

55V, Automotive-Compliant, 1A Buck LED Driver with Fault Flag

The AL8862Q is a buck LED driver, driving single or multiple series-connected LEDs. Its hysteretic-mode control requires no external compensation, providing an inherently stable, low-component count, reduced total BOM cost solution.

The AL8862Q includes an active-low, open-drain fault indicator (FAULT) to report faulty status, improving overall system reliability.

The AL8862Q's wide 5V to 55V operating voltage exceeds usual automotive operating voltage ranges—including load dumps.

The AL8862Q integrated power switch and high-side output current sensing circuit supports LED currents up to 1A.

Dimming is achieved by applying either a DC voltage signal or a PWM signal to the CTRL pin for user-adjustable brightness controls.

The AL8862Q is available in the thermally enhanced SO-8EP package. It is automotive-compliant, qualified to AEC-Q100 Grade 1, and supports PPAP documentation.



DIODES Advantage

The AL8862Q buck LED driver with fault flag provides a reliable cost-effective solution for automotive LED lamps.

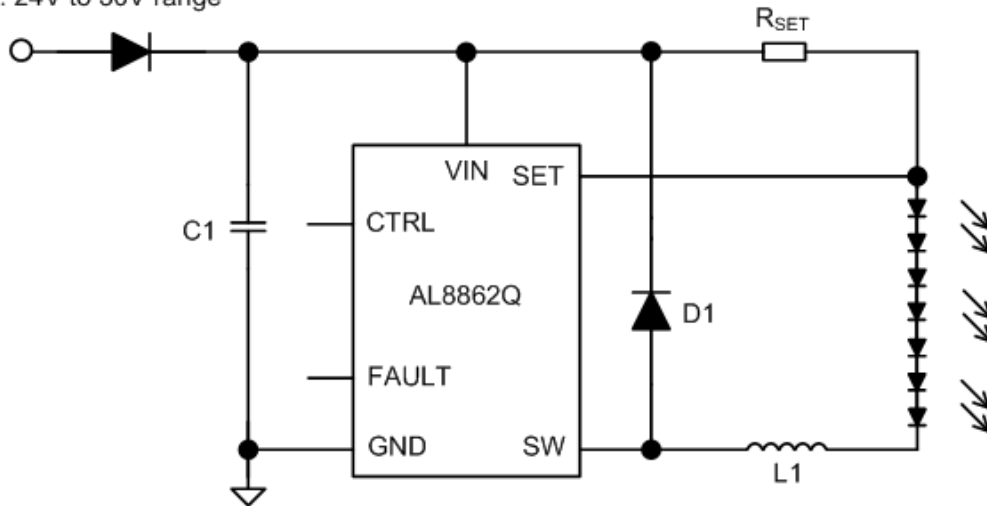
- **Wide 5V to 55V Input Voltage Range**
Supports full automotive voltage range—including load dumps
- **Integrated 60V/0.4Ω Power MOSFET Supports 1A LED Current**
Minimizes board space and reduces BOM cost while maintaining high efficiency, capable for high-power applications
- **Single Pin for PWM or Analog Dimming**
Flexible dimming mode selection and broad dimming range capability, allowing for user-adjustable LED brightness controls
- **Fault Flag Reports on LED-Open, Sense Resistor-Short, and OTP**
Reports the status of LED driver and load conditions, improving reliability of overall system performance
- **Automotive-Compliant with AEC-Q100 Grade 1 Qualification and PPAP Document Support**
Supports ambient temperature up to +125°C

Applications

- Automotive Interior LED Lamps
- Automotive Exterior LED Lamps

Typical Applications Circuit with 24V Truck Battery

V_{BAT} : 24V to 30V range



Product Portfolio

Part	Min Input Voltage V	Max Input Voltage V	Max LED Current A	Accuracy %	Max Switching Frequency kHz	Hysteresis %	Efficiency %	Dimming		Inductor Current Limit A	Sense Voltage mV	Temp Range °C	Package
								PWM	Analog				
AL8860Q	4.5	40	1.5	5	1000	20	>95	Y	Y	N	100	-40~+125	MSOP-8EP
AL8861Q	4.5	40	1.5	5	1000	13	>95	Y	Y	Y	100	-40~+125	MSOP-8EP
AL8843Q	4.5	40	3	5	1000	13	>95	Y	Y	N	100	-40~+125	SO-8EP
AL8862Q	5	55	1	5	1000	13	>95	Y	Y	Y	100	-40~+125	SO-8EP

Ordering Information

Part Number	Package Code	Package	13" Tape and Reel	
			Quantity	Part Number Suffix
AL8862QSP-13	SP	SO-8EP	2500/Tape & Reel	-13