



New Product Announcement

AL8853AQ

Boost Controller with Enhanced PWM-to-Analog LED Dimming for Automotive Interior and Exterior Lamps

The AL8853AQ is a highly integrated, cost-effective, automotive-compliant boost controller which drives LED chains or produces a regulated output voltage.

It uses current-mode control with a 400kHz fixed-frequency operation to regulate.

When operating as an LED driver, the LED current is sensed by an external resistor in series with the LED. The AL8853AQ converts an external PWM signal to internal analog DC dimming, delivering a wide deep dimming range from 100% to 1%.

The AL8853AQ has a comprehensive protection feature set, which includes:

- Overcurrent protection (OCP) of the external MOSFET switch
- Output overvoltage (OVP)
- Diode- and inductor-short protection
- LED-cathode short-to-GND protection
- V_{IN} undervoltage lockout (UVLO)
- LED-open protection
- Overtemperature protection (OTP)

The AL8853AQ is available in the SO-8 package.



The DIODES Advantage

This boost LED driver-controller with enhanced dimming is suitable for automotive lamps.

- **Wide Input Voltage Range 6V to 40V**
Supports 12V battery input rails
- **200mV Feedback Reference Voltage $\pm 3\%$ Tolerance**
Maintains tight brightness control and helps minimize overheads while improving efficiency
- **Fast (50kHz) PWM to Analog DC LED Deep Dimming Range**
Eliminates flicker while supporting 1%~100% dimming range
- **Fixed 400kHz Switching Frequency Operation**
Ensures the fundamental frequency is outside of the MW frequency band
- **Full Protection Feature Set**
Provides a robust and reliable solution for automotive boosted LED driving or voltage rail applications

Applications

Automotive LED driving and voltage regulation in:

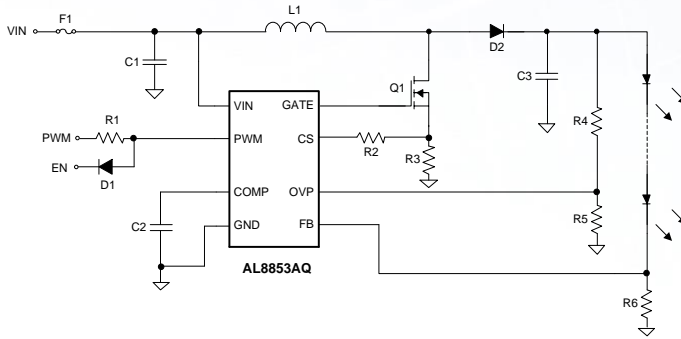
- Exterior lamps
- Headlamps
- Head-up displays (HUD)
- Auto backlight displays

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

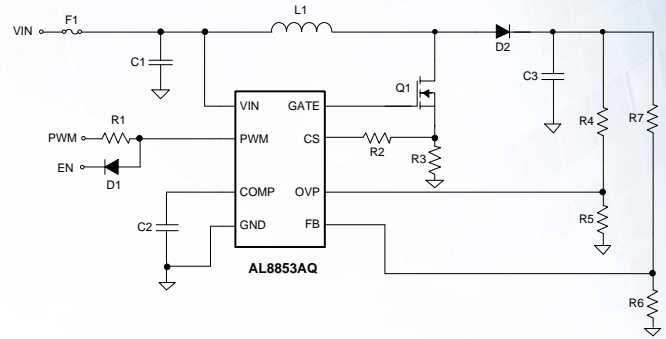
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Typical Application Circuits



Boost LED Driver application



Constant Voltage Regulation application

Automotive Boost Controller Portfolio

Part Number	Input Voltage Range	Max. Output Voltage	Output Current	Feedback Voltage	Accuracy	Switching Frequency	Dimming Control	Operating Temp. Range	Package
	V	V	mA	mV	±%	kHz		°C	
AL8853AQ	6 to 40	External MOS	External MOS	200	3	400	PWM to Analog	-40 to +125	SO-8

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
AL8853AQS-13	Automotive	SO-8	MSL-1	4,000	13" Tape & Reel