



New Product Announcement

AL3069Q

Automotive-Compliant 60V Boost Controller with Four 80V Current Sink LED Drivers Featuring Diagnostic Functions

The AL3069Q is a high-efficiency 60V boost controller that includes four 80V high-precision current sink channels, as well as fault diagnostics, for LED backlight applications.

The boost technology has built-in adaptive voltage control and operates over a wide input-voltage range from 4.5V to 60V. Its operating frequency can be adjusted from 100kHz to 1MHz.

The four-channel output current can be easily set with an external resistor. The channel-to-channel and device-to-device current matching is $\pm 0.5\%$ (typical).

Extensive fault diagnostic and robust protection features include:

- cycle-by-cycle current limit,
- soft-start,
- undervoltage lockout,
- programmable overvoltage,
- overtemperature,
- open/short LED protection,
- open/short Schottky diode protection,
- inductor short-circuit protection,
- VOUT short protection, and
- a fault indicator (FAULTB) pin.

These improve system robustness for automotive applications.

The AL3069Q is available in the TSSOP-16EP (Type DX) and U-QFN4040-16/SWP (Type UXB) packages.

A standard compliance version, AL3069, 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

This high-efficiency 60V boost controller includes four 80V high-precision current sink channels and fault diagnostics for LED backlight applications.

- **Wide Input Voltage from 4.5V to 60V**
Covers 5V, 12V, 24V, and 48V power supply rails
- **80V/250mA (400mA Pulse) per Channel**
Supports long and additional LEDs, delivering more output power
- **Adjustable Frequency Boost Controller**
Operates in fixed frequency from 100kHz to 1MHz for a high-efficiency and compact PCB form-factor
- **0.5% Channel-to-Channel and Device-to-Device Current Matching**
Ensures display uniformity and brightness consistency
- **Fault Status Indicator for Diagnostics**
Includes overtemperature, undervoltage lockout, cycle-by-cycle current limit, LED-open/-short, and sense resistor-shorted

Applications

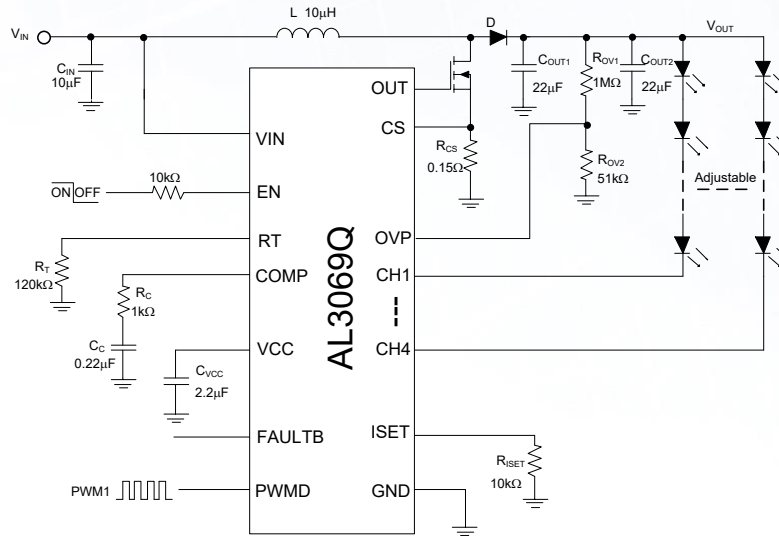
- Infotainment
- Instrument clusters
- Smart mirrors
- Heads-up displays (HUDs)



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Typical Application



Product Portfolio

Part Number	Input Voltage Range	Max. Boosted Output Voltage	CH1~4 Output Voltage	Channel Output Current	Number of Channels	Current Accuracy	Channel-to-Channel Matching	Switching Frequency Range	LED Dimming Control (PWM)	Ambient Temp. Range	Package
	V	V	V	mA		%	+/- %	kHz	LED Dimming Control (PWM)	°C	
AL3069Q	4.5 to 60	External MOSFET	80	250	4	±5.0	0.5	100 to 1000	Yes	-40 to +125	TSSOP-16EP (Type DX), U-QFN4040-16/SWP (Type UXB)

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAPs)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
AL3069QT16E-13	Automotive	TSSOP-16EP (Type DX)	MSL-1	2,500	13" Tape and Reel
AL3069QFVBW-13	Automotive	U-QFN4040-16/SWP (Type UXB)	MSL-1	3,000	13" Tape and Reel