.7 μ F/10V	0805	Generic	Generic	X5R dielectric
C2	2.2 μ F/25V	0805	Generic	Generic	X5R dielectric

ZXLD1615EV1

CONNECTION DIAGRAM



ZXLD1615EV1 OPERATION

ZXLD1615EV1 Set-up

1. Connect VIN and GND to positive and zero volts of the power supply respectively.
2. Connect EN pin to positive of power supply.
If EN pin is left floating or connected to GND, the ZXLD1615 will be in shutdown mode.
3. Add a 10mA load to VOUT and GND.
4. Set the power supply to 3V.
5. Turn on power supply.

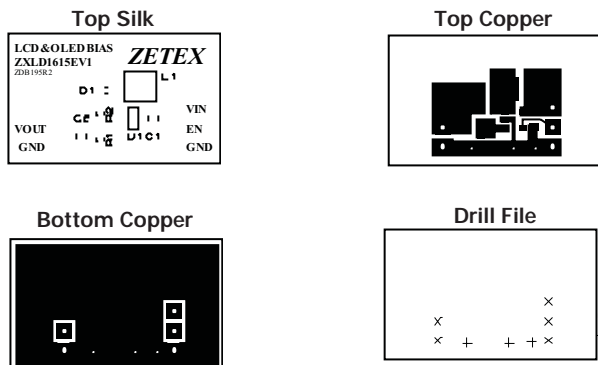
Functional check

1. Measure the output voltage with DVM. It should read between 11.4V min and 12.6V max.
2. The PSU input current should read between 40mA min and 55mA max for a functional board.

Layout considerations

PCB tracks should be kept as short as possible to minimise ground bounce, and the ground pin of the device should be soldered directly to the ground plane. It is particularly important to mount the coil and the input/output capacitors close to the device to minimise parasitic resistance and inductance, which will degrade efficiency. The FB pin is a high impedance input, so PCB track lengths to this should also be kept as short as possible to reduce noise pickup. Excess capacitance from the FB pin to ground should be avoided.

Below is the recommended layout of the ZXLD1615EV1.



ZXLD1615EV1

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Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Streitfeldstraße 19 D-81673 München Germany	Zetex Inc 700 Veterans Memorial Hwy Hauppauge, NY 11788 USA	Zetex (Asia) Ltd 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong	Zetex Semiconductors plc Lansdowne Road, Chadderton Oldham, OL9 9TY United Kingdom
Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europa.sales@zetex.com	Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

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