



## Low-Voltage Controller and Integrated Switch Products

The Zetex family of low-voltage controller and integrated switch products from Diodes Incorporated enables high accuracy, compact solutions across a wide range of applications. Housed in the tiny and thermally efficient DFN package, the ZXLD132x series supports highly optimized solutions for the latest 1.5A LEDs, whereas the ZXLD381/ZXLD383 provide the simplest, single 50 mA LED drivers, including direct connection to solar cells. The controllers offer a flexible and scalable alternative approach.



ZXLD1320EV1 evaluation board – a buck LED driver easily configured to drive up to four external LEDs at 1A or 1.5A, housed in the 3 mm x 4 mm TDFN1443 package

### Features ▶

- Tiny DFN14, SOT23, and SOT23-5 packages
- High- and low-sided current sensing
- Ultra-low operating voltage from 0.8V to 20V
- Single-pin on/off and brightness control using DC voltage or PWM
- High efficiency (up to 85%)

### Benefits ▶

- Minimum solution size
- Enhanced accuracy and noise immunity
- Ideally matched with today's high-brightness LEDs
- Flexible dimming options
- Minimizes solution energy costs

### Applications ▶

- High-power LED flashlights and other portable illumination
- Low-voltage halogen lamp replacement LEDs
- LED back-up and emergency lighting
- Solar garden lights
- Automotive lighting

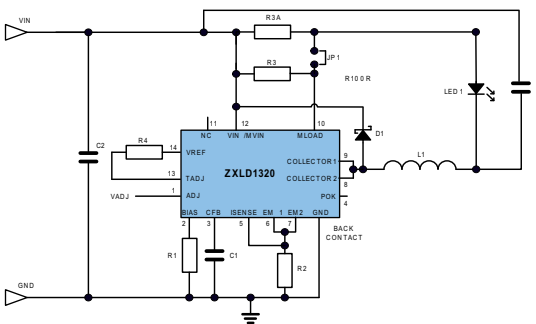
### Product Specifications ▶

Part Number	Type	Dimming Type	Number of LEDs/String	Number of Strings	Configuration	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Peak Efficiency (%)	Diagnostic Capabilities*	Interface	Markets
ZXLD1320	Buck	PWM/analog	4	1	Series	4.0-18.0	18	1,500	85	TSD/POK	Analog/PWM	CL FL TR SI
ZXLD1321	Boost	PWM/analog	5	1	Series	1.2-12.0	18	1,000	85	TSD/TM	Analog/PWM	CL FL BL SI
ZXLD381		Input voltage	4	1	Series	0.9-2.2	V <sub>IN</sub> to 20	76	85	None	None	FL BL
ZXLD383		Input voltage	2	1	Series	0.9-3.3	V <sub>IN</sub> to 20	65	85	None	Solar cells	CL FL
ZXSC400		PWM/analog	Flexible	1	Series	1.8-8.0	V <sub>IN</sub> to 30	100	80	None	Analog/PWM	FL BL SI
ZXLD1322	Buck/boost	PWM/analog	3	1	Series	2.5-15.0	18	700	80	TSD/TM	Analog/PWM	CL FL BL SI
ZXSC310		PWM/analog	Flexible	1	Series	0.8-8.0	V <sub>IN</sub> to 20	100	85	None	PWM	FL BL SI

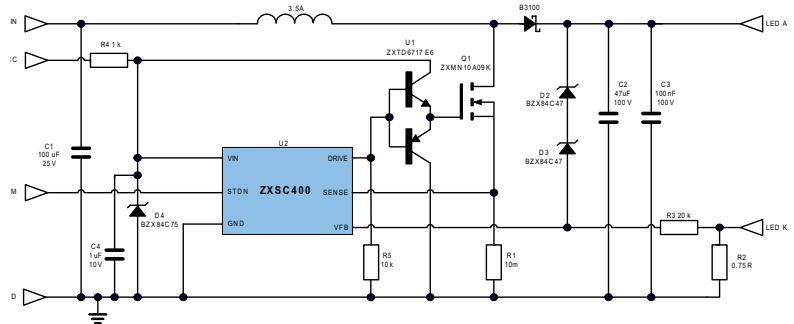
#### MARKETS LEGEND

CL COMMERCIAL LIGHTING FL FLASHLIGHTS TR TRANSPORTATION BL BACKLIGHTING SI SIGNAGE

\*TSD: Thermal shutdown, POK: Power OK pin, TM: Thermal management



The ZXLD1320 is a 4V to 20V, 1.5A LED current continuous mode LED driver. The thermally enhanced package and topology can be configured to optimize LED driving



The ZXSC400 is flexible, low-voltage controller that can be used to drive single 50 mA type LEDs to large strings of latest generation power LEDs.

### Evaluation Board Information

Board Order Code	LED Board Description
ZXLD1320EV1	ZXLD1320 with output for off-board LEDs
ZXLD1321EV1	ZXLD1321 with output for off-board LEDs
ZXLD1322EV1	ZXLD1322 with output for off-board LEDs
ZXLD381EV1	ZXLD381 with output for off-board LEDs
ZXLD383EV1	ZXLD383 with white 50 mA on-board LED
ZXSC310EV(1)	ZXSC310 LED driver for LCD backlight
ZXSC400EV2	ZXSC400 LED string driver; 25W at 350 mA LED current; terminal output for off-board LEDs

### Design Support Tools

Item	Description
Lighting design handbook (DN81)	Contains design ideas and application notes with test results and bill of materials for a wide range of applications.
Calculators	Designed to quickly try out a range of LED configurations that simplify calculations when designing with Zetex LED drivers.
Circuit simulator	Enables you to draw a circuit that can be tested in simulation prior to prototyping, and to determine the best components for your application.

To access these design tools, visit [lighting.arrow.com/designtools](http://lighting.arrow.com/designtools)

## Medium-Voltage Integrated Switches

The Zetex ZXLD135x and ZXLD136x ranges of medium-voltage, integrated switch LED drivers from Diodes Incorporated support voltages from 6V to 60V and achieve up to 97 percent efficiency. With up to 1 MHz operating frequencies, they can drive 15 high power LEDs at up to 1A. Simple to use and requiring just four external components, output currents can be adjusted with dimming ratios of 1000:1. Available in the tiny TSOT23-5 and DFN6 packages, they are ideal for space starved applications.



### Features ▶

- Inherently stable hysteretic topology
- Internal switch (30V/60V)
- Up to 1A output current (high-sided current sense)
- Single-pin on/off and brightness control using DC voltage or PWM
- High efficiency (up to 97%)
- Simple, low parts count

### Benefits ▶

- Operates over a wide range of voltage and LED combinations
- Lowest total solution cost
- Ideally matched with today's high-brightness LEDs
- Flexible dimming options
- Minimizes solution energy costs
- Reduces development time

### Applications ▶

- Low-voltage halogen lamp replacement LEDs
- Automotive lighting
- Low-voltage industrial and retail lighting
- LCD TV back-lighting
- Illuminated signs

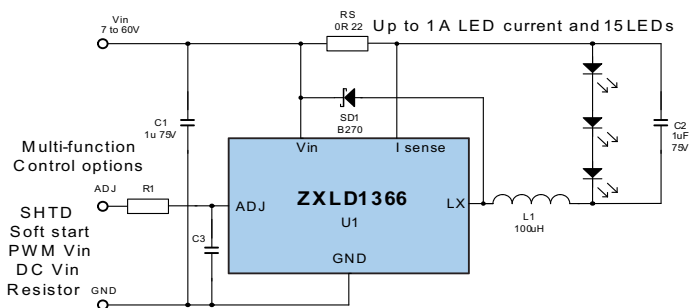


ZXLD1362EV3 evaluation board— a hysteretic buck LED driver in TSOT23-5, configured to drive a single onboard LED with thermal control or up to 15 external 3W LEDs

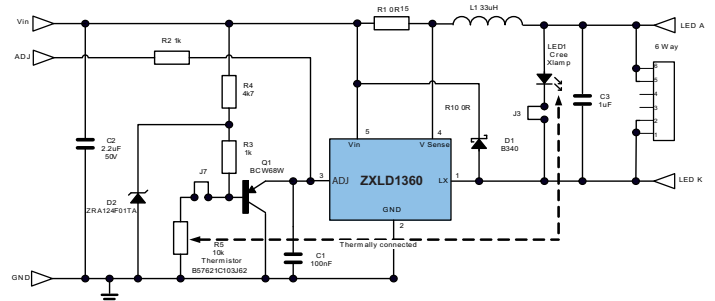
### Product Specifications ▶

Part Number	Type	Dimming Type	Number of LEDs/String	Number of Strings	Configuration	Input Voltage (VDC)	Output Voltage (VDC)	Output Current (mA)	Peak Efficiency (%)	Diagnostic Capabilities	Interface	Markets
ZXLD1350	Buck/hysteretic	PWM/DC/resistive	8	1	Series	7-30	30	350	95	—	PWM/analog	CL TR BL SI
ZXLD1352		PWM/DC/resistive	8	1	Series	7-30	30	350	95	—	PWM/analog	CL TR BL SI
ZXLD1356		PWM/DC/resistive	15	1	Series	6-60	60	550	97	—	PWM/analog	CL TR BL SI
ZXLD1360		PWM/DC/resistive	7	1	Series	7-30	30	1,000	95	—	PWM/analog	CL TR BL SI
ZXLD1362		PWM/DC/resistive	15	1	Series	6-60	60	1,000	95	—	PWM/analog	CL TR BL SI
ZXLD1366		PWM/DC/resistive	15	1	Series	6-60	60	1,000	97	—	PWM/analog	CL TR BL SI

**MARKETS LEGEND** CL COMMERCIAL LIGHTING FL FLASHLIGHTS TR TRANSPORTATION BL BACKLIGHTING SI SIGNAGE



The ZXLD1366 is a 1A, 60V hysteretic buck LED regulator with enhanced current control, thermal packaging, and fast PWM dimming capability



The ZXLD1360 is a 1A, 30V hysteretic buck LED regulator that provides a simple, easy-to-use LED driver over a wide range of series 3W-LED combinations

### Evaluation Board Information

Board Order Code	LED Board Description
ZXLD1350EV3	ZXLD1350 with on-board LEDs
ZXLD1352EV1	ZXLD1352 with outputs for off-board LEDs
ZXLD1356EV1	ZXLD1356 with outputs for off-board LEDs
ZXLD1360EV8	ZXLD1360 with on-board LED and terminal outputs
ZXLD1362EV3	ZXLD1362 with aluminium PCB and outputs for off-board LEDs
ZXLD1366EV1	ZXLD1366 with outputs for off-board LEDs

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