

### Automotive-Compliant 60V Buck-Boost Controller with Thermal Foldback and Fault Detection

The AL8871Q is an LED driver, controller IC for driving external MOSFETs to drive high-current LEDs.

Its 60V capability enables it to withstand load-dump conditions. Meanwhile, the buck-boost topology enables it to efficiently control the current through series-connected LEDs across the whole battery voltage range.

Its modified hysteretic control scheme provides high-output current accuracy using only one current sense resistor. High-accuracy dimming is achieved through DC control and high-frequency PWM control.

The AL8871Q uses two pins for fault diagnosis. A FAULT flag output highlights a fault, while the multi-level STATUS pin gives further information on the exact fault.

AL8871Q is automotive-compliant, qualified to AEC-Q100 Grade 1, is PPAP capable, and is manufactured in IATF16949:2016 certified facilities.



#### The Diodes Advantage

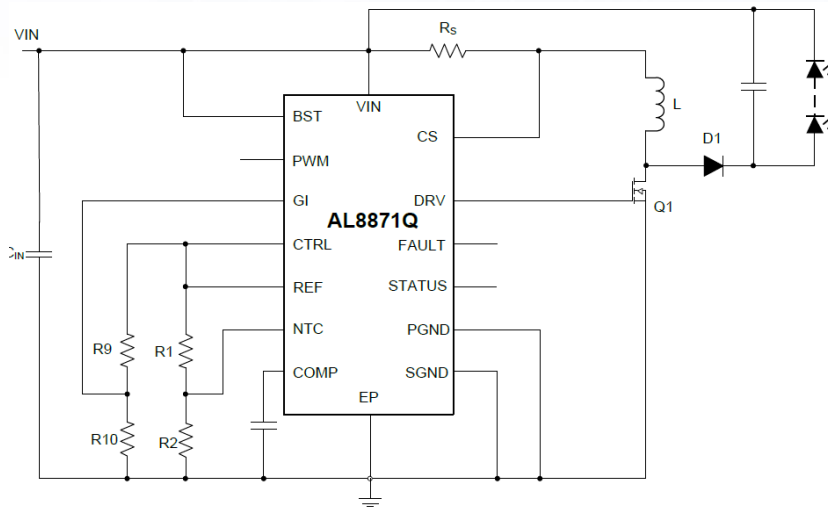
The AL8871Q provides a simple high-reliability solution for driving multiple extremely high-brightness LEDs for automotive applications.

- Wide Input Voltage Range: 5V to 60V**  
 Operates across automotive supply ranges including transients
- High-Accuracy LED Control:  $\pm 0.25\%$  Typical Output Current Accuracy**  
 Improved brightness control and matching between lamps
- Wide Dynamic Dimming Range: PWM Dimming and Analog Dimming**  
 Analog dimming: 10%~100% dimming range  
 PWM dimming: 1000:1 dimming resolution capable
- LED Thermal Management via External Thermistor**  
 Improves reliability of LED lamps
- Two-Pin Diagnostic Feedback Pins: FAULT Pin and STATUS Pin**  
 Reports back to system the state of LED driver, and load improves reliability of overall system

#### Applications

- Daytime Running Lights
- Head lamps
- Fog Lamps

### Typical Applications Circuit



### Product Portfolio

Part	Min Input Voltage V	Max Input Voltage V	Max Output Voltage V	Max LED Current A	LED Current Accuracy %	Switching Freq. (Max) kHz	Dimming		Efficiency %	Temp. Range °C	Sense Voltage mV	Standby Current µA	Package
							PWM	Analog					
AL8871Q	5	60	Ext MOS	Ext MOS	2	1000	Y	Y	95	-40 ~ +125	225	90	TSSOP-16EP

For more information: <https://www.diodes.com/part/AL8871Q>

### Ordering Information

Part Number	Package Code	Package	Tape Width	Tape and Reel	
				Quantity	Part Number Suffix
AL8871QT16E-13	T16E	TSSOP-16EP	12mm	2500/Tape & Reel	-13