

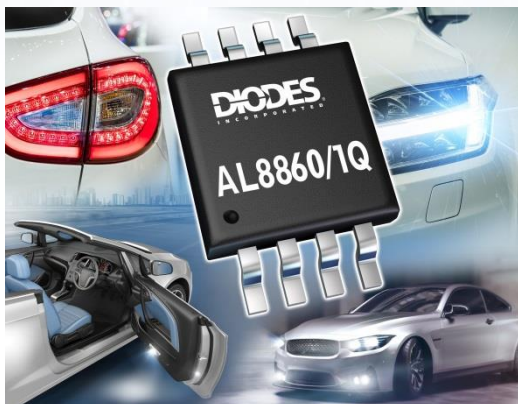
Automotive-Compliant 40V Buck LED Driver with Enhanced Protection and Analog Dimming

The AL8860/1Q devices are hysteretic mode DC-DC buck LED drivers and are AEC-Q100 Grade 1 qualified.

The drivers operate over a wide 4.5V to 40V input supply voltage—4.5V enables them to operate under start-stop conditions while 40V enables them to withstand load dumps. They can drive up to 1.5A LED current in a MSOP-8EP package.

AL8860/1Q supports PWM and analog dimming through the CTRL/SET pin. Using an external capacitor on this pin allows a soft-start time to be set. Applying $\leq 0.2V$ to the CTRL/VSET pin turns off the internal power switch and causes the device to enter a standby mode with micropower consumption.

The AL8860/1Q is automotive-compliant and supports PPAP documents.



The Diodes Advantage

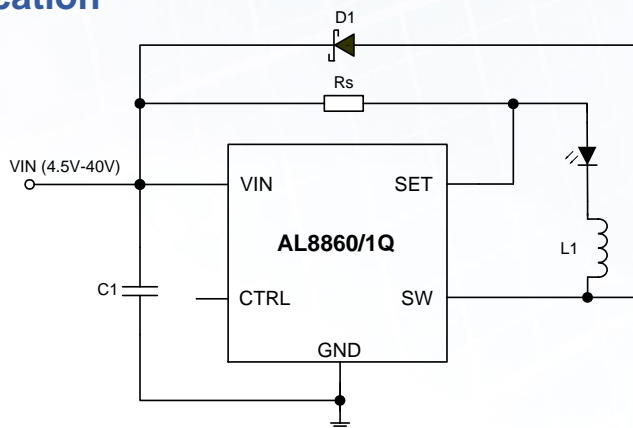
The AL8860/1Q hysteretic mode DC-DC LED drivers provide a simple cost-effective solution for automotive LED lamps.

- **Wide 4.5V to 40V Input Voltage Range and up to 1.5A LED Current**
Simple solution for LED lamps that must work under start-stop conditions with minimal number of external components
- **Versatile Single pin (CTRL/VSET) for Analog and PWM Dimming as well as Soft Start**
 - Wide Dynamic Range Analog Dimming
 - Fast PWM Dimming Resolution 1%-100%
 - Programmable Soft Start with an External Capacitor on CTRL/VSET pin
- **High Switching Frequency up to 1MHz**
 - Reduced Magnetic Component Dimensions and Cost
 - Enables Wide Operating Voltage Required by Automotive Applications
- **Inherent Protection Features:**
 - Short and Open led Operation, Current-Sense Resistor Short Protection (AL8861Q only) and Overtemperature Protection
 - Robust and Reliable Solution for Automotive LED Lamps
- **High Efficiency**
Up to 95% Efficiency

Applications

- Automotive Interior LED Lamps
- Automotive Exterior LED Lamps
- Fog Lamps
- Position Lamps

Typical Application



LED Lamp Using one LED-enabling Correct Operation During Start-Stop Conditions

Diodes DC/DC Buck LED Driver

Part Number	Min. Input Voltage	Max Input Voltage	Max LED Current	Accuracy	Current Sense	Efficiency	Operating Temp Range	Analog Dimming	Dimmable PWM	Current Sense Hysteresis	Package Outline
	V	V	A	%	%	%	°C				
AL8860QMP-13	4.5	40	1.5	5	>95	>95	-40 ~ +125	0.3-2.5V	Y	±20%	MSOP-8EP
AL8861QMP-13	4.5	40	1.5	5	>95	>95	-40 ~ +125	0.3-2.5V	Y	±13%	MSOP-8EP
AL8807QMP-13	6	30	1.3	5	96	96	-40 ~ +125	0.5-2.5V	Y	±20%	MSOP-8EP

Ordering Information

Part Number	Package Code	Package	Tape Width	Tape and Reel (13")	
				Quantity	Part Number Suffix
AL8860QMP-13	MP	MSOP-8EP	8mm	2500/Tape & Reel	-13
AL8861QMP-13	MP	MSOP-8EP	8mm	2500/Tape & Reel	-13

For more information:

AL8860Q: <https://www.diodes.com/part/AL8860Q>

AL8861Q: <https://www.diodes.com/part/AL8861Q>

Automotive LED Drivers: <https://www.diodes.com/products/automotive/automotive-products/automotive-led-drivers>