



New Product Announcement

AL8866Q

85V Multi-Topology Automotive-Compliant LED Driver-Controller with Spread-Spectrum Supports Low EMI Lights

The automotive-compliant* AL8866Q LED driver-controller supports four topologies (buck, buck-boost, boost, and single-ended primary-inductance converter (SEPIC)) which enables it to be used in many different front and rear exterior lights.

Its wide 4.7V to 85V input power supply range enables it to be used in 12V, 24V, and the growing 48V battery applications. The device's peak current-mode control architecture and 400kHz fixed-frequency with spread spectrum frequency modulation enables it to achieve low EMI.

The AL8866Q supports PWM or analog dimming of the LED current via its DIM pin, achieving greater than 100:1 dimming up to 1kHz.

Its open-drain fault-flag, asserted low, indicates these conditions: LED output-overvoltage, LED output-open/-short, cycle-by-cycle overcurrent protection, sense-resistor and shorted-inductor/-diode detection, diode-open circuit, and thermal shutdown.

The AL8866Q is available in the thermally enhanced SO-8EP and DFN3030-10 packages.

A standard compliance version, AL8866, is available and is suitable for industrial and commercial applications.

Automotive-compliant - AEC qualified, manufactured in facilities certified to IATF 16949, supporting PPAP documents.

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The DIODES Advantage

The AL8866Q provides a simple, low EMI solution for automotive exterior lights.

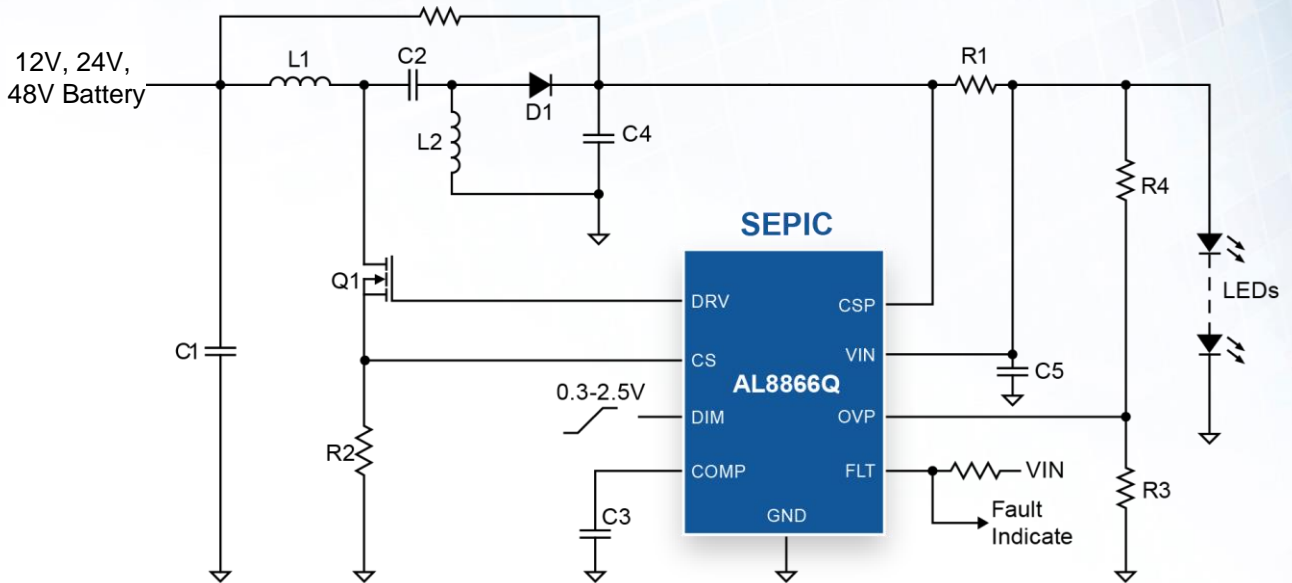
- **Wide 4.7V to 85V Input Voltage Range**
Supports 12V-, 24V-, and 48V-battery lighting applications including DRL, front headlights, and rear lights
- **Multi-Topology LED Driver-Controller**
Supports DRL, front headlights, and rear lights
- **PWM and Analog Dimming via DIM Pin**
Enables 0.1-1kHz PWM and 0.3-2.5V analog dimming for simple adjustment of LED brightness
- **Spread Spectrum for Better EMC Performance**
Passes CISPR 25 Class 5 standard
- **Multiple Protection Features with Open-Drain Fault Flag**
Detects overtemperature, UVLO, current limit, LED output-open/-short, and sense-resistor shorted-inductor/-diode

Applications

Automotive LED Drivers:

- Exterior front lights:
 - Headlights
 - Daytime running lights
 - Fog lights
 - Turn/position lights
- Rear lights:
 - Fog lights
 - Turn/position lights
 - Brake lights

Typical Application



Multi-Topology Automotive-Compliant LED Driver Snapshot

Part Number	Min. Input Voltage	Max. Input Voltage	Sense Voltage	Switching Frequency	Spread Spectrum	Dimming Mode		Ambient Temp. Range (°C)	Package
	V	V	mV	MHz		Analog	PWM		
AL8866Q	4.7	85	200±3%	0.4	Y	Y	Y	-40 to +125	SO-8EP, U-DFN3030-10
ZXLD1370Q	6	60	225±2%	Variable	N	Y	Y	-40 to +125	TSSOP-16EP

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAPs)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
AL8866QSP-13	Automotive	SO-8EP	MSL-1	2,500	13" Tape & Reel
AL8866QFN-7	Automotive	U-DFN3030-10	MSL-1	1,500	7" Tape & Reel